INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF THE THIRTEENTH MEETING OF THE CAR/SAM REGIONAL PLANNING AND IMPLEMENTATION GROUP (GREPECAS)

FINAL REPORT

(Santiago, Chile, 14 – 18 November 2005)

Prepared by the Secretariat and the Chairman of GREPECAS November 2005

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HISTORY OF THE MEETING

ii.1 Place and Duration of the Meeting

Upon the kind invitation of the Chilean Civil Aeronautical Institute (DGCA), the Thirteenth Meeting of the CAR/SAM Planning and Implementation Group (GREPECAS/13) was held in Santiago, Chile, from 14 to 18 November 2005 at the Atton Santiago Hotel.

ii.2 Opening Ceremony and other matters

Mr. José Miguel Ceppi, Regional Director of the ICAO SAM Regional Office addressed the audience and expressed his sincere appreciation to the authorities of Chile for hosting this Meeting.

Mr. Vladimir Zubkov, Chief Regional Affairs Office, extended to the delegates attending GREPECAS/13 the greetings and best wishes from the President of the Council and the Secretary General of ICAO. He stated that ICAO responded to the challenging financial situation by placing more emphasis on increasing the efficiency and effectiveness of the Organization. The lead for this was provided by the six Strategic Objectives recently approved by the Council.

ICAO Secretariat started validating the tasks of its Work Programme against the Strategic Objectives and the PIRGs were to approach their activities in a similar manner and ensure that their programmes fit into the Strategic Objectives.

Mr. Zubkov stated in connection with the upcoming retirement of Mr. Ybarra that over the years he had been doing an excellent job as both the Regional Director and Secretary of GREPECAS.

Mr. Enrique Rosende Alba, Director of Civil Aviation of Chile, welcomed the Delegates and wished them success in attaining the objectives of the Meeting. Likewise he highlighted the necessity of close inter-regional cooperation in order to provide a more harmonized air navigation system.

ii.3 Organization, Officers and Secretariat

Mr. Normando Araújo de Medeiros (Brazil), Chairman of GREPECAS, presided over the meeting throughout its duration and expressed his appreciation to the DGAC, Chile.

Mr. Raymond Ybarra, ICAO Regional Director, North American, Central American and Caribbean Office, was Secretary of the meeting and was assisted by the following staff from the Organization:

Mr. Vladimir Zubkov	Chief of the Regional Affairs Office, Headquarters
Mr. José Miguel Ceppi	ICAO RD, SAM Office
Mr. José Antonio Díaz de la Serna	Secretary of the ATM/CNS Subgroup
Mr. Hindupur Sudarshan	Regional Affairs Officer, RAO, Headquarters
Mr. Aldo Martínez	Secretary of the CNS Committee
Mr. Jorge Fernández	Secretary of the ATM Committee
Ms. Nohora Arias	Secretary of the AERMET Subgroup
Mr. Samuel Cardoso	Secretary of the AGA/AOP Subgroup
Mr. Bernal Mesén	Secretary of the AIS/MAP Subgroup
Mr. David Flores	Secretary of the AVSEC Committee

ii.4 **Working languages**

The working languages of the meeting and its documentation were English and Spanish.

ii.5 **Agenda**

The agenda was adopted:

Agenda Item 1 Review of the ANC/Council actions on the GREPECAS/12 Report

MANAGEMENT OF THE CAR/SAM AIR NAVIGATION SYSTEM

Agenda Item 2 Review of other meeting Activities

2.1 Global, interregional and intra-regional CNS/ATM activities and coordination
2.2 Follow-up actions by GREPECAS on the outcome of the 35th. Session of the Assembly

Agenda Item 3 Review of Reports of GREPECAS Contributory Bodies

3.1 Report of the Second Meeting of the Task Force on Institutional Aspects
3.2 Report of the AVSEC/COMM/4 Meeting
3.3 Report of the AERMET/SG/7 Meeting
3.4 Report of the AGA/AOP/SG/4 Meeting
3.5 Report of the AIS/MAP/SG/9 Meeting
3.6 Report of the ATM/CNS/SG/4 Meeting

AIR NAVIGATION PLANNING AND IMPLEMENTATION DEFICIENCIES/PROBLEMS IN THE CAR/SAM REGIONS

Agenda Item 4 Air navigation planning and implementation deficiencies/problems in the CAR/SAM Regions

4.1 Report of the ASB/6 Meeting
4.2 Specific air navigation planning and implementation deficiencies/problems in the CAR/SAM Regions

GREPECAS MANAGEMENT

Agenda Item 5 Management of the GREPECAS Mechanism

5.1 Report of the ACG/5 Meeting
5.2 Review of GREPECAS and its Contributory Bodies Terms of Reference and Work Programmes

Agenda Item 6 Review of GREPECAS Outstanding Conclusions

Agenda Item 7 Other Business

ii.6 **Attendance**

The Meeting was attended by 90 participants from 17 Member States and 4 Contracting States, located or having territories in the CAR/SAM Regions, as well as 1 State located outside the Regions, and observers from 7 international organizations. A list of participants is shown in pages iii-1 to iii-3.

ii.7 **Conclusions and Decisions**

GREPECAS records its action in the form of Conclusions and Decisions as follows:

Conclusions deal with matters which, in accordance with the Group's terms of reference, merit directly the attention of States or on which further action will be initiated by ICAO in accordance with established procedures.

Decisions deal with matters of concern only to the GREPECAS and its contributory bodies.

ii.8 **List of Conclusions**

ii.9 **List of Decisions**

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List of Documentation

WORKING PAPERS				
Number	**Agenda Item**	**Title**	**Date**	**Prepared and Presented by**
WP/01	--	Draft Agenda	13/01/05	Secretariat
WP/02	--	Proposed Meeting Sessions	07/10/05	Secretariat
WP/03	1	Review of the Council and ANC Actions on the Report of the Twelfth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/12)	20/09/05	Secretariat
WP/04	2.1	Revised Statement of the Basic Operational Requirements and Planning Criteria (BORPC)	14/09/05	Secretariat
WP/05	2.1	Progress Report on Proposed Amendment to the *Global Air Navigation Plan for CNS/ATM Systems* (Doc 9750)	28/09/05	Secretariat
WP/06	2.1	Status of the *Global Air Navigation Plan for CNS/ATM Systems* (Doc 9750)	14/09/05	Secretariat
WP/07		C A N C E L L E D		
WP/08	2.2	Follow-up to the 35th Session of the ICAO Assembly (A35) — Air Navigation Matters	14/09/05	Secretariat
WP/09	2.2	Follow-up to the 35th Session of the ICAO Assembly (A35) — Air Transport Matters	14/09/05	Secretariat
WP/10	2.2	Progress Report on the Unified Strategy Implementation Plan	14/09/05	Secretariat
WP/11	2.2	Report on the implementation of the comprehensive systems approach for the conduct of Safety Oversight Audits under ICAO USOAP	14/09/05	Secretariat
WP/12	3.1	Report of the Second Meeting of the Institutional Aspects Task Force	26/09/05	IA/TF Rapporteur
WP/13	3.2	Report of the AVSEC/COMM/4 Meeting	19/10/05	Secretariat
WP/14	3.3	Report of the AERMET/SG/7 Meeting	23/09/05	Secretariat
WP/15 REV.	3.4	Report of the AGA/AOP/SG/4 Meeting	4/11/05	Secretariat
WP/16 Rev	3.5	Report of the AIS/MAP/SG/9 Meeting	06/10/05	AIS/MAP/SG President
WP/17	3.6	Report of the ATM/CNS/SG/4 Meeting	07/10/05	Secretariat
WP/18	3.6 a)	Report of the ATM Committee Fourth Meeting	05/10/05	Secretariat
WP/19	3.6 b)	Report of the CNS Committee Fourth Meeting	06/10/05	Secretariat

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WP/21	4.2	Deficiencies in the CAR/SAM Regions	10/10/05	Secretariat
WP/22	5.1	ACG/5 Report	22/09/05	Secretariat
WP/23	5.2	GREPECAS and its Contributory Bodies Terms of Reference and Work Programmes	22/09/05	Secretariat
WP/24	6	Review of GREPECAS Outstanding Conclusions	28/10/05	Secretariat
WP/25	3.5	ICAO 5 Letter Name Code System	14/09/05	Secretariat
WP/26	5.1	Support to continue the AIS/MAP Subgroup Work	28/10/05	Bolivia, Brazil, Cuba, Chile, Costa Rica, Dominican Republic, Ecuador Uruguay and COCESNA
WP/27	5.1	Continuation of Aeronautical Meteorology subgroup	04/10/05	United States
WP/28	2.1	Progress Report of the CAR/SAM Traffic Forecasting Group Activities	17/10/05	Secretariat
WP/29	5.1	Maintenance of the AIS/MAP Subgroup as GREPECAS CNS/ATM Implementation Planning Body	30/09/05	Brazil
WP/30	**3.6**	Proposal for inserting 3 new Items inside the Work Programme of the ATM/CNS/Subgroup	30/09/05	Brazil
WP/31	3.3	Operational Situation of the WAFS Station	30/09/05	Brazil
WP/32	5.1	Importance of the continuity and maintenance of AERMET Subgroup	30/09/05	Brazil
WP/33	3.6 b)	Support of ICAO's Position for the ITU WRC-07	17/10/05	Secretariat
WP/34	7	Conclusions of the Latin American Transport and Infrastructure Ministers Meeting	13/10/05	Spain
WP/35	3.6	FANS 1/A Operational Implementation workshop	13/10/05	Spain
WP/36	4.2	Proposal for harmonization of the documentation about air navigation deficiencies	27/10/05	Brazil
WP/37	3.5	Proposal of Aeronautical Information Exchange by means of Digital Data	30/09/05	Brazil
WP/38	5.1	Aeronautical Meteorology Subgroup	28/10/05	Chile

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WP/40	3.5	NOTAM Contingency Plan of the Republic of Cuba	28/10/05	Cuba
WP/41 Rev.	3.6 a)	Implementation of ATFM in the Central American FIR	28/10/05	COCESNA
WP/42	**3.5**	Need for an AIS/MAP Technical Cooperation Project	28/10/05	COCESNA
WP/43	4.2	Update to GREPECAS Deficiencies Database	28/10/05	COCESNA
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WP/47	3.6 b)	Argentine Administration´s Proposal for the Future Regional ATM System Implementation	3/11/05	Argentina
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IP/04	**3.6** b)	Future Spectrum needs and proposed WRC-2007 Actions	27/10/05	United States
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IP/06	3.4	Technical and Direct Management Assistance Provided by U.S.	27/10/05	United States
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IP/13	3.5/4.2	Armonización de Coordinadas Limítrofes WGS-84 con las FIRs Adyacentes a la FIR Habana (Spanish only)	28/10/05	Cuba
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IP/19	3.6 b)	FAA Aeronautical Telecommunication Network Architecture Approach	28/10/05	United States
IP/20	3.5	AIS System and COCESNA AIS/MET	28/10/05	COCESNA

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IP/24	7	The Information System for Aeronautical Regulations “SIAR”	28/10/05	COCESNA
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IP/26	**3.5**	Acciones de Cuba para el desarrollo de su Cartografía Aeronáutica (Spanish only)	28/10/05	Cuba
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IP/33	3.2	New Directions in Aviation Security: An Update on the Department of Homeland Security/Transportation Security Administration	13/11/05	United States
IP/34	7	IOSA – The IATA Operational Safety Audit Programme	30/10/05	IATA

Agenda Item 1 Review of the ANC/Council actions on the GREPECAS/12 Report

1.1 The Meeting was presented with actions taken by the Air Navigation Commission and the Council during their review and approval of the Report of the Twelfth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS) held in Havana, Cuba from 7 to 11 June 2004. The Meeting noted the specific actions taken by the ANC, the Council and the follow-up by the States and Secretariat on conclusions and decisions of the Meeting as contained in **Appendix** to this part of the Report.

1.2 The Meeting noted that the Commission concurred with the view of GREPECAS in Conclusion 12/81 and requested the Secretary General to review the provisions of Annex 14, Volume I with a view to incorporating specifications, as necessary, related to land use in areas adjacent to airports, so as to minimize the severity of accidents occurring during landing and take-off operations.

1.3 With regard to proposed adoption of a guide on symbols for the standardized production of 1:1 000 000 and 1:500 000 visual flight rules (VFR) aeronautical charts in the CAR/SAM Regions (Conclusion 12/83 refers), the Meeting was apprized that the Commission did not approve the proposal as it was generally orientated towards detailed topographic mapping at large scales (e.g. 1:50 000) and could promote chart clutter if used as a regional replacement for Annex 4 — *Aeronautical Charts* symbology. However, the Meeting noted that the Commission had advised the Secretariat to take into account the GREPECAS guide on symbols in developing the next amendment to Annex 4.

1.4 In relation to Conclusion 12/91 concerning the adoption of the AIS/MAP data structure model for experimental use by CAR/SAM States, the Meeting noted the concerns of the Commission in the proliferation of data models on the regional basis. The Commission, again stressing the harmonization aspect in data models and noting that the work is in progress by the Secretariat in defining the global data model for aeronautical information interchange, requested the Secretary General to advise the CAR/SAM States to await the outcome of that work expected to be completed in 2007. The Meeting specifically noted this advice of the Commission.

1.5 Sharing the view of GREPECAS, the Meeting noted that the Council confirmed the request of GREPECAS in Conclusion 12/113 (AVSEC training methodology) and invited the Secretariat to consider developing computer based AVSEC training methodology to complement the existing training programme.

1.6 Considering that some of the States find it difficult to implement AVSEC systems to meet Annex 17 — *Security: Safeguarding International Civil Aviation Against Acts of Unlawful Interference* requirements due to financial constraints (Conclusion 12/114 refers), the Meeting noted that the Council called upon the Secretary General to liaise with States on the feasibility of AVSEC systems with low implementation and operational costs which comply with Annex 17 provisions.

1.7 The Meeting was pleased to note that the Council had congratulated GREPECAS for the implementation of reduced vertical separation minimum (RVSM) in the CAR/SAM Regions, in conjunction with North American (NAM) Region effective 20 January 2005.

1.8 The Meeting thanked the Council and Air Navigation Commission for their valuable guidance on various activities of the GREPECAS and that it would be taken into account in the development of ongoing work programme of the region.

APPENDIX

GREPECAS/12 CONCLUSIONS/DECISIONS CONSIDERED FOR SPECIFIC ACTION BY THE AIR NAVIGATION COMMISSION AND/OR COUNCIL

Report Reference		**Action by Council/ANC**	**Proposed Action**
Concl./Dec. No.	**Page**		
12/6	3-4	C	**Support for regional technical cooperation projects** Noted the conclusion and invited the Secretary General to request the States, Territories and international organizations that are participating in the regional technical cooperation projects to continue to support these projects, and those States which not yet done so, to participate.
12/7 12/8	3-5 3-5	ANC	**Guidance material for the implementation of RNAV routes in the CAR/SAM Regions** **Analysis prior to the implementation of RNAV routes in the CAR/SAM Regions** Noted the conclusions and that Phase II implementation of RNAV route network is scheduled for March 2005.
12/20	3-13	ANC	**Harmonization of the RVSM implementation date for the CAR/SAM and NAM Regions** Noted the conclusion and that RVSM operations between North and South America through the Caribbean effective 20 January 2005 would offer potential for safety, operational and economic benefits.
12/26	3-17	ANC	**Completion of ATS quality assurance programmes** Noted the conclusion and requested the Secretary General to impress upon States to implement the programmes by December 2006.

Report Reference		Action by Council/ANC	Proposed Action
Concl./Dec. No.	**Page**		
12/31	3-20	ANC	**Regional strategy for the integration of ATM automated systems** Noted the conclusion and called upon the Secretary General to invite States of the CAR/SAM Regions to develop and submit an action plan, taking into account regional strategy for integrating ATM automation systems.
12/33	3-21	C	**CAR/SAM regional action for the preparation and support of ICAO's position for WRC-07** Noted the conclusion and requested the Secretary General to continue encouraging States to participate at various levels in different fora to provide support for ICAO's position at the forthcoming WRC-2007 so as to protect aeronautical frequency spectrum.
12/39	3-25	ANC	**Additional interconnection points for regional and interregional digital networks** Noted the conclusion and requested the Secretary General to invite concerned States to establish the additional nodes to improve interoperability.
12/44	3-29	ANC	**Regional CAR/SAM guidance for the ADS-B data links introduction** Noted the conclusion and that Mode S extended squitter has been selected by the Region as the data link for the near-term implementation of ADS-B.
12/51	3-35	C	**Closing of RAFCs Brasilia and Buenos Aires** Noted the conclusion and the closure of regional area forecasting centres.

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12/66	3-40	C	**Training on quality management of MET services in the CAR/SAM Regions** Noted the conclusion and requested the Secretary General to invite WMO to arrange, in coordination with ICAO, seminars on quality management of meteorological services.
12/68	3-41	C	**Priority of MET training in the CAR/SAM Regions** Noted the conclusion and called upon the Secretary General to request WMO to accord priority to training in the field of aeronautical meteorology.
12/72	3-44	ANC	**Runway end safety areas (RESA)** Noted the conclusion and called upon the Secretary General to review the definitions, the SARPS and the guidance on RESAs in Annex 14, Volume I, with a view to addressing any inconsistencies which might exist.
12/81	3-50	ANC	**Land use in areas adjacent to airports** Noted the conclusion and requested the Secretary General to review the provisions of Annex 14, Volume I, and incorporate specifications, as necessary, related to land use in areas adjacent to airports, so as to minimize the severity of accidents occurring during landing and take-off operations.
12/83	3-52	ANC	**Adoption of the guide on symbols for the standardized production of 1:1,000,000 and 1:500,000 VFR aeronautical charts in the CAR/SAM Regions** Did not agree with paragraph a) of the conclusion, and requested the Secretary General to urge States to comply with Annex 4 provisions so as to maintain the global standards for chart symbology. Concerning paragraph b) of the conclusion, called upon the Secretary

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			General to take into account the guide on symbols in developing the next amendment to Annex 4.
12/91	3-55	ANC	**Adoption of a CAR/SAM AIS/MAP data structure model** Noted the conclusion and that, as the work of defining the global data model for aeronautical information interchange is already in progress by the Secretariat, requested the Secretary General, to advise States of the CAR/SAM Regions to await the outcome of that work expected to be completed in 2007.
12/92	3-55	ANC	**Implementation of a CAR/SAM integrated automated AIS system** Noted the conclusion and invited the Secretary General to remind those States that have not yet implemented NOTAM data banks to do so by March 2005.
12/102	3-60	ANC	**Need for a specific NOTAM code for ATS contingencies** Noted the conclusion and requested the Secretary General to develop a global approach to code ATS contingency NOTAMs in order to distinguish exceptional situations.
12/106	3-62	C	**ICAO AVSEC regional officers** Noted the conclusion and requested the Secretary General to reconsider the need for an AVSEC officer at the both the Regional Offices of CAR/SAM Regions.
12/112	3-64	C	**National AVSEC quality control programme** Noted the conclusion and requested the Secretary General to develop guidance for the implementation of a national AVSEC quality control programme.

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12/113	3-64	C	**New AVSEC training methods** Noted the conclusion and requested the Secretary General to consider developing a computer-based AVSEC training methodology to complement the existing training programmes.
12/114	3-65	C	**AVSEC systems** Noted the conclusion and invited the Secretary General to liaise with States on the feasibility of AVSEC systems with low implementation and operational costs which comply with Annex 17 provisions.
12/118	3-68	C	**In-flight security personnel** Noted the conclusion and requested the Secretary General to expedite the development of guidance material for the use of in- flight security personnel.
12/123	4-4	C	**Special implementation project for resolving runway maintenance deficiency** Noted the conclusion and that such a project would be presented to the Council for approval through established procedures.
12/124	4-4	C	**Last resort actions to resolve deficiencies** Noted the decision and called upon the Secretary General to monitor developments and to consider the adoption of a similar approach in other regions to resolve regional air navigation deficiencies.
Paragraph 4.1.17	4-4	C	**Deficiencies database** Noted that GREPECAS, in addition to developing a database of regional air navigation deficiencies, has provided a secure access to authorized users thus facilitating online updating of the database and consequently requested the

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			Secretary General to extend a similar approach to other remaining regions.
Paragraphs 7.1 to 7.3	7-1	C	**The word “safety”,“ security” and “seamless” in the Spanish language** Noted that the difficulties faced by the Spanish-speaking States to determine the meaning of words “security”, “safety” and “seamless”, although they were well defined in English, and requested the Secretary General to address this issue.

Agenda Item 2 Review of other meetings activities

2.1 Global, interregional and intra-regional CNS/ATM activities and coordination

Revised BORPC Statement

2.1.1 The Meeting recalled that the Commission had last approved the Statement of BORPC on 17 June 1999 for use, inter alia, at the Third Caribbean/South American Regional Air Navigation (CAR/SAM/3) Meeting held in Buenos Aires, Argentina (October 1999).

2.1.2 In view of a number of advancements in many of the fields of air navigation systems that have taken place since the last update of the BORPC Statement in 1999, the Meeting noted that the Secretariat, on the advice of the Commission, revised the BORPC Statement. The revised Statement takes into account ATM operational concept, ATS and aerodrome safety management, updated strategy for the introduction of non-visual aids for approach and landing, closure of regional area forecast centres, new provisions related to the exchange of operational meteorological information and withdrawal of supersonic aircraft operations.

2.1.3 Whereas the Statement of BORPC is considered a vision statement and should apply equally to every region, it has until now been applicable in all regions except for the European region. Recognizing a common Statement would be another tool for ensuring interregional harmonization and, eventually, a global ATM system, the Meeting noted that the Commission decided, henceforth, to extend the applicability of the Statement of BORPC to all the regions.

2.1.4 Taking into account the changes proposed by States, the Meeting noted that the Air Navigation Commission, on 22 February 2005, approved the revised Statement of BORPC for use by all ICAO Regions, which is available at **Appendix A** this part of the Report.

2.1.5 Consequently, the Meeting agreed to incorporate the revised Statement of BORPC, through the following decision, into the CAR/SAM Basic Air Navigation Plan.

DECISION 13/1 REVISED STATEMENT OF BORPC FOR REGIONAL AIR NAVIGATION PLANNING AND IMPLEMENTATION

That the revised Statement of BORPC for the regional air navigation planning and implementation be incorporated into the CAR/SAM Basic Air Navigation Plan.

The Global Air Navigation Plan for CNS/ATM Systems

2.1.6 The Meeting noted that in response to Recommendation 1/9 (that ICAO develop a formal review and agreement process for the Global Air Navigation Plan for CNS/ATM System) of the Eleventh Air Navigation Conference (AN-Conf/11, Montreal, 22 September to 3 October 2003), the Council reviewed the status of Global Plan. Taking into consideration the legal constraints associated with changing the status of the Global Plan and being aware that the Global Plan was created as a living, dynamic document, to be easily updated within a short period of time, the Council decided that the present procedure for acceptance and updating of the Global Plan should be retained, with the addition that the Secretary General may, upon recommendation by the Commission, circulate specific proposals, or parts thereof, to States and selected International Organizations for comment.

2.1.7 Furthermore, in follow-up to AN-Conf/11, the Meeting noted that the sixth meeting of the ANC Consultation with industry was held in Montreal in May 2004 and agreed that the Industry would develop a common roadmap/global action plan, aimed at attaining operational benefits in the near- to medium-term and made available to ICAO in November 2004. The Meeting was informed that in January 2005, the Commission reviewed the Roadmap and requested the Secretariat to develop a proposal, as a part of second amendment to the Global Plan, so as to incorporate relevant material from the Roadmap. The Industry Roadmap addresses short- and medium-term implementation activities associated with CNS/ATM systems, while the longer-term objectives are addressed in the operational concept.

2.1.8 It is proposed that the revised Global Plan will be divided into two volumes. As much of the material in the present version of the Global Plan is valid, it will be retained with relevant updates that will provide generic guidance material on areas largely outside the air navigation domain. Volume I would contain this material. Volume II is proposed to contain comprehensive guidance material and detailed operational requirements and planning criteria for air navigation planning (i.e. air traffic management, communications, navigation, surveillance, aeronautical information service and meteorology, etc.) that would lead to an integrated Global ATM system. The Volume II would serve as a guidance document for executives, policy-makers and planners. The Global plan will be supported by an interactive planning and reporting tool aimed at facilitating planning and implementation of the envisaged global ATM system. The intent is that as States in each region consider implementation of an operational initiative, they would use the common programme templates and reporting formats as the basis for establishing performance objectives and implementation time lines and also to define the work to be accomplished. It is envisaged that some parts of the programme templates would be the subject of regional air navigation agreement, managed by Planning and Implementation Regional Groups (PIRGs) and reviewed by the Secretariat on a regular basis.

2.1.9 The Secretariat would finalize and present this second amendment to the Global Plan to the Commission for its initial review during its session of October-December 2005. Subsequently, the Secretariat would be consulting States though established process as well as presenting the same proposed amendment to upcoming fifth meeting of All Planning and Implementation Regional Groups (ALLPIRG/5: 22-24 March 2006) so as to seek their views and obtain support for the revised Global Plan. Consequent to this coordination process and taking into account comments received from the States and ALLPIRG, the second amendment is scheduled to be presented to the Air navigation Commission for its final review, followed by final acceptance by the Council in May-June 2006. The Meeting noted that the Global Plan will continue to be the primary element of the regional planning framework for a coordinated implementation of a harmonized and seamless Global ATM system.

Traffic Forecasts

2.1.10 The Meeting noted that the traffic to, from and within the region is classified into six major traffic flows. Forecasts for the major traffic flows are prepared annually and updated on a periodic basis. Accordingly, the sixth meeting of the CAR/SAM Traffic Forecasting Group (TFG), which was held in Lima from 12 to 16 September 2005, reviewed forecasts prepared by the previous meeting of the Group and developed a new set of forecasts taking into account the recent developments. The set of forecasts includes traffic forecasts for six major route groups and for the top 25 city pairs in each of the groups. In addition, the Group developed airport movements forecasts and peak period analysis in response to Conclusion 10/42 adopted by GREPECAS/10. The forecast is attached as **Appendix B** to this part of the Report.

2.1.11 The Meeting recognized once again that additional commitment of States of the Region on a regular and consistent basis is essential to support the activities of CAR/SAM TFG in order to meet the full requirements of GREPECAS. Consequently the Meeting urged States to provide additional support to the Group through better attendance to its meetings and more active participation in its work. Furthermore, the Meeting decided that all related subgroups of GREPCAS will assess its traffic forecast requirements based on current major traffic flows and ensure that the same is taken into account in the work programme of CAR/SAM TFG.

Developments in the modernization of air navigation systems

2.1.12 The Meeting was presented with an overview of the Global and Regional developments in the modernization of air navigation systems. The Meeting noted that through the Panels of the Air Navigation Commission and the Secretariat, assisted by study groups, ICAO has made substantial progress in the development of SARPs, PANS and guidance material. The Meeting among other things noted the development status of Standards and Recommended Practices and guidance material, work programmes of various panels and Study Groups engaged in CNS/ATM related activities, the outcome of recent PIRG meetings and the comparative analysis of regional developments in air navigation systems.

2.2 Follow-up action by GREPECAS on the outcome of the 35th session of the Assembly

Air navigation matters

2.2.1 The Meeting was presented with a report on the outcome of, and actions taken by, the Council, the Air Navigation Commission and the Secretary General of ICAO on the 35th Session of ICAO Assembly (A35), which was held at ICAO Headquarters in Montreal from 28 September to 8 October 2004. The A35 developed a number of Resolutions and Decisions enveloping a wide range of issues concerning air navigation matters and call for further follow-up by States and PIRGs. The proposed actions on the Resolutions and Decisions, which are analysed in the Appendix to Agenda Item 1, were discussed and the Meeting decided to include the relevant follow-up actions in the work programme of States and GREPECAS. During the course of discussion on aviation safety, the Meeting was apprized of convening of a Directors General of Civil Aviation (DGCAs) Conference in Montreal from 20 to 22 March 2006 and its agenda consisting of three themes.

Air Transport matters

2.2.2 The Meeting was also presented with a report on the outcome of, and actions taken by the Council on the outcome of the A35 concerning air transport matters. In particular, it was observed that the Assembly adopted a revised consolidated statement of continuing ICAO policies and practices related to environmental protection. Attention was focused by the Meeting on particular elements of the work programme in the air transport field for the 2005, 2006 and 2007 concerning regulation of international air transport services, regulation and organization of airports and air navigation services, facilitation, and other air transport issues. The Meeting noted that the Assembly adopted Resolution 31/1 updating the consolidated statement of continuing ICAO policies in the air transport field, and further noted that a comprehensive review will be made of the content of this Resolution prior to the next ordinary Session of the Assembly with a view to identifying any changes to be recommended. On the subject of financing of aviation system infrastructure improvements, the Meeting noted that the United States had organized, in cooperation with World Bank, a seminar in October 2005 that was well attended by DGCAs world wide.

Unified strategy to resolve safety-related deficiencies

2.2.3 The Meeting noted that the findings of the USOAP revealed many difficulties in implementing SARPs or correcting identified safety-related deficiencies by States, thus creating potential safety gaps and sources of risk to aviation safety. Reasons include the lack of adequate staff and financial resources, and lack of political commitment. Keeping the strategic objectives of the Organization in mind, the unified strategy to resolve safety-related deficiencies comprises two main elements. It aims, firstly, to provide assistance to States, or groups of States, in resolving safety-related deficiencies. Secondly, it aims to ensure increased transparency and sharing of safety information for use by States when performing their safety oversight functions, including inspections as provided for in Article 16 of the Convention. The Assembly Resolution (A35-7) recognizes the challenges faced by States in the implementation of their safety oversight systems, and endorses the concept of a unified strategy to resolve safety-related deficiencies based on the principles of increased transparency, cooperation, assistance and partnerships, where appropriate.

2.2.4 Another element of the unified strategy is fostering partnerships among States, the industry, regional safety oversight organizations, financial institutions and other international organizations. This is expected to be achieved through the establishment and management of regional safety oversight initiatives. In this respect, the Safety Oversight Manual (Doc 9734), Part B — The Establishment and Management of a Regional Safety Oversight System, has been developed and will provide the necessary guidance to States for the implementation of regional safety oversight initiatives.

2.2.5 Contracting States in need of assistance will be encouraged to take advantage of the funding opportunity offered by the administration of the International Financial Facility for Aviation Safety (IFFAS). Also, due to the scope of the implementation of the unified strategy worldwide and the limited funds available through IFFAS, ICAO will also support States in their efforts to obtain assistance from various sources such as the World Bank, regional development banks, the European Commission and also from the manufacturing industry and the private sector. This assistance may come in various forms such as loans, grants or services in kind. In all cases ICAO will help States ensure that such assistance will fit into a programme plan that generates results for both States and donors.

2.2.6 The Meeting recognizing that the unified strategy, as reflected in Resolution A35-7, is of a high priority for addressing safety related deficiencies, urged States to share with other Contracting States critical safety information which may have an impact on the safety of international air navigation and to facilitate access to all relevant safety information. The Meeting also requested States to provide tangible support for strengthening and furtherance of regional safety oversight organizations.

2.2.7 The Meeting noted with appreciation the commitment of the members of the Regional Safety Oversight System, which involved 10 South American and Caribbean States, *vis-à-vis* the Unified Strategy programme through the LACAC. The Meeting was informed that this regional mechanism was also supported by AIRBUS, EMBRAER and the European Commission.

Implementation of ICAO Universal Safety Oversight Audit Programme under comprehensive systems approach

2.2.8 The Meeting was provided with a report on the implementation of the comprehensive systems approach for the conduct of safety oversight audits launched as of January 2005 under the ICAO Universal Safety Oversight Audit Programme (USOAP). The Meeting was reminded that ICAO USOAP was established in 1999, pursuant to Assembly Resolution A32 11, with the objective of promoting global aviation safety through the conduct of regular and mandatory safety oversight audits of all Contracting States. Safety oversight audits performed thus far had been planned and conducted on an Annex by Annex basis, starting with Annex 1 — Personnel licensing, Annex 6 — Operation of aircraft and Annex 8 —Airworthiness and with a view to progressively introducing other Annexes. While this approach served its purpose and proved effective for the establishment of the Programme and the initial audits, it was time for USOAP to evolve from an Annex-by-Annex to a comprehensive systems approach, which would focus on the States' overall safety oversight capabilities. The comprehensive systems approach would cover all safety-related Annexes and would provide an improved and cost-effective approach to auditing.

2.2.9 Activities related to planning and implementation of the comprehensive systems approach started immediately following the endorsement of Assembly Resolution A35-6 in October 2004. The audit schedule for States to be audited in 2005 and 2006 was published in December 2004, providing States adequate time to prepare for an ICAO safety oversight audit and to discourage States from requesting the postponement of the audit. Nevertheless, requests for postponement have been received both from States scheduled to be audited in 2005 as well as in 2006. It should be recognized that all States cannot be audited in the last year of the audit cycle and that each request for postponement generates a negative impact on the Programme both in its effectiveness and efficiency. Noting this concern, the Meeting requested the ICAO CAR and SAM Regional Offices to urge States, through a letter, to accept the safety oversight audit schedule as determined by ICAO, with reference to Operative Clause 11 of Assembly Resolution A35-6.

2.2.10 In preparation for the launching of safety oversight audits under the comprehensive systems approach the Meeting was apprized that ICAO has conducted seven workshops, one in each of the ICAO regional offices, directed at the National Safety Oversight Coordinators, ICAO regional office experts and other participants from Contracting States and regional and international organizations. A series of audit tools was developed to assist both Contracting States and ICAO in the preparation for, and conduct of, safety oversight audits. These tools include the State Aviation Activity Questionnaire (SAAQ), Compliance Checklists for each Annex concerned and Audit Protocols for each area of audit. The SAAQ is available to all Contracting States through the ICAO-Net website in English, French, Russian and Spanish. Also, the Meeting noted that ICAO has completed recruitment and training of all the required staff.

APPENDIX A

REVISED STATEMENT OF BASIC OPERATIONAL REQUIREMENTS AND PLANNING CRITERIA (BORPC) FOR REGIONAL AIR NAVIGATION PLANNING

On 22 February 2005, the Air Navigation Commission approved this Statement of Basic Operational Requirements and Planning Criteria (BORPC) which is applicable to all the ICAO.

The Commission has considered that in planning the facilities and services related to communications, navigation and surveillance/air traffic management (CNS/ATM) systems, the Global Air Traffic Management Operational Concept supplemented by the *Global Air Navigation Plan for CNS/ATM Systems* (Doc 9750. In addition, relevant recommendations, accepted by the Council, contained in the report of the Eleventh Air Navigation Conference (Montreal, 22 September to 3 October 2003) should be taken into account. The importance of planning on the basis of homogeneous areas and major traffic flows, as referred to in the Global Plan, is also stressed. As ATM requirements are developed, the BORPC will be updated to take into account most up-to-date work on follow-up activities related to the operational concept.

The Commission has also considered it unnecessary to repeat in this statement any pertinent requirements already contained in the Convention, Annexes or Procedures for Air Navigation Services.

1. GENERAL (applicable to both international commercial air transport and international general aviation)

1.1 Air navigation facilities, services and procedures recommended for the area under consideration should form an integrated system designed to meet the requirements of all international civil aircraft operations. The plan should meet the requirements of all operations planned to take place in the area during the next five years, but not necessarily limited to that period, taking due account of the long-term planning and implementation strategies regarding the CNS/ATM systems. Due account should be taken of the possible effects that changes could have on adjacent regions.

1.2 Traffic forecasts have a special role in planning the implementation of CNS/ATM systems. The forecasts represent the demand for future ATM. Forecasts of aircraft movements within homogeneous ATM areas and along major international air traffic flows form the basis for planning of the infrastructure and arrangements which will supply the required level of air traffic services (ATS).

1.3 The planning should be based on historical trends or, if otherwise available, traffic forecasts and should be used taking into account the normal ranges of operating characteristics of the aircraft. The system should be sufficiently flexible to accommodate aircraft operational characteristics outside the normal range.

1.3.1 Aircraft, engaged or planned to be engaged, in international operations have been grouped into the following categories:

a) turbo-jet aeroplanes;

b) multi-engine turboprop aeroplanes;

c) piston-engine aeroplanes and single-engine turboprop aeroplanes with:

1) a normal cruising speed of more than 260 km/h (140 kt) (type A); and
2) a normal cruising speed up to 260 km/h (140 kt) (type B);

d) helicopters; and

e) other aircraft (V/STOL, gliders, balloons, etc.).

Note.— Group e) to be included only to the extent that it requires consideration in regional planning.

1.3.2 The normal operating characteristics listed below for each group of aircraft should be taken into account in the development of facilities, services and procedures to the extent that relevant categories operate, or will operate, within the system.

1.3.3 **Turbo-jet aeroplanes**

a) *Climb performance*: 8 – 25 m/s (1 500 – 5 000 ft/min).

b) *Speed range in cruising flight*: 780 – 1020 km/h (420 – 550 kt) (Mach 0.71 - 0.92).

c) *Range of desirable cruising levels*: 8 250 – 13 700 m (FL 270 – 450).

d) *Descent performance*: 10 – 25 m/s (2 000 – 5 000 ft/min).

1.3.4 **Multi-engine turboprop aeroplanes**

a) *Climb performance*: 5 – 15 m/s (1 000 – 3 000 ft/min).

b) *Speed range in cruising flight*: 460 – 650 km/h (250 – 350 kt).

c) *Range of desirable cruising levels*: 5 200 – 8 250 m (FL 170 – 270).

d) *Descent performance*: 8 – 15 m/s (1 500 – 3 000 ft/min).

1.3.5 **Piston-engine aeroplanes and single-engine turboprop aeroplanes**

a) *Climb performance*:

1) Type A: 2 – 10 m/s (500 – 2 000 ft/min);
2) Type B: 2 – 5 m/s (500 – 1 000 ft/min).

b) *Speed range in cruising flight*:

1) Type A: 260 – 460 km/h (141 – 250 kt);
2) Type B: 110 – 260 km/h (60 – 140 kt).

c) *Range of desirable cruising levels*:

1) Type A: up to 6 100 m (FL 200);
2) Type B: up to 3 050 m (FL 100).

d) *Descent performance*:

1) Type A: 5 – 10 m/s (1 000 – 2 000 ft/min);
2) Type B: 2 – 5 m/s (500 – 1 000 ft/min).

1.3.6 **Helicopters**

a) *Climb performance*: up to 8 m/s (1 500 ft/min).

b) *Speed range in cruising flight*: up to 370 km/h (200 kt).

c) *Range of desirable cruising levels*: up to 3 050 m (FL 100).

d) *Descent performance*: up to 8 m/s (1 500 ft/min).

Note 1.— Further to 1.3 above, it is emphasized that the values given in 1.3.3 to 1.3.6 represent average values covering the majority of aircraft types in each category. Also, depending on circumstances (e.g. load, stage length of a flight) considerable deviations from them may occur for specific flights.

Note 2.— Performance of military aircraft not covered by the above values may be considerably in excess of those quoted. It is, however, assumed that in such cases national arrangements will be made to cater for these aircraft.

1.4 Planning should not include an aerodrome or other facility or service used only by operators of the State in which the aerodrome or other facility or service is located unless such planning is required to protect the integrity of the plan.

1.5 Planning for facilities and services, in addition to meeting the operational requirements, should take into account the need for:

a) efficiency in operation; and

b) economy in equipment and personnel,

with due consideration being given to capability for future expansion without major redesign or replanning.

1.6 Planning should take into account the need for an adequate number of technically qualified personnel to be employed in the system to supervise, maintain and operate air navigation facilities and services and should result in recommendations, as necessary, to meet such needs. Human resource development capabilities should be compatible with the plans to implement facilities and services. A systematic and quantitative approach towards analyzing human resource needs should be used to ensure that the consequential training capabilities are available and accessible.

1.7 The facilities, services and procedures recommended for implementation should not result in imposing on flight crew or ground personnel, employed in the system developed in accordance with the plan, a workload level that would impair safety or efficiency. The integration of human factors knowledge into the design and certification of facilities, services and procedures is therefore essential. In order to achieve a workload level that would not impair safety and efficiency, as well as to introduce the capability for future expansion without major redesign or re-planning, human factors issues should be considered during the process of design and certification of facilities, services and procedures, before they are operationally deployed.

1.8 Special operational features of the area under consideration, such as those which may have been associated with causal factors noted in accident investigation reports and incident reports, should be taken into account, particularly if there are indications, such as those given in the "recommendations" of aircraft accident investigation reports and incident reports, that special measures are called for to prevent recurrence of accidents and incidents from the same cause or causes.

1.9 Planning for facilities and services should normally provide for their availability on a 24-hour basis. In cases where part-time availability is deemed adequate to meet the operational requirements, a brief description of the circumstances should be given in the plan. Lighting aids should be planned when use of the aerodromes at night or during low visibility conditions is expected.

1.10 It is essential that the overall plan:

a) satisfy the requirements of all aircraft, including domestic and military traffic to the extent that it may affect international traffic;

b) ensure compatibility of facilities, services and procedures with those recommended for operations in adjacent areas;

c) ensure that operators have access to information necessary to exercise effective operational control;

d) provide for speedy exchanges of necessary information between the various units providing air navigation services and between such units and operators; and

e) take account of aircraft performance and navigational capability in specifying requirements for the carriage of airborne equipment, as well as having due regard for the operational environment.

1.11 In the development of the plan, full cognizance should be taken of the cost-effectiveness of the recommended facilities, services and procedures. Planning should be directed towards facilitating implementation of essential improvements required for existing and anticipated operations in the region. The objective should be to expedite the eradication of current deficiencies in the air navigation facilities and services. Project management techniques should be employed for the implementation of CNS facilities and services to facilitate the phased introduction of ATM system enhancements.

2. AERODROMES

2.1 International commercial air transport operations

2.1.1 Regular aerodromes and their alternates should be determined based on the needs identified by users. When studying the requirements for alternate aerodromes, the guiding principle should be that, to the greatest practicable extent, the requirements for alternate aerodromes be satisfied by regular aerodromes used for international aircraft operations. Additionally, the requirements of extended-range twin-engine operations for en-route alternate aerodromes should also be considered.

2.1.2 Physical characteristics, visual aids, and emergency as well as other services should be determined for each regular and alternate aerodrome required for international operations and should include runway length and strength, as well as the aerodrome reference code(s) selected for runway and taxiway planning purposes.

2.1.3 Where at an aerodrome, planning for Category II or III operations, as the case may be, is not a requirement during the plan period but such operations are contemplated at a time beyond the plan period, planning should take into account the possible requirement for Category II or III operations so that at least one runway and the related ground-air environment may be provided in the future to accommodate such operations.

2.1.4 In cases where the extension or development of an aerodrome to meet infrequent critical operations would entail disproportionate expenditures, alternative solutions should be explored.

Note.— If it is found that the full operational requirements cannot be met at an aerodrome, then the maximum practicable development to facilitate operations should be recommended and the relevant reasons for this included in the report.

2.1.5 At alternate aerodromes, the physical characteristics should be determined in accordance with the landing requirements of the diverted critical aircraft and the take-off requirements for the aircraft for a flight to the aerodrome of intended destination. To ensure safe taxiing operations, a specified taxiway route should be determined for the diverted critical aircraft. The adequacy of the emergency response and rescue and fire fighting services to meet the requirements of the diverted critical aircraft should be reviewed to plan the necessary augmentation from sources nearby.

Note.— Where more than one alternate aerodrome is available, the requirements should be based on the types of aircraft each is intended to serve.

2.2 International general aviation (IGA)

2.2.1 Aerodromes, in addition to those required for international commercial air transport operations, should be determined to meet the needs of the IGA flights as identified by user requirements.

2.2.2 Physical characteristics, visual aids, and emergency as well as other services should be determined for each aerodrome to meet at least the needs of the most commonly used aircraft operated or intended to be operated at the aerodrome by IGA and should include runway length and strength, as well as the aerodrome reference code(s) selected for runway and taxiway planning purposes.

2.3 Certification of aerodromes and safety management system

2.3.1 *Annex 14 – Aerodromes, Volume I – Aerodrome Design and Operations*, requires States to certify their aerodromes used for international operations in accordance with the specifications in that Annex as well as other relevant ICAO specifications through an appropriate regulatory framework. Additionally, the Annex recommends that States certify aerodromes open to public use. The regulatory framework should include the establishment of criteria for certification of aerodromes. Furthermore, the certification should be based on the review and approval/acceptance of an aerodrome manual to be submitted by the aerodrome operator which would include all relevant information such as location, facilities, services, equipment, operating procedures, organisation and management structure of the operator. The aerodrome manual should also include details of the aerodrome safety management system as implemented by the aerodrome operator. The intent of a safety management system is to ensure the implementation of aerodrome safety policies by an aerodrome operator, which provide for the control of safety at, and the safe use of, the aerodrome. Therefore, the safety management system of the aerodrome operator should be compatible with those of the air traffic services provider and other agencies working on the aerodrome to ensure total system safety.

2.3.2 The existence of basic aviation law that empowers a suitable aviation civil regulatory agency is a primary requirement. Such an entity may be the Civil Aviation Authority or the Director General of Civil Aviation, which is adequately staffed to assess an application for grant of the aerodrome certificate, inspect and evaluate the aerodrome facilities and services, operating procedures, and coordinate with other appropriate agencies such as the aviation security agency, air traffic services provider, aeronautical information services, meteorological services, etc. as detailed in the aerodrome manual submitted with the application.

Note.— Further guidance on certification of aerodromes can be found in the Manual on Certification of Aerodromes *(Doc 9774).*

3. AIR TRAFFIC MANAGEMENT

3.1 Air traffic management should enable aircraft operators to meet their planned times of departure and arrival and adhere to their preferred flight profiles with minimum constraints without compromising agreed levels of safety. The air traffic services to be provided, the airspace organization, the associated facilities, and the required navigation performance should be determined on the basis of an agreed network of ATS routes or organised track system taking account of the type, density and complexity of traffic.

3.2 Airspace management

3.2.1 The airspace structure and organization should include a network of ATS routes or organized track system established so as to enable aircraft to operate along, or as near as practicable to, the preferred flight path, in both the horizontal and vertical planes, from the departure aerodrome to the destination aerodrome. ATS routes based on area navigation should be recommended where appropriate and feasible. ATS routes shall be great circles between significant points, wherever possible. Standard instrument arrival routes (STARs) should be established when the density of air traffic justifies their application in a terminal control area (TMA) and to facilitate the description of the route and procedure in air traffic control clearances. Standard instrument departure routes (SIDs) should be established for each instrument runway.

3.2.2 Whenever the circumstances warrant, the airspace organization should be designed to support the ultimate goal of allowing each aircraft to fly its own optimized flight path. To achieve this, procedures that support collaborative decision-making should be developed.

3.2.3 The airspace organization should be indicated in accordance with the ICAO airspace classification.

3.2.4 Airspace restrictions should be subject to a continuing review procedure with the object of eliminating them or reducing their restrictive effects to a minimum, with particular emphasis on the need to achieve effective civil/military coordination. Permanent segregation of airspace should be avoided. Temporary airspace reservations, where necessary to cater for large formation flights or other military air operations, should be minimized in time and space, -closely co-ordinated, and promulgated in a timely manner. Military operations should not only be promulgated in a timely manner but also through international dissemination (international NOTAM).

3.3 Air traffic services

3.3.1 Flight information service and alerting service should be provided throughout the area under consideration. The plan of flight information regions (FIRs) should provide for the least number of FIRs compatible with efficiency of service and with economy. In this connection, the evolutionary introduction of CNS/ATM systems should be taken into account and consideration should be given to cooperative efforts for introducing more efficiency in airspace management by reducing the number of FIRs. In delineating FIR boundaries, due consideration should be given to:

a) the need for adequate air-ground communications coverage from the location of the flight information centre/area control centre (FIC/ACC);

b) the need to minimize frequency and SSR code changes, position reporting by aircraft, and coordination between FICs/ACCs; and

c) the need to minimize problems relating to climbing and descending traffic at major aerodromes located in the vicinity of FIR boundaries.

3.3.2 Area control service should be provided for instrument flight rules (IFR) flights operating in controlled airspace except where the type and density of traffic clearly do not justify the provision of such service Controlled airspace, in the form of airways, control areas of larger dimensions and terminal control areas, should be recommended to encompass all relevant ATS routes. In delineating control area boundaries, due account should be taken of the factors listed in 3.3.1 above.

3.3.3 Approach control service should be provided at all aerodromes used for international aircraft operations and equipped with navigation aids for instrument approach and landing, except where the type and density of traffic clearly do not justify the provision of such service. Controlled airspace, in the form of terminal control areas and control zones, should be recommended to encompass at least the climb to cruising level of departing aircraft and the descent from cruising level of arriving aircraft.

3.3.4 Aerodrome control service should be provided at all regular and alternate aerodromes to be used for international commercial air transport operations. Aerodrome control service should also be provided at those additional aerodromes used by international general aviation aircraft where the type and density of traffic warrant it. At aerodromes used by international general aviation aircraft, where the type and density of traffic clearly do not justify the provision of aerodrome control service, the provision of aerodrome flight information service by a unit located at the aerodrome should be recommended.

3.3.5 Air traffic advisory service should not be recommended as part of the plan. Where provided (to IFR flights in advisory airspace or on advisory routes), its replacement by air traffic control service at the earliest possible time should be recommended.

3.3.6 The air traffic services system and procedures should:

a) permit the most efficient use to be made of the airspace by all users and provide for the most expeditious handling of the various types of traffic;

b) be so designed that the number of air-ground communications contacts, frequency changes and secondary surveillance radar (SSR) code changes required of aircraft, and the amount of coordination required between ATS units, are kept to a minimum;

c) ensure the prompt and timely transmission to all aircraft concerned of information on hazardous meteorological conditions, operational flight information and other available information affecting the safety and efficiency of flight;

d) require the use of uniform altimeter setting procedures throughout the area under consideration when operating below the established transition level or climbing up to the established transition altitude; and

e) establish a common transition altitude on an area basis and, where possible, on a regional basis.

3.3.7 Information on destination meteorological conditions, the integrated operational status of facilities associated with the runway in use, and the runway conditions, should be provided to aircraft (in voice or data format) by the transmission of operational flight information service (OFIS) messages, including VOLMET, or by the appropriate area control centre or flight information centre upon request, prior to commencement of descent. Where this information is transmitted in voice format, a discrete frequency should be assigned for this purpose. Air-ground data links are particularly efficient for this type of service, as well as for clearance delivery, and should be recommended when a sufficient number of aircraft are appropriately equipped.

3.3.8 Contingency plans should be developed to mitigate the effects of volcanic eruptions or tropical cyclones as required. In addition, contingency plans should be developed to mitigate disruptions in air traffic services due to any other cause.

3.3.9 To assist in the prevention of controlled flight into terrain (CFIT), efforts should be made to implement a minimum safe altitude warning (MSAW) system or equivalent.

3.3.10 To assist in the prevention of CFIT, every effort should be made, in co-operation with the operators, to identify locations at which unwanted ground proximity warning system (GPWS) warnings occur. These warnings can occur due to conflict between ATS procedures, or operator procedures, and the characteristics of the terrain and/or those of the GPWS equipment in use. Effort should further be made, with co-operation between the ATS authority and the operators to eliminate the occurrence of unwanted GPWS warnings by appropriate adjustment of ATS and/or operator procedures.

Note. Where adjustment of procedures is not possible, or is not effective, it may be possible to eliminate unwanted warnings, at a specific location, by GPWS envelope modulation. This possibility will be based on technical data of the equipment manufacturer and will be proposed by the operator for acceptance by the operator's authority.

3.4 **Air traffic flow management and capacity management**

3.4.1 Air traffic flow management and capacity management should be provided to ensure an optimum flow of air traffic to, from, through or within defined areas during times when demand exceeds, or is expected to exceed, the available capacity of the ATS system, including relevant aerodromes. However, this should not preclude the need for planning airspace to adequately meet demand.

3.5 Safety management

3.5.1 The standards and recommended practices relating to the implementation by States of safety management programmes for ATS are contained in Annex 11 – *Air Traffic Services*, Section 2.26. Further provisions relating to the implementation of these safety management programmes are contained in Chapter 2 of the *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444).

3.5.2 Annex 11, Section 2.26 requires States to implement systematic and appropriate safety management programmes in relation to the provision of ATS. It will therefore be necessary for all States to establish regulatory provisions concerning ATS safety management, together with the necessary supporting infrastructure to enable them to discharge their responsibilities in relation to oversight of these provisions.
There are two prerequisites for the introduction of a regulatory system. These are:

a) the provision, in the basic aviation law of the State, for a code of air navigation regulations and the promulgation thereof; and

b) the establishment of an appropriate State body, hereinafter referred to as the Civil Aviation Authority (CAA), with the necessary powers to ensure compliance with the regulations.

Note.— Further guidance can be found in the Manual on ATS Safety Management (*Doc xxxx*).

4. SEARCH AND RESCUE (SAR)

4.1 Planning for search and rescue service should take into account, to the maximum practicable extent, existing facilities even if they are provided for purposes not connected with search and rescue. Such planning should take into account the delimitation of maritime search and rescue regions.

4.2 A single SAR point of contact (SPOC) should be designated for each SRR to facilitate cooperation with the associated mission control centre (MCC) of the COSPAS-SARSAT* system.

Note.— A SPOC may be an aeronautical or a maritime RCC.

4.3 Where aircraft of the long-range and longer-range categories are required for the provision of air coverage of large oceanic search and rescue regions, but such aircraft cannot be made available by the State responsible for search and rescue services, specific cooperative arrangements should be made for the deployment of such aircraft from other locations in an attempt to meet the requirements for sufficient air coverage of the appropriate regions.

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* COSPAS - Space system for search for vessels in distress
SARSAT - Search and rescue satellite-aided tracking system.

4.4 Search and rescue organization, plans, procedures, operations, and equipment should be in accordance with the provisions of Volumes 1, 2 and 3 of the *International Aeronautical and Maritime Search and Rescue Manual* (Doc 9731), to the extent practicable.

5. COMMUNICATIONS

5.1 Aeronautical fixed service (AFS) planning and engineering

5.1.1 The AFS recommended should be designed to meet the agreed requirements for AIS, ATS, MET, SAR and aircraft operating agencies for voice, message and data communications.

5.1.2 The planning of the aeronautical fixed telecommunication network (AFTN) should be based on the guidance material contained in the *Manual on the Planning and Engineering of the Aeronautical Fixed Telecommunication Network* (Doc 8259) and taking into account the predominating characteristics for conditions in the region or area concerned.

5.1.3 The AFS should be designed so as to meet transit time criteria as follows:

In the peak season of the year, even in the average peak hours, at least 95 per cent of the messages should achieve transit times of less than the following:

SIGMET and AIRMET messages, volcanic ash and tropical cyclone advisory information and special air-reports 5 minutes
Amended aerodrome forecast
(in meteorological code form) (TAF) 5 minutes

METAR/SPECI, trend forecasts and TAF from
0 to 900 km (500 NM) 5 minutes
for distances exceeding 900 km (500 NM) 10 minutes

Transit times for request/reply for international OPMET data banks should be less than 5 minutes.

5.1.4 TAF bulletins originated by meteorological offices in the region should be available, at all locations in the region to which they are addressed, at least 30 minutes before their period of validity commences.

5.1.5 The dissemination means for world area forecast system (WAFS) products should be such as to guarantee availability of these products throughout the region at international aerodromes and other locations as appropriate to meet operational needs.

5.1.6 Planning of ATS ground to ground communication networks comprising direct and switched ATS speech circuits should take account of operational voice-communication requirements. It should also take into account relevant ICAO documentation with regard to the application of analogue and digital voice switching and signalling systems.

5.1.7 With the introduction of automation in air traffic management many coordination functions will be accomplished through data interchange between ATM systems using ATN applications such as ATS Interfacility Data Communication (AIDC) or ATS message handling services (ATSMHS). As such, the planning for ATN should include the provision of suitable gateways to facilitate the exchange of information between existing and newly established networks.

5.1.8 For planning of AFS, attention should be paid to the establishment of institutional arrangements for the implementation by States of co-ordinated digital networks, using appropriate technology to meet, in an integrated way, current and future communication requirements.

5.2 Aeronautical mobile service (AMS) and aeronautical mobile satellite service (AMSS)

5.2.1 Air-ground -data link and voice communications facilities should be recommended to meet effectively and reliably the agreed requirements for air traffic services as well as, to the extent required, all other classes of traffic acceptable on the AMS. The facilities should employ voice and data communications links based on available transmission media (e.g. HF, VHF, satellite). This decision should be based on system performance and economical criteria to comply with operational needs.

5.2.1.1 Regional planning should take into account AMSS ground earth station (GES) redundancy requirements in co-ordination with the AMSS service provider(s) with a view to avoiding an unnecessary proliferation of facilities.

5.2.2 ATIS and VOLMET or OFIS broadcasts should be recommended only if overloading of air-ground channels due to request/reply communications has occurred, or is expected to occur. -When justified by the number of aircraft suitably equipped, data links should be recommended for these functions, as well as for certain clearance deliveries.

5.2.3 Aerodromes having a significant volume of international general aviation traffic should be served by stations of the AMS, and such stations should operate on frequencies within the bands normally used by aircraft constituting this traffic.

5.2.4 Selective calling (SELCAL) devices should be employed, wherever possible and necessary, at aeronautical stations.

5.2.5 An air-to-air VHF communication channel (INTERPILOT) on the frequency 123.450 MHz should be used over remote and oceanic areas, provided users are out of range of VHF ground stations, to enable pilots to exchange the necessary operational information.

5.3 Frequency assignment plans

5.3.1 Frequency assignment planning should be done in accordance with the method applicable to the region and using the relevant ICAO regional office frequency lists.

6. NAVIGATION

6.1 General

6.1.1 The planning of navigation aids should be based on a system basis, recognizing that the requirements for both long range and short range navigation may be met by different navigation systems having area navigation capability, including the global navigation satellite system (GNSS), and it may be practicable to establish ATS routes not provided with ground station-referenced aids for suitably-equipped aircraft. For routes or areas which require that aircraft achieve an acceptable level of navigation accuracy, the requirement should be specified e.g. in the form of a required navigation performance (RNP) type to support a selected horizontal separation minimum, or a minimum aircraft system performance specification (MASPS) to support a selected vertical separation minimum. The navigation systems should meet the needs of all aircraft using it and form an adequate basis for the provision of air traffic services.

6.1.2 Where aircraft are using different systems for navigation and position determination within the same controlled airspace, the facilities involved should, in so far as practicable, be located and oriented to enable a fully integrated air traffic control structure to be established.

6.1.3 Planning should take into account the need of civil aircraft for sufficiently accurate navigation guidance to remain clear of restricted, prohibited and danger areas as required.

6.2 International commercial air transport operations

6.2.1 En-route aids

6.2.1.1 The en-route aids to be recommended should provide navigation assistance to permit en-route navigation on the agreed air traffic services route network with the accuracy required.

6.2.1.2 It is expected that GNSS will ultimately meet all requirements for en-route navigation. Planning for other en-route aids should take due account of the need for a gradual transition towards the use of GNSS in lieu of en-route ground-based navigation aids. Pending implementation of GNSS, VHF omnidirectional radio range (VOR) supplemented as necessary by distance measuring equipment (DME) should be installed as the primary aid for this purpose.

6.2.1.3 Where VOR is used, supplemented as necessary by DME, a total navigation error value for VOR of ±5° (95 per cent probability) should be assumed for planning purposes. However, the specific value of VOR radial signal error for individual facilities/radials should be obtained by flight checking, and if these values are worse than ±3°, appropriate precautions should be taken in respect of the routes concerned.

6.2.1.4 Long-distance radio navigation aids continue to be provided where required.

6.2.2 **Terminal area aids**

6.2.2.1 The terminal area aids should permit navigation for arrival and approach, holding and departure to be carried out with the accuracy required.

6.2.2.2 It is expected that GNSS will ultimately meet all requirements for terminal navigation. Planning for other terminal aids should take due account of the need for a gradual transition towards the use of GNSS in lieu of terminal area ground-based navigation aids. Introduction of GNSS-based navigation services, such as Basic GNSS and satellite-based augmentation system (SBAS), should be considered as initial transition steps.

6.2.2.3 Where VOR is used as the primary aid, it should be so located as to permit the most efficient approach and air traffic control procedures and to give the pilot maximum assistance in adhering to requisite patterns. Whenever possible, VORs should be located and operated so that they can serve both the requirements for en-route and terminal navigation guidance, including holding. Where the provision of VORs for the holding is not practicable, non-directional beacons (NDBs) can be used for this purpose.

6.2.2.4 Consideration should be given to the provision of DME to be collocated with VORs whenever this is required to ensure necessary ATC flexibility in the routing of air traffic in a given TMA using area navigation (RNAV) procedures based on VOR/DME and when improved accuracy in navigation is a prerequisite to such flexibility.

6.2.2.5 Consideration should also be given to the provision of suitably located DMEs in support of RNAV procedures based on DME/DME.

6.2.3 **Non-visual aids to final approach and landing**

6.2.3.1 The standard non-visual aids to final approach and landing ILS, MLS and augmented GNSS, supporting precision approach and landing operations, shall comply with general provisions in *Annex 10 – Aeronautical Telecommunications, Volume I – Radio Navigation Aids,* Chapter 2, 2.1 and technical specifications in Chapter 3, and their introduction and application are expected to be in line with the strategy contained in Attachment B to Volume I.

6.2.3.2 In planning the requirements for aids to final approach and landing, each aerodrome should be considered in relation to its traffic, its meteorological conditions and other aspects of its physical environment. In addition, the following two aspects should be taken into consideration in the determination of specific requirements:

a) *The aerodynamic and handling characteristics of the aircraft*

Turbo-jet aeroplanes have need for precise approach path guidance during approach and landing, irrespective of weather conditions. Such guidance should be provided to runways intended to serve these aeroplanes as follows:

1) On a runway having significant traffic the facilities to be provided should be an ICAO standard non-visual aid to final approach and landing, complemented by a visual approach slope indicator system. When a standard non-visual aid cannot be implemented in the first instance, this should not delay the installation of a visual approach slope indicator system.

2) On a runway not having significant traffic, the facilities to be provided should at least include a visual approach slope indicator system.

b) *Routine auto-coupled approaches*

Where auto-coupled approaches are to be made on a routine basis, an ICAO standard non-visual aid to final approach and landing, i.e. ILS, MLS or GNSS (GBAS), should be provided as appropriate to the type of operation planned at the aerodrome. In the case of an ILS of facility performance Category I, the ILS should be of Category II signal quality, without necessarily meeting the associated reliability and availability criteria for backup equipment and automatic change-over of facility performance Category II, but it should be adjusted and maintained to the greatest possible extent and accuracy, and its performance characteristics should be published in AIPs or other suitable documents.

6.2.4 **Precision approach and landing procedures**

6.2.4.1 Precision approach and landing operations are to be based on standard non-visual aids indicated in 6.2.3.1 above.

6.2.5 **Approach with vertical guidance**

6.2.5.1 Consideration should be given to approach with vertical guidance (APV).

6.2.6 **Non-precision instrument approach procedures**

6.2.6.1 Non-precision instrument approach procedures are to be based on terminal area aids (see 6.2.2 above) which should also support SIDs and STARs. These approach procedures should be constructed whenever possible in accordance with the concept of the stabilized approach; to provide an equivalent three degree final approach glide path; to eliminate stepped approaches; and to provide a final approach fix.

6.2.6.2 Particular account should be taken of 6.2.5.1 in the design of non-precision instrument approach procedures for use with GNSS which should also support SIDs and STARs.

6.2.7 **RNAV procedures**

6.2.7.1 RNAV procedures can be based on terminal area aids (e.g. VOR/DME, DME/DME) or GNSS (e.g. Basic GNSS, SBAS or GBAS positioning services).

6.3 **International general aviation**

6.3.1 **Short-distance aids**

6.3.1.1 Appropriate aids such as GNSS for short-distance navigation should be provided to serve the additional aerodromes referred to in 2.2.1 where the density of traffic and the meteorological conditions so warrant, due account being taken of the airborne equipment carried by aircraft. These aids should, as appropriate, be located so as to permit instrument approaches.

6.4 **Flight testing of visual and non-visual navigation aids**

6.4.1 Cooperative arrangements for the flight testing of visual and non-visual navigation aids (Annex 10, Volume I, Chapter 2, paragraph 2.7) should be recommended where flight testing on a national basis would be impracticable or uneconomical.

7. **SURVEILLANCE**

7.1 Surveillance systems should provide adequate support to all phases of flight and meet ATM requirements. A table of surveillance facilities/services (including radars, automatic dependent surveillance (ADS) and automatic dependent surveillance – broadcast (ADS-B)), together with an associated chart, is considered to be a useful tool in the planning and implementation of surveillance systems.

7.2 Surveillance should be provided as an integral part of air traffic control where practicable and desirable or necessary in the interest of safety, efficiency and economy of operations, in particular for those areas where traffic density and/or the multiplicity or complexity of ATS routes create constraints. Primary and/or secondary surveillance radar systems may be used to fulfil this requirement. Subject to availability and cost effectiveness and provided that the required level of safety is maintained, ADS and ADS-B may be used in airspace where surveillance by radar is impracticable or cannot be justified.

7.3 Provision should also be made for the use of surveillance systems for the purpose of monitoring air traffic and identifying civil aircraft in areas where they might otherwise be intercepted.

Note.— This requirement does not constitute a justification or operational requirement for installation of new radars. Since interceptions would normally only take place under existing military radar control, this should be interpreted as a requirement for a State to make better use of existing measures and to improve civil/military coordination.

8. METEOROLOGY

8.1 World area forecast system (WAFS) – Regional aspects

8.1.1 Planning for regional aspects of the WAFS should be undertaken, with particular reference to user States' requirements for WAFS products, service areas and areas of coverage of charts to be included in flight documentation. Areas of coverage of charts to be provided under the WAFS should be selected so as to ensure the required coverage for flights departing aerodromes

8.1.2 Requirements for the issuance of medium-level significant weather (SIGWX) forecasts (FL 100 — 250) under the WAFS should only be specified for limited geographical areas having a large number of international flight operations using those flight levels and for extended-range operations.

8.2 Meteorological services at aerodromes

8.2.1 The meteorological service to be provided for operators and flight crew members should be specified for each international aerodrome.

8.2.3 Aerodrome forecasts

8.3.1 TAF and amendments thereto should be exchanged to meet the needs of current flight operations, including international general aviation. TAF for the aerodromes of departure and destination and their respective alternates, and en-route alternates should be disseminated so as to be available at departure aerodromes and at ATS units designated to provide data link-VOLMET or VOLMET broadcasts for aircraft in flight. In addition, they should be disseminated to be available at ATS units for transmission to aircraft in flight up to a distance from the aircraft corresponding to two hours’ flying time.

8.3. The determination of the aerodromes at which landing forecasts are required should take into consideration relevant operational and climatological factors, including the weekly number of flights requiring those forecasts and the incidence of adverse meteorological conditions.

8.4 Meteorological observations and reports

8.4.1 Meteorological observations and reports should be made at hourly intervals. However, the intervals should be half-hourly at aerodromes where the volume of traffic and the variability of meteorological conditions so justify, and/or reports are required for data link-VOLMET or VOLMET broadcasts, and relevant OPMET bulletin exchange schemes.

8.4.2 METAR and SPECI should be exchanged to meet the needs of current flight operations. METAR and SPECI for the aerodromes of departure and destination and their respective alternates, and en-route alternates should be disseminated so as to be available at departure aerodromes units designated to provide data link-VOLMET or VOLMET broadcasts for aircraft in flight. In addition, they should be disseminated to be available at ATS units for transmission to aircraft in flight up to a distance from the aircraft corresponding to two hours' flying time.

8.5 Aircraft reports and SIGMET and AIRMET information

8.5.1 For international air routes having a high density of air traffic, air-reporting exemption or designation procedures should be developed to reduce the frequency of routine air-reports commensurate with the minimum requirements of meteorological offices.- The procedures should be included in the *Regional Supplementary Procedures* (Doc 7030).

8.5.2 SIGMET and AIRMET messages, as well as special air-reports which have not been used for the preparation of a SIGMET, should be disseminated to meteorological offices so as to be available at departure aerodromes for the whole route and at ATS units designated to provide data link-VOLMET or VOLMET broadcasts for aircraft in flight. In addition, they should be disseminated to be available at the ATS units for transmission to aircraft in flight for the route ahead up to a distance corresponding to two hours flying time.

8.6 International Airways Volcano Watch (IAVW) — Regional aspects

8.6.1 Planning for regional aspects of the IAVW should be undertaken, including the designation of volcanic ash advisory centres (VAAC) and selected State volcano observatories.

8.7 Tropical Cyclone Watch – Regional aspects

8.7.1 Planning for regional aspects of the tropical cyclone watch should be undertaken for regions affected by tropical cyclones, including the designation of tropical cyclone advisory centres (TCAC) amongst the centres of the WMO Tropical Cyclone Programme.

9. AERONAUTICAL INFORMATION SERVICES AND AERONAUTICAL CHARTS

9.1 The designation of international NOTAM offices and their areas of responsibility should be based on maximum efficiency in the dissemination and exchange of aeronautical information/data by telecommunications and on optimum use of the aeronautical fixed service (AFS).

9.2 Arrangements for the international exchange of elements of the Integrated Aeronautical Information Package and aeronautical charts should be established to meet the needs of all forms of international civil aviation.

9.3 Arrangements for the transmission and exchange of NOTAMs should be planned with a view to recommending measures to ensure that adequate information is available to users in a timely manner, and that its presentation is efficient as to format and selective as to contents.

9.4 The advantages of using AIS automation integrated systems should be considered when planning the exchange of aeronautical information/data.

9.5 Priority for the planning and implementation of AIS aerodrome units should be based on aerodrome designation (RS, RNS, RG, AS and EAS) as set out in the ANP AOP-1 table.

9.6 Pre-flight information bulletins (PIBs) should be made available at designated international airports at least one hour before each flight in order to meet the operational requirements of users.

9.7 Planning and arrangements should be made for the introduction by States of one quality management system for aeronautical information and charts services. The system must include procedures, processes and resources necessary to ensure that the procedures are put in place in all the functional stages of aeronautical data process, from origination until the next intended user.

9.8 Aeronautical geographical coordinates should be stated in terms of the World Geodetic System – 1984 (WGS-84).

9.9 Arrangement should be made for those States that have not yet done so, to make available, as applicable, at least the following types of charts:

a) Aerodrome Obstacle Chart — ICAO Type A;
b) Aerodrome Obstacle Chart — ICAO Type C;
c) Precision Approach Terrain Chart — ICAO;
d) Enroute Chart — ICAO ;
e) Area Chart — ICAO ;
f) Standard Departure Chart — Instrument (SID) — ICAO;
g) Standard Arrival Chart — Instrument (STAR) — ICAO;
h) Aerodrome/Heliport Chart — ICAO;
i) Instrument Approach Chart — ICAO;
j) Visual Approach Chart; and
k) World Aeronautical Chart — ICAO 1:1 000 000

9.10 States which have not yet produced the World Aeronautical Chart — ICAO 1:1 000 000 should in accordance with established sheet distribution and regional arrangements, take measures to ensure the preparation of the sheets for which they are responsible, either through individual effort or with the collaboration of other States or specialized cartographic agencies.

Note.— When operational or chart production considerations indicate that operational requirements can effectively be satisfied by Aeronautical Chart - ICAO 1 : 500 000, the chart may be made available instead of World Aeronautical Chart - ICAO 1 : 1 000 000.

APPENDIX B

TRAFFIC FORECASTS

1. In order to facilitate the forecasting process, the routes in the Region were classified by the Traffic Forecasting Group (TFG) into six major route groups, as described below:

(I) South Atlantic
(II) Mid-Atlantic
(III) Intra-South America
(IV) South America to Central America and Caribbean
(V) Intra-Central America and Caribbean
(VI) North America to South America, Central America and Caribbean

The alignment of the States within the region was established by the Group to accurately reflect the prevailing air traffic control (ATC) environment to, from and within the Region.

2. **Table 1** illustrates the forecast summary of passenger traffic for the route groups concerned for the period 2004-2015. Overall passenger traffic to, from and within the Region is projected to grow at an average annual rate of 4.7 per cent. It is anticipated that average growth rates for major route groups will range from a high of 5.2 per cent for the South Atlantic to a low of 4.5 per cent for the North America to South America, Central America and Caribbean route group as illustrated in Table 1.

TABLE 1

PASSENGER TRAFFIC FORECAST, 2004-2015

Major Route Group	2004 (millions)	2015 (millions)	**Average Annual Growth** (Per cent)
South Atlantic	5.63	9.79	5.2
Mid-Atlantic	6.44	11.10	5.1
Intra-South America	8.03	13.40	4.8
South America to Central America and Caribbean	2.69	4.44	4.7
Intra-Central America and Caribbean	3.67	6.08	4.7
North America to South America, Central America and Caribbean	47.42	77.14	4.5
Total	73.88	121.95	4.7

3. **Table 2** provides the projected growth of aircraft movements to, from and within the CAR/SAM Region. The overall number of movements is forecasted to increase from around 1.1 million in 2004 to over 1.7 million in 2015, at an average annual growth rate of 4.3 per cent. The average growth rates for the route groups will range from a high of 5.1 per cent for Mid-Atlantic to a low of 3.9 per cent for the South America to Central America and Caribbean route group.

TABLE 2

AIRCRAFT MOVEMENT FORECAST, 2004-2015

Major Route Group	2004	2015	**Average Annual Growth** (Per cent)
South Atlantic	24 930	38 786	4.1
Mid-Atlantic	45 196	78 250	5.1
Intra-South America	98 451	151 434	4.0
South America to Central America and Caribbean	47 519	72 758	3.9
Intra-Central America/Caribbean	308 281	501 536	4.5
North America to South America, Central America and Caribbean	553 537	878 627	4.3
Total	1 077 914	1721 391	4.3

4. At its tenth meeting, GREPECAS adopted Conclusion 10/42 which requested CAR/SAM TFG to develop five- to ten-year period forecasts for the following parameters:

a) The critical aircraft types for each international aerodrome
b) The busy hour aircraft movements for each international aerodrome
c) Annual aircraft movements for each city ; and
d) The types of aircraft operating on each route between all city pairs

4.1 The ICAO Secretariat had already collected historical aircraft movements data on airports of the Region prior to the Group's meeting. The meeting agreed that it would be more practical to continue the analysis of the top 25 airports in the Region. These airports represent about 50 per cent of the Region's traffic. Moreover, the methodology, once adopted, could always be extended to any other airport of the Region.

4.2 It was noted that developing an airport traffic forecast requires a careful analysis based on economic and demographic data on each airport. This data was unfortunately unavailable. It was, therefore, agreed that a trend projection would be the most suitable methodology and that the most probable forecast horizon would be 5 years or until the year 2010. A ten-year historical data for the aircraft movements was collected and regression models were developed for most of the airports. Some airports data responded well when fitted with exponential trend curve while others showed a good fit with the linear trend line. A few airports data did not demonstrate any good fit with the various trend curves and showed unreliable results from statistical estimation procedures.

4.3 In developing the forecasts, many other factors were considered and discussed at length. In fact, in the recent past, South America went through several crises which strongly affected the traffic demand. Apart from economic growth (GDP), the future effects of political and socioeconomic factors were also considered. In some cases, city-pairs between airports were analysed to get a better perspective of future growth, while in others, stimulants such as tourist attractions, popular destinations, tourist infrastructure, population growth, exports, etc., were also looked into. In the event of two airports operating in the same city, the effects of traffic transferred from one airport to the other were considered. Newer airports were thought to have a better potential for growth because of their capacity and better equipment to handle higher traffic volumes. **Table 3** shows the actual aircraft movements of the top 25 airports of the Region for 2004 as well as the forecast for the year 2010 along with the forecast growth rates for the period 2004-2010.

TABLE 3

AIRCRAFT MOVEMENTS FIRECAST TOTHEYEAR 2010
TOP 25 AIRPORTS, LATIN AMERICAN AD CARIBBEAN REGION

					Average annual growth (%)
Rank	Airport Code	Airport, State Names	2004	2010	2004-2010
1	MEX	Mexico City (Juarez) Mexico	286 454	338 603	2.8
2	CGH	Sao Paulo (Congonhas) SP Brazil	161 478	257 672	8.1
3	SJU	San Juan (Intl) PR USA	156 885	199 536	4.1
4	BOG	Bogota Colombia	125 936	133 684	1.0
5	GRU	Sao Paulo (Intl) SP Brazil	104 678	167 036	8.1
6	BSB	Brasilia DF Brazil	91 033	127 677	5.8
7	GDL	Guadalajara Mexico	89 846	95 373	1.0
8	CCS	Caracas Venezuela	86 861	153 880	10.0
9	MTY	Monterrey Mexico	84 879	99 475	2.7
10	NAS	Nassau (Intl) Bahamas	76 864	97 918	4.1
11	AEP	Buenos Aires (Newbery) BA Argentina	72 177	83 703	2.5
12	SDU	Rio De Janeiro (Dumont) RJ Brazil	66 840	87 544	4.6
13	SCL	Santiago (Intl) Chile	62 988	77 428	3.5
14	CUN	Cancun Mexico	60 447	74 783	3.6
15	GIG	Rio De Janeiro (Intl) RJ Brazil	60 316	78 999	4.6
16	SXM	St. Maarten (P.Juliana) Neth. Antilles	58 430	65 152	1.8
17	LIM	Lima Peru	54 782	65 413	3.0
18	BZE	Belize City (Intl) Belize	52 811	65 403	3.6
19	SJO	San Jose (Santamaria) Costa Rica	52 142	55 973	1.2

Rank	Airport Code	Airport, State Names	2004	2010	Average annual growth (%) 2004-2010
20	SSA	Salvador BA Brazil	51 711	86 248	8.9
21	EZE	Buenos Aires (Pistarini) BA Argentina	49 288	71 868	6.5
22	CWB	Curitiba PR Brazil	44 120	69 239	7.8
23	PLU	Belo Horizonte (Pamphula) MG Brazil	42 398	59 128	5.7
24	BGI	Barbados	39 878	61 865	7.6
25	TIJ	Tijuana Mexico	39 405	43 599	1.7

5. The Group also developed a peak period analysis for each of the top 25 airports. This analysis was based on past trends of certain parameters such as annual, monthly, daily and hourly movements. The analysis provides, for each airport, the peak day, the peak hour, the list of the top 15 days and the top 40 hours in terms of movements for both departures and arrivals. Several charts illustrating traffic distribution are also part of the analysis, including peak-period movements by aircraft types for the peak day and the peak hour. The detailed results are available as a part of the report of the TFG meeting.

Agenda Item 3 Review of Reports of GREPECAS Contributory Bodies

3.1 Report of the Second Meeting of the Task Force on Institutional Aspects

3.1.1 The Meeting reviewed the report of the second meeting of the GREPECAS Institutional Aspects Task Force, held together with the third seminar on this topic, in Caracas, Venezuela, on 19-21 September 2005. The results of this seminar appear in **Appendix A** to this part of the Report.

3.1.2 The Meeting agreed that the role of the Task Force was to offer guidance in order to facilitate the establishment of agreements within operational scenarios for the implementation of CNS/ATM systems under the multinational systems concept. In this respect, the Task Force also agreed that matters pertaining to institutional aspects for the implementation of CNS/ATM systems were advancing at the right pace, and that the performance of tasks and the development of guidance material on economic and legal aspects were expected to gain significance in the future work of the group.

3.1.3 The Meeting took note that the Task Force had reviewed the work done by Regional Technical Cooperation Project RLA/98/003, as shown in **Appendix B** to this part of the Report, and had identified:

a) the operational scenarios proposed by project RLA/98/003 and combinations thereof;

b) possible multinational facilities/services for implementation in the scenarios; and

c) a strategy and a methodology for the implementation of the identified facilities/services.

3.1.4 The Meeting considered that the scenarios proposed by the Task Force, which appear in **Appendix C** to this part of the Report**,** probably require more complete evaluations as they could result in future constraints to the possibilities of finding integrated scenarios in the CAR or SAM Regions, adopting the following conclusions:

CONCLUSION 13/2 OPERATIONAL SCENARIOS IN THE CAR/SAM REGIONS

That States/Territories/International Organizations:

a) consider the appropriate CAR and/or SAM scenarios as potential operational scenarios for the implementation of multinational facilities/services;

b) in coordination with the respective ICAO Regional Offices, study the most appropriate mechanisms for the implementation of multinational facilities/services in said scenarios;

c) as part of the studies to be carried out by the mechanisms mentioned in b) above, a study which includes cost-benefit analysis be made of the regional multinational organisations best suited to manage the multinational facilities/services; and that

d) the Regional Offices report to the GREPECAS mechanism on the progress made in the implementation of this conclusion, so that it can be analysed by the Institutional Aspects Task Force.

3.1.5 The Meeting ratified the multinational facilities/services contained in GREPECAS Decision 12/5 and of these, given the comments and reasons of Regional Project RLA/98/003, selected the multi-service/multi-protocol digital network systems, the Air Traffic Flow Management System, AIS automation, and GNSS SBAS augmentation, for short- and medium-term implementation.

3.1.6 Regarding the strategy for the implementation of multinational CNS/ATM facilities/services and the principles for its formulation, the Meeting recognized the merits of the work done and agreed that it should still be refined by the Task Force and reviewed at future meetings, based on the developments that will take place in the short-run. The strategy is shown in **Appendix D** to this part of the Report.

3.1.7 The Meeting took note that a review had been done of the preliminary exercises conducted in relation to the cost-benefit analysis prepared by Regional Project RLA/98/003 concerning ATFM, AIS automation, and GNSS SBAS augmentation. It also took note of the lack of data required to complete the analysis. However, it was felt that the contribution of the aforementioned project would help the Task Force to continue such studies, and it was agreed that the material developed by project RLA/98/003 would be used as guidance material for the Task Force.

3.1.8 Regarding legal aspects, the Meeting took note that these had started to arise, and agreed to consider the material presented by the Task Force as legal guidance material for the drafting of an instrument to create a regional multinational organisation (RMO). This guidance material is shown as **Appendix E** to this part of the Report. Accordingly, the following conclusion was adopted:

CONCLUSION 13/3 LEGAL GUIDANCE MATERIAL

That GREPECAS consider the guidance material on legal matters contained in Appendix E to this part of the Report, for circulation by the ICAO Regional Offices to the States/Territories and International Organisations of the CAR/SAM Regions.

3.1.9 The representative of Mexico pointed out that Mexico, together with the North American States, was carrying out some activities related to multinational facilities and services, and that these should be taken into account when dealing with the institutional aspects in the CAR/SAM Regions. The Meeting also noted that requirements for systems or services could serve as basis for institutional aspects.

3.1.10 The Rapporteur of the Task Force encouraged all States to participate in all the meetings of the Task Force, in view of the significance of the topic for the future provision of air navigation services in both Regions. He also stated that, if possible, these meetings should have simultaneous interpretation services to permit full participation of CAR/SAM States.

3.2 Report of the AVSEC/COMM/4 Meeting

3.2.1 The AVSEC COMM Chairman presented the results of the AVSEC COMM Meeting that took place in Montego Bay, Jamaica on 11-14 April 2005.

3.2.2 The Meeting discussed Draft Decision 3/18 regarding AVSEC personnel licensing and understanding the difficulties to keep the licensing requirement, adopted *Draft Conclusion 4/1- Guidance Material for Certification of AVSEC Personnel* to remind States about the need for the certification of AVSEC personnel.

CONCLUSION 13/4 GUIDANCE MATERIAL FOR CERTIFICATION OF AVSEC PERSONNEL

That ICAO prepare guidance material for certification of AVSEC personnel.

3.2.3 The Meeting took note that information on the ICAO USAP Audit history, including, upcoming 2005 schedule. Some of the Annex 17 Standards found to be lacking were the national policies to ensure effective oversight of aviation security, the National Civil Aviation Security Programme, *Quality Control, Surveys, Inspections and Test; National Training Programme; and Aircraft Operators Security Programme.*

3.2.4 The Meeting took note that an Ad hoc Group was established to review Amendment 11 to Annex 17 in order to provide the views of the AVSEC/COMM and concluded that guidelines were necessary in areas of Security Risk Assessment, Confidential Audit Information, Quality Control Programme and to study the safety implications of the In-Flight Security Officer. The Meeting inquired if we were not duplicating the effort in the In-Flight Security Officer already been undertaken by the AVSEC Panel. The AVSEC COMM Secretary explained that the Ad Hoc Group determined that the safety implications were not being considered in this amendment. The Meeting therefore formulated the following Conclusions:

CONCLUSION 13/5 INTERNATIONAL COOPERATION

That:

a) Annex 17, paragraph 2.4.5 should be kept as a Recommendation; and

b) ICAO develop guidelines for the handling of aviation security information with respect to AVSEC Audits consistent with Annex 17 paragraph 2.4.4.

CONCLUSION 13/6 MEASURES RELATING TO SPECIAL CATEGORIES OF PASSENGERS

That ICAO submits Annex 17 Standard 4.7.7 as well as the proposed definition of in-flight security officer to the ICAO Air Navigation Commission to study the safety implications.

CONCLUSION 13/7 RISK ASSESSMENT

That ICAO:

a) should develop specific guidelines for conducting Security Risk Assessment, similar to those published for MANPADS; and

b) develop and deliver, Workshops and Seminars on Risk Assessment to States.

3.2.5 The AVSEC COMM Chairman recognized the good work of Chile's analysis of an AVSEC Questionnaire which identified and analyzed deficiencies of member States within the region which included National Civil Aviation Security Program, National Quality Control Program and Cargo Security Program. The Meeting therefore formulated the following Conclusions:

CONCLUSION 13/8 NATIONAL CIVIL AVIATION SECURITY PROGRAMME

That:

a) States which have not done so, implement and update their national civil aviation security programme (NCASP) to incorporate the latest provisions of Annex 17, and Doc 8973 – *Security Manual for Safeguarding Civil Aviation Against Acts of Unlawful Interference* by **1 March 2006**; and

b) States identify to ICAO their needs for assistance to review and approve their NCASP.

CONCLUSION 13/9 NATIONAL QUALITY CONTROL AVIATION SECURITY PROGRAMME

That:

a) States which have not done so, implement and update their national quality control programme to ensure the effectiveness of its national civil aviation security programme by **1 March 2006**;

b) States identify to ICAO the need for assistance to revise and approve their national quality control programme;

c) ICAO establish a specific workshop on Quality Control (audits) by **March 2006**

d) ICAO develop guidance material for the development and implementation of the Quality Control Programme; and

e) ICAO specify the type of AVSEC training required to conduct a Quality Control review.

CONCLUSION 13/10 CARGO SECURITY PROGRAMME

That:

a) States which have not done so, implement and update their national cargo security programme to ensure the implementation of security measures to protect cargo, baggage, mail, and other goods intended for carriage on aircraft to safeguard against acts of unlawful interference by **1 March 2006**;

b) States identify to ICAO the need for assistance to implement their national cargo programme; and

c) ICAO establish a specific workshop for Cargo Security by **March 2006**.

3.2.6 The Meeting noted that the ICAO/Canada Security Awareness Training Programme began in March 2004, and **14** Sub-Regional Aviation Security Implementation Workshops were held in Jamaica, Ecuador, Costa Rica, El Salvador, Netherlands Antilles, Venezuela, Argentina, Guatemala, Barbados, Trinidad and Tobago and 4 in Mexico affecting 23 States and 1 International Organization. Also, **two** Regional Aviation Security Audit Seminars were held in Kingston, Jamaica from 24 to 26 August 2004 and Lima, Peru from 7 to 9 March 2005, affecting 21 States and 4 International Organizations. To date, the Programme has provided **401** participants with a clearer understanding and awareness of their obligations under ICAO Annex 17, Aviation Security, the ICAO USAP Audit Programme and other aviation security issues in general. The majority of the participants came from Civil Aviation Authorities, responsible for the oversight of the implementation of Annex 17, as well as Airport Authorities who in many cases are responsible for the implementation of the Aviation Security measures.

3.2.7 The Meeting noted that the participants of the Training Programme in the CAR/SAM Regions who attended the workshops expressed the need to have an extension on the quality control and cargo modules as well as the creation of seminars on technical guidance for the implementation of a hold baggage screening system and human factors. The Meeting took note that the next workshops should be specific to a State and specific to an AVSEC topic such as Quality Control and Cargo. The Meeting was also informed that an evaluation form would be used for each event to assess the AVSEC training needs in the Regions. The Meeting therefore formulated the following conclusion:

CONCLUSION 13/11 AVSEC TRAINING

That ICAO,

a) identify States that are in most in need of formalized AVSEC Training;

b) establish specific workshops for States identified in a) above;

c) establish specific AVSEC topics such as Quality Control and Cargo, for the implementation workshops and seminars; and

d) provide one evaluation form to each participant attending a workshop/seminar instead of one per module.

3.2.8 The Meeting noted that ICAO and the Organization of American States – Inter-American Committee Against Terrorism (CICTE) entered into agreement to provide Fellowships for OAS Member States wishing to attend training events which would provide them with technical assistance designated to facilitate the successful implementation of ICAO SARPS and security related aviation improvements in accordance with ICAO and CICTE work plans. The Meeting noted that the memorandum of understanding between ICAO and OAS/CICTE was delivered to the representative of OAS for its signature and was subsequently formalized. The GREPECAS Secretary stated that there were resources available for training such as the ICAO/Canada Training Awareness Program for the host country and the OAS Fellowships for the participants. The Meeting therefore formulated the following Conclusions:

CONCLUSION 13/12 AVSEC TRAINING FELLOWSHIP AWARDS

That:

a) ICAO continue to identify other potential financial sources to fund regional AVSEC Training Programmes;

b) ICAO continue to facilitate discussions with other organizations interested in entering into a similar agreement;

c) the ICAO AVSEC Regional Officer for the CAR/SAM Regions provide guidance to the OAS Coordinator to prioritise training courses for its applicants to improve the programme's effectiveness;

d) ICAO obtain feedback from its participants to improve the programme's effectiveness; and

e) ICAO report to the AVSEC/COMM/5 of the progress made.

3.2.9 The Meeting noted a list of qualified AVSEC instructors available in the Regions for use in AVSEC Training events. States were encouraged to identify qualified AVSEC Instructors to be certified by ICAO and incorporate them into the list. The Meeting noted that the list will be continually reviewed due to the growing number of AVSEC instructors that will participate in the ICAO Instructors Certification Courses for 2005. To compliment this effort the NACC Office has established a directory of National AVSEC Officials from the CAR/SAM Regions for the purpose of coordinating future AVSEC training events. The Meeting therefore formulated the following Conclusions:

CONCLUSION 13/13 QUALIFIED AVSEC INSTRUCTORS DIRECTORY

That:

a) ICAO continue to use subject matter experts as instructors from the list of AVSEC qualified instructors for the AVSEC training workshops and seminars;

b) States identify these candidates and inform the ICAO Regional Offices;

c) ICAO maintain the updated qualified AVSEC instructors list and report to the AVSEC/COMM/5; and

d) ICAO consider qualifying this list and consolidate it with the published list of certified instructors on the ICAO AVSEC Website.

3.2.10 The Meeting noted that the AVSEC/COMM created a HBS Task Force to organize a Seminar and invite HBS Security Screening Manufactures (Trace, Advance Technologies and Explosive Detection Systems), Conveyer Manufactures, HBS Consultants, and other HBS Experts from Argentina, Canada, United States, ACI, ECAC and IATA to share their experiences of their best practices in the implementation of these systems and available training. The ICAO Hold Baggage Screening (HBS) Seminar for the NAM/CAR/SAM Regions is scheduled for 28 to 30 November 2005, in Monterrey, Mexico, and at least thirty **(30)** State Representatives being awarded OAS Fellowships are expected to attend. The Seminar will be followed by the First Meeting of the Hold Baggage Screening Task Force (AVSEC/HBS/TF) of the GREPECAS Aviation Security Committee from 1 to 2 December 2005, to analyze the data. The GREPECAS Secretary stated that approval could be done electronically and that it could be completed since it was in the process of being done. The Meeting noted that 24 of 30 States were taking advantage of the OAS Fellowships to attend this event.

CONCLUSION 13/14 AVSEC HOLD BAGGAGE SCREENING TECHNICAL ASSISTANCE WORKSHOP

That:

a) ICAO establish a Hold Baggage Screening Technical Assistance Seminar by **January 2006**, to assist States that are in urgent need of technical assistance on the implementation of a Hold Baggage Screening System; and

b) the host Contracting State pay for the interpretation services for the event.

3.2.11 The Meeting noted that vulnerability assessment tools to counter the growing MANPADS threat to Civil Aviation. The Meeting noted that there were vulnerability assessment tools available on the ICAO AVSEC Website and invited States to take advantage of this information. Due to the growing threat to civil aviation by the MANPADS threat the Meeting adopted the following conclusions:

CONCLUSION 13/15 MANPADS VULNERABILITY ASSESSMENT PROGRAMMES

That

a) States with current MANPADS vulnerability assessment programmes, exchange information;

b) States take advantage of the guidance material made available through the Aviation Security ICAO Website; and

c) ICAO report to the AVSEC/COMM/5 of the programmes' progress after the annual AVSEC Panel Meeting for 2006.

3.2.12 The Meeting noted that the Representative from Jamaica volunteered to be the Rapporteur of the Hold Baggage Screening Task Force and recognized Mexico for hosting this important Seminar and Meeting. The Meeting noted that Trinidad and Tobago volunteered to be the Rapporteur for the Training Task Force.

3.2.13 The Meeting received information from the United States regarding the approaching deadline for 100 percent hold baggage screening, which is to be implemented by January 1, 2006. The requirement is a result of Amendment 10 to Annex 17 and the expectation is for countries to meet this requirement by employing realistic, reliable mechanisms for screening every bag that is loaded onto an originating international flight. The challenge facing States is to ensure that the most effective means of baggage screening is used to protect the traveling public. States should be encouraged to consider the *probability of detection* when evaluating the various means available to achieve 100 percent hold baggage screening

3.2.14 The Meeting received information from the US regarding new policy and organization changes at the US Transportation Security Administration (TSA). The United States approach to the constantly changing, unpredictable aviation threat environment is based on twin pillars-flexibility and adaptability. The new leadership at TSA has developed four key principles to guide decision making, structure operations, and direct security programs. The new direction aims to base security investments and operational decisions on risk/value analysis; to avoid giving terrorist or potential terrorists advantages based on predictability of security measures; to focus on enhancing and expanding techniques to identify suspicious person or dangerous items; and finally, to refine our organization structure to better support information-sharing networks with our international partners and key stakeholders. The United States is eager to work with the ICAO Regional Office and the aviation security leaders of South and Central American States to establish a permanent and enhanced collaborative framework for the region.

3.3 Report of the AERMET/SG/7 Meeting

Implementation of the World Area Forecast System (WAFS) in the CAR/SAM Regions

3.3.1 The Meeting reviewed the status of implementation of GREPECAS Conclusion 11/71 - Procurement of WAFS workstations, and noted that, due to the implementation of WMO technical cooperation projects in the CAR States/Territories, the conclusion had been complied with, while three SAM States still had to implement it.

3.3.2 In this regard, the Meeting was aware that the meteorological services for international air navigation were part of the air navigation services described in Article 28 of the Civil Aviation Convention and, as such, were subject to cost recovery, in accordance with the ICAO principles and policies concerning charges for air navigation services.

3.3.3 Likewise, the Meeting recalled that the ICAO *Manual on Air Navigation Services Economics* (Doc 9161), as well as the *Guide on Aeronautical Meteorological Service Cost Recovery – Principles and Guidance* of the WMO (WMO No. 904) offered guidance for the establishment of national methods for recovering the cost of meteorological services provided specifically to international air navigation. Consequently, it emphasized the need for civil aviation and meteorological authorities of the CAR/SAM States to cooperate in the establishment of national methods for the recovery of fair, equitable and agreed costs for the provision of the meteorological services and facilities required for international air navigation, and for the process to include a full consultation with the operators. Accordingly, it formulated the following conclusion:

CONCLUSION 13/16 COST RECOVERY OF MET SERVICES IN THE CAR/SAM REGIONS

That the States/Territories/International Organizations, in coordination with the aeronautical meteorological authorities:

a) establish a method for recovering the costs of aeronautical meteorological services provided in their territory, through the application of charges for air navigation services; and

b) include the cost related to the reception and provision of WAFS products, especially charges for the replacement or improvement of workstations and the WAFS software required for receiving these products in GRIB and BUFR codes, and maintenance of the ISCS1 (VSAT) workstation.

3.3.4 The Meeting took note that the complete list of software vendors that were in a position to meet the criteria established by the ICAO SADIS Operation Group (SADISOPSG) was available at www.icao.int/anb/sadisopsg.

3.3.5 In view of the concern expressed by some States/Territories regarding the many problems they had encountered with the new workstations, especially with the reception of WAFS products, the Meeting agreed that it was necessary to carry out a survey on ISCS efficiency. To this end, and to improve coordination with the Washington WAFC, the ICAO Secretariat also needed to request CAR/SAM States/Territories to provide information of a focal point between the State and the ISCS. Accordingly, the Meeting formulated the following conclusion:

CONCLUSION 13/17 SURVEY ON ISCS EFFICACY

That ICAO

a) consult with CAR/SAM States/Territories in order to develop a list of ISCS focal points; and

b) in coordination with the WAFS provider State, develop and send to the focal points a survey on ISCS efficacy.

3.3.6 The Meeting took note of a revised plan on ISCS transition from the X.25 to TCP/IP protocol, presented by the ISCS1 provider State. As a result, it updated the WAFS implementation plan for the CAR/SAM Regions and formulated the following conclusion:

CONCLUSION 13/18 [1] WAFS IMPLEMENTATION PLAN FOR THE CAR/SAM REGIONS

That the WAFS implementation plan for the CAR/SAM Regions be updated as shown in **Appendix F** to this part of the Report.

Follow-up to the conclusions of the second meeting of the WAFS Operations Group (WAFOPSG/2) that require action by GREPECAS

3.3.7 As a follow-up to the conclusions of the second meeting of the WAFS Operations Group (Bangkok, Thailand, 8-11 March 2005), the Meeting took note of Conclusion 2/2 formulated by the Operations Group, in which amendments to the WAFS concerning the regional procedures contained in the Basic ANP/FASID were agreed upon, and of Conclusion 2/5 - *Development of the ISCS User Guide*, adopted in compliance of GREPECAS Conclusion 12/55.

3.3.8 The Meeting noted that WAFSOPSG/2 had agreed that the broadcast of SIGWX in T-4 format would continue through November 30, 2006, and that the planned SIGWX charts in BUFR code would also be available on the WAFS network beginning 1 July 2005. It had also agreed to provide these charts in the Portable Network Graphics format, and place them on the WAFS IP (ftp) server operated by the London WAFC. The Meeting was urged to contact Richard Orrell (richard.orrell@metoffice.gov.uk) or Nigel Gait (nigel.gait@metoffice.gov.uk) in case any further information was required.

3.3.9 Likewise, the Meeting noted that all planned SIGWX charts produced by the two WAFCs should be posted, on both the original black-and-white and the colored version, in the Washington WAFC, in the NWS Aviation Weather Center at http://aviationweather.gov/products/swh.

Global forecast system (GFS) model

3.3.10 The Meeting agreed on the need to receive the results of the GFS model run by the Washington WAFC. In this respect, the Washington WAFC should include the analysis of each run of the referred model in its broadcasts. Accordingly, it formulated the following conclusion:

CONCLUSION 13/19 PROVISION OF RESULTS OF GFS MODEL RUNS BY THE WASHINGTON WAFC

That the WAFSOPSG consider the possibility for the Washington WAFC to disseminate the analysis of the Global Forecast System (GFS) model run to user States concerned.

[1] AERMET/SG/7 Conclusion 7/4 Pre-approved by GREPECAS Members on 22 August 2005

Implementation of the International Airways Volcano Watch (IAVW) in the CAR/SAM Regions

3.3.11 The Meeting took note of the action taken by GREPECAS regarding the recommendations of the Meteorology (MET) Divisional Meeting (Montreal 2002) and of paragraphs a) and b) of Recommendation 1/12 – Implementation of SIGMET requirements. In respect of paragraph c), the Meeting agreed on the need to include, in the periodical volcanic ash SIGMET broadcast and reception tests, the advisories to be broadcast by the VAAC, as well as volcanic ash ASHTAMs or NOTAMs. Accordingly, it formulated the following conclusion:

CONCLUSION 13/20[2] PERIODIC TESTS ON VOLCANIC ASH SIGMETS, VOLCANIC ASH ADVISORIES, AND VOLCANIC ASH ASHTAMS OR NOTAMS

That ICAO invite the Washington and Buenos Aires VAACs and the CAR/SAM NOFs and MWOs to take active part in periodic tests of SIGMETs (WV), volcanic ash advisories, and volcanic ash ASHTAMs or NOTAMs to be carried out according to the procedures agreed by the AERMET Subgroup.

3.3.12 Regarding Recommendation 1/21 – Broadcast of tropical cyclone advisories for international civil aviation, of the aforementioned meeting, the Group took note of its implementation by the Miami Tropical Cyclone Advisory Centre (TCAC), as well as the agreement by this centre to ensure the routing of tropical cyclone advisories to the MWOs, to the Brasilia and Washington OPMET international data banks, to the ISCS and SADIS uplink stations, and to the AFTN addresses included in **Appendix G** to this part of the Report.

Follow up to the conclusions of the first meeting of the International Airways Volcano Watch Operations Group (IAVWOPSG/1) that require action by GREPECAS

3.3.13 The Meeting reviewed the conclusions of the first meeting of the International Airways Volcano Watch Operations Group (IAVWOPSG/1) (Bangkok, 15-19 March 2004) requiring action by GREPECAS, and took note of the amendments concerning Conclusion 1/1 – Amendment to regional IAVW-related procedures in the Basic ANP/FASID.

3.3.14 Regarding paragraph a) of Conclusion 1/12 – Extension of the area of responsibility of the Washington VAAC, the Meeting took note that the provider State of the Washington VAAC had taken action concerning this conclusion. Consequently, Table MET 3B of the CAR/SAM FASID had to be amended accordingly.

3.3.15 Regarding Conclusion 1/13 – Designation of selected State volcano observatories to be included in the Basic ANP/FASID, the Meeting agreed on the volcano observatories that would monitor the active volcanoes of the selected CAR/SAM States/Territories. Accordingly, it formulated the following conclusion:

[2] AERMET/SG/7 Conclusion 7/6 Pre-approved by GREPECAS Members on 22 August 2005

CONCLUSION 13/21 DESIGNATION OF VOLCANO OBSERVATORIES OF SELECTED CAR/SAM STATES/TERRITORIES

That a new Table MET 3C be included in Part VI - MET of the CAR/SAM FASID, listing the volcano observatories of selected CAR/SAM States/Territories, as shown in **Appendix H** to this part of the Report.

3.3.16 The Meeting noted that, according to Amendment 73 to Annex 3, the States that maintained observatories for volcanoes identified in the CAR/SAM ANP/FASID, and which observed significant pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash, should send a message as soon as possible to associated ACCs, MWOs and VAACs. In this regard, the Meeting agreed that procedures to be applied by volcano observatories for the provision of this information for aeronautical purposes should be standardized and agreements be established so that the International Union of Geodesy and Geophysics (IUGG) may establish the uniform use of the color code by volcano observatories. Accordingly, it formulated the following conclusion:

CONCLUSION 13/22 OPERATIONAL REQUIREMENTS FOR VOLCANO OBSERVATORIES

That the IAVWOPSG consider:

a) the development, in coordination with the IUGG, of a standard format for messages related to volcanic eruptions that volcano observatories must send to ACCs, MWOs and VAACs;

b) based on a) above, inviting the IUGG to consider the adoption of the standard format, and volcano observatories to agree on the adoption of the color code, pursuant to Annex 15, in support of the issuance of ASHTAMs and NOTAMs as messages to alert on the status of a volcano according to Annex 3.

Guide for the development of emergency plans for aerodromes that might be affected by volcanic ash

3.3.17 The Meeting agreed that the planning of emergency procedures for airports that might be affected by volcanic ash required the preparation of personnel and means in order to minimize its effects, and thus the need to have Aerodrome Emergency Plans to coordinate the action of the units and/or airports services involved and, if necessary, of those surrounding community units that might be of help for an effective response to this emergency. Accordingly, it formulated the following decision:

DECISION 13/23 DEVELOPMENT OF A GUIDE FOR THE DRAFTING OF EMERGENCY PLANS FOR AERODROMES THAT MIGHT BE AFFECTED BY VOLCANIC ASH IN THE CAR/SAM REGIONS

That the AERMET Subgroup, in coordination with the Secretariat, develop a guide for the drafting of emergency plans for aerodromes that might be affected by volcanic ash in the CAR/SAM Regions.

System for early detection of volcanic activity

3.3.18 The Meeting took note of the action taken by the Buenos Aires VAAC provider State *vis-a-vis* the National Commission on Space Activities (CONAE) of Argentina for the development of a system for early detection of volcanic activity indicators using satellite sensors, in relation to IAVW planning. Accordingly, it formulated the following conclusion:

CONCLUSION 13/24 DEVELOPMENT OF A SYSTEM FOR EARLY DETECTION OF VOLCANIC ACTIVITY USING REMOTE SENSORS

That the IAVWOPSG member from the Buenos Aires VAAC include information on the development of a system for early detection of volcanic activity using remote sensors in the executive report to be presented to the IAVWOPSG/2 meeting.

3.3.19 The Meeting welcomed the information provided by the Washington VAAC regarding the support of the Federal Aviation Administration (FAA) to the IAVW, which covered the organizational structure, the flow of volcanic ash information, and the structure of a draft national operations plan that was being prepared in support of the IAVW. It was also informed by the Buenos Aires VAAC provider State on the analysis of the procedures of the Buenos Aires VAAC and MWOs involved in the eruption of Láscar Volcano (N° 1505-10/23°22´ S 067° 43´ W) on 4 May 2005, and on its conclusions, with a view to optimizing the operation of the Volcanic Ash Advisory Centre.

3.3.20 Due to some language problems that States have been encountering in their communications with the Washington VAAC, the Meeting agreed to include the procedures established by this VAAC in the Guide for the Preparation, Dissemination and Use of SIGMET Messages in the CAR/SAM Regions, which is being updated.

Exchange of OPMET information in the CAR/SAM Regions

OPMET information exchange controls in CAR/SAM States/Territories

3.3.21 The Meeting reviewed the results of the OPMET exchange controls corresponding to the periods 10-16 June 2002, 2003 and 2004, and 10-16 November 2002 and 2003, for the States that participated in the control and for those on which information was received, as well as of the controls carried out by the Brasilia International OPMET Data Bank from 10-16 March 2004. In this respect, it agreed that a more detailed analysis as well as a constant monitoring of OPMET exchange were required. Likewise, and in order to begin interregional controls and to expedite the analysis of OPMET controls, the Meeting agreed on the need to update the formats used for OPMET control and to add the format used by the ICAO SAM Office for its analysis. Accordingly, it formulated the following conclusion:

CONCLUSION 13/25 FORMATS FOR THE EXCHANGE OF OPMET INFORMATION

That

a) the Secretariat update the formats used by CAR/SAM States for the coordinated control of OPMET data, taking into account the amendments to FASID Table MET 2A and the OPMET requirements of all the States/Territories of the different ICAO Regions, in accordance with the aforementioned table; and

b) based on the coordinated OPMET control to be carried out on 10-16 June 2006, the States use, in addition to the current formats, the format included in **Appendix I** to this part of the Report.

OPMET information to be broadcast to the ISCS and SADIS

3.3.22 The Meeting took note that, pursuant to GREPECAS Conclusion 12/55, the second meeting of the World Area Forecast System Operations Group (WAFSOPSG/2), held in Bangkok, Thailand, 8-11 March 2005, had formulated Conclusion 2/5 – *Development of the ISCS User Guide*, and that, according to the *Note* in the aforementioned conclusion, there was no need to develop *Annex 1 "Required aerodrome OPMET information to be included in the ISCS broadcast"*, since the OPMET information to be included in the *Annex* to the ISCS user guide was identical to that contained in SADIS *Annex 1*.

3.3.23 Accordingly, the Meeting agreed that, in order to facilitate the control of all OPMET information in the CAR/SAM Regions, OPMET information of aerodromes not included in FASID Table AOP1 of CAR/SAM States that had agreed to send OPMET information to ISCS and SADIS should be included in *italics* in Table MET 2A of the CAR/SAM FASID. Accordingly, it formulated the following conclusion:

CONCLUSION 13/26 OPMET DATA EXCHANGE REQUIREMENT

That the CAR/SAM FASID Table MET 2A be amended to include, in *italics*, the aerodromes not included in the FASID Table AOP1 of the States that have agreed to send OPMET information to ISCS and SADIS.

3.3.24 The Meeting also took note of the OPMET data analysis carried out by the SADIS provider State from 28 February to 12 March 2004, regarding the regularity and availability rates of OPMET information received based on *Annex 1* to the *SADIS User Guide*, which showed a significant deficit of METARs in the CAR/SAM Regions, for aerodromes both listed and not listed in Table AOP1 of the CAR/SAM FASID, and that most of the missing data had been probably sent to SADIS, but not received for its broadcast. The Meeting recalled that the addresses to which CAR and SAM States should send OPMET data were as follows:

a) CAR Region: EGZZMCAR; and

b) SAM Region: EGZZMSAM

3.3.25 The Meeting also noted the need for MET authorities to verify with AIS/MAP units, specifically with the International NOTAM Offices (NOFs), that volcanic ash ASHTAMs and NOTAMs were send to SADIS through the London VAAC to the AFTN address EGZZVANW.

3.3.26 Based on the results of the OPMET control carried out by the ICAO SAM Regional Office, the Meeting noted that the required reception percentages (98%) were not yet being attained. Likewise, taking into account the low level of reception of OPMET data from some aerodromes at the Brasilia OPMET International Data Bank, it felt that a factor that might be affecting the efficiency of OPMET exchange could be that some States were not considering aerodrome working hours, where applicable. In this regard, the Group agreed to update the information on working schedules of aerodromes that required international exchange of OPMET data. Accordingly, it formulated the following conclusion:

CONCLUSION 13/27[3] WORKING HOURS OF AERODROMES REQUIRING OPMET DATA EXCHANGE

That

a) the information on working hours of aerodromes requiring international exchange of OPMET data, as shown in **Appendix J** to this part of the Report, be updated; and

b) based on a), aerodromes working hours be included in the formats used for OPMET exchange.

[3] AERMET/SG/7 Conclusion 7/14 Pre-approved by GREPECAS Members on 22 August 2005

3.3.27 With that same purpose, the Meeting reviewed the AFTN addresses of CAR/SAM States to which OPMET information should be sent, as shown in **Appendix K** to this part of the Report, and agreed on the need to have a Guide for OPMET exchange in the CAR/SAM Regions. Accordingly, it formulated the following decision:

DECISION 13/28 GUIDE FOR THE EXCHANGE OF OPMET INFORMATION IN THE CAR/SAM REGIONS

That the AERMETSG Subgroup, in coordination with the Secretariat, develop a Guide for the exchange of OPMET information in the CAR/SAM Regions.

Migration from traditional alphanumeric codes (TAC) to binary universal formats to represent meteorological data (BUFR) of aeronautical meteorological messages

3.3.28 The Meeting took note that, pursuant to Recommendation 2/5 of the MET Divisional Meeting (Montreal, Canada 2002), and in accordance with the *Working arrangement between the International Civil Aviation Organization and the World Meteorological Organization* (Doc 7475), the 14th Congress of the WMO, held in Geneva, Switzerland, from 5 to 23 May 2003, had endorsed the general plan for the migration from traditional alphanumeric codes to the so-called tabular codes, which would allow the concurrent use of the new codes with the alphanumeric codes as of 2007, and their exclusionary use around 2015. Furthermore, with a view to achieving an orderly migration to the BUFR code, the PIRGs should launch a detailed regional plan involving MET and CNS experts of the corresponding PIRGs, taking into account the regional and inter-regional exchange of OPMET data, the latter in coordination with the regions involved.

3.3.29 Within this context, the Meeting took note of the WMO guidelines on the BUFR code to be used for OPMET messages. Considering that the processing of OPMET messages was currently done through the AFTN, which used character-oriented data processing control, and thus is not compatible with the bit-oriented BUFR code, the Meeting noted that the AFTN was foreseen to migrate to the AMHS (Aeronautical Message Handling System), which represented a ground application of the ATN based on bit-oriented data processing. AMHS implementation would be gradual, it being foreseen that, by 2015, the AFTN application would be fully replaced by the AMHS. Accordingly, the following decision was formulated:

DECISION 13/29 PLAN FOR THE MIGRATION OF AERONAUTICAL METEOROLOGICAL MESSAGES TO THE BUFR CODE IN THE CAR/SAM REGIONS

That the AERMET Subgroup, in coordination with the CNS Committee of the GREPECAS ATM/CNS/SG, develop a detailed plan for the migration from aeronautical meteorological codes to BUFR codes.

3.3.30 In keeping with Recommendation 2/5 c) of the MET Divisional Meeting (Montreal, Canada, 2002), and in order to facilitate a smooth migration, CAR/SAM States/Territories should be introduced to the BUFR codes, the means of communications and the necessary processing requirements. Accordingly, the Group formulated the following conclusion:

CONCLUSION 13/30 TRAINING ON THE BUFR CODE

That, in order to facilitate the migration from the traditional alphanumerical codes (TAC) to the BUFR code, the WMO, in collaboration with ICAO, organize a seminar on the BUFR code and its broadcast, in order to provide training on communication and processing requirements for its implementation in the CAR/SAM Regions.

Operation and use of the Brasilia International OPMET Data Bank

3.3.31 The Meeting took note of the updating of the Brasilia international OPMET data bank, located in the Brasilia CNMA. The bank was linked to the AFTN network through the CCAM and the REDEMET (Meteorological Data Network - www.redemet.aer.mil.br), for its use by ICAO CAR/SAM States/Territories. The bank automatically receives, selects, stores and relays OPMET information received in accordance with CAR/SAM FASID Tables MET 2A and MET 2B.

Guidelines for the use of the public internet for aeronautical applications

3.3.32 In keeping with Recommendations 4/5 and 4/6 of the MET Divisional Meeting (Montreal, Canada, 2002), the Meeting was informed that, on 2 November 2004, the Commission (162-5) had become aware of the publication of ICAO Doc 9855 - *Guidelines for the Use of the Public Internet for Aeronautical Applications* developed by the Secretariat with the assistance of the Aviation Use of the Public Internet Study Group (AUPISG). The Meeting considered that the AERMET Subgroup should begin analyzing the MET section of this manual.

Review of the CAR/SAM ANP/FASID, Part VI-MET

3.3.33 The Meeting reviewed and updated the regional meteorological procedures of Part VI – Meteorology, of the CAR/SAM ANP Basic/FASID (Doc 8733), in compliance with Conclusions 1/1 and 2/2 of the IAVWOPSG/1 and WAFSOPSG/2 meetings, respectively, as well as the provisions of Annex 3, in order to align them with the structure of CAR/SAM requirements, and with the information received from the United States on the change of venue of the Miami WMO and the TCAC Miami to Kansas City, which implies an amendment to Tables MET 1B, 2B, 3A and 3B of the CAR/SAM FASID. Accordingly, it formulated the following conclusion:

CONCLUSION 13/31 PROPOSAL FOR THE AMENDMENT OF THE CAR/SAM BASIC ANP/FASID, PART VI - MET

That

a) the text of Part VI – MET of the CAR/SAM Air Navigation Plan, Volume I, Basic, which appears in **Appendix L** to this part of the Report, replace the current text of the CAR/SAM ANP, Volume I, Basic (Doc 8733); and

b) the CAR/SAM FASID Document on facilities and services be amended as shown in **Appendix M** to this part of the Report.

MET Training

3.3.34 The Meeting noted that lack of adequate training of the aeronautical meteorological personnel responsible for the provision of meteorological services to international civil aviation was one of the specific problems affecting this activity in many CAR/SAM States and that GREPECAS had identified this problem as the one of most prevalent in the CAR/SAM Regions. It also took note of the training activities carried out by ICAO, in coordination with the Washington and London WAFS provider State, regarding the WAFS GRIB and BUFR codes for Spanish-speaking States of the CAR/SAM Regions from 1 to 3 December 2004, and regretted the cancellation of the training activity foreseen to be carried out from 16 to 18 March 2005 for the English-speaking States of these Regions, due to lack of confirmation of assistance.

3.3.35 The Meeting also regretted that the World Meteorological Organization (WMO) had faced financial problems to meet the aeronautical meteorology training requirements in the CAR/SAM Regions in keeping with the *Working arrangements between the International Civil Aviation Organization and the World Meteorological Organization* (Doc 7475), and welcomed the information provided by the WMO member in the sense that the budget had been approved and that training requirements in the CAR/SAM Regions, as reflected in GREPECAS Conclusions 11/60, 12/66 and 12/68, would be met in 2006 or no later than 2007.

3.3.36 It also regretted the information provided by the United States member, in the sense that the Aeronautical Weather Centre (AWC) of Kansas City, where an International Office was to be created to support training activities for developing States in the specific area of aeronautical meteorology, did not have resources available for the establishment of the aforementioned office, due to other priorities of the International Activities Office of the National Ocean and Atmosphere Administration (NOAA), to which the AWC reports.

Survey on training requirements of CAR/SAM States

3.3.37 The Meeting analyzed the results of the survey on MET training requirements carried out among CAR/SAM States, and highlighted a list of high-priority training requirements, given its relevance for more than 90% of the States that answered the survey (100% of the SAM States and 3 CAR States). The analysis of training requirements appears in **Appendix N** to this part of the Report.

3.3.38 The Meeting welcomed the offer made by the World Meteorological Organization (WMO) to provide interactive training modules to the CAR/SAM States, with prior coordination with the Secretariat.

3.3.39 Likewise, and based on GREPECAS Conclusion 10/39, the Meeting agreed on the urgent need to develop a Draft Regional Training Plan with the support and coordination of the WMO and ICAO, with the purpose of proposing short- and medium-term solutions to training deficiencies in CAR/SAM States/Territories, based on the results of the analysis. Likewise, it suggested that the WMO, through its subgroup member, review the results of the survey and propose solutions.

Information papers

3.3.40 The Meeting was presented with IP/3 from Brazil regarding action taken by Brazil for the implementation of operational procedures by the ACCs, NOFs and MWOs in the event the Brazilian airspace is affected by volcanic ash.

3.3.41 The Meeting recalled that Conclusions 7/4 – "WAFS Implementation Plan for the CAR/SAM Regions", 7/6 – "Periodic tests on volcanic ash SIGMETs, volcanic ash advisories, and volcanic ash ASHTAMs or NOTAMs", and 7/14 – "Working hours of aerodromes requiring OPMET data exchange**"** had been approved on 22 August 2005 through the fast-track procedure of the GREPECAS Administration and Coordination Group (ACG).

3.4 Report of the AGA/AOP/SG/4 Meeting

3.4.1 The Meeting reviewed the work carried out by the AGA/AOP Subgroup at its Fourth Meeting, and noted that the Subgroup had proposed amendments to its work programme which, together with the changes to its composition, appear under Agenda Item 5.

AGA Deficiencies and Action Plans

3.4.2 The Meeting observed that the Subgroup examined the last deficiency status in the AGA field of the Air Navigation area and it discussed the critical aspects considered in the GREPECAS/12 Meeting on the deficiencies and aerodromes maintenance programmes. The Meeting was also informed that emphasis was done in order that States/Territories send the action plans for each deficiency, taking into consideration the format included by the GREPECAS Secretary, in the air navigation deficiencies database of the CAR/SAM Regions. The action plans of some States were not sent to the ICAO Regional Offices, including the difficulties found.

Airfield Maintenance/Translation of the Regional Manual on Airport Maintenance

3.4.3 The Meeting took note that the translation of the Regional Manual on Airport Maintenance from Spanish to English was finished and sent to ALACPA, according to Conclusion 12/74 of GREPECAS, to be revised. In addition, the Meeting was informed that ALACPA has not finished the revision of said Manual.

Aerodrome Certification/Safety Management Systems (SMS)

3.4.4 The Meeting was informed that the data obtained by the Regional Offices in table format (**Appendix O)** and discussed by the Subgroup, on the progress of the implementation of aerodrome certification in the States/Territories of the CAR/SAM Regions, indicated that many States/Territories did not reply to the survey carried out by the NACC and SAM Regional Offices. Likewise, there are States who have not published the basic documentation, have non-certified airports, and others that are not in the process of nor planning to be certified.

3.4.5 The Meeting was informed that the Subgroup concluded that one of the alternatives considered was to carry out workshops in English and Spanish for the NAM/CAR/SAM Regions. The Spanish workshop was held in Buenos Aires, Argentina, in April 2005. As a product of this workshop, a Guidance Material on the Safety Management Systems for Airports (SIGESOA) was developed and distributed to the States/Territories and is also placed in the Regional Offices websites. The workshop in English will be held in Mexico City in March 2006.

3.4.6 Regarding the aerodrome certification process, the Meeting took note that the current AIP format needs to be updated and that a specific field is necessary to indicate those aerodromes that are already certified. In this regard, the Meeting also recommended to the States/Territories to publish the airports already certified in the AIP general information on aerodromes.

3.4.7 Based on the discussions, the Meeting adopted:

CONCLUSION 13/32 INFORMATION ON CERTIFIED AERODROMES IN AIP

That ICAO consider taking the necessary actions to create a section within the AIP in order to include the information regarding certified aerodromes, all in accordance with paragraph 4.6 of Doc 9774 AN/969 *Manual on Certification of Aerodromes*, First Edition, 2001, "Promulgation in the AIP of the Certified Status and details of the aerodrome."

Emergency Plans and Emergency Operations Centres (EOC)

3.4.8 The Meeting was informed that, data obtained by the Regional Offices in table forms and discussed by the Subgroup, on the implementation status of emergency plans and Emergency Operations Centres (EOC), presented in **Appendix P** to this part of the Report, indicated that a few States/Territories replied the surveys carried out by the NACC and SAM regional offices. In addition, the data demonstrated that some States/Territories do not have emergency plans and emergency operations centre for some of their airports and some States/Territories do not maintain the emergency plans updated of all of their airports. One of the alternatives discussed by the Meeting to help the States/Territories to elaborate/implement the emergency plans/EOC was to carry out workshops in English and Spanish. In this sense, the Meeting was informed that Chile expressed its desire to sponsor the Spanish workshop to be held in 2006.

3.4.9 The Meeting was also informed that, due to the great importance of the subject, the Subgroup had created a Task Force on Emergency Plans and Emergency Operations Centres (EOC), whose terms of reference and respective composition will be indicated in the Agenda Item 5.

3.4.10 Based on the previous, the Meeting adopted:

CONCLUSION 13/33 EMERGENCY PLANS AND EMERGENCY OPERATIONS CENTRES (EOC) WORKSHOPS

That ICAO,

a) consider coordinating the development of workshops in English and Spanish, related to the minimum requirements of emergency plans and emergency operations centres (EOC) and the corresponding implementation at airports within the NAM/CAR/SAM Regions;

b) hold a Spanish language workshop in Santiago, Chile, in 2006, in accordance with the offer made by the Chilean Delegation; and

c) urge States/Territories and International Organizations to send participants to the workshop.

Annex 14 Audits of the ICAO USOAP Programme

3.4.11 The Meeting took note that the Subgroup was informed by the Secretariat on the latest progress regarding the Universal Safety Oversight Audit Programme (USOAP), especially that the same will be applied as a comprehensive system approach, considering those Annexes related with Safety Oversight rather than Annex by Annex.

Information of ALACPA's Activities

3.4.12 The Meeting was informed on the Guidance Manual for Aerodrome Inspection in the CAR/SAM Regions in accordance with Annex 14, presented by the ALACPA's President (**Appendix Q**), with a checklist, presented as **Appendix R** to this part of the Report. The Meeting was informed that said document had already been distributed to the States/Territories and that it is on the regional offices webpages. In addition, the Meeting also noted that this reference guide, for use by States and Territories, is not an ICAO official document, but was developed as a result of the following events coordinated and conducted by ICAO, and proposed by the AGA/AOP Subgroup:

- Workshop on Aerodrome Certification for the NAM/CAR/SAM Regions, held in Santiago, Chile from 24 to 27 September 2002, with the participation of 88 delegates (working groups that developed a preliminary checklist for aerodrome inspection were formed).

- Workshop for Aerodrome Inspectors, held in Buenos Aires, Argentina, from 22 to 26 March 2004, with the participation of 126 delegates. (5 working groups and a rapporteur group were formed, which based on the checklist prepared in Chile, developed the present reference guide).

Information of the CAR/SAM Regional Bird and Wildlife Hazard Prevention Committee Activities

3.4.13 The Meeting was informed on the progress of this Regional Committee emphasising: the actions taken to encourage States/Territories to send the information regarding aircraft bird strikes in accordance with the standards of Annex 14, Vol. I, creation of Bird Hazard National Committees and Airport Coordinating Committees, website establishment, effective contact of the Committee with ICAO Montreal, AGA Section, periodic publication of the Official Bulletin of the Committee, organization of the Second Meeting of the Committee. In addition, the Meeting took note of the Third International Conference on Bird and Wildlife Hazard Prevention, to be held in Rio de Janeiro, Brazil, from 28 to 02 December 2005.

Agenda Item on the Review of Air Navigation Plan Matters

Airport traffic forecasts

3.4.14 The Meeting was informed about the status of GREPECAS Conclusion 12/77 (AGA/AOP/SG traffic forecast requirements). The Meeting took note that, in order for the Subgroup to comply with the terms of reference defined by GREPECAS for its proper functioning, it is necessary to have the requested forecasts from States and Territories, according to the information requested in item a) of the aforementioned Conclusion. The information requested was partially received from the CAR/SAM Traffic Forecast Group Meeting (Lima, 12 to 16 September 2005).

3.4.15 The Meeting was informed that, according to the previous comments, the deadline set by GREPECAS Conclusion 12/77 was 31 October 2005. The ICAO NACC and SAM Offices will again circulate the contents of GREPECAS Conclusion 12/77 to the CAR/SAM States/Territories.

En-Route Alternate Aerodromes

3.4.16 The Meeting was informed that, in compliance with Conclusion 12/78 of the GREPECAS, the list of en-route alternate aerodromes prepared by IATA was resent to those States/Territories that did not answer the first sending of the list for the corresponding review. The information was officially sent to IATA, through **Appendix S** to this part of the Report**,** for the consolidation of the final list. IATA sent it to the GREPECAS Secretariat for the necessary actions. The Meeting was also informed that the Subgroup considers that the GREPECAS conclusion on this issue is therefore finalized.

FASID Table AOP-1 (Doc 8733)

3.4.17 The Meeting was informed that the Subgroup took note of the actions taken by the NACC and SAM Regional Offices regarding the Amendment Proposals to the FASID Table AOP-1.

Agenda Item Review of Task Forces Activities

Bird Hazards Task Force Report

3.4.18 The Meeting took note that the Bird Hazards Task Force concluded all of the activities of its terms of reference and that, furthermore, it should be disbanded. In addition, the Meeting was informed that the Subgroup Secretariat will continue the coordination with the GREPECAS ATM/CNS Subgroup, on the "Recommendations on ATS Procedures and Ground Operations for Bird Strike Prevention".

3.4.19 The Meeting was also informed that the Subgroup suggested to the CAR/SAM Regional Bird Hazard Prevention Committee to gradually expand its functions from Bird Hazard prevention to the wildlife management in accordance with the international trend on this issue.

3.4.20 Based on all the above, the Meeting adopted the following decisions:

DECISION 13/34 CONTINUATION OF ATS PROCEDURES AND GROUND OPERATION ANALYSIS IN THE WILDLIFE MANAGEMENT

That the Secretaries of the AGA/AOP Subgroup and ATM Committee of the ATM/CNS Subgroup continue monitoring the status of progress of the recommendations on ATS procedures and ground operation for the bird hazard prevention.

DECISION 13/35 TRAINING AND TERMS OF REFERENCE OF PERSON RESPONSIBLE FOR WILDLIFE MANAGEMENT

That the Subgroup, in coordination with the CAR/SAM Regional Bird Hazard Prevention Committee, fosters the professional level training of the persons in charge of wildlife management at the aerodromes of the CAR/SAM States and Territories, whose current terms of reference regarding bird hazard prevention should gradually incorporate measures for the prevention and mitigation of the different wildlife species existing within the airports and their vicinity.

Report of the Runway Strips & Runway End Safety Areas Task Force Report (RESA)

3.4.21 The Meeting took note that the Runway Strips & Runway End Safety Areas (RESA) Task Force presented the following statistical data on the subject: 36% of the RESA-related deficiencies were corrected in the CAR Region as compared with 2003 (AGA/AOP/SG/03 Meeting). Likewise, the Rapporteur informed the Meeting that the most marked problem in the CAR Region is the lack of RESA in both runway ends (57% of the reported deficiencies). For the SAM Region, there was a 14% improvement as compared with 2003. Nevertheless, there are less reported RESA deficiencies cases in this region, mainly on the lack of them. The biggest problems are those presented within the RESA, such as unevenness or obstacle presence.

3.4.22 With regard to runway strips in the CAR Region, there was a 28% improvement as compared to 2003. Of the notified deficiencies related with this matter, 73% are related with insufficient dimensions. For the SAM Region, there was a 25% improvement as compared to 2003 and 89% of the reported runway strips related deficiencies concern non-dimensional problems.

Runway Incursion Prevention Task Force Report

3.4.23 The Meeting was informed that this Task Force is developing a preliminary table to standardize the notifications on runway incursions in the NAM/CAR/SAM Regions and that studies have already started for the development of the runway incursions database in these Regions.

Demand/Capacity Task Force Report

3.4.24 The Meeting took note that the Subgroup decided to continue with this Task Force and to comply with what is established by GREPECAS through its Conclusion 12/76 (*Airport Demand/Capacity Task Force*). In addition, the Task Force should dedicate its efforts to the study of the impact on the airport infrastructure of the forthcoming application of the NLA.

Review of other Technical Matters

Translation of the ICAO Regional Manual on Airport Environment

3.4.25 The Meeting was informed that the above-mentioned Manual was already translated and sent to the GREPECAS Secretariat. The Meeting concluded that GREPECAS Conclusion 12/80 was fulfilled.

Expression "Wherever Practicable" in Annex 14, Volume I, Standards

3.4.26 The Meeting was informed that some States expressed their concern on adopting some standards of Annex 14, Vol. I, Fourth Edition, that have the expression "wherever practicable". One of these examples is paragraph 3.4.3, which establishes a width of 300 m for strip including the precision approach runway. Several States informed that this expression has been cause of controversial positions between the Civil Aviation Authorities and the aerodromes private operators, who, through their lawyers, refuse, in some circumstances, the compliance of said standards. Likewise, the States expressed their concern because when interpreting Table 4.1 and comparing it with paragraph 3.4.3 they have found "some conflicts" due to the expression "wherever practicable". In this regard, some States declared that the application of Table 3.1 (distances between taxiway and runway centrelines) is also in conflict with some aspects of the transitional surface.

3.4.27 The Meeting took note that this issue has been brought to ICAO in some specific cases and that there are no possible explanations for all of the inquiries.

3.4.28 Based on the previous paragraphs, the Meeting adopted the following conclusion:

CONCLUSION 13/36 CLARIFICATION ON THE APPLICATION OF THE EXPRESSION "WHEREVER PRACTICABLE" IN ANNEX 14, VOLUME I

That,

a) ICAO clarifies the application of the expression "wherever practicable" mentioned in standards; and

b) if possible, indicate some cases were this expression could be applied and/or if this expression is only referred to physical and topographical limitations.

ICAO Global and Regional AGA Activities

3.4.29 The Meeting was informed that the ICAO Regional Offices, following Subgroup suggestions, carried out follow-ups to the "Seminar on Airfield Pavement Maintenance/Short Course on the Aircraft/Pavement Interaction", held in Santa Cruz de la Sierra, Bolivia, from 22 to 27 July 2002. The monitoring was carried out in September 2002, March and September 2003. The data analysed and compiled by the Subgroup indicated that the proposed training methodology used was very suitable. Based on the above, the Meeting adopted the following:

CONCLUSION 13/37 EVENTS ON AIRFIELD PAVEMENTS

That ICAO

a) urge the States/Territories and International Organizations to send their technicians to the events on pavements and their maintenance, as the subjects are very complex and with little or no specific training offered on them in the NAM/CAR/SAM Regions; and

b) study a mechanism for the evaluation of the efficiency and effectiveness of the events provided to the States/Territories so that the knowledge transfer methodologies may be adopted to each specific situation needed in the Regions, mainly those related with the deficiencies, their corrections and their correlation with the air navigation field and safety.

3.4.30 The Meeting was informed that the "Seminar on Airfield Pavement Design (GREPECAS Conclusion 12/82)" was postponed from 2004 to 11 to 16 September 2005, due to dates problems, short time to spread the event and the possibility that the FAA presented the latest progress on pavement design in 2005, from its research in its Atlantic City Technical Centre. This event, indeed, was held under the auspices of Colombia.

3.4.31 The Meeting took note that the Civil Aviation Authorities should be urged to foster the participation of their AGA specialists in the air navigation regional and sub regional meetings, as well as in seminars, workshops and courses specialized in the AGA field.

Agenda Item on any other business

Compliance with the Conclusions and Recommendations of the CAR/SAM/3 RAN Meeting

3.4.32 The Meeting took note that the Subgroup analysed the compliance with the conclusions and recommendations of the CAR/SAM/3 RAN. In this sense, **Appendix T** to this part of the Report shows the follow-up and compliance with those Conclusions during the four meetings of the Subgroup and the verification if these Conclusions were included within the Terms of Reference of the Subgroup. Likewise, the summary presented in said Appendix allows to visualize the actions performed and the already available results to be used in the NAM/CAR/SAM Regions.

3.4.33 The Meeting received the requests of the delegations of Barbados and Haiti in order to continue as members of the AGA/AOP Subgroup. Therefore, they will be included in the composition of the AGA/AOP/SG presented under Agenda Item 5 of this Report.

Information papers

3.4.34 The Meeting received the following information papers from United States:

IP/05 “National Airfield Pavement Test Facility (NAPTF)”

IP/06 “Technical and Direct Management Assistance provided by United States Department of Agriculture, Wildlife Services at Airports to Reduce Wildlife Hazards”.

IP/07 “Engineered Materials Arresting System (EMAS)”

IP/11 “Runway Safety Areas (RESA)”.

3.5 Report of the AIS/MAP/SG/9 Meeting

3.5.1 The Meeting noted, reviewed and adopted the following conclusions and decisions concerning the report of the ninth meeting of the AIS/MAP Subgroup (AIS/MAP/SG/9), held in Santo Domingo, Dominican Republic, from 13 to 17 June 2005.

AIS/MAP quality management

3.5.2 In reviewing the matters related to quality management of AIS/MAP information/data processing, the Meeting took note on the actions of the subgroup in the preparation of the AIS/MAP Quality Manual, guidance material, and the Guidance Manual for the Implementation of a Quality Management System in the CAR/SAM Regions, which appear in **Appendix U** to this part of the Report. It also took note of the development of specific procedures for the certification and validation of aeronautical data, and of AIRAC publications, which are attached to the aforementioned Appendix, to consolidate the AIS quality matter. The Meeting also examined the status of implementation of quality systems in the CAR/SAM States/Territories/Organizations, as shown in **Appendix V** to this part of the Report.

3.5.3 Regarding this matter, the Meeting recognized that the Guidance Manual was a useful tool for States/Territories/International Organizations which had not done so yet, to implement an AIS/MAP quality system, in keeping with ISO 9000 standards.

3.5.4 The Meeting recalled that Draft Conclusions 9/16 – Guidance Manual for the implementation of a AIS/MAP quality system for the CAR/SAM Regions, and 9/17 - AIS/MAP Quality Assurance Seminar of the AIS/MAP/SG/9, had been approved through the fast-track procedure of the GREPECAS Administration and Coordination Group (ACG). The aforementioned seminar was successfully held in Santo Domingo, Dominican Republic, on 24-28 October 2005. Another similar seminar was approved under a special implementation project (SIP) for the SAM Region, that would be held in Lima, Peru, from 5 to 9 December 2005.

3.5.5 Based on the above, the Meeting agreed to formulate the following conclusions, which confirm the adoption of the aforementioned guidance manual and procedures:

CONCLUSION 13/38[4] GUIDANCE MANUAL FOR THE IMPLEMENTATION OF AN AIS/MAP QUALITY SYSTEM IN THE CAR/SAM REGIONS

That the States/Territories/International Organizations:

a) adopt the "Guidance Manual for the Implementation of an AIS/MAP Quality System in AIS/MAP Services of the CAR/SAM Regions", shown in Appendix U to this part of the Report;

b) adopt the certification and validation procedures for aeronautical data and AIRAC publications contained in Appendices U to this part of the Report; and

c) develop the required regulations to identify and designate the civil aviation authorities of each State empowered to certify and/or validate the aeronautical data to be published.

CONCLUSION 13/39[5] AIS/MAP QUALITY ASSURANCE SEMINAR

That the AIS/MAP Quality Assurance Seminar scheduled within the activities of the ICAO NACC Regional Office as a CAR/SAM regional activity, aimed at disseminating and interpreting the Guidance Manual for the Implementation of an AIS/MAP Quality System for the CAR/SAM Regions, to assist the States/Territories to implement it, be held by November 2005.

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[4] AIS/MAP/SG/9 Conclusion 9/16 Pre-approved by GREPECAS members on 27 August 2005

[5] AIS/MAP/SG/9 Conclusion 9/17 Pre-approved by GREPECAS members on 27 August 2005. Event held in Santo Domingo, Dominican Republic (24-28 October 2005).

CONCLUSION 13/40 SEMINARS ON THE NEW STANDARDS DERIVED FROM THE AMENDMENTS TO ANNEXES 4 AND 15 IN LINE WITH THE DEVELOPMENT OF CNS/ATM SYSTEMS IN THE CAR/SAM REGIONS

That, ICAO NACC and SAM Regional offices, with the support of the States, organize training seminars on the comprehension and interpretation of the tables of quality requirements for aeronautical data and electronic ground and obstacles data, as well as on any other important topic dealing with the new ICAO standards aimed at the development of aeronautical information management (AIM) in the CNS/ATM environment.

AIS/MAP database and automation

3.5.6 Regarding action taken on AIS/MAP database and automation, the Meeting took note that ICAO will have the global model for the exchange of aeronautical information/data exchange ready in 2007. Consequently, it was agreed to urge ICAO to define the aforementioned model and the corresponding guidance as soon as possible, since these were areas in which the CAR/SAM Regions needed to progress.

3.5.7 In view of the above, the Meeting took note of the initiative of the subgroup to establish 3 *ad-hoc* groups to address tasks that were still pending within the Database and Automation Task Force of the AIS/MAP Subgroup. The composition of these *ad-hoc* groups, as well as their respective tasks, are as follows:

- The composition of the *ad-hoc* group to address DB/AUTO/TF/4 task - "Develop technical specifications to promote the production of WGS-84 electronic aeronautical charts, using the technology of the geographical information system (GIS) and the terrain digital modeling system (TDMS), in support of CNS/ATM GNSS/FMS systems, based on ICAO documentation", includes Cuba, COCESNA, and NGA (USA), as Coordinator. (Note: the DB/AUTO/TF also deals with aeronautical mapping issues.)

- The composition of the *ad hoc* group to address DB/AUTO/TF/5 task - "Define general technical criteria for the automated processing of the Integrated Aeronautical Information Documentation by CAR/SAM States/Territories, based on ICAO documentation", includes Bolivia, Uruguay, Venezuela, COCESNA and Ecuador, as Coordinator.

- The composition of the *ad hoc* group to address DB/AUTO/TF/6 task -"Carry out relevant studies for the harmonization and automated processing of AIS/MAP and FLP products to support the integrated provision of a pre-flight and in-flight information service, based on ICAO documentation" includes Bolivia, Chile, Colombia, Venezuela, and COCESNA, as Coordinator.

3.5.8 When examining the action taken to foster the implementation of NOTAM data banks in direct support of the CAR/SAM AIS Integrated Database, as well as the ICAO/ANC recommendation urging States to implement the cited data banks, the Meeting took note of the updated status of implementation of national NOTAM data banks in both Regions. This update appears in **Appendix W** to this part of the Report.

3.5.9 In this regard, and considering the difficulties still being experienced by some States/Territories/International Organizations to comply with this implementation, the Meeting welcomed the draft conclusion of the subgroup, which guarantees the availability of NOTAM information and fosters the development of operational agreements among States/Territories/International Organizations, so that the responsibility for the storage and availability of said information can be established, as shown in the examples contained in **Appendix X** to this part of the Report.

3.5.10 In this regard, Brazil, Cuba and COCESNA offered assistance in the implementation of NASCs to the States that so required. **Appendix Y** to this part of the Report contains information on the terms of the assistance offered by Brazil and Cuba.

3.5.11 In view of the interest expressed by States/Territories/International Organizations to further the electronic exchange of information, the Meeting agreed to support the Brazilian proposal to adopt a data exchange model and carry out a test to confirm its feasibility. The Brazilian proposal consisted in utilizing the AIXM or any other text-based exchange model that facilitates the implementation of not only textual data but also vector data, using the GML as a suggestion. The proposal also proposed a test in CAR/SAM Regions for the exchange of aeronautical information among the databases existing in both regions, and that it should be developed by the AIS/MAP subgroup.

3.5.12 The Meeting welcomed this proposal and noted that the Database and Automation Task Force (DB/AUTO/TF) of the Subgroup already includes the planning and promotion of electronic information/data exchange in its terms of reference, to which the development of tests could eventually be added. The Meeting stressed that the TF should give priority to this proposal.

3.5.13 Although the Meeting acknowledged the recommendations of the ICAO ANC urging States to await the global model for the exchange of aeronautical information/data, it considered that States could advance on this issue through the work of the DB/AUTO/TF of the Subgroup. Accordingly, the Meeting adopted the following conclusions:

CONCLUSION 13/41 NEED TO FURTHER AIS/MAP AUTOMATED SYSTEMS

That, considering the need for CAR/SAM States/Territories/International Organizations to develop automated systems for exchange of information/data and the resulting application of the aeronautical information management concept, GREPECAS consider:

a) that automation of AIS services in the CAR/SAM Regions as an urgent matter necessary to make progress in line with developments related to the CNS/ATM elements that are already being implemented in these Regions; and

b) urging ICAO to define the global data model for the exchange of aeronautical information as soon as possible.

CONCLUSION 13/42 ACTION TO ENSURE THE AVAILABILITY OF NOTAM INFORMATION OF THE CAR/SAM REGIONS

That, considering the difficulties faced by some CAR/SAM States/Territories to implement National NOTAM Data Banks (NASCs) in their AIS services (see Appendix W to this part of the Report), it would be advisable to take the necessary actions:

a) to coordinate operational agreements aimed at ensuring at all times the storage and effective availability of NOTAM information in the CAR/SAM Regions;

b) so that the agreements between States/Territories/International Organizations mentioned under paragraph a) be coordinated and adopted as shown in Appendix X to this part of the Report; and

c) so that these may be established, formalized and implemented as soon as possible, as appropriate.

Aeronautical charts

3.5.14 Regarding the issue of aeronautical charts contained in the Terms of Reference of the Automation and Data Base Task Force of the Subgroup, the Meeting reviewed several aspects, as explained in the conclusions below, including the need for the guidance manual on mapping symbols, approved by GREPECAS/12, as well as the model sheets of 1:1,000,000 and 1:500,000 charts, to be available for use by the States/Territories/Organizations, since the manual posted in the ICAO website must be complete and comply with the colour and hypsometric tint requirements to represent terrain and other data.

3.5.15 The Meeting noted that for the planning of electronic aeronautical charts, it was necessary to take into account some fundamentals regarding the development of an electronic aeronautical chart for its dynamic display in the cockpit. These fundamentals, contained in the requirements of ICAO Annexes 4, 6 and 15, such as chart functions, information sources, and key requirements, are shown in **Appendix Z** to this part of the Report. Consequently, the Meeting stressed the importance for specialists in this area to be trained in the topics listed in the corresponding conclusion. In view of the above, the Meeting adopted the following conclusions:

CONCLUSION 13/43 AVAILABILITY OF THE MAPPING SYMBOLS GUIDANCE MANUAL IN THE WEB PAGE

That ICAO NACC and SAM Regional Offices incorporate in their respective web pages the Cartographical Symbols Guidance Manual including the requirements of colours and hypsometric tints representing the surface and other data, as well as the model sheets of charts 1:1,000,000 and 1:500,000.

CONCLUSION 13/44 AVAILABILITY OF ELECTRONIC TERRAIN AND OBSTACLE DATA IN THE CAR/SAM REGIONS

That, taking into consideration that the SARPs contained in Chapter 10 of ICAO Annex 15 introduce the requirement regarding the availability of electronic terrain and obstacle data between 2008 and 2010, and that the compliance of that requirement is essential to support the electronic aeronautical charts display (Annex 4, Chapter 20), States/Territories/International Organizations of the CAR and SAM Regions should take, individually or collectively, the required actions to ensure:

a) the availability, in digital format, of all terrain and obstacle data as well as all other aeronautical, geographical and geodesic information/data, of high quality and integrity, as required by ICAO Annex 15;

b) the electronic aeronautical charts display, in direct support to GNSS and WGS-84 compliant, and

c) the availability of databases aimed at ensuring the electronic availability of all aeronautical information/data required by civil aviation.

CONCLUSION 13/45 SPECIAL IMPLEMENTATION PROJECT (SIP) FOR TRAINING IN ELECTRONIC AERONAUTICAL DATA

That, taking into consideration that the AIS/MAP personnel need to obtain greater knowledge on required techniques for the availability and supply of electronic aeronautical data, ICAO NACC and SAM Regional Offices, are urged to promote the development of a Special Implementation Projects (SIP), addressed to provide training in the following subjects:

a) Geographic Information System (GIS);

b) Terrain Digital Models System (TDM);

c) Electronic Chart Display and Information Systems (ECDIS);

d) platform and tools required for the supply of Electronic Terrain and Obstacles Data;

e) electronic aeronautical charts display under a global reach, in direct support of GNSS; and,

f) reliable procedures and methods to ensure the quality and integrity of the aeronautical, geographical and geodesic information/data for civil aviation use.

3.5.16 The Meeting considered the importance and the need to foster a regional cooperation project for the production of aeronautical charts VFR 1:1000,000 and 1:500,000, taking into account the serious difficulties that several States have experienced and are experiencing in both Regions to comply with the SARPs in Annex 4, ANP CAR/SAM requirements, and the agreements reached at the third CAR/SAM RAN Meeting (CAR/SAM/3 RAN). The Meeting acknowledged that difficulties have arisen, basically, because civil aviation and geographical entities have not assigned the priority required to this issue. Likewise, it recalled that Table AIS-7 and Chart AIS 2, FASID Part VIII-Vol. II of the CAR/SAM ANP establish the requirements and responsibilities for the production of such charts, as shown in **Appendix AA** to this part of the Report. It also noted that the Air Navigation Commission and the ICAO Council, in reviewing the GREPECAS/12 Report, urged CAR/SAM States to comply with the provisions of Annex 4 in order to standardize the production of aeronautical charts worldwide.

3.5.17 The Meeting noted that the project would be furthered through joint ICAO/PAIGH action, and would eventually receive the support of the Organization of American States (OAS), the International Mapping Association, the Group of Experts on Aviation Safety, Security and Assistance (GEASA) of the Western Hemisphere Transportation Initiative (WHTI), and of other entities to be determined. Likewise, it deemed it advisable to create an Aeronautical Charts Working Group, which would include, in its terms of reference and tasks, aspects related to the aforementioned cooperation project.

3.5.18 Thus, the project could be extended to cover other objectives, such as databases, automation, and quality management, in which AENA from Spain has also offered its support.

3.5.19 The Meeting was also informed that the PAIGH Mapping Commission would hold a meeting in Caracas, Venezuela, on 16-18 November, 2005, where the conclusion 9/10 of the AIS/MAP/SG/9 would be endorsed to foster the project.

3.5.20 In this regard, the Meeting took note of the proposal of COCESNA to foster a project under the ICAO technical cooperation programme in the CAR/SAM Regions that will take into account the need to strengthen AIS/MAP information and aeronautical chart services and to foster the necessary planning to eliminate deficiencies in these services. It was felt that aeronautical mapping and automated aeronautical information management required for modern air navigation should be duly planned and coordinated at the regional level. Consequently, a joint regional effort should be made to optimize the use of resources and to significantly reduce the costs involved in their implementation, through individual national initiatives.

3.5.21 Likewise, COCESNA indicated that, during the NACC/DCA/2 Meeting (Tegucigalpa, Honduras, October 2005), the President of ICAO Council informed that ICAO had the IFFAS mechanism to support the resolution of regional deficiencies, and that he would be in close contact with the members of the Council and the ICAO NACC Office in order to bring to fruition a regional cooperation project to help to resolve the deficiencies related with the implementation of AIS-related elements, including:

- digital production of aeronautical charts for visual or instrument air navigation
- quality assurance
- automation
- electronic dissemination of AIP
- implementation and harmonization of WGS-84 coordinates.

3.5.22 The Meeting welcomed the COCESNA proposal and noted that the terms of reference of the ICAO/PAIGH working group on the production of aeronautical charts, pertaining to the Database and Automation Task Force (DB/AUTO/TF) of the Subgroup, already included a task concerning the suggested action. Thus, it was agreed that the working group should use WP/12 as reference material, given the important material contained therein, and to add a paragraph on the study of aspects related to the AIM concept in the respective conclusion.

3.5.23 Likewise, the Meeting took note that Cuba would not participate in the working group on the production of aeronautical charts because they lacked experience in PAIGH standards, since they applied ICAO standards, but wished the working group all success. Based on the above, the Meeting adopted the following conclusion:

CONCLUSION 13/46 ICAO/PAIGH PROJECT FOR THE PRODUCTION OF AERONAUTICAL CHARTS

That, taking into consideration the difficulties experienced in general in the CAR/SAM Regions regarding the production of Aeronautical Charts required in Annex 4, and the GEASA initiative to sponsor the preliminary studies, and the feasibility to obtain funds from IFFAS, GREPECAS:

a) approve the development of a project for the production of aeronautical charts under PAIGH and ICAO technical cooperation schemes;

b) establish PAIGH/ICAO Aeronautical Charts Working Group to carry out, specifically, the development of the ICAO/PAIGH draft Technical Co-operation project for the production and implementation of the 1:000,000 and 1:500,000 VFR aeronautical charts under the Terms of Reference and Work Programme presented in the Appendix A to Agenda Item 5 of the AIS/MAP/SG/9 Meeting Report;

c) incorporate the aeronautical information management (AIM) concept into the terms of reference of the project, for its study at regional level;

d) designate the Secretary of the AIS/MAP Subgroup to coordinate with PAIGH, with TCB and with any other body related with fostering the Project; and

e) urge the Task Force to initiate actions as soon as possible and to develop the draft project.

3.5.24 In this same issue, Cuba reported on the progress made in the production of aeronautical charts, such as: the updating and digital production of the world aeronautical chart on a scale of 1:1000000, soon to be circulated; and the production of three ICAO type-A aerodrome obstacle charts for the international airports of Havana, Varadero and Cayo Coco.

3.5.25 Furthermore, Cuba provided information on the results obtained from the harmonization of WGS-84 coordinates in the boundaries between the Havana and the adjacent FIRs, and highlighted that the coordinates in the boundaries with the Miami, CENAMER, Kingston, and Mexico FIRs/ATCs have already been harmonized and published through the AIRAC system.

AIS/MAP training aspects

3.5.26 Regarding AIS/MAP training issues addressed by the Training Task Force, the Meeting noted that eight CAR/SAM States/Territories issued licences or equivalent certificates to their personnel to fulfil their functions and maintain their proficiency. During the debate, the Meeting felt it appropriate to insist on the need to include the licensing of AIS/MAP specialists in ICAO Annex 1, in keeping with the recommendations of the AIS/MAP Divisional Meeting held in 1998. **Appendix AB** to this part of the Report contains a general guide for AIS/MAP personnel licensing.

3.5.27 In order to apply a quality assurance approach to training, the Meeting felt that tasks such as the second update of the CAR/SAM AIS 021 Standard Regional Training Programme; the preparation of the CAR/SAM AIS/021 advanced course, to be called CAR/SAM AIS/024 course; the guidance manual on the responsibilities and duties of the AIS/MAP specialist, should be included in the tasks of the Quality Management Task Force.

3.5.28 Regarding licensing, the Meeting agreed that consideration should be given to the fact that the implementation of a quality management system in aeronautical information services involved the issuance of certificates of proficiency to guarantee and endorse personnel competence so that they could fulfil their tasks. The Meeting also recalled that the CAR/SAM Air Navigation Plan established the competencies, skills, and level of efficiency required from AIS/MAP personnel; that the provision of quality aeronautical information/data had a direct impact on the safety of air navigation operations; that the 1998 AIS/MAP Divisional Meeting had agreed to grant licences to AIS/MAP specialists; and that several CAR/SAM States/Territories granted licenses or equivalent certificates to their personnel, are facts to take into consideration to back-up this issue. Based on the above, the Meeting adopted the following conclusion:

CONCLUSION 13/47 GENERAL GUIDE FOR AIS/MAP PERSONNEL LICENCING

That the States/Territories/Organizations, in order to ensure the level of quality and integrity required in the provision of services:

a) consider licensing AIS/MAP specialists, using as a reference the requirements contained in the General Guide for AIS/MAP Personnel Licensing, as shown in Appendix AB to this part of the Report.

b) urge ICAO to include AIS/MAP personnel licensing requirements in ICAO Annex 1, as agreed by the AIS/MAP Divisional Meeting held in 1998;

Action to meet AIS/MAP requirements contained in the CAR/SAM ANP/FASID tables, Part VII

3.5.29 Considering that all the requirements contained in the CAR/SAM FASID Document, as well as the AIS/MAP requirements of the Basic Air Navigation Plan, should be met by the States/Territories concerned, the Meeting agreed to adopt the model of FASID Table AIS-4 contained in Document 7474, *"Africa-Indian Ocean Air Navigation Plan, Volume II, FASID"*, first edition, 2003, which provided the requirements concerning the availability of aeronautical information from other States/Territories at CAR/SAM international aerodromes, for pre-flight information services. This model, which appears in **Appendix AC** to this part of the Report, permits the collection of the required information/data, while maintaining the consistency and uniformity of regional air navigation plans of the various ICAO Regions. Accordingly, the Meeting adopted the following conclusions:

CONCLUSION 13/48 INFORMATION ON THE STATUS OF IMPLEMENTATION OF FASID-AIS TABLE REQUIREMENTS

That, taking into account the need to implement the AIS/MAP requirements contained in the FASID AIS Tables:

a) CAR/SAM States/Territories/International Organizations, based on the eight (8) AIS Tables contained in Part VIII (AIS/MAP) of the CAR/SAM Plan, Vol. II, FASID (Facilities and Services), submit to ICAO NACC and SAM Offices, as appropriate, by 31 March 2006, all information related to the status of implementation of the AIS/MAP requirements contained in the aforementioned tables; and

b) based on the information submitted pursuant to paragraph a) above, ICAO NACC and SAM Regional Offices foster the holding of coordination and implementation meetings, so that the States/Territories concerned may address the status of implementation of FASID Table requirements in an effective and coordinated manner.

CONCLUSION 13/49 IMPLEMENTATION AND INCORPORATION OF FASID TABLE AIS-4 IN THE AIR NAVIGATION PLAN

That, pursuant to Conclusion 12/5 (Development of the FASID Table AIS-4) of the CAR/SAM/3 RAN Meeting (Buenos Aires, Argentina, October 1999), action be taken so that:

a) the model of the FASID Table AIS-4, is submitted to the Air Navigation Commission as a proposal to include said table in the CAR/SAM Air Navigation Plan, Part VIII (AIS/MAP), Vol. II**,** FASID (Facilities and Services); and

b) CAR/SAM States/Territories that have not provided information for the FASID Table AIS-4 for submission to GREPECAS/13, submit to the ICAO NACC and SAM Offices, as appropriate, no later than 30 June 2006, all relevant data required to complete the FASID Table AIS-4, and, to that end, use the model shown in Appendix AC to this part of the Report; and

Aeronautical information management (AIM)

3.5.30 The Meeting discussed the role to be played by Aeronautical Information Services within the global ATM operational concept defined by the Eleventh Air Navigation Conference, and felt that the AIS/MAP Subgroup should start addressing the concepts contained in the report of said conference, in order to analyze the scope of the concept and its impact on CAR/SAM AIS services.

3.5.31 Within this context, the Meeting took note of the three main recommendations of the Eleventh Air Navigation Conference with respect to AIS (Recommendations 1/8, 1/14 and 6/16), as well as Recommendation 1/1 – "Support to the global ATM operational concept", and considered that they were the starting point for the future work of the subgroup.

3.5.32 Likewise, the Meeting took note of some of the factors, elements and/or definitions used for establishing the global ATM operational concept, such as: components of the concept, the scope of the operational concept, different regional expectations, regional coordination, interoperability and seamless operation, aeronautical information management (AIM), the computarized aeronautical information system (CAIS), ATM requirements, etc. It also took note of some terms and characteristics of the AIM, and its effects on the new concept, also shown in the aforementioned **Appendix AD** to this part of the Report. In view of the above, the Meeting adopted the following conclusion:

CONCLUSION 13/50 STUDY AND APPLICATION OF THE AERONAUTICAL INFORMATION MANAGEMENT (AIM) CONCEPT IN THE CAR/SAM REGIONS

That

a) the AIS/MAP Subgroup begin the necessary studies for the planning and development of the AIM system in the AIS/MAP services of the CAR/SAM Regions, and, to this end, include it as a primary task in its work programme, based on the Global Air Navigation Plan for CNS/ATM systems, and the recommendations of the Eleventh Air Navigation Conference;

b) States/Territories/International Organizations and ICAO Regional Offices jointly schedule for 2006 activities to teach and analyze the scope of the Eleventh Air Navigation Conference concerning the role of aeronautical information services within the global ATM operational concept; and

c) States/Territories/International Organizations take the necessary measures and the corresponding action for applying the AIM concept in the respective AIS/MAP services in the CAR/SAM Regions.

Considerations on the application of human factors to AIS/MAP services

3.5.33 The Meeting agreed that there was very little specific information on the subject and that it was necessary to extend the application of human factors principles to AIS services, since ICAO Document 8126 – *Aeronautical Information Services Manual*– only contains the following paragraph: “The organization of an AIS service, as well as the design, content, processing and distribution of aeronautical information, should take into account human factors principles to facilitate optimum utilization.”

3.5.34 Based on the above, it was decided that, in view of the lack of specific guidance on this matter for AIS/MAP services, a CAR/SAM manual containing guidelines based on ICAO documentation was required. In this sense, the Meeting adopted the following conclusion:

CONCLUSION 13/51 APPLICATION OF THE HUMAN FACTORS PRINCIPLES TO AERONAUTICAL INFORMATION MANAGEMENT

That, considering the evolution of aeronautical information management, its level of automation, its effect on operational procedures, and its direct relevance to flight operations safety, the AIS/MAP Subgroup:

a) take the necessary steps to develop human factors principles for aeronautical information management and for their application in the respective AIS/MAP services;

b) develop a manual containing guidelines on human factors for aeronautical information management, and an implementation plan, based on the relevant ICAO documentation. The aforementioned manual and plan will be presented to the GREPECAS/14 Meeting; and

c) schedule, in coordination with ICAO Regional Offices and the States/Territories and International Organizations, activities aimed at teaching and analysing the repercussion of human factors on the new air navigation systems.

Considerations on the list of deficiencies/implementation problems/development of action plans

3.5.35 Based on the analysis of these issues, and recognizing the problems faced by States/Territories/Organizations regarding the availability of resources for the implementation of AIS/MAP requirements, the Meeting stressed the need to apply the methodology established for GREPECAS contributory bodies, as well as the need to report deficiencies, to which end, the information contained in the respective database should be used, verified and updated. The Meeting also requested the States/Territories/Organizations to continue taking corrective action as required, through the development of national action plans, to resolve the aforementioned deficiencies, as recommended in the action taken by the GREPECAS Aviation Safety Board (ASB) under item 4 of this Report.

NOTAM contingency plan of the Republic of Cuba

3.5.36 The Meeting took note of the NOTAM Contingency Plan presented by Cuba in compliance with Conclusion 12/99 of GREPECAS/12, which sets forth the need for States/Territories/Organizations to develop NOTAM contingency plans for their FIRs, and to establish bilateral and/or multilateral arrangements with adjacent FIRs. The Plan defines the action to be taken in order to reduce or eliminate the impact that both labour conflicts and natural disasters might have on the continued provision of NOTAM services, defining the technical and administrative measures and the coordination and operational procedures required before, during, and after any contingency phase.

3.5.37 To this end, the Meeting was informed that an operational letter of agreement was reached between the international NOTAM offices of Havana and COCESNA (Tegucigalpa), clearly defining the responsibilities of both parties during the coordination procedure. Accordingly, the Meeting adopted the following conclusion:

CONCLUSION 13/52 GUIDANCE MATERIAL FOR NOTAM CONTINGENCY PLANS

Urge States/Territories/Organizations to:

a) take action to comply with Conclusion 12/99 of GREPECAS/12, in order to further the establishment and implementation of NOTAM contingency plans to support ATM Contingency Plans, and

b) consider adopting the NOTAM contingency plan of the Havana FIR, shown in **Appendix AE** to this part of the Report**,** and the experience of Cuba and COCESNA as guidance material for the establishment of operational agreements in this area.

ICAO 5 Letter Name Code System

3.5.38 The Meeting noted that the current ICAO 5-letter name-code (5LNC) system is a paper based methodology and as such the coordination of 5LNC among Member States and ICAO Regional Offices had been very complex and time-consuming. With advent of the Internet, it has been made possible to address the 5LNC management process from one central, global database. The main goal of the ICAO 5LNC system is to assist States and Regional Offices in allocating unique 5LN codes worldwide.

3.5.39 Using web-based tools, the Aeronautical Information and Charts Section of ICAO has developed an online 5LNC system that has two major components: Graphical User Interface (GUI) and Geographic Information System (GIS). The first component, the web-based GUI, allows end-users to view, search, reserve, allocate, modify and receive a confirmation of the assigned code. The GUI supports the role-based security that gives privileges on the system depending on who the user is. The web-based GIS system allows users to visualize geographically all 5LNC in the world. Also, the system permits users to see 5LNC data in relation with other aeronautical entities such as aerodromes, runways, flight information regions (FIRs), approach area, landing area and States. The 5LNC database contains en-route and terminal data.

3.5.40 The Meeting appreciated that this web based ICAO 5LNC system offers tutorials thus facilitating users to self-train about the use of the system at their own convenience. One of the important aspects of the 5LNC system is the resolution of the existing duplicate 5LNC for en-route. Upon acceptance by the ICAO Regional Offices, Member States will be progressively invited to register in the ICAO 5LNC system and to begin using it. Noting this information, the Meeting requested the states to implement ICAO 5LNC system when made available in December 2005.

General AIS issues

3.5.41 On this issue, the Meeting also noted the progress made by Cuba in terms of bilateral agreements with interested States and International Organizations or ICAO in the AIS and MAP areas, as listed below:

- Cooperation with COCESNA for the conduction of a seminar/workshop on AIS Quality Management in August 2004, in Tegucigalpa, Honduras. A second course of the same type was being organized for December 2005.
- Cooperation by COCESNA for the conduction of a course on design and development of procedures (PANS OPS) in Havana, Cuba, in February/March 2005. This course benefited both ATS and AIS/MAP in Cuba, since the final work of the course involved the production of checklists to be used prior to the publication of instrument approach charts.

- Cooperation with the Dominican Republic for the conduction of a course on AIS publications in Havana, Cuba, in May/June 2005, especially addressed to the AIS personnel of that State, for whom a post-graduate course on AIS fundamentals was also being prepared for 2006.
- Cooperation with Venezuela for the implementation of the NOTAM data bank developed by Cuba (SAIA 3000), at the International NOTAM Office in Maiquetía. Delivery will take place in November this year.
- Participation of Cuban instructors in ICAO seminars and conferences on AIS quality management, to be carried out at the NACC and SAM Offices in October and November, respectively.
- Exchange of AIS experiences, as requested by the Administration of Jamaica and, eventually, other States.

3.5.42 Likewise, the Meeting was informed by COCESNA about the progress made in the implementation of automated integrated AIS systems, which had facilitated the harmonization of aeronautical information management and the homogeneous technological evolution of these services in all Central American countries. Information was also provided on the implementation of the AIS/MET system at the CENAMER Area Control Centre. This system is a newer version of the AIS system that is currently operating in the Central American Region, and has been designed with an application for the harmonization and automated processing of AIS/MAP, MET, FPL, and other products, to support the integrated provision of a pre-flight and in-flight information services.

3.5.43 Future upgrades of the COCESNA AIS system, based on operational requirements, include:

- Application available on the web
- Generation of management advisories for operational and administrative control, such as: registration of aircraft, crews, operators, etc.
- Automated aeronautical messaging manager
- Automated data bank interrogation manager
- AMHS communications
- Copies by e-mail
- AIS/MET graphic information display
- Flight progress data display (TZ format)

3.5.44 Future upgrades of the AIS/MET system, based on operational requirements, include:

- Flight progress strip printing
- Electronic flight progress strip display
- Synthetic track display based on the flight plan
- Radar track/flight plan correlation.

3.5.45 Likewise, COCESNA informed the Meeting that this AIS/MET system was at the disposal of States that so required, which, in the experience of the organization, had been extremely useful to ATS units, taking into account the fostering of technical cooperation projects to support the implementation of automated systems.

3.6 Report of the ATM/CNS/SG/4 Meeting

3.6.1 Report of the ATM/CNS/SG

3.6.1.1 The Meeting was presented with the report of the ATM/CNS Subgroup in three sections, covering the reports of the Subgroup as a whole and of the ATM and CNS Committees, as approved by the Subgroup itself. These were presented to the GREPECAS meeting in that order.

3.6.1.2 The Meeting took note of the information concerning Agenda Item 1 of the Subgroup meeting, dealing with actions taken by the Air Navigation Commission and the Council with regard to GREPECAS/12 related to the ATM/CNS/SG. It also noted that the Subgroup as a whole had been presented with a general description of recent initiatives of the Air Navigation Commission for modernising air navigation systems, showing the current status of ICAO provisions on CNS/ATM systems, the work carried out by relevant panels and study groups, as well as regional developments, which enabled Committee members to stay abreast of the work related to their respective areas.

3.6.1.3 Furthermore, the Meeting noted that the Subgroup had also received information on the topics addressed by the Eleventh Air Navigation Conference (22 September – 3 October 2003), as well as in respect to the 35th session of the Assembly (2004) on all aspects related to the work of the Subgroup so that the Committees could be made aware of CNS/ATM issues involving possible actions for the ATM/CNS Subgroup Committees, and introduce specific reference to them in the terms of reference and work programmes, which would need to be modified for presentation to GREPECAS/13.

3.6.1.4 Among the most important air navigation follow-up items, the Subgroup was apprised of: Unified strategy to resolve safety-related activities (A35-7), Transition to comprehensive system approach (A35-6), Harmonization and efficiency guiding the standard making process, Consolidated statement of continuing ICAO policies(A35-15), Expansion of PIRGs, Impact of New CNS technologies on developing countries, Global ATM, Common Cruising Levels, Safety data collection, Protecting information to improve aviation safety, Implementation of APV approaches and CFIT.

3.6.1.5 Additionally, the Meeting was appraised on the updated information received by the Subgroup from the Secretary of the Required Navigation Performance and Special Operational Requirements Study Group (RNP SORG), in respect of their work, and the importance it bears to the ATM/CNS Subgroup when considering its work programme.

3.6.1.6 The Meeting noted that, under its agenda item 3, the ATM/CNS Subgroup had received detailed information on the Regional Technical Cooperation Project RLA/98/003 – Transition to the CNS/ATM systems in the CAR/SAM Regions that was created and is underway in the CAR/SAM Regions, and which concerned the work of the Subgroup

3.6.1.7 When reporting on the progress made in the aforementioned project, the Meeting noted that, The Project RLA/98/003 included tasks to help States to develop their National CNS/ATM Plans in harmony with the Regional Air Navigation Plan for the Transition to CNS/ATM within the methodology of GREPECAS. It also highlighted the importance that these ICAO mechanisms have for the implementation of air navigation multinational services/facilities, in order to improve safety and provide the necessary support in terms of training, meetings/seminars and workshops with a view to strengthening and/or establishing regional implementation mechanisms.

3.6.1.8 The Meeting was appraised that under the plenary meeting of the ATM/CNS/SG/4, and when reviewing the report of the ATM and CNS Committees, the work of the executive coordinating committee in respect to the request for information on Aircraft capabilities to operate SSR in Mode S, ADS and ADS-B, as well as the proposal for an updated regional strategy on ADS and ADS-B system implementation, were taken into account to coordinate and produce the following Conclusion and Decision which were approved by GREPECAS/13 Meeting:

CONCLUSION 13/53 INFORMATION REQUEST ON AIRCRAFT CAPABILITY TO OPERATE SSR IN MODE S, ADS AND ADS-B

That ICAO,

a) request information from IATA on their airlines members capability to operate with Mode S transponders with elementary and enhanced capacity, as well as with ADS and ADS-B; and

b) collect information from the States/Territories/International Organizations on the existing and planned ATC automation systems capabilities to support ADS-B systems.

DECISION 13/54 TARGET DATES, UPDATED STRATEGY AND PLAN FOR ADS AND ADS-B IMPLEMENTATION

That, based on the target dates and proposal for a strategy for the implementation of ADS and ADS-B systems developed by the Fourth Meeting of the CNS Committee, and on studies initiated by the ATM Committee, the ATM and CNS Committees:

a) review and compile the results obtained from both Committees, aimed at preparing a consolidated proposal for target dates and updated regional strategy for ADS and ADS-B systems regional implementation;

b) also propose actions to develop an initial ADS and ADS-B implementation plan; and

c) present the results of the work referred to in a) and b) above to the Fifth Meeting of the ATM/CNS Subgroup.

3.6.1.9 The Meeting noted that under Agenda item 7, the ATM/CNS Subgroup was appraised of the initial work presented by the Task Force on Institutional Aspects (TF/IA) as a result of its first meeting and in particular to Conclusion 12/4 and Decision 12/5 referred to multinational facilities and services and the need for the Subgroup to monitor and coordinate closely the output from both the TF/AI and the Technical Cooperation Project RLA/98/003 in respect to CNS/ATM issues affecting the work of the Subgroup.

3.6.1.10 The Meeting was advised that the ATM/CNS Subgroup had convened its Executive Committee to review its Terms of Reference and Work Programme. Regarding the operation and structure of the Subgroup, the Meeting noted that the Executive Committee had agreed to maintain the same composition and working method of the Subgroup as in its first three meetings, since they had borne good results.

3.6.1.11 The Meeting was informed in respect to the results of the FANS 1/A (ADS/CPDLC) Operational Implementation Seminar, held in Las Palmas, Spain (26-27 April 2005), which dealt with the implementation of ADS and CPDLC in the South Atlantic. It was also noted that a new seminar on the same subject is being planned to take place at the time of SAT/13 in Canarias in April 2006. Furthermore the Meeting was informed that the NAT study group on ADS/CPDLC is developing a regional strategy to implement these systems.

3.6.1.12 The Meeting considered it adequate to take into account the results of the work on the same subject carried out by ICAO, supported by the OPLINK and SASP groups of experts, which will be presented in the short term to the air navigation commission of ICAO as well as the developments of IACO SARPS and PANS related to ADS and CPDLC.

3.6.1.13 The Meeting was of the opinion that the implementation of FANS 1/A will provide benefits for the South Atlantic's EUR/SAM corridor. Also, considering the referred development of the NAT, the ATM/CNS Subgroup of GREPECAS, with the purpose of ensuring a FANS/1 regional interoperability, being carried out by neighboring regions to the CAR/SAM; AFI, EUR, NAT and PAC regions among them, requires coordinating and taking into account the work already developed by them and other similar groups. The Meeting therefore formulated the following Decision:

DECISION 13/55 FANS 1 A INTEROPERABILITY STUDY (ADS AND CPDLC)

That a task on FANS 1 A Interoperability Study be included in the work programme of the ATM/CNS Subgroup with the purpose of ensuring the regional interoperability of FANS 1 A.

3.6.2 Report of the ATM Committee

3.6.2.1 The Meeting noted that the ATM Committee, in plenary meetings and Ad-Hoc Groups, reviewed the works that were presented by the RNAV/RNP Task Force (Tasks ATM-ASM/200, ATM-ASM/201 and ATM-ASM/202, RVSM (Task ATM-ASM/203, Aeronautical Phraseology (Task ATM-ATS/300). Matters related with Air Traffic Flow Management (Task ATM-ATFM/400), ATM Automation (Task ATM-ATS/305), Bird Hazard Prevention (Task ATM-ATS/307), were examined; GREPECAS deficiencies and pending Conclusions/Decisions in the ATM and SAR fields (Tasks ATM-GRAL/100), the work programme of the ATM Committee and finally other issues presented during the meeting, were also revised.

Works carried out by the ATM Committee

RNAV and RNP (Task ATM-AOM/200, ATM-AOM/202 and ATM-AOM/204)

3.6.2.2 The Meeting reviewed the new RNAV and RNP concepts, which were the result of the first five meetings of the ICAO Air Navigation Commission (ANC) Required Navigation Performance and Special Operational Requirements Study Group (RNPSORSG) that will significantly influence the implementation of the RNAV/RNP application worldwide.

3.6.2.3 The fifth meeting of the RNPSORSG made a change to the concepts, assigning numbers to RNAV operations representing the navigation accuracy. A summary of the modifications made by the RNPSORSG/5 meeting is presented in the following table, which will be considered by the RNAV/RNP Task Force in the development of their activities:

RNAV			
Airspace	**RNAV Types**	**Aircraft and Operators Approval Documentation**	**Associated Precision Value**
Oceanic/Remote	RNP 10	Doc. 9613 (FAA Order 8400.12A)	10 NM
	RNP 4	Doc. 9613	4 NM
Continental/Terminal	RNAV-5	EUROCONTROL TGL 02	5 NM
	RNAV-2	FAA AC 90-100 (USRNAV Type A)	2 NM
	RNAV-1	EUROCONTROL TGL 10 or FAA AC 90-100 – USRNAV Type B)	1 NM

RNAV/RNP Implementation Strategy

En-Route Operations

3.6.2.4 The Meeting was of the opinion that the strategy of including all the airspace of the CAR/SAM Regions into one En-Route Operations Implementation Plan will turn extremely complex the task of re-structuring the airspace for the use of RNAV/RNP concept in the CAR/SAM Regions. The establishment of a unique RNAV criteria or RNP value for the CAR/SAM Regions is unlikely, taking into account the existing necessary operational differences in the CNS infrastructure.

3.6.2.5 The Meeting considered that the strategy will be RNAV/RNP implementation by routing areas in CAR and SAM scenarios, depending on their own operational needs and infrastructure features that may involve a Group of States/Territories/International Organizations. This strategy will allow the establishment of the RNAV criteria or RNP values for the various areas, which will be harmonized by the RNAV/RNP Task Force.

Operations in the TMAs

3.6.2.6 The Meeting recognized that operations in the TMAs have their own characteristics, taking into account the separation minima applicable among aircraft and among aircraft and obstacles and the diversity of aircraft, which involves low performance aircraft flying in the lower airspace and making arrival and departure procedures in the same path or near the high performance aircraft paths.

3.6.2.7 In this regard, the Meeting considered that States/Territories and International Organizations should develop National RNAV/RNP Implementation Plans in the TMA based on RNAV/RNP Operational Concept in the CAR/SAM Regions, to be developed by the RNAV/RNP Task Force to harmonize the applicable RNAV/RNP criteria, mainly to avoid the need for multiple operational approvals for flying in the CAR/SAM Regions; applicable separation criteria among aircraft will be shortly issued by ICAO.

Action Plan for RNAV/RNP Implementation in the CAR/SAM Regions

3.6.2.8 The Meeting recognized that it is essential to develop a model Action Plan that might be used for the RNAV/RNP Implementation Groups for the CAR/SAM Regions for both, en-route as well as for terminal areas.

3.6.2.9 The main difference between the two plans is that most of the actions in the Action Plan for En-route Implementation should be performed by the RNAV/RNP Implementation Group, considering the need for international coordination for its progress. Whereas in the Action Plan for RNAV/RNP Implementation in TMA, most of the actions will be carried out by States/Territories and International Organizations, taking in account that only the airspace under their jurisdiction should be involved. It is important to highlight that the two action plans will be widely related, since the movement among the TMAs (entry and exit points, SID/STARs) will significantly influence the new routes structure.

3.6.2.10 In light of the above, the Meeting approved the following:

CONCLUSION 13/56 RNAV/RNP ACTION PLAN MODEL FOR EN-ROUTE AND TERMINAL AREA OPERATIONS

That States/Territories and International Organizations and the RNAV/RNP Implementation Groups use the RNAV/RNP action plan model for RNAV/RNP – En-Route Operations and Terminal Area implementation, presented in **Appendices AF** to this part of the Report.

Training of Experts in the ATC, OPS/AIR and SAM fields

3.6.2.11 The Meeting was the opinion that the RNAV/RNP implementation in the CAR/SAM Regions will probably demand a wider restructuring of airspace, and will be even more complex than the RVSM implementation. Thus, it is important that experts in ATC, OPS/AIR and SAM fields be trained to work in restructuring the airspace.

3.6.2.12 Keeping in mind the need to obtain information to endorse RNAV and RNP implementation in the CAR/SAM Regions, the Meeting considered pertinent to elaborate an RNAV and RNP questionnaire and therefore approved the following conclusion:

CONCLUSION 13/57 RNAV/RNP QUESTIONNAIRE

That, considering RNAV/RNP implementation in the CAR/SAM Regions, ICAO collect from States/Territories and International Organizations, among others, information requested by other implementation programmes, which are presented in **Appendix AG** to this part of the Report, by **31 January 2006.**

Status of the development of the RNAV Routes implementation programme in the CAR/SAM Regions

3.6.2.13 The Meeting noted that since the first AP/ATM meeting in July 2000, 45 RNAV routes, realigning 38 and deleting 6 have been implemented in the CAR/SAM Regions, which through a series of proposals for amendment to the Basic ANP, were sent for the ICAO Council consideration and approval. In the AP/ATM/10 Meeting, Lima, Peru, May 2005, the implementation of 9 RNAV routes, realigning 6 and deleting 3 was agreed, thus a proposal for amendment to the Basic ANP was circulated. Summarizing, at the end of 2005 it is expected that in all this process 54 RNAV Routes will be implemented; realigning 44 routes and deleting 9 routes. A permanent review of the route network in order to respond to the user's requirements will continue.

Overview of the Federal Aviation Administration's International Activities on Performance-Based Navigation Implementation

3.6.2.14 The Meeting was provided by an update on recent U.S. international activities on Performance-Based Navigation (Area Navigation and Required Navigation Performance) implementation.

3.6.2.15 In that sense, was noted that the Federal Aviation Administration (FAA) of the United States Department of Transportation has worked in close partnership with its aviation stakeholders for several years to implement Performance-Based Navigation in the U.S. National Airspace System. In concert with this effort, the FAA is committed to working with the international community, in global, regional, and bilateral forums, to further the harmonized implementation of Performance-Based Navigation where the aviation community (government and industry) determines that benefits can be realized.

RVSM (Task ATM-AOM/203)

3.6.2.16 The Meeting noted that the activities for the implementation of RVSM continued by the RVSM Task Force (RVSM/TF) and its three working groups: Safety and Airspace Monitoring (SAM/WG), ATC Operations (ATC/WG), and Aircraft Operations and Airworthiness (OPS/AIR/WG).

3.6.2.17 The AP/ATM/9 meeting (Lima, Peru, 15-19 November 2004) analyzed the status of implementation of the RVSM tasks in the CAR/SAM Regions and verified that all the CAR/SAM States/Territories and International Organizations had satisfactorily completed the tasks under their responsibility in due time.

3.6.2.18 Taking also into consideration the concluding reports of the SAM and OPS/AIR Working Groups related with airspace safety assessment, monitoring and preparation of the fleet and operators to fly in an RVSM environment, the Meeting approved Conclusion AP/ATM/9/10.

3.6.2.19 In accordance with GREPECAS/12 Conclusion 12/23 – States/Territories/International Organizations Official Approval for RVSM Implementation in the CAR/SAM Regions, Conclusion AP/ATM/9/10 was forwarded to the Secretary of GREPECAS and to the Directors of the Regional NACC and SAM Offices in order to obtain the official approval of the States/Territories/International Organizations through the fast track mechanism of the Administration Coordination Group (ACG), and no objections were received from the Administrations to continue with the aforementioned implementation.

3.6.2.20 On 20 January at 09.00 UTC, RVSM was successfully implemented in the CAR, SAM and NAM Regions from FL 290 to FL 410 inclusive following the guidelines established in the Action Plan approved by GREPECAS.

Assessment of the RVSM/TF - Post- implementation of RVSM in the CAR/SAM Regions

3.6.2.21 The Meeting took note that during the AP/ATM/10 Meeting, held in Lima, Peru 10-14 May 2005, the RVSM Task Force (RVSM/TF) and its three working groups had the chance to carefully review the status of implementation of the first 100 days of RVSM in the CAR/SAM Regions. Likewise, the Meeting took note of the creation of the Scrutiny Group also approved by GREPECAS through the ACG fast tract. A summary of the assessment carried out follows.

ATC Operations Working Group (ATC/WG)

3.6.2.22 Concerning the ATC operations field, it was observed that since the beginning of RVSM operations, no significant difficulties have been reported that imply the introduction of modifications to the originally established procedures and it is also foreseen that, in general, the results will attain the desired improvement and operational efficiency expectations.

3.6.2.23 Both operators as well as service providers expressed their approval for the results reached, and in this regard the RVSM Task Force was able to appreciate the evaluation of post RVSM implementation work made by some States with surveys analysis, showing a successful implementation.

3.6.2.24 With regard to the above, it was deemed pertinent that States and International Organizations implement a the RVSM Operations Follow-up Programme through the establishment of periodical reports to be filled out by ACCs, in order to obtain information allowing the advanced decision making of actions and prevent a decrease of the safety rates. In this regard the following Conclusion was formulated:

CONCLUSION 13/58 MONITORING OF RVSM OPERATIONS

That CAR/SAM States and International Organizations continuously monitor RVSM operations, mainly those who opted for a non-exclusionary RVSM airspace.

Aircraft Operations and Airworthiness Working Group (OPS/AIR/WG)

3.6.2.25 Some differences in the application of the requirements established to operate in the RVSM designated airspace, and in the implementation of operations were analyzed, and in this regard, it was pointed out the importance of keeping the efforts on training aimed at increasing the knowledge of the different aspects involved in the RVSM airspace operations, keeping a close surveillance of the compliance with all the established technical-operational requirements.

3.6.2.26 Likewise, it was deemed necessary to establish an RVSM State Data bank (SDB), so that each aeronautical authority could register the approvals granted, and in this regard, the following conclusion was formulated:

CONCLUSION 13/59 ESTABLISHMENT OF STATE DATA BANKS (SDB)

That civil aviation authorities of the CAR/SAM Regions establish their own domestic RVSM database (SDB) in order to facilitate the identification of the RVSM approval status of aircraft registered in the State, and wherever possible, make the information available through the Internet.

Safety and Airspace Monitoring Working Group (SAM/WG)

3.6.2.27 One of the essential parameters required for the basic Collision Risk Model (CRM) is the total flight hours quantity/year at wrong flight levels. The reports of large height deviations (LHD) contain the necessary information to calculate the amount of flight hours per year at wrong flight levels in the RVSM airspace.

3.6.2.28 Taking into account that the risk of the system is directly proportional to the total flight time at wrong flight levels, the calculation of this time is one of the key elements to be determined, using CRM, to assess if the estimated system risk will comply with the Target Level of Safety (TLS).

3.6.2.29 As the total flight time at wrong flight levels is calculated according to LHD reports received during a specified timeframe, it was considered necessary to insist on the States sending to the CARSAMMA before the 10th of each month the corresponding LHD, even if no large height deviations between FL290 and FL 410 occurred.

3.6.2.30 On the other hand, when assessing safety after RVSM implementation in January 2005, it was observed that the parameter values had decreased and that the technical collision risk kept under the desired target level of safety (TLS) of 2.5 x 10-9 of fatal accidents per flight hour, with a value of 0.098×10^{-9}.

3.6.2.31 When analyzing the operational collision risk, it was noted that most of the collision risk in the CAR/SAM Regions still came from errors generated by deviations of 1000 foot or more with regard to the authorized flight level, being coordination errors between ATC units the main risk cause.

3.6.2.32 In this regard, it was understood that in order to solve the main risk cause, the States/Territories/International Organizations should adopt, on an urgent basis, effective actions to reduce the coordination messages errors among ATC units.

3.6.2.33 The methodology to assess the risk generated by an aircraft that attains and maintain a wrong flight level took into account the flow direction. Therefore, two different analyses were carried out resulting in different collision risks for aircrafts attaining a wrong flight level in the same direction as the flow and a wrong flight level in an opposite direction to the flow. The final results obtained for the technical and operational risks appear in the following table, confirming that after the implementation, the risks remains below the TLS.

Technical Risk	**Operational Risk**	**Total Risk**
0.098×10^{-9}	1.9×10^{-9}	2.0×10^{-9}

Minimum Monitoring Requirements

3.6.2.34 The Meeting recalled that all operators which operate in the RVSM airspace must participate in the RVSM monitoring programme. The SM monitoring requirements table establishes the initial monitoring requirements associated with the RVSM approval process.

3.6.2.35 It was deemed necessary to update the minimum monitoring requirements, and to include some additional types of aircraft operating in both regions as well as to modify, in coordination with the industry, the condition of some of the aircraft that are now considered as separate groups, and the following conclusion was formulated**:**

CONCLUSION 13/60 MINIMUM MONITORING REQUIREMENTS

That, the States/Territories/International Organizations update their minimum monitoring requirements in accordance with the table depicted in **Appendix AH** to this part of the Report.

Scrutiny Group (GTE)

3.6.2.36 The Meeting took note that the Scrutiny Working Group reviewed the information provided by CARSAMMA regarding all reported LHDs of 300 feet or more. These reports were analyzed based on technical and operational causes and the size of the vertical deviation. A review of the data revealed that errors in ATC-unit-to-ATC-unit coordination generated 86% of the deviations exceeding 1000 feet. The Committee agreed that some remedial action had to be taken to reduce the number of LHDs caused by errors in ATC-unit-to-ATC-unit coordination. Additionally, the Meeting agreed on the need that States/Territories and International Organizations report all large height deviations (LHD) events in order to monitor both operational and technical risks in the RVSM airspace of the CAR/SAM Regions.

3.6.2.37 Taking into account that these errors in the ATS coordination loop had a direct impact on safety, the CAR/SAM States/Territories/International Organizations were invited to urgently apply measures, in order to reduce, at least 50% of this type of errors occurrences. The Meeting formulated the following conclusion:

CONCLUSION 13/61 MEASURES TO REDUCE OPERATIONAL ERRORS IN THE ATC COORDINATION LOOP BETWEEN ADJACENT ACCs

That, taking into account the impact that operational errors in the ATC coordination loop between adjacent ACCs have on safety, the CAR/SAM States/Territories/International Organizations agree:

a) to adopt, as a matter of urgency, the appropriate measures described in **Appendix AI** to this part of the Report, in order to reduce LHDs caused by errors in ATC-unit-to-ATC-unit traffic coordination messages by at least 50% by **December 2005**, with a view to reaching the optimum operational efficiency;

b) to continue with the efforts and programmes in order to reach 100% operational efficiency of their ATC coordination; and

c) that ICAO coordinate, assist in, a follow-up the implementation of such remedial action and report the results of the effort to reduce this error to the 6th Meeting of the ATM Committee.

Review of LHD form

3.6.2.38 The CAR/SAM SWG when reviewing all of the LHD reports provided at its last meeting observed that in the CAR/SAM Regions the majority of reports of large height deviations related with the technical collision risk attributed the cause to mechanical failure. This assessment is not considered in the guidelines causing LHDs in other regions having already implemented RVSM. This is primarily due to the fact that the current reporting format is not capturing critical details necessary to accurately evaluate each LHD event.

3.6.2.39 The Meeting evaluated the new report form of each LHD event and considered that it should be modified for regional needs. Likewise it recognized that these reports are confidential and are only used for statistical purposes on safety assessment analysis. In view of the above, the Meeting formulated the following conclusions:

CONCLUSION 13/62 ADOPTION AND UTILIZATION OF THE FORM FOR REPORTING LARGE HEIGHT DEVIATIONS (LHD)

That:

a) CAR/SAM States/Territories/International Organizations adopt the form for reporting large height deviations (LHD) presented in **Appendix AJ** to this part of the Report; and take the necessary measures to include it in the corresponding AIP.

b) States/Territories/International Organizations send the reports to CARSAMMA by the 10th of each month, even if no LHD reports occur; and

c) the ICAO Secretariat take the appropriate measures to include the form in the Latin American Aeronautical Regulations (LAR).

Updating of the Benefit/Cost analysis as a result of RVSM implementation in the CAR/SAM Regions

3.6.2.40 The Meeting noted that United States, taking into account the increase in fuel during the last months, made an updating of the benefit/cost analysis carried out before RVSM implementation in the NAM and CAR/SAM Regions.

3.6.2.41 It was recalled that the estimated benefits in 2003, date in which the study was conducted, were based in a cost f $ 0.67 per gallon. This study resulted in a 6.1 Benefit/cost ratio for North America, 3.1 for the CAR/SAM Regions, being for the Americas in a ratio of 5:1.

3.6.2.42 The updating of the benefit/cost analysis was based in a conservative price of the gallon of fuel of $ 1.98 giving as a result a Benefit/Cost of 17:1 for North America, 6:1 for the CAR/SAM Regions, being for the Americas in a ratio of 15:1.

Aeronautical phraseology (Task ATM-ATS 300)

3.6.2.43 The Spanish Aeronautical Phraseology Task Force met on several occasions and developed a consultation methodology for users and ATS service providers. This methodology consisted of an electronic consultation, in which the view of the air traffic controllers and pilots on aeronautical phraseology of Doc 4444 was considered.

Methodology Used and Results

3.6.2.44 The enquiry methodology was designed with questions with three possible responses for each one of the 502 Spanish phraseology terms.

3.6.2.45 Answers were received to 61% of the total questions, in view that not all the phraseology modules received answers. From the universe of these answers, 82.1% answered option A), 15.8% option B) and 2.0% option C). This last option gave the option to continue with an exchange of considerations with the respondent, but when analysing the answers, it could be verified that these were not related with the context of the survey, thus this 2% was obviated from the working group.

3.6.2.46 During the process there was a great participation of pilots and controllers, which answers were sometimes grouped together in each State ATC unit, that is, the opinion of all Pilots and/or Controllers of those States was collected. Additionally, individual answers from users of 8 States and 4 who opted not to be identified were received.

3.6.2.47 During the analysis of the enquiry, the Group considered that the review of the aeronautical phraseology related with the amendment 3 to Doc 4444, PANS-ATM, in force since November 2004, on confirmation of 8.33 MHz capacity, GNSS, RVSM and RNP operations, as well as to Appendix 5, Controller-Pilot Data Link Communications (CPDLC) could not be carried out in view that at the time of making the electronic Enquiry this information was not available and most of the States/Territories/International Organizations of the CAR/SAM Regions have no experience in the matter and that an analysis could only be carried out after the implementation of these operations.

3.6.2.48 The Meeting, after an analysis of the proposal in question, deemed it suitable to present the changes made to Doc 4444 PANS ATM as regards this matter. In this regard, the following conclusion was approved:

CONCLUSION 13/63 PROPOSAL FOR AMENDMENT TO THE DOC 4444 – PANS/ATM FOR AERONAUTICAL PHRASEOLOGY IN SPANISH

That ICAO take the appropriate measures to initiate the amendment process to ICAO Doc 4444 PANS/ATM, Chapter 12 on aeronautical phraseology in Spanish in accordance with the proposal shown in **Appendix AK** to this part of the Report.

Air Traffic Flow Management (Task ATM – ATFM/400)

Policies established in the global, regional environment and existing national plans on ATFM

3.6.2.49 The Meeting recalled that ICAO 11th Air Navigation Conference (AN-Conf/11) concluded (Recommendation 1/1 – Endorsement of the global ATM operational concept) that ICAO, States and regional planning and implementation groups (PIRGs) should consider the global ATM operational concept as the common global framework for planning ATM systems implementation and for developing transition strategies for the implementation of ATM systems based on the global ATM operational concept.

3.6.2.50 On the other hand and in keeping with the analysis of main traffic flows carried out under Project RLA/98/003 - Transition to the CNS/ATM Systems in the CAR/SAM Regions, there are airspace sectors that are already having traffic congestion, mainly on special and peak periods, basically due to the different capacities of the various ATC systems, or part of them, inadequate operation planning at some airports, and airport infrastructure limitations.

Centralized ATFM implementation strategy (CAFTM) in the CAR/SAM Regions

3.6.2.51 The Meeting was of the opinion that two CAR and SAM scenarios should be taken into account, but that they could be modified insofar as the operational concept development and the implementation plans progress. The strategy is to develop a harmonized planning of a CAR and SAM interregional ATFM system.

3.6.2.52 The Meeting felt that a CATFM should have the responsibility of providing service on the maximum extension of airspace possible, provided that this is an homogeneous area, in order to maximize its efficiency. In accordance with ATFM planning in the CAR and SAM Regions, it will have two Centralized ATFMs, one for each region.

3.6.2.53 The Meeting considered necessary that the procedures during all the implementation process be developed in a harmonious manner among the ATFM units to avoid risking operational safety. This entails establishing a regional and interregional strategy to facilitate and harmonize all the implementation process. The ATFM Task Force will accomplish these planning and harmonization objectives while for the implementation, two scenarios will be established depending on the operational needs and own features of each CAR and SAM Region. The activation of two ATFM Implementation Groups is considered, one for each Region.

Objective, principles, functions and requirements on which CAR/SAM ATFM service would be based

3.6.2.54 The Meeting analysed and agreed on the following basic guidelines to plan a possible structuring of the FMUs and centralized regional ATFMs (CATFMs).

General aspects in the AFTM operational concept

3.6.2.55 ATFM system implementation in the CAR/SAM Regions shall require identifying and determining which would be the minimum requirements for the service implementation and for the CATFM, FMUs or flow management positions (FMP) in each CAR/SAM ATC unit. In this connection, the experiences obtained in Europe and in the NAM Region, as well as in some CAR and SAM States, have been very useful for the definition of these requirements.

3.6.2.56 The Meeting agreed that the objectives pursued by a CATFM are mainly oriented towards regulating air traffic flow to assist the ATC in avoiding excessive traffic loads at specific periods, balancing demand and capacity and thus contributing to safety and to minimize penalties that might affect airspace users, imposing certain restrictions due to the limited capacity of the ATM system, avoiding high operational costs due to the impossibility to use optimum flight levels, delays or increase of miles covered.

3.6.2.57 The regional ATFM structure should be composed in such a way that each CAR/SAM State/Territory and International Organization may access the CATFM through an internal organization appropriate to its needs and developed as per guidelines determined on this matter.

3.6.2.58 Consequently, aware of specific operational needs, as regards their ATC service, air traffic and airport problem, as well as air traffic volume, the administrations should define whether an FMU is necessary, which, besides communicating with the CATFM, should manage and coordinate with the FMP implemented in the ATC units that so require, or should adopt the direct communications process from these FMPs with the CATFM.

3.6.2.59 The objectives, general principles on which States/Territories/International Organizations Centralized should use as a basis to reach main objectives and functions of the Centralized ATFM were analysed. It was considered that the operational implementation should be carried out by phases, in accordance with Doc 9854 - Global Air Traffic Management Operational Concept, so as to enable a progressive implementation and to acquire the necessary capability for an adequate execution. Each phase should be implemented at first on the basis of operational configurations, descriptive documents of the systems, and operational models, as required. The Meeting agreed that regional implementation of the ATFM system will be a complex and laborious process and will require active participation from all involved parties. In light of the above, the following was approved:

DECISION 13/64 CENTRALIZED ATFM OBJECTIVES, PRINCIPLES AND FUNCTIONS AND REQUIREMENTS FOR ITS IMPLEMENTATION

That:

a) Centralized ATFM objectives, principles and functions presented in **Appendix AL** to this part of the Report be adopted, and

b) That during the implementation process, requirements presented in **Appendix AM** to this part of the Report be considered.

Action plan for ATFM implementation in the CAR/SAM Regions

3.6.2.60 Based on the experience obtained during the past years in the implementation of the various ATM functions, it was agreed that it is necessary to have a task list identifying each one of the activities necessary for the implementation, their initial and finalization dates, and particularly the definition of the group or person responsible for their execution. In this connection, the following conclusion was approved:

DECISION 13/65 MODEL ACTION PLAN FOR ATFM IMPLEMENTATION IN THE CAR/SAM REGIONS

That the ATFM Implementation Groups consider the model action plan shown in **Appendix AN** to this part of the Report.

Harmonization of the national ATFM implementation plan with the regional ATFM plan

3.6.2.61 In order to harmonize the National Plans with the CAR/SAM ATFM Regional Plan, it is necessary that the administrations take pertinent measures and closely follow-up on regional ATFM development and, at the most convenient time, prepare an ATFM implementation programme, to determine real implementation needs; to analyse the impact on the national ATC systems, inasmuch in airspace, air traffic services, as in operations and airport services; and establish pertinent coordination to make possible a whole, harmonious and timely regional implementation. In this connection, the Meeting formulated the following conclusion:

CONCLUSION 13/66 NATIONAL PLANS FOR ATFM IMPLEMENTATION IN THE CAR/SAM REGIONS

That, in order to achieve an integrated, harmonious and timely implementation, the CAR/SAM civil aviation administrations closely follow-up on the regional development of AFTM and, at the most convenient time, develop a national plan for ATFM implementation compatible with the Caribbean and South American Regions AFTM implementation programmes.

Actions adopted by COCESNA regarding the ATFM implementation in Central America

3.6.2.62 The Meeting noted that as part of the implementation process for the ATFM in Central America, COCESNA Formed COCESNA's Task Force for the implementation of the ATFM in Central America; participated in different meeting and seminars related to this subject, including the Third ATFM Global Conference, done in Canada, in September 2005, established of agreements with the United States for the Radar Data Exchange through the ETMS System, actually operative in CENAMER Control (CENAMER ACC/FIC); and scheduled a ATFM Course for the States of the CAR Region, to be held in march 2006 in Tegucigalpa, Honduras.

Actions adopted by Dominican Republic regarding the ATFM implementation

3.6.2.63 Dominican Republic also informed the Meeting on their activities and objectives related with ATFM implementation and discussions with FAA to cooperate on this matter.

ATFM Events

3.6.2.64 The Meeting considered of vital importance that ICAO, with the support of CAR/SAM States and International Organizations, organize different events related with ATFM planning and implementation, approving the following conclusion:

CONCLUSION 13/67 ATFM EVENTS

That:

a) ICAO, with the support of CAR/SAM States/Territories and International Organizations, organize different events, with the aim of examining all aspects related with ATFM planning and implementation; and

b) States/Territories and International Organizations be encouraged to participate in such activities.

ATM Automation (Task ATM –ATS/305)

3.6.2.65 In accordance with the Regional Strategy for ATM Automation Systems Interface approved by GREPECAS/12, the Meeting widely discussed the current surveillance capability, the interface and inter-operability aspects among automation systems and other implementation requirements for ATM automation in the CAR/SAM Regions. The regional strategy was recognized as perfectly viable, supporting the regional interoperable development and harmonious interfacing of ATM automation systems in the short, mid and long-term.

3.6.2.66 The Meeting requested ICAO take the measures to obtain updated information on current ATM automation systems installed in the CAR and SAM Regions, urging the States/Territories/International Organizations to send as soon as possible the information concerning the operational and inter-connectivity requirements for the interfacing of the automation systems, which includes planned actions for the implementation of ADS-B systems in the CAR/SAM Regions during the next five years.

Development of an Interface Control Document (ICD) ATM Automation systems interface in the CAR/SAM Regions

3.6.2.67 The Meeting reviewed the Regional Strategy for the Interfacing of ATM Automation Systems approved by GREPECAS, envisaging among other aspects, the need for establishing a common Interface Control Document (ICD) for both regions (CAR/SAM), to achieve interoperability between automation systems and at same time the uniform application of ATM operational functions in accordance with ICAO guidelines.

3.6.2.68 The ICD should cover messages and data exchange protocols for flight plan data and radar handover exchanges among ATS units, allowing for the required different evolutionary stages of the ATM automation systems for an interregional ATM system. It was agreed to continue with the task of reviewing the ICD to be used as uniform application material for the CAR/SAM Regions, aimed at achieving a harmonized interoperability of automated systems across the NAM, CAR and SAM Regions.

Bird hazard prevention (Task ATM –ATS/307)

3.6.2.69 When analyzing recommendations issued by the AGA/AOP/SG it was considered that air traffic control should not assume the responsibility to define bird counts, species and size in the runway or aerodrome proximity. To this end, the aerodrome manager should have responsible personnel that, when making the runway run, have a sight of the approach and departure sectors, to report ATS information regarding birds.

3.6.2.70 The ATC responsibility when information is available is to report aircraft under its control and the aerodrome management on the bird activity in order that this takes the most appropriate measures and pertinent mechanisms to scare away birds, if necessary.

3.6.2.71 The recommendations of the AGA/AOP/SG on ATS procedures to prevent bird strikes are an important contribution for the inclusion in a possible and future Aerodrome Operations Manual, without being the responsibility of ATC to define bird counts, species and size., considering that the Aerodrome Operations Manual (AOM), could, for example, contain the responsibilities of the manager regarding bird information as well as a bird prevention programme.

Status of the ATM Contingency Plans in the CAR/SAM Regions

3.6.2.72 The Meeting recalled the regulations of Annex 11 and document PANS ATM provisions applicable in to contingency plans and recalled that in the last ATM Authorities and Planners meetings and in bilateral meetings several States exchanged their proposals for contingency plans with the purpose of harmonization among them for their application in the CAR/SAM Regions.

3.6.2.73 It was recognized that after the coordination among all parties concerned of the ATM community, the ATM Contingency Plan shall be submitted to ICAO for possible approval by the President of the Council of ICAO. To this end, the Regional Offices have requested the States/Territories/International Organizations to provide their ATS National Contingency Plans, in order to coordinate them with Headquarters and with the Civil Aviation Authorities of the States concerned. ICAO NACC and SAM Offices are still coordinating the harmonization of ATM contingency plans.

3.6.2.74 In consequence with the above, the Meeting approved Draft Conclusion ATM/4/20 ATM Contingency Plans for the CAR/SAM Regions.

CONCLUSION 13/68 ATM CONTINGENCY PLANS FOR THE CAR/SAM REGIONS

That CAR/SAM States/Territories/International Organizations that have not yet done so:

a) develop their ATM contingency plans for their airspace under their jurisdiction;

b) establish bilateral or multi-lateral agreements with States/Territories/International Organizations responsible for the adjacent airspace, in coordination with the ICAO Regional Offices, in order to develop an ATM Contingency Plan, using the guidelines presented in **Appendix AO** to this part of the Report; and

c) send to the corresponding ICAO Regional Office a copy of their ATM Contingency Plan by **30 June 2006.**

ATS Contingency Plans

3.6.2.75 The Meeting noted the progress of the works carried out in Cuba for the implementation and harmonization of an ATM Contingency Plan, as well as the support to the efforts made by ICAO in achieving the harmonization of the same, at a CAR/SAM Regional level

Usage of SATCOM communications in special circumstances with ATC

3.6.2.76 In order to provide the crews with a list of ATC telephone numbers where it is intended to operate, it is necessary to obtain this information from the States recognizing that it normally figure in the aeronautical information publications. In view of the above, a list of the control centers in the CAR/SAM Regions and the corresponding telephone numbers of the ACCs was presented. Nevertheless, those States/Territories and International Organizations not having at the time this information were requested to transmit it to IATA aimed at incorporating it to the abovementioned list. Once completed, this list will be provided to the airlines.

Benefits for RNAV/GNSS Procedures implementation

3.6.2.77 The Meeting noted that IATA has in recent years encouraged the development of RNAV/GNSS applications as part of the transition towards the new ICAO ATM/CNS concept. Requests have also been received from the airlines to promote the development of such procedures, which allow the usage of the new avionics already onboard a large number of aircraft. In response to the above requirement, IATA, some member airlines and some civil aviation authorities have joined forces to implement these procedures at several airports in the region. These procedures have proven to provide benefits to the States, airports and operators, by greatly enhancing safety, improving operational efficiency and reliability, while also providing a positive environmental impact.

3.6.2.78 The Meeting recognized the effort carried out and encouraged IATA to continue with these activities and also to work within the framework of the GREPECAS ATM/CNS Subgroup who is responsible to harmonize the planning and implementation of air navigation improvements in benefit of the regional aeronautical community.

Efficiency in the use of fuel

3.6.2.79 The Meeting noted the concern of operators due to the fuel cost and since this crisis is affecting IATA airlines. IATA informed on its fuel savings campaign through which service providers are requested to make the greatest possible efforts and adopt actions addressed to the achievement of the greatest possible efficiency in the use of fuel, which undoubtedly will mean a significant effect that would help users to overcome this problem.

3.6.2.80 The Meeting recognized this situation and highlighted the effort made by CAR/SAM States/Territories and International Organizations and expressed its commitment to continue supporting any initiative in this sense. The Meeting considered appropriate to orient the GREPECAS ATM/CNS Subgroup to continue taking into account this situation in the development of all its activities, addressed towards ATM improvement implementation, adopting the following Decision:

DECISION 13/69 EFFICIENCY IN THE USE OF FUEL

That the GREPECAS ATM/CNS Subgroup, in the development of its activities, continue taking into account the aspects related with efficiency in the use of fuel.

ATS Personnel training in Cuba

3.6.2.81 The Meeting noted the works initiated by Cuba for the modernization of the Civil Aviation Training Centre (CAA) and commissioning of air traffic control simulators for air traffic controllers of the Republic of Cuba. Likewise, it thanked the kind offer to put at the CAR and SAM Regions civil aviation community their modern air traffic simulators to support the training requirements of those States which so request.

ATS Quality Assurance Programme and actions to reduce ATS incidents in Cuba

3.6.2.82 The Meeting was informed on the commitment of the CAA Cuba to continue improving the National ATS Quality Assurance Programme implemented and at the same time on the recognition of the efforts of the ICAO Regional Offices to support the commissioning of such programme.

Improvements in the CIPE of Argentina

3.6.2.83 The Meeting acknowledged the new radar control simulator of the CIPE in Argentina, and expressed thanks to put this new equipment at the disposal of the CAR/SAM Regions for ATC personnel training.

3.6.2.84 Argentina also informed on the actions adopted through the Argentinean Training Centre (CIPE) for the implementation of a Quality Management System (SGC) with projection towards the certification of the process of “training of university professionals for air traffic management” under Standard ISO 9001:2000.

Aviation English Solution

3.6.2.85 The Meeting took note on the IATA Aviation English Solution programme designed for pilots and air traffic controllers to meet the ICAO language proficiency requirements. According with the information provided; this programme fully complies with the ICAO Manual on the Implementation of Language Proficiency Requirements and was developed to assist airlines and ANS providers to bring personnel to the required level according to ICAO Annex 1 before March 2008 deadline.

3.6.3 Report of the CNS Committee

Communication system developments

Status of SARPs, PANS and ICAO guidance material on communication systems

3.6.3.1 As results on the ICAO Headquarters activities related to communication systems, draft Standards and Recommended Practices (SARPs), a manual on detailed technical specifications and an implementation manual for the universal access transceiver (UAT) were developed. Also, a significant amendment manual for the universal access transceiver (UAT) was developed. Also, a significant amendment to the aeronautical mobile satellite service (AMSS) SARPs was developed which includes the removal of the current system-specific AMSS SARPs from Annex 10 – *Aeronautical Telecommunications,* and the introduction of generic requirements for AMSS systems when these are considered for use in safety communications. The current systems-specific SARPs (Annex 10, Volume III – Communication systems, Part I, Chapter 4) will be published in the form of a manual on detailed technical specifications.

3.6.3.2 As a consequence of AN-Conf/11, Recommendations 7/3 (Evolutionary approach for global interoperability of air-ground communications) and 7/4 (Investigation of future technology alternatives for air-ground communications), activities were initiated to identify future communications technologies to meet safety and regularity of flight communications requirements (i.e. those supporting air traffic services and aeronautical operational control). This activity is reviewing potential technologies and assessing their high-level capabilities, projected maturity and potential aviation applicability. In accordance with the work plan, a draft Initial Communication Operational Concept and Requirements (ICOCR) document is being developed which forms the basis for a manual understanding of the future communications concepts of operation; services to achieve the operational concepts; and environment(s) in which the services will be delivered.

3.6.3.3 Information on the activities related to ATN and public Internet is presents in the corresponding parts of this Report.

Review on the status of development and interconnection of the regional digital networks

3.6.3.4 The Meeting indicated that the development and inter-connection of the digital communication networks should be addressed not only to satisfy AFS communication requirements, but to achieve interoperability of a digital intra and inter regional platform aimed at supporting the communication, navigation, surveillance and air traffic management systems (CNS/ATM); that is, to facilitate the introduction of the aeronautical telecommunication network (ATN).

Interconnection/interoperability MEVA II – REDDIG networks

3.6.3.5 The Meeting took note on the status of the digital Network in the Caribbean updating (MEVA II), as well as on the South American Digital Network (REDDIG), whose summaries are shown in **Appendices AP** and **AQ** respectively to this part of the Report. Additionally, United States, through its IP/17 informed the Meeting on the status of development of the MEVA II VSAT digital communications network, which is carried out by the States, Territories and International Organization of the Central Caribbean and neighbouring zones, including United States, and Americom Government Services (AGS) as the selected service provider for the MEVA II Network.

3.6.3.6 With the purpose to achieve the development of a homogeneous network between these networks, the Meeting recalled that during the Coordination Meeting (Lima, Peru, 11-12 November 2002) for the interconnection for MEVA II – REDDIG Interconnection, objectives and technical operational principles were established for their interconnection, which is presented in **Appendix AR** to this Report. Based on the analyses, the Meeting formulated the following Conclusion**:**

CONCLUSION 13/70 ESTABLISHMENT OF AGREEMENTS TO ACHIEVE THE MEVA II – REDDIG INTERCONECTION/INTEROPERATION

That, the MEVA II and REDDIG Networks Team Management Groups carry out a coordination meeting before 31 March 2006, coordinated through the NACC and SAM Regional Offices, aimed at studying and proposing the establishment of technical and institutional agreements for MEVA II and REDDIG interconnection/interoperation taking into consideration the feasibility analysis of the following alternatives:

a) establishment of a Memorandum of Understanding (MOU) to achieve homogeneous interoperation between the indicated digital networks, taking into consideration the objectives and principles specified in Appendix AR to this part of the Report;

b) analyze the convenience of establishing the following additional interconnection/interoperations:
   - A REDDIG node in Tegucigalpa (COCESNA), Honduras.
   - A dedicated ground digital circuit between a MEVA II node (Honduras or San Juan, Puerto Rico) and a REDDIG node (Bogotá or Maiquetía).
   - A MEVA II node in Maiquetía (Venezuela).
   - Other possible solutions.

REDDIG interconnection with Eastern Caribbean digital Network

3.6.3.7 The purchase of the REDDIG node by Trinidad and Tobago is being coordinated by ICAO Technical Cooperation Bureau. With the implementation of the REDDIG node in Piarco, Trinidad and Tobago, direct ATS voice communication links between Maiquetía, Georgetown, Paramaribo and Cayenne with Piarco would be established. Likewise, AFTN circuits between Maiquetía –Piarco ACC and Georgetown – Piarco would be implemented.

REDDIG interconnection with CAFSAT

3.6.3.8 As a follow-up to Conclusion 12/39 of GREPECAS, Argentina informed the Meeting that the preoperational tests have been carried out between a new CAFSAT node in Ezeiza, Buenos Aires and the node in Johannesburg, South Africa, considering its operational execution by the end of August 2005, thereby implementing AFTN and ATS speech communication requirements between Ezeiza and Johannesburg established in FASID Tables CNS 1A and 1C. The Meeting recalled that the mentioned Conclusion also recommended that the CAFSAT VSAT node in Argentina be linked via a dedicated ground circuit with the CAFSAT VSAT station node in Recife. In this regard, the Member of Brazil expressed that this implementation requirement needs to be reviewed.

3.6.3.9 With the implementation of a CAFSAT node in Ezeiza (Argentina) jointly with the already implemented CAFSAT node in Recife (Brazil) would allow REDDIG interconnection with CAFSAT. The interconnection/interoperation would not be homogenous in view that the two networks use different satellites. Likewise, the implementation of the REDDIG node in Trinidad and Tobago would facilitate the ATS speech circuit implementation required between Piarco ACC and Santa Maria ACC (AFI Region) could be implemented, which is part of CAFSAT, through CAFSAT nodes installed in the SAM Region. Likewise, an ATS speech circuits could be established between Rochambeau ACC and Dakar ACC.

Review of the voice and data air-ground communication implementation plan

Review of the voice air – ground communication implementation plan

3.6.3.10 In regard to the CAR Region, the Meeting took note that, according to information available the VHF/AM communication coverage has been extended and improved in the Curaçao, Havana, Kingston, Santo Domingo and Piarco FIRs. Also, indicated the poor VHF/AMS coverage areas which are in the process of being resolved, as well as the status of implementation in the CAR Region of HF voice communication which are shown in **Appendix AS** of this part of the Report.

3.6.3.11 On the other hand, the Meeting concurred on the need to amend the FASID Table CNS 2A related to the Haiti requirements adding a voice VHF channel for the ACC service.

3.6.3.12 COCESNA through its NI/25 informed on the development of its ATIS Voice System and its implementation in the Juan Santamaría International Airport in San Jose, Costa Rica was completed in September 2005; and that those systems will be installed in all International Airports of Central America that so require, as well as on the development plans of a digital ATIS system (D-ATIS).

3.6.3.13 Regarding the SAM Region, the Meeting took note that activities are being carried out aimed at improving the VHF A/G coverage for the Maiquetía (Venezuela), Panama (Panama) and Guayaquil (Ecuador) FIRs. Also, modernization and extension projects of the VHF A/G coverage are foreseen for the Asuncion and Paramaribo FIRs.

3.6.3.14 Through an ICAO technical cooperation project in Venezuela, the replacement of the equipment in the VHF remote stations is being carried out, as well as the implementation of new stations which would resolve the lack of coverage in the South Zone of the Maiquetía FIR. It is expected that the work will be completed by mid 2006.

3.6.3.15 With the purpose of guaranteeing the coverage in the North Zone of the Panama FIR, new VHF A/G communication stations are being installed through an ICAO technical cooperation project, expected to be completed by the end of 2005.

3.6.3.16 Likewise, Ecuador is executing a plan to complete the installation of VHF communication stations in the Guayaquil FIR by the end of 2005.

3.6.3.17 In accordance with the FASID Table CNS 2A, an analysis of the aeronautical mobile voice requirements in the SAM Region is presented in **Appendix AT** to this part of the Report.

3.6.3.18 Bearing in mind information and considerations expressed in the previous paragraphs, the Meeting formulated the following Conclusion**:**

CONCLUSION 13/71 UPDATE AND IMPLEMENTATION OF THE VHF, HF AND SATELLITE VOICE COMMUNICATION OF THE AMS AND AMSS PLAN

That States/Territories/International Organizations:

a) executing action plans to improve or mitigate the VHF and HF/AMS coverage in their respective airspace, promote their execution by defining an implementation target date, as soon as possible;

b) examine and recommend actions to complete the implementation of the required satellite voice communication and if appropriate, propose updating the regional Plan (FASID Table CNS 2A); and

c) keep the ICAO NACC or SAM offices informed, as appropriate, on the progress of the actions described in items a) and b) of this Conclusion, so that these actions finalize by **30 May 2006**.

Review of the of data air-ground communication implementation plan

3.6.3.19 The Meeting, taking into consideration the established requirements of Table CNS 2A of the FASID, as well as by GREPECAS Conclusion 12/42, considered that the States, Territories, International Organizations and airspace users, should continue implementing feasible applications to be used with ACARS (Aircraft Communications Addressing and Reporting System) data links and FANS-1/A equipment, during the transition to ATN data oriented to bits.

3.6.3.20 With regard to the VHF, HF and satellite data implementation requirements for the Area Control Centres (ACC) contained in Table CNS2A of the FASID, the Meeting examined actions carried out in the past and at present by the Administrations responsible for the control of their respective FIRs, and other airspace in order to fulfil the aforementioned requirements. The results of the review of the CAR and SAM Regions are presented in **Appendices AU** and **AV** to this part of the Report, respectively. Also, the Meeting recommended to the States, Territories, International Organizations and airspace users to adopt actions bearing in mind the proposal of the CAR/SAM regional plan of activities for the planning and implementation of air-ground data links as shown in **Appendix AW** to this Report.

3.6.3.21 Based on the global road map for CNS/ATM systems, the Meeting proposed the CAR/SAM Regional Programme for the implementation of air-ground data links as shown in **Appendix AX** to this part of the Report. Therefore, the Meeting formulated the following Conclusion and Decision:

CONCLUSION 13/72 REGIONAL STRATEGY FOR UPDATING EVOLUTIONARY IMPLEMENTATION OF THE AIR-GROUND DATA LINKS PLAN

That, for the evolutionary implementation of air-ground data links, States/Territories/International Organizations:

a) carry out activities aimed at the deployment of air-ground data links based on the Regional strategy for updating and implementing the air-ground data links, made up of the Activities Plan and the Programme for the implementation presented in Appendices AW and AX respectively to this part of the Report;

b) review and suggest updates to the corresponding parts of the air-ground data link implementation Plan of the CAR/SAM Regions contained in the FASID Table CNS2A based on the Regional strategy mentioned in the above paragraph a); and

c) inform the ICAO NACC or SAM Office, before **30 May 2006**, the results of the of the actions described in items b) of this Conclusion.

DECISION 13/73 DEVELOPMENT OF A PROPOSAL FOR AMENDMENT AND ENHANCEMENT TO THE FASID TABLE CNS 2A, AMS AND AMSS PLAN

That the CNS Committee develop a proposal for amendment and enhancement to the AMS and AMSS Plan parts contained in the FASID Table CNS 2A, based on the results of the actions described in the Conclusions 13/71 and 13/72 as well as other updating that could be carried out.

Review of the ATN regional implementation plan

Status of the SARPs and ICAO guidance material on the ATN

3.6.3.22 The Meeting when taking note of the documentation contained in the SARPs and ICAO guidance material related with the ATN and its ground-ground and air-ground applications, noted that the ICAO is in progress to develop SARPs for the introduction elements of the Internet Protocol Suite (IPS) including the transmission control protocol/internet protocol (TCP/IP) in the aeronautical Telecommunication Network (ATN). This amendment includes both the ground-ground portion of the ATN as well as the air-ground sub-networks. This is in response to the fact that the current SARPs are based on older technology that has diminishing industry support. Certain ICAO regions, Europe, North America and South America (Argentine) are already introducing IPS in their ATN ground networks instead of the current open system interconnection (OSI)-based SARPs. It is expected that the development of IPS-based SARPs for air-ground sub-network, application of which is now being evaluated by ICAO, will take longer than those for the ground-ground ATN.

Development of the ATN regional backbone network architecture

3.6.3.23 The Meeting considered that the digital communication platform of the CAR and SAM regions through the regional and sub-regional digital networks will contribute to establishing and implementing the ATN backbone, but it would also require establishing inter/intra regional interconnection of these platforms to complete the CAR/SAM ATN regional planning; which should be studied in conjunction with speech communication requirements for ATS. The Meeting also noted that SITA offered the possibility of supporting application developed by them for electronic messaging based on ATN X.400 protocol through the SITA network.

Review of the ATN regional Plan

3.6.3.24 The Meeting noted that the ATN Plan contained in FASID Table CNS 1B includes the ATN network requirements, the ATN applications (AMHS and AIDC), as well as implementation dates established between the years 2004 and 2007, which should be reviewed and updated. Also, the Meeting recommended other amendments to Table CNS 1B, i.e. Guyana appears under the Eastern Caribbean sub-region, nevertheless, it should be placed under the SAM Region. In addition, the Meeting agreed that detailed implementation plans are required to be developed and apart from the ATN network and its routers, from ground-ground applications, as well as air-ground applications dealt with as follows.

Implementation of the ATN routers and applications

3.6.3.25 Aimed at facilitating the improvement and updating of the ATN routers backbone network implementation plan, the Meeting recommended the adoption of a new format named Table CNS 1Ba) – *CAR/SAM ATN routers Regional Plan,* shown in the **Appendix AY** to this part of the Report. Additionally, the Meeting considered the need to improve and update the ATS Messages Handling System (AMHS) and ATS Inter-facilities Data Communication (AIDC) between installations implementation plans, therefore, the Meeting proposed the adoption of a new format named Table CNS 1Bb) – *ATN ground-ground application Plan* shown in **Appendix AZ** to this Report. The Meeting formulated the following Conclusion:

CONCLUSION 13/74 PROPOSAL OF AMENDMENT TO ATN REGIONAL PLAN

That ICAO consider the amendment to the ATN Regional Plan contained in the FASID Table CNS/1B, by replacing that table format with the following:

- Table CNS 1Ba – CAR/SAM regional Plan of ATN routers
- Table CNS 1Bb – CAR/SAM regional Plan of ground-ground applications
- Table CNS 1Bc – CAR/SAM regional Plan of air-ground applications

Note: -The proposed Tables CNS 1Ba and CNS 1Bb formats are shown in Appendices AY and AZ respectively. The Table CNS 1Bc would be developed by the CNS Committee soon.

3.6.3.26 Likewise, aimed at enhancing and obtaining updated information on the requirements and plans for the AMHS and AIDC implementation. Therefore, the Meeting formulated the following Conclusion:

CONCLUSION 13/75 REQUEST FOR INFORMATION ON PLANS TO IMPLEMENT ATN GROUND-GROUND APPLICATIONS

That,

a) based on the Table contained in the Appendix AZ to this part of the Report, the States, Territories and International Organizations, that have not yet done so, provide detailed information on the requirements and plans to implement the ATN ground-ground applications, such as AMHS and AIDC; and

b) the replies to the action in item a) above be submitted to the ICAO NACC or SAM offices, as appropriate, so that they be received before **28 April 2006**.

Preparation of the regional AMHS addressing Plan

3.6.3.27 Taking into consideration that few States of the CAR/SAM Regions had replied to the Secretary General’s letter Ref.: SP 54/1-03/39, dated 30 May 2003 in order to establish an ICAO Register for Addresses and Management Domain Identifiers Used in the AMHS, the Meeting agreed the following Decision:

DECISION 13/76 PREPARATION OF THE REGIONAL AMHS ADDRESSING PLAN

That, the CNS Committee in coordination with ICAO, in conformity with one of the assigned tasks and based on the ICAO guidance contained in the State Letter, Ref.: SP54/1-03/39, dated 30 May 2003 and on the responses submitted by some States, prioritize the preparation of a Regional AMHS Addresses Plan for the CAR/SAM Regions.

Development of the implementation plan for the ATN air-ground applications

3.6.3.28 According to the air-ground applications contained in Annex 10, Volume III, Chapter 3, Section 3.5.3, the Meeting began the study for the regional implementation of the following air-ground applications: *automatic dependent surveillance contract (ADS-C) and ADS-B*, as well as the *automatic terminal information service (ATIS*). Nevertheless, the results of the work carried out by the ATM Committee for the completion of the ADS-C, ADS-B and ATIS regional plan are also expected, as well as to initiate planning for the implementation of the *Controller-pilot Data Link Communication (CPDLC)* and others. With a view to preparing this work, the Meeting adopted the following Decision:

DECISION 13/77 DEVELOPMENT OF A FORMAT-TABLE FOR THE REGIONAL AIR-GROUND APPLICATIONS PLAN

That the CNS Committee with the support of the ATN Task Force,

a) should prepare a format-table for the implementation of a regional plan ATN air-ground applications; and

b) compile and add the identified application requirements including them to a proposal for the regional air-ground applications plan.

Regional documentation to assist the ATN planning and implementation

3.6.3.29 With the purpose of assisting States/Territories/International Organizations of the CAR/SAM Regions in order to assure harmonization of the procedures and the proper application of SARPs and ICAO guidelines on ATN to ensure intra/inter-regional interoperability, it is necessary to develop regional guidance documents. As a result of these considerations, the Meeting took note that the CNS Committee adopted an internal decision**.**

Target date and strategy for the ATN implementation and its applications

3.6.3.30 The Meeting considered that for developing the plan and achieving implementation of the ATN and its applications on a regional and sub-regional basis and harmonized in conformity with the global plan, the GREPECAS should recommend to the States, Territories and International Organizations that they undertake activities based on the following target dates, as well as a regional strategy in accordance with the operational requirements of those regions and with the global ATM system:

• **Short term: (2005 – 2011)**	The update of digital networks, interconnection and interoperability should be completed in this phase, also carrying out the deployment of ATN routers in order to implement ground-ground data exchange applications and air-ground data (AMHS and AIDC) by applying ICAO SARPs and PANS and GREPECAS guidelines.
• **Mid term: (2011 – 2015)**	The use of the ATN and its applications will continue and the planning for updating the ATN and implementing new ATN applications to be defined by ICAO, will begin.
• **Long term: (As of 2015)**	The deployment of ATN applications to fulfil new requirements of the global ATM system will commence.

3.6.3.31 Based on these target dates and terms, in **Appendix BA** to this part of the Report, a proposal developed by the Meeting for a Strategy for the deployment of the ATN and its applications. Consequently, the Meeting formulated the following Conclusion:

CONCLUSION 13/78 STRATEGY AND TARGET DATES FOR THE DEPLOYMENT OF ATN IN THE CAR/SAM REGIONS

That States/Territories/International Organizations of the CAR/SAM Regions undertake their activities for the deployment of ATN and its applications in accordance with the target dates and strategy presented in Appendix BA to this part of the Report.

AMHS and AIDC Implementation Plans

3.6.3.32 The Meeting, in order to contribute fostering other aspects of the implementation of the ATN and its applications, agreed to the following Conclusion. The Meeting also indicated that through ICAO, GREPECAS should carry out timely coordination with adjacent regions aimed at ensuring the ATN regional interoperability:

CONCLUSION 13/79 DEVELOPMENT OF NATIONAL PLANS TO PRIORITIZE THE AMHS AND AIDC IMPLEMENTATION AND CONTRIBUTE TO ATM AUTOMATION

That the States/Territories/International Organizations develop their respective national plans for the prioritization of the AMHS and AIDC implementation, based on the ATN routers table, the ATN ground-ground applications plan, and the regional AMHS addressing plan, and relevant ATN – AMHS regional documentation, also contributing to the progress towards the development of ATM automation supporting air traffic services.

3.6.3.33 Argentina informed that its project for the acquisition and implementation of an ATS Message Handling Systems (AMHS) being carried out through the ICAO Technical Cooperation Bureau, culminated in the signing of the contact in December 2004 and the process of implementation is being carried out, as the SAT (Site Acceptation Test) pre-operational tests were finalized. Such a project considers also the construction of the IP net which it will allow to link the five national FIRs head offices. Today the implementation of such a system is under a pre-operational test phase.

3.6.3.34 One of the advantages that the Region has is the implanted and tested Digital network with a high level of availability and reliability. The use of the REDDIG as a link platform (CNS support), is the first step for the linking of the ATN communication center for the implementation of the Air traffic flow management (ATFM) system in the mentioned region and the fact that the Argentine Administration has an implanted AMHS system at national level, this State proposed that its AMHS which could properly act as a data communication application, covers in a first stage the need of having a system that serves as a first ATN ground – ground data communication application to communicate the ATFM units of the SAM region.

3.6.3.35 Based on Argentina's proposal, the Meeting agreed to the following Decision:

DECISION 13/80 PROPOSAL FOR USE OF A DATA COMMUNICATIONS INFRASTRUCTURE BETWEEN ATFM UNITS IN THE SAM REGION

That, the ATM and CNS Committees of the ATM/CNS Subgroup review:

a) the proposal of Argentina to use the AMHS of this State and the REDDIG Network, as the initial infrastructure of a ground-ground data communications between future ATFM units of the SAM Region;

b) the possibility of arranging a technical cooperation project for implementing the coordinated infrastructure mentioned in the previous paragraph a); and

c) include in its respective work program the corresponding tasks to develop the studies mentioned in paragraph a) and b) above.

Other ATN issues dealt with

3.6.3.36 The Meeting took note of other issues dealt with related with the ATN and its applications, as follows:

a) Spain informed its willingness to cooperate with ICAO to hold a seminar on ATN and AMHS implementation in 2006.

b) United States-FAA through its IP/18 and IP/19 informed the Meeting that Japan Civil Aviation Bureau (JCAB) and the FAA have implemented ATN routers and AFTN/AMHS gateways compliant with ICAO Doc 9705 (the ATN SARPs). Subsequently, JCAB and the FAA developed and defined guidelines and procedures for the transition from AFTN service to AMHS service. The execution of the US-Japan AMHS service became operational in March, 2005. The FAA also informed the Meeting that it's working on an ATN Architecture Approach (AAP) Document which will be finalized and made available no later than December, 2005.

c) COCESNA through its IP/22 informed the Meeting on the status of execution activities of the COCESNA Pre-ATN Routing Project, presenting the description of its activities and the characteristics and compatibility potentialities with the future CNS systems and the future ATN network.

d) SITA presented among other aspects, its views on the AMHS transition and SITA offered to develop trial financed programmes, using the available services and technology to improve the awareness on AMHS and to provide concrete subsidies for an effective transition to AMHS environment; and also is willing to support those consistent initiatives to put trial programmes in place, based on its experience and the need to improve the data link service provided to airlines.

Regional use of public Internet for aeronautical applications

3.6.3.37 The Meeting recalled that the ICAO Secretary General through State Letter Ref.: AN 7/11.15-05/7, dated 21 January 2005, informed that the Air Navigation Commission (ANC), examined and after published the Manual "*Guidelines for the Use of the Public Internet for Aeronautical Applications*" The manual addresses issues related to authenticity, integrity and security aspects of the provision of certain non-time critical aeronautical message/data exchanges over the public Internet. The Meeting also pointed out that in Chapter 2 of the mentioned draft Manual the responsibilities of the State are indicated in respect of the use of the public Internet, which is very important to be taken into account. Based on this, the Meeting formulated the following Conclusion and Decision:

CONCLUSION 13/81 ICAO GUIDELINES FOR THE USE OF THE PUBLIC INTERNET IN SUPPORT OF AERONAUTICAL APPLICATIONS

That, States/Territories/International Organizations of the CAR/SAM Regions that consider the use of the public Internet in support of aeronautical applications, take into account and apply the "*Guidelines for the Use of the Public Internet for Aeronautical Applications*" contained in ICAO Manual Ref.: Doc 9855.

DECISION 13/82 FINALIZATION OF CNS COMMITTEE TASK CNS/2-1.4

That, based on the Conclusion 13/81, the CNS Committee of the ATM/CNS Subgroup consider Task CNS/2-1.4 – "*Study the possibilities of the use of the public Internet*" as finalized.

3.6.3.38 The members from Chile, Cuba, Mexico, Venezuela and COCESNA, informed the CNS Committee on their experiences on the use of the public Internet for aeronautical applications.

Study of a communication system to support the migration towards the meteorological messages interchange (METAR/SPECI y TAF) in BUFR format code

3.6.3.39 The Meeting took note that the 14th Congress of the WMO (World Meteorological Organization) held in Geneva, Switzerland, from 5 to 23 May 2003, approved the migration plan of meteorological information exchange from the traditional alphanumerical form to table driven codes directed in bits called BUFR (Binary Universal From Representation). The plan envisage the parallel use of alphanumerical codes and table driven codes in OPMET messages as from 2007 and to have, by 2015, the exclusive use of table driven codes in bits forms.

3.6.3.40 The Meeting agreed that the CNS Committee shall support the work of the COM/MET Task Force, requesting that experts in the communication field be nominated as members of the mentioned Task Group. The Meeting took into account that several members of the CNS Committee need the support of their Administration therefore formulated the following Conclusion:

CONCLUSION 13/83 NOMINATION OF COMMUNICATION EXPERTS TO JOIN THE COM/MET TASK FORCE

That, the Administrations of the CAR/SAM Regions, interested in participating in the implementation of COM tasks of the COM/MET Task Force, inform the corresponding NACC or SAM Regional Office the name and data of their communication expert nominated for this Group, before **20 March 2006**.

3.6.3.41 The Meeting took note that the AFTN system will not be able to support the future modality of OPMET message transmission in formats handled by tables (BUFR code). The migration towards the transmission to table driven code formats requires having suitable communication and message processing systems, such as the AMHS (Aeronautical Message Handling System), which represents an ATN ground application system based on bit-oriented data processing, and this would have the capacity of supporting the OPMET information in BUFR code.

Navigation system developments

Studies for a CAR/SAM regional SBAS solution

3.6.3.42 The Meeting took note of the status of SBAS augmentation systems trials being carried out according to projects RLA/00/009 and RLA/03/902, as well as information on the future activities which are summarized in the **Appendix BB** and **Appendix BC** to this part of the Report.

3.6.3.43 The Meeting noted that the fourth coordination meeting Project RLA/00/009, recently held in Lima, Peru, on 24-25 October 2005, had decided to implement the schedule training activities and complete the project by the second half of 2006. The main activities of the project include the conduction of SBAS augmentation trials in the CAR/SAM Regions, the completion of the CSTB augmentation test bed, the ongoing collection of data from reference stations, the conduction of in-flight trials to verify the augmentation, the initial studies on the feasibility to extend the WAAS in these Regions.

Studies for a CAR/SAM regional SBAS solution

3.6.3.44 The United States-FAA provided information about the task related to studying the possibility of extending the WAAS to South America (as done by the United States with Canada and Mexico), which had been examined by Project RLA/00/009 as a way of providing short-term non precision SBAS and other capabilities in an evolutionary manner in the CAR/SAM Regions. Following a detailed analysis carried out jointly with the person hired by the WAAS and other experts connected to the programme in the United States, the FAA concluded that it would not be possible to extend the WAAS to South America due to the additional risks (technical, operational and delays) that this extension project could generate to the WAAS programme.

3.6.3.45 On the other hand, the Meeting noted that, according to the studies carried out by Project RLA/03/902, it would not be practical either to extend the EGNOS to the CAR/SAM Regions because of the definition and characteristics of SBAS systems, as described in ICAO Annex 10, Volume I. SBAS systems are based on the deployment of a series that earth stations that monitor the GPS system and the broadcast SBAS signals, and send the information to a master control station that generates an SBAS message for its dissemination to the users through a navigation device located in a GEO satellite, and broadcasts a signal in the GPS L1 frequency. Furthermore, consideration should be given to the fact that the maximum number of monitoring stations is determined by the maximum amount of information that can be sent on L1, which is 125 bits. This limits the number of stations to 40 approximately.

3.6.3.46 It was also noted that the current SBAS systems would be operating close to this limit if they were to provide APV II in their current areas of coverage (in the case of EGNOS, there are 34 in European territory and 6 in Africa). There is a spacing of 400 – 500 km between these stations (resulting from the 5X5 ionosphere grid). Since it is not possible to increase the number of stations beyond the maximum of 40, extension to these regions would imply increasing the spacing between them to cover more territory, which would reduce the services provided in the original area, for example, Europe. Consequently, if APV II is to continue to be provided, current systems cannot be extended; rather, independent systems from the new regions to be covered by the new systems would have to be used.

3.6.3.47 The Meeting noted that the GNSS TF concluded that the tasks envisaged in the Project RLA/03/902 Phase II, in general they are adequate and cover the study of the major part of the fields involved for an "end to end" solution for an SBAS augmentation system development. Likewise, the RLA/03/902 project – Phase II, will not include the software development for an operational system for the data analyses and performance of a study of the ionosphere model, due to the high cost involved. This analysis and the data collection will be dealt with under a specific project's work programme.

3.6.3.48 The Meeting indicated that aimed at migrating from ground to satellite navigation through the implementation of the global navigation satellite system (GNSS), jointly with an appropriate augmentation system in a cooperative and cost-effective approach to evolve towards the use of a sole means of navigation for remote/oceanic areas, en-route continental, non-precision approach, and for precision approach, departure and landing operations. A proper SBAS system option appears to be potentially the most beneficial augmentation system for the CAR/SAM Regions drawing together benefits from provisions, technological development, management and independence**.**

3.6.3.49 Additionally, the Meeting considering the time estimated to develop and verify new error detection and correction algorithms compared to the time estimated for having two frequencies available to resolve vertical SBAS navigation without the need to use the ionosphere grid point, deemed it advisable for the CAR/SAM Regions to consider the implementation of an SBAS capable of augmenting the integrity, availability and continuity of the GNSS service for APV I or APV II applications where necessary and feasible, as primary means of navigation, until future multi-frequency signals are available using ILS or GBAS where necessary.

3.6.3.50 In view of the foregoing, the Meeting formulated the following conclusion:

CONCLUSION 13/84 STUDIES FOR A CAR/SAM REGIONAL SBAS SOLUTION

That, since it is technically and operationally impracticable to extend the existing SBAS systems (WAAS and EGNOS) to the CAR/SAM Regions, according to the studies carried out, States, Territories and International Organizations:

a) are urged to continue introducing the GNSS in an evolutionary and coordinated manner, according to the ICAO global plan; conducting the studies for a regional SBAS solution consistent with the requirements and characteristics of the CAR/SAM Regions; and applying other augmentations, also taking into account that added benefits should help to justify the cost of reaching the ultimate goal of migrating to the GNSS once ground-based aids are dismantled;

b) are urged to withdraw from the work programmes of projects RLA/00/009 and RLA/03/902 - Phase II, those tasks related to studying the feasibility of extending the current EGNOS and WAAS to the CAR/SAM Regions;

c) that participate in regional projects RLA/00/009 and RLA/03/902 under the coordination of the GNSS Task Force, are urged to coordinate their efforts and actions in pro of the study of a SBAS solution; and

d) interested in participating in the activities of Project RLA/03/902, are urged to consider the revised quotas for joining this project.*

*****_Note: The revised quotas for States/Organizations to join Phase II of Project RLA/03/902, are based on the following criteria:_
a) Members of Project RLA/00/009: US$25,000
b) other States/Organizations: US$35,000

Studies on ionosphere issues for a Satellite-Based Augmentation System (SBAS) near the geomagnetic equator

3.6.3.51 United States reported that, based on the studies carried out, Satellite-Based Augmentation Systems (SBAS), such as WAAS and EGNOS, provide corrections and error bound for potential sources of range error on GNSS satellites. Since the ionosphere will remain a source of range error (at least until a second civil frequency is available), the SBAS must provide the correction and bound of error for the ionosphere delay.

3.6.3.52 ICAO SARPs on the SBAS provide a correction of the ionosphere delay by use of a 5x5 degree grid; this method has been proved safe at a precision which meets APV-1 or APV-2 requirements only when the ionosphere delay is relatively smooth over the 5x5 degree grid. In fact, the operational WAAS, which has received approval by the Federal Aviation Administration (FAA) in the United States, contains safety-certified algorithms which are capable of disabling APV-1 or APV-2 during times and in places where the ionosphere irregularity exceeds a limit. In the United States, these conditions occur during rare solar storms. However, during the work of the GNSS Task Force, additional knowledge has been received from ionosphere scientists, and the great number of measures been made in the equatorial and adjacent regions.

3.6.3.53 These studies and measurements show that the ionosphere at and near the geomagnetic equator is significantly irregular during certain hours of the day and seasons of the year. These conditions are worse near the peak years of the 11-year solar-sunspot cycle. These conditions highlight the technical risk of developing an SBAS system which can be proved safe to provide APV-1 or APV-2 capability during these severe ionosphere conditions. In addition, the numerous times these conditions exist near the geomagnetic equator may make it impractical to merely disable APV-1 or APV-2. In the long-term (10 years), this problem should be solved by the use of GNSS satellites with two civil frequencies, which allow the aircraft receiver to measure the ionosphere delay directly. Additional information on these studies is shown in **Appendix BD** to this part of the Report.

3.6.3.54 On the other hand, the Meeting noted that, in keeping with Recommendation 6/3 – *Evaluation of ionosphere effects in the performance of SBAS in equatorial regions*, of the Eleventh Air Navigation Conference (AN-Conf/11), ICAO was conducting studies on GNSS signal interference and mitigation methods, including the assessment of the effects of the ionosphere on the performance of the satellite-based augmentation system in equatorial areas. The final results of this work are expected in two or two and a half years. Therefore, the progress and results of this work need to be monitored.

Publication of information on GNSS activities in the CAR/SAM Regions

3.6.3.55 The Meeting considered that, in order to inform the States, Territories and International Organizations about the studies and other activities for GNSS implementation in the CAR/SAM Regions, ICAO should consider the possibility of creating an appropriate website, capable of containing the aforementioned information, including the activities and results of projects RLA/00/009 and RLA/03/902, and other related activities.

Execution of Seminars/Workshops on GNSS

3.6.3.56 On the other hand, the Meeting suggested that the planning and execution of GNSS Seminars and Workshop directed to the aeronautical entities of the CAR/SAM Regions would have to be announced with sufficient time through the ICAO regional offices in order to contribute to the planning of resources and participation of the States, Territories and International Organizations.

Fostering the use of GNSS in Multiple Sectors of States and Territories

3.6.3.57 The Meeting took note that the Global Navigation Satellite System (GNSS) and the proposal for the Augmentation Solution for the Caribbean, Central and South America (SACCSA) are not only for the application and benefits in aviation, but also for other means of transportation and different areas in each State/Territory. Therefore, it is necessary to circulate them to the higher authorities of each State/Territory, as well as in the regional and sub-regional events aimed at extending its usage and support. As a result of these considerations and information, the Meeting formulated the following Conclusion:

CONCLUSION 13/85 FOSTER THE USE OF GNSS IN DIVERSE SECTORS OF THE STATES

That States/Territories/International Organizations foster the use of GNSS in diverse sectors of their respective States and disseminate the results of the studies on the solution of SBAS.

Monitoring of GNSS performance in real time

3.6.3.58 Brazil, through its Information Paper NI/14 provided information to the Meeting on a general view of a programme to develop and use GNSS monitoring capability in real time for operational purposes. The system will be capable of monitoring the operational condition of a GNSS system in real time, as well as to forecast, as much as possible, its future performance. In this regard, the Meeting considered necessary to reconfigure the GNSS NOTAM format presented by Brazil.

Activities for the development of GNSS in Chile

3.6.3.59 The Meeting was informed in respect to the current use and presence of the GNSS system in Chile, who has actively participated and contributed to the progress of the projects involving the establishment and development of the Regional GNSS, following the CAR/SAM regional guidelines for the GNSS transition, adhering to the operational frame and initiating activities for the introduction of its use for landing and departure approach procedures. This information provided by Chile was well received by the Meeting, since the Aeronautical Regulations applied by this State for the use of GNSS as an anticipated use navigation satellite service model, could be taken into account by other States/Territories/International Organizations of the CAR/SAM Regions as a way to obtaining advanced operational benefits of GNSS.

Status of the GPS and its wide and local area augmentation systems for civil aviation

3.6.3.60 United States, through its IP/08 provided information on the most recent status of the United States Global Positioning (GPS) and the updated GPS policy, as well as the Federal Aviation Administration's (FAA) Wide Area Augmentation System, or WAAS, and Local Area Augmentation System, or LAAS. The material presented is considered an important contribution to the implementation of a global satellite-based navigation system (GNSS). Attendees are invited to visit the FAA's GPS Product Team's at **http://gps.faa.gov** for up-to date WAAS and LAAS program information.

Status of the SARPs and ICAO guidance material on the GNSS

3.6.3.61 SARPs for the GNSS ground-based regional augmentation system (GRAS) and criteria for arrival procedures and approach procedures with vertical guidance (APV) using satellite-based augmentation system (SBAS) are being developed. Moreover work is under way on the development and validation of SARPs for new and/or enhanced GNSS elements and signals, such as modernized global positioning system (GPS), the modernized Global Navigation Satellite System (GLONASS-M) and GALILEO, and on the development of performance requirements and SARPs for more demanding GNSS applications (e.g. precision approaches for CAT II/III operations). A review of SARPs and guidance material for conventional navigation aids is being conducted to ensure compatible operation an integration with evolving GNSS.

Support of the United States to Regional GNSS Activities

3.6.3.62 The United States stated that while they cannot support an extension of the US WAAS, they are very committed to helping extend the WAAS technology to the region based on their experience, knowledge and lessons-learned. Furthermore, the U.S. will continue their support for Project RLA/00/009, the GNSS Task Force, CNS Committee, ATM/CNS subgroup, and GREPECAS in the advancement of GNSS technology.

Surveillance system developments

Status of SARPs and ICAO guidance material on the surveillance

3.6.3.63 A draft manual on airborne collision avoidance system (ACAS) was completed and is being processed for publication. Moreover, amendments were proposed to Annex 6, *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444) and *Procedures for Air Navigation Services – Aircraft Operations* (PANS-OPS, Doc 8168) for the purpose of further enhancing the operational effectiveness of ACAS.

3.6.3.64 Taking into account new developments and the lessons learned through implementation activities, Annex 10 amendments were proposed related to Mode S and extender squitter. The latter involved new provisions for higher accuracy, integrity and capacity. To meet the objectives of Assembly Resolution A35-14, the Commission deferred action on these proposals pending the results of a study under way on the better formulation of SARPs and the means of referencing the work of other standards-making organizations.

Studies on ACAS II and SSR in Mode S regional implementation

3.6.3.65 The Meeting took note that the implementation of the Airborne Collision Avoidance System (ACAS II) and the Secondary Surveillance Radar (SSR) in Mode S should be in accordance with the Global Air Navigation Plan for CNS/ATM Systems (Doc 9750 – AN/963), with the CAR/SAM Air Navigation plan (Doc 8733), as well as ICAO SARPs and guidelines.

Implementation of ACAS II in the CAR/SAM Regions

3.6.3.66 Also, the Meeting took into account that most CAR/SAM States/Territories/International Organizations have published in their aeronautical regulations the requirements indicated in Annex 6, Chapter 6, para. 6.18. To perform of this application, the Meeting considered necessary and important to continue promoting their applicability to achieve the goal of the ACAS II use, in order to increase the flight safety. The Meeting also considered necessary to carry out studies on the type of SSR in Mode S transponder (Elementary or Enhanced) that could be implemented in aircrafts.

Implementation of secondary surveillance radar in Mode S

3.6.3.67 The Meeting summarized the information on the overview on the secondary surveillance radar (SSR) system in Mode S presented in **Appendix BE** to this part of the Report and considered that to implement the SSR in Mode S, is essential to study and consider the areas in which the installation of this type of radar might be justified. The Meeting also considered that the implementation of Mode S in these regions are favoured by the fact that numerous SSR installed are monopulse technique and generally have the capacity of allowing Mode S. Moreover, the Meeting noted that Brazil, Colombia, Mexico and the Dominican Republic have installed SSR in Mode S.

3.6.3.68 Also, the Meeting considered that SSR in Mode S, in addition to improving surveillance efficiency, will permit ATS providers to offer and benefit from a series of additional services that might be achieved through the use of services typical of Mode S. In the same way it was considered that the benefits of surveillance or for communications in Mode S would naturally increase in proportion, as there is an increase in the number of aircraft equipped in Mode S. The Meeting considered that to implement SSR in Mode S, the following should be taken into consideration:

- ensure the application of the assignment and application of aircraft addresses of 24 bits, provided by ICAO to the States (Annex 10, Vol. III, Appendix to Chapter 9);

- implementation of SSR in Mode S should be given priority in terminal areas with high traffic density. Each State/Territory/International Organization needs to evaluate the density of current traffic in terminal zones, and the forecast for the next ten years, as well as the useful life of the SSR installed; and

- determine the number of aircraft equipped with transponder SSR in Mode S, basic or enhanced.

3.6.3.69 Taking into account the initial considerations previously mentioned, the Meeting considered that the studies should continue for the development of SSR in Mode S implementation plan in the CAR/SAM Regions. Consequently, the Meeting formulated the following Decision:

DECISION 13/86 ASSIGNMENT FOR A NEW TASK TO THE CNS COMMITTEE ON THE SSR IMPLEMENTATION PLAN IN MODE S

That, the CNS Committee in view of the need to continue the studies for the development of an implementation plan for secondary surveillance radar (SSR) in Mode S, include a task in this respect in its work programme and develop it with priority B.

Study of the regional ADS systems implementation

Overview of the developments and SARPs Status and ICAO guidance material on the ADS-C and ADS-B systems

3.6.3.70 The Meeting recalled that the AN-Conf/11 Recommendations 1/6 and 1/7, approved the use of automated dependent surveillance-broadcast (ADS-B) system to support the global ATM system and to contribute to the achievement of global interoperability. Taking into consideration the Recommendations of the AN-Conf/11, the Global Air Navigation Plan for CNS/ATM systems (Doc 9750) and the industry developments, an overview on the automated dependent surveillance-contract (ADS-C) and ADS-B system developments is presented in **Appendix BF** to this part of the Report. Moreover, a summary on the status of the SARPs and ICAO guidance material related to the ADS-C and ADS-B systems are presented in **Appendix BG** to this Report.

Initiatives for Planning and Implementing the ADS-C and ADS-B systems

3.6.3.71 The Meeting took note of the initiatives taken by the States, Territories and International Organizations of the CAR/SAM Regions for planning and implementing the ADS-C and ADS-B systems. These initiatives are shown in **Appendix BH** to this part of the Report.

Statement and goals established in the roadmap on surveillance

3.6.3.72 The Meeting noted that the overview statement of the global roadmap on the capabilities to improve the surveillance, establishes that surveillance in terminal and en-route environments should be improved through the implementation of ADS-C or ADS-B prioritizing that airspace with unavailability of ATC surveillance system. The goal established in the roadmap, is the implementation of systems such as SSR in Mode S, ADS-C and ADS-B strengthened on a region-wide basis and to implement available surveillance systems in the airport control movement surface, where conditions and capacity could be ensured.

Identification of potential airspaces for ADS-B implementation

3.6.3.73 The Meeting, based on the information available regarding initiatives taken by the States, Territories and International Organizations of the CAR/SAM Regions, summarized the potential airspace identified to this date for the ADS-C and ADS-B implementation, which are presented in **Appendix BI** to this part of the Report. Although, it was of the opinion that more studies are required to confirm some of the initiatives indicated in the Appendix, as well as establishing the target dates; also, to identify other potential needs. In this regard, the Meeting indicated that results of the study are expected from the GREPECAS ATM/CNS Subgroup - ATM Committee.

Information on the current planning and capacity of the aircraft fleets operating in the CAR/SAM Regions

3.6.3.74 Likewise, the Meeting considered that to deploy ADS-C or ADS-B it is important to consider the aircraft fleet capability to use the ADS-C or ADS-B. Therefore, the Meeting proposed that ICAO requests IATA a survey to determine the time-scale capability of their member airlines fleet operating in the CAR/SAM Regions to deploy the ADS-C and ADS-B. Moreover, considering that also similar information is required in relation to the airlines fleet to be able to operate with SSR in Mode S transponder basic or extended, as well as to operate ADS-C and ADS-B; therefore, the Meeting formulated the Conclusion 13/53, in which a summary of the requests to IATA are formulated by the ATM and CNS Committees.

Strategies and target dates for the ADS-C and ADS-B systems implementation

3.6.3.75 In order to develop and achieve the ADS-C and ADS-B implementation on a regional and sub-regional basis, the Meeting agreed to issue a recommendation to the States, Territories and International Organizations to undertake activities based on target dates, as well as a regional strategy in conformity with the operational requirements of these regions and with the global ATM system. Regarding the target dates to be achieved for the ADS-C and ADS-B implementation in the CAR/SAM Regions on a sub-regional and regional basis, the Meeting proposed the following:

•	**Short term: (2005 – 2011)**	In this phase the ADS-C and ADS-B deployment would be performed to satisfy the actual requirements of surveillance through the techniques guided by ICAO. (ADS-B – 1090 ES).
•	**Medium term: (2011 – 2015)**	Will continue to use the ADS-C and ADS-B by defined technologies. The planning will commence to implement the new ADS-B data links, which will be defined by ICAO.
•	**Long term: (From 2015)**	The future ADS-C and ADS-B systems deployment will commence to comply with the new operational requirements of the global ATM system.

3.6.3.76 Taking into account the dates established in these terms, the CNS Committee developed a strategy proposal for the ADS-C and ADS-B deployment in the CAR/SAM Regions for a short/medium/long term. Based on these considerations and the analysis made by the ATM/CNS Subgroup the Meeting adopted the Decision 13/54 - *Target Dates, Updated Strategy and Plan for ADS-C and ADS-B Implementation,* that it appears in the part corresponding to ATM/CNS Subgroup guiding the ATM and CNS Committees to consolidate the mentioned strategy, and to propose actions to develop an initial ADS-C and ADS-B plan, in order to be presented in the Fifth Meeting of the ATM/CNS Subgroup.

Regional guidelines on the ADS-C and ADS-B systems implementation

3.6.3.77 The Meeting agreed that subsequently to the approval of the second amendment of the Global Air Navigation Plan for the CNS/ATM systems, the ATM/CNS subgroup should proceed to update the regional strategy resulting from the consolidated work of the two Committees, harmonizing it with the revised Global Air Navigation Plan for CNS/ATM systems.

3.6.3.78 The Meeting received useful information on the ADS development and experiences in other regions, including the planning and implementation of ADS in the Asia/Pacific Region and specifically in Australia, as well as on the trials conducted on ADS-B in the United Kingdom, indicating that the evolution toward the ADS solutions and regional CNS infrastructure will finally produce cost-economy and optimization of the operational efficiency and correspondent reductions in the navigation services charges. Based on the aforementioned, the Meeting formulated the following Conclusion. Also, the Meeting took note of SITA's offer to support the ADS-B trials programmes mentioned in the following Conclusion, as well as the delivery of ADS-C data link services.

CONCLUSION 13/87 ADS-B TRIALS PROGRAMME IN THE CAR/SAM REGIONS

That, States/Territories/International Organizations in collaboration with the airspace users, establish and execute an ADS-B trials programme using the available technology and services, aimed at improving the ADS-B knowledge and evaluating the benefits for the Air Traffic Management in the CAR/SAM Regions.

3.6.3.79 On the other hand the Meeting was informed on the general description of the feasibilities and capabilities available in the new COCESNA Control Centre and the actions undertaken by this organization in the planning and execution of trials for the ADS-C data processing and CDPLC communications, mainly for the oceanic area of the portion of the Central American FIR. Also, COCESNA has organized an internal coordination group for the implementation and use of the ADS-CPDLC functions in the Central American FIR. Among the actions undertaken it has carried out surveys on services and collaboration requests with the various airlines and other users that overfly the Central American FIR.

Review of the ASTERIX SAC Code Assignment Regional Plan

3.6.3.80 The Meeting concurred with a proposal for amendment presented by France aimed at amending the Regional SAC Code Assignment Plan for Guadeloupe, Martinique and French Guiana (F2, F3 and F4 respectively) by code SAC08. Code 08 is assigned to France and there is no other State in the world having this code assignment. In order to identify the codes in the above-mentioned Territories, SAC code will be used which is assigned by the State (France). For this, the Meeting considered the proposal for amendment appropriate. In **Appendix BJ** to this Report the amended Regional SAC ASTERIX Code Assignment Plan is shown. Consequently, the Meeting formulated following Conclusion:

CONCLUSION 13/88 PROPOSAL FOR AMENDMENT TO THE REGIONAL SAC ASTERIX CODE ASSIGNMENT PLAN

That ICAO proceed to amend the SAC ASTERX code assignment plan in order that the French Territories, Guadeloupe, Martinique and French Guiana use the 08 hexadecimal code which is the SAC code assigned for France, as presented in Appendix BJ to this part of the Report.

Development and integration of the Automated ATM systems

3.6.3.81 As expressed in the Report of the ATM Committee and as a result of the ATM and CNS Committees joint work and the follow-up to the Regional Strategy for the Integration of the ATM Automation Systems approved by the GREPECAS through its Conclusion 12/31, the Meeting considered that there is at present a high automation level in the control Centres, therefore the States/Territories/International Organizations should continue working according to the mentioned Regional Strategy including the related activities, such as: the integrated automation systems, use of a Interface Control Document (ICD), foster the planning and development of human resources and establish coordination between the States/Territories/International Organizations.

3.6.3.82 Based of the experience obtained by Mexico, the Meeting reviewed the *Regional strategy for the interfacing of ATM automated systems* approved by GREPECAS/12. Nevertheless, the Meeting considered that before submitting the strategy reviewed, it should be complemented with the Interface Control Document (ICD) and other aspects. In this respect, the ATM Automation Task Force will continue the reviewing the ICD offered by Canada, United States and Mexico to obtain a uniform application material for the CAR/SAM Regions, aimed at achieving a evolutionary integration and the harmonized interoperability of the ATM automated systems in the NAM, CAR and SAM Regions.

Support for the ICAO Position by CAR/SAM States for the ITU WRC-2007

3.6.3.83 The Meeting recalled that GREPECAS formulated the Conclusion 12/33 - *CAR/SAM Regional Action for the preparation and Support of ICAO's Position for WRC-07*; moreover, the Meeting was informed on the Agenda for the 2007 World Radiocommunication Conference (WRC-07) and that recently, ICAO issued the State Letter, Ref.: E 3/5-05/85, dated 12 August 2005, informing that the Council, at the 14th meeting of its 175th Session, held on 14 June 2005, approved the ICAO position on issues of critical concern to international civil aviation which are on the agenda of the International Telecommunication Union (ITU) Work Radiocommunication Conference (2007) (WRC-07), planned to be held in October 2007. The ICAO position is contained in the attachment of the mentioned State Letter.

3.6.3.84 The Meeting took note that ICAO position for the ITU WRC-07 is to protect the aeronautical spectrum for the radiocommunications and radionavigation systems required for current and future safety-of-flight applications. In particular, , it stresses that safety considerations dictate that exclusive frequency bands must be allocated to safety critical aeronautical systems and that adequate protection against harmful interferences must be ensured. It also includes proposals for new aeronautical allocations for the air-ground communications.

3.6.3.85 Furthermore, the Meeting noted that the active support from States is deemed the only mean to ensure that the results of the WRC-07 reflect civil aviation's need for spectrum. Therefore, as a follow-up to the Conclusion 12/33 of GREPECAS and the State Letter, Ref.: E 3/5-05/85 the Meeting agreed on the following Conclusion:

CONCLUSION 13/89 SUPPORT OF STATES IN THE CAR/SAM REGIONS TO THE ICAO POSITION FOR THE ITU WRC-2007

That the Civil Aviation Administrations of the States of the CAR/SAM Regions, that not yet have done it, adopt the following measures to support the ICAO position for the ITU WRC-2007, in order to protect the aeronautical radiofrequency spectrum for radio-communications and radionavigation systems required for current and future safety-of-flight applications:

a) designate a focal point or a contact person with the respective national authority of radio-frequency spectrum management, in order to incorporate ICAO position which is presented as the Attachment to States Letter Ref.: E 3/5-05/85, dated 12 August 2005, when developing the State's position for the WRC-07, as well as with ICAO for the coordination of matters related with the mentioned conference;

b) participate in an active manner in the preparatory work for the WRC-07 in the CITEL meetings of the Organization of American States (OAS);

c) participate in an active manner, whenever possible, in meetings and other activities convened by ICAO regarding the WRC-07; and

d) ensure that, to the extent possible, representatives from civil aviation administrations are included in the national delegations to the conference to support ICAO position during the WRC-07.

APPENDIX A

SUMMARY OF THE RESULTS OF THE THIRD SEMINAR ON INSTITUTIONAL ASPECTS

(Caracas, 19 September 2005)

1. Development of CNS/ATM systems in the CAR/SAM Regions

1.1 The seminar received information about the development of CNS/ATM systems in the CAR/SAM Regions. This information included the results of the fourth meeting of the GREPECAS ATM/CNS Subgroup, such as the future vision of ICAO with respect to the planning/implementation process, and ICAO activities to amend the Global CNS/ATM Air Navigation Plan. In this regard, note was taken of the plans concerning CNS/ATM systems and the tendency to implement ATFM as an important element to begin the implementation of CNS/ATM systems within the framework of the ATM operational concept, and according to the terms established by the 35 session of the ICAO Assembly, with a view to the implementation of the global ATM.

1.2 The information provided included the progress made by GREPECAS in the treatment of institutional aspects. On this matter, COCESNA described the institutional aspects related to the operation of this organisation, as well as the progress made in CNS/ATM implementation.

1.3 Brazil made an extensive presentation on CNS/ATM developments, and explained the operation of the CAR/SAM monitoring agency (CARSAMMA), its tasks and objectives, as well as the regional arrangements established for its operation. It also explained the development of the Air Navigation Management Centre (CGNA) in its different phases. It stated that the CGNA could help with the development of ATFM in the CAR/SAM Regions, based on the Brazilian experience. As to GNSS matters, an explanation was given of the plans for developing the GNSS Performance Monitoring System as a way to advise aviation on the reliability of GPS navigation signals, and make maximum use of its availability under current conditions.

1.4 Venezuela explained the investments it will make, with the support of ICAO Technical Cooperation, in order to improve and modernise its existing aeronautical infrastructure. It also presented its plans for the implementation of a LUT of the COSPAS/SARSAT system, and explained the advantages it would bring to the CAR/SAM Regions.

2. Work of project RLA/98/003 in support of the development of institutional aspects

2.1 The consultant on institutional aspects of project RLA/98/003 explained the tasks and results of the cited project regarding the definition of operational scenarios for the implementation of the multinational facilities/services identified by the Institutional Aspects Task Force and approved by GREPECAS. An explanation was given of the criteria used and the results obtained in this respect. The results of the study revealed two viable options for the implementation of investment projects concerning multinational systems, such as digital networks, ATFM, AIS automation, and GNSS SBAS augmentation. The seminar noted that this was a preview of the material to be discussed at the second meeting of the Institutional Aspects Task Force, where the aforementioned results would be submitted to the consideration of the Group. Likewise, the future outlook of multinational systems development was presented, and it was noted that some multinational systems approved by GREPECAS still needed to make some technical/operational progress.

3. **Legal aspects**

3.1 Two legal presentations were made, one on global legal matters and the options for the establishment of multinational organisations for managing multinational facilities/services, and the other related to regional matters in this connection. This issue of legal aspects generated an intense and extensive exchange of ideas during the seminar, noting that it would be advisable for the Task Force to analyse the material presented in both cases and, if necessary, to develop some guides concerning the legal component of the establishment of a multinational organisation.

APPENDIX B

GUIDANCE MATERIAL

INSTITUTIONAL ASPECTS FOR THE IMPLEMENTATION OF CNS/ATM SYSTEMS IN THE CAR/SAM REGIONS

REGIONAL PROJECT RLA/98/003

I. INTRODUCTION

1.1 This material is intended as a guide so that, within the regional scenarios identified herein, consideration be given to the implementation of the multinational facilities/services identified by the GREPECAS/12 meeting (Decision 12/5).

1.2 The following documents were used as the documentary basis for the work:

CAR/SAM ANP – FASID;
Global CNS/ATM Plan;
CAR/SAM Regional CNS/ATM Plan
Report of GREPECAS/12;
Report of AI/GT/1;
REDDIG and CARSAMMA;
Report of AN-Conf/11 **-** Global ATM operational concept;
Chapter 16 of the guidance material prepared by Regional Technical Cooperation Project RLA/98/003.

II. Current status and basic proposals

2.1 Background

ICAO CNS/ATM systems were endorsed by the Tenth Air Navigation Conference held in 1991 at ICAO Headquarters in Montreal, Canada. That same year, the Caribbean and South America Regional Planning and Implementation Group (GREPECAS) started working with a view to the regional application of this new concept of air navigation services. Likewise, the postulates of the new ICAO global ATM operational concept, which received the support of the States at the Eleventh Air Navigation Conference (AN-Conf/11, Montreal, September 2003), became relevant tasks of GREPECAS concerning ATM planning, implementation and operation in the CAR/SAM Regions.

2.1.1 According to the guidelines on facilitation of inter-regional harmonisation established by the ICAO Council, the regional CNS/ATM implementation plans in the Regions should be drafted based on the general profiles defined in the Global Air Navigation Plan for CNS/ATM systems. Following a thorough study of the guidelines contained in this Global Plan, GREPECAS adopted them and incorporated characteristics specific to the CAR/SAM Regions, based on the definition of homogeneous areas and main traffic flows.

2.1.2 On the other hand, it should be noted that the implementation of CNS/ATM technologies should be done in keeping with ICAO Assembly Resolution A35-15.

2.2 Regional implementation strategy

2.2.1 The regional implementation strategy defined by GREPECAS is expressed in terms of ATM improvements to be achieved, to the extent necessary, through the application of modern CNS/ATM technologies in the main traffic flows identified in the homogeneous areas. Nine homogeneous areas and 18 main flows have been considered as the basis for planning in the CAR/SAM Regions. The most significant air traffic flows in the CAR/SAM Regions encompass both regions, and many extend to adjacent regions, such as the AFI, EUR, NAM, NAT and PAC Regions.

III. CAR/SAM regional strategy for the implementation of regional and/or sub-regional CNS/ATM facilities and services

3.1 General considerations

3.1.1 Organisational aspects related to CNS/ATM implementation are of special significance. Advanced technology in the areas of communications, navigation, and surveillance offers the possibility of improving the performance capabilities of air traffic facilities. Therefore, it will be possible, and technically and economically viable, to provide services in vast geographical areas, thus reducing the number of ATM facilities and services.

3.1.2 In view of the above, future ATM scenarios contemplate much larger service areas and will thus require institutional arrangements that are different from those developed through the years for the existing decentralised air navigation systems, which were generally provided, operated, and owned by each State. It is therefore considered that, within the regional planning processes, a centralised control of some facilities and services would be beneficial in technical, operational, and financial terms.

3.1.3 The new ICAO global ATM operational concept, which was endorsed by the States at the AN-Conf/11, requires a service management system in order to achieve an operationally seamless regional airspace. Therefore, strategically speaking, a series of ATM functions will need to be carried out in the CAR/SAM Regions by regional or, at least, sub-regional facilities and/or services.

3.1.4 In order to fulfil the task of managing regional/sub-regional ATM systems, there needs to be a recognition of its complexity and of the fact that the end goal should be the implementation of the elements contemplated in the ATM operational concept, according to Rec. 1/1 of AN-Conf/11, with all the aspects related to the required quality of the system. However, it is also necessary to recognise that there needs to be a gradual evolution on this issue.

3.1.5 It is also necessary to visualise the above in light of the studies of CAR/SAM traffic forecasts, which show that air traffic in these regions will increase significantly in the coming years. This will pose the operational need to increase the ATFM strategic measures to be applied, based on the implementation of modern CNS/ATM technologies in the main air traffic flows, many of which extend beyond CAR/SAM Regions. In this sense, it might be said that the gradual implementation of the ATFM function would represent an appropriate first step towards the implementation of the ATM operational concept, which might require a centralised ATFM unit in order to introduce strategic planning processes for an optimum configuration of future operations in the airspace where this ATFM unit will operate.

3.1.6 It should be noted that the establishment of a Regional ATFM Centre does not exclude the need to have national ATFM units to carry out tactical and local flow control activities that are part of the Regional ATFM System.

3.2 **Planning principles**

3.2.1 The strategy for the implementation of multinational facilities in the CAR/SAM Regions and their subsequent management by the organisations considered to be the most appropriate for that purpose, is shown in **Attachment A**, together with the principles based on which it was developed.

IV. **CAR/SAM scenarios for the implementation of regional multinational organisations (RMOs)**

4.1 For the purposes of this document, ICAO scenarios for the operation and management of multinational navigation facility(ies) are defined as operationally seamless airspaces that permit an optimum configuration of air traffic operations in the main CAR/SAM flows, where ATM systems and their CNS facilities must be managed and operated in a centralised manner through a Regional Multinational Organisation (RMO).

4.2 It should be noted that, in principle, the vertical limits of the cited airspace are the same as those of the current UIRs, that is, above FL 245, and its horizontal limits are the same as those of the UIRs that make up the CAR/CAM and SAM Regions. In the case of the CAM scenario, vertical limits start at FL200 (inclusive).

4.3 Likewise, the COCESNA scenario shall be called the CAM scenario. On the other hand, and taking into account this designation chosen for the COCESNA scenario, the CAR scenario will be that made up by Mexico, the Central Caribbean and the Eastern Caribbean, leaving the ICAO SAM Region as the SAM scenario.

4.4 **CAR/SAM scenarios**

4.4.1 Scenario A:
STATUS QUO (the current organisation remains unchanged)

4.4.2 Scenario B: CAR/CAM/SAM scenario
It groups the airspaces of the CAM (COCESNA) + CAR + SAM Regions in a single airspace.

4.4.3 Scenario C: SAM airspace + CAM/CAR airspace
1 SAM airspace
1 CARIBBEAN/CENTRAL AMERICAN (COCESNA) airspace

4.4.4 Scenario D: SAM AIRSPACE + CAM AIRSPACE + CAR AIRSPACE

1 SAM airspace
1 CENTRAL AMERICAN (COCESNA) airspace
1 CARIBBEAN airspace

4.4.5 Scenario E: CAR/SAM AIRSPACE
It groups the airspaces of the CAR + SAM Regions in a single airspace

Remarks: We consider that the aforementioned basic scenarios may generate operational and technical sub-scenarios that will be analysed subsequently.

4.5 **Analysis of regional/sub-regional scenarios**

4.5.1 In order to study the institutional aspects of the scenarios shown in paragraph 4.3, we will use the methodology proposed in Chapter 16 of the Guidance Material for the Evolution towards the Global ATM in the CAR/SAM Regions, trying even to make use of some of the analytical criteria used in this chapter. Therefore, in order to analyse the multinational navigation facilities that will be part of the political/administrative/operational and technical structures of the RMOs responsible for managing the airspace of each scenario, we will analyse how and how intensely does each scenario meet or react to the cited analytical criteria.

4.5.2 The critical criteria--national sovereignty, national security, ease of access to the system, and safety--were thoroughly analysed in the aforementioned comparative study, which established that the Regional Multinational Organisation (RMO) best served the needs of the two Regions. The scenarios that we analyse in this paper only consider the RMO option, so a new analysis of these criteria would be redundant and repetitive.

4.5.3 Taking into account that the CAR/SAM Regions, through GREPECAS, have already endorsed the option of a Regional Multinational Organisation to manage CNS/ATM facilities in their Regions on a supra-national basis, we may assume that the criteria to be used in the comparative study cited in paragraph 4.5.1 will not propose an absolutely obstructive argument, but may identify the best criterion for a given scenario as compared to another scenario.

4.5.4 According to the report of the GREPECAS/12 meeting, which is reflected in in Attachment A, we are adding the following criterion to our comparative study: "THE ORGANISATION MUST CONSIDER THE MULTINATIONAL SYSTEMS CURRENTLY IN EXISTENCE OR IN OPERATION".

4.5.5 Scenario A, Status Quo, does not consider the implementation of an OMR; therefore, in our opinion, it does not qualify.

4.5.6 Also, according to the report of the GREPECAS/12 meeting, paragraph 3.1.3, we should consider that **Scenarios B and C,** although they exist, in realistic terms and according to **Principle j) of Attachment A** to this paper, they may be considered as viable scenarios, provided COCESNA is seen as the multinational system for these two scenarios.

Remarks: The detailed analysis can be seen in **Attachment B** to this study.

4.6 **Conclusions of the analysis**

4.6.1 From table 2 of Attachment C, we may conclude that scenarios **B, C, D** and **E** have a very similar score, and, in operational and technical terms, they are all fully viable. **In summary:**

1- **Scenario C:**
1 SAM AIRSPACE + 1 CAM/CAR AIRSPACE;
VIABLE

2- **Scenario B:**
1 CAR/CAM/SAM AIRSPACE;
VIABLE.

3- **Scenario E:**
1 CAR/SAM AIRSPACE;
VIABLE

4- **Scenario D:**
1 CAR AIRSPACE + CAM AIRSPACE + SAM AIRSPACE;
VIABLE

4.7 **Viable scenarios**

4.7.1 Therefore, we may consider the aforementioned scenarios as fully viable in technical/operational/administrative terms.

4.7.2 Finally, we feel that these four scenarios should be the basis for the economic-financial study, using CBA models that will provide important elements for the range of proposals to be submitted to the GREPECAS Institutional Aspects Task Force (GT/AI/1).

V. **General guidelines on institutional arrangements for the regional management of ATM systems in the CAR/SAM Regions**

5.1 To address this issue, consideration is given to the guidelines and conclusions from the various worldwide meetings (AN-Conf/10, An-Conf/11), to the guidance material contained in the CAR/SAM FASID on the establishment of multinational facilities developed by the CAR/SAM/3 RAN meeting, and to GREPECAS conclusions, particularly Conclusion 12/4 of the GREPECAS/12 meeting. On the other hand, consideration is also given to Chapter 16 of the Guidance Material for the Transition to CNS/ATM Systems, developed by Project RLA/98/003, in the part concerning the comparative study of options for a regional multinational mechanism for the CAR/SAM Regions. In this sense, this study considers that, for the management and operation of ATM systems or their elements, it would be best to establish **Regional/Sub-regional Multinational Organisations in the CAR/SAM Regions**, based on the studies being carried out within the context of GREPECAS.

5.2 Once the scenario, together with its facilities to be managed by a given RMO, have been agreed upon, the definitive institutional, financial, economic, and legal arrangements for the operation of said RMO will be developed in the form of an administrative agreement or treaty among the States/Organisations, as applicable, based on the guidance provided in the CAR/SAM FASID in this respect.

VI. **CAR/SAM regional/sub-regional organisations and their structure**

6.1 For many years, and with the purpose of implementing the facilities recommended in the ICAO Air Navigation Plan, many States have been providing various bilateral services to each other, where both parties have benefited. Although bilateral agreements continue to be common practice for the implementation of the Air Navigation Plan, technological developments, high costs and the multinational nature of ICAO CNS/ATM systems require that attention be paid to other organisational arrangements for the funding, implementation, and future administration of airport and air navigation systems.

6.2 Based on the above, a feasible option for the implementation of CNS/ATM systems would be to have a Regional Multinational Organisation to manage a series of multinational facilities.

A Regional Multinational Organisation could be defined as (definition approved by GREPECAS):

An regional/sub-regional international organisation created on the basis of an agreement among those States interested in operating a multinational facility, with legal capacity, managerial and financial autonomy, capable of contracting, acquiring, litigating and disposing of the goods and services of the Organisation.

6.3 On the other hand, an **ICAO multinational air navigation facility** could be defined as *"any facility included in an ICAO ANP that is intended to serve international air navigation in an airspace that extends beyond the airspace handled by a single State, according to the aforementioned plan."*

6.4 **Guidelines on the possible basic structure of a Regional Multinational Organisation (RMO)**

6.4.1 CAR/SAM RMOs could be structured in **3 levels**:

6.4.2 In the upper level, which we might call the **political/administrative level**, there must be an equitable and balanced participation by authorities from all the States in which the RMO performs administrative, operational and technical functions with respect to air navigation facilities. The upper administrative structure of the RMO will be located at this level. It may also include specific agencies, such as the regional collecting agency, ATM/CNS regional planning sectors, as well as activities such as regional flight calibration planning; training and human resources; regional air navigation service data banks; AIS data banks; etc.

6.4.2 The intermediate level, which we might call the **operational level,** will host the regional operational bodies (ROBs), whose focal point will be the Regional ATM Centre. We confirm our perception that the first ATM body to become regionally operational will be the Regional ATFM Centre.

6.4.3 The third level, which we would call the **technical level,** would include ATM support facilities in the C, N, S, AIS, MET, and other areas.

APPENDIX C

ANALYSIS OF SCENARIOS

1. In order to study the institutional aspects of the scenarios listed in paragraph 4.4 of Appendix A, we will apply the methodology proposed in Chapter 16 of the Guidance Material for the Evolution towards the global ATM in the CAR/SAM Regions, trying even to apply the analytical criteria used in that chapter. Therefore, in order to analyse the multinational navigation facilities and/or services that will be part of the political/administrative/operational and technical structure of the RMO(s) responsible for managing the airspace of each scenario, we will analyse how and how intensely does each scenario meet or react to the cited analytical criteria.

Table No. 1

Safety	Maintenance management	Profitability	Overhead expenses
Operational efficiency	System sharing	Cost recovery	Training-labour costs
Gradual implementation		Resource sharing	Staffing
Coordination			Consider existing systems/RMOs

2. The critical criteria--national sovereignty, national security, ease of access to the system, and safety--were thoroughly analysed in the aforementioned comparative study, which revealed that the Regional Multinational Organisation (RMO) was the one that best met the needs of the two Regions. Now, the scenarios being analysed in this paper only take into account the RMO option, so a new analysis of these criteria would be redundant and repetitive.

3. For purposes of this document, scenarios for the operation and management of ICAO multinational navigation facilities or services are defined as operationally seamless airspaces that permit an optimum configuration of air traffic operations in the main CAR/SAM flows, where ATM systems and their CNS elements must be managed and operated in a centralised manner through a Regional Multinational Organisation.

4. It should be noted that, in principle, the cited airspace has the same vertical limits as the current UIRs, that is, above FL 245, and the same horizontal limits as the existing UIRs in the CAR/CAM and SAM Regions. In the case of the CAM scenario, the vertical limits start at FL200 (inclusive).

5. Likewise, it is agreed that the COCESNA scenario will be called the CAM scenario. On the other hand, and taking into account this designation of the COCESNA scenario, the CAR scenario will be made up by Mexico, the Central Caribbean and the Eastern Caribbean, leaving the ICAO SAM Region as the SAM scenario.

6. Upon comparing the list of CAR/SAM scenarios for the implementation of Regional Multinational Organisations (OMR), whose functions and/or capacities could be more cost-efficient if they were operated through a regional or sub-regional mechanism, the following values were assigned to the options:

NA	- not applicable	0 pts.
AWR	- applicable with reservations	1 pt.
A	- applicable	2 pts.
HA	- highly applicable	3 pts.

7. According to the report of the GREPECAS/12 meeting, which is reflected in Appendix A, for purposes of our comparative study we are adding the following criterion: "THE ORGANISATION MUST CONSIDER THE MULTINATIONAL SYSTEMS ALREADY IN EXISTENCE OR IN OPERATION". Failure to meet this criterion will turn the scenario administratively non viable.

I – Scenario B

1. **CAR/CAM/SAM airspace**

1.1 **Operational efficiency:** The condition of a CAR/CAM/SAM airspace where ATM systems and their CNS elements must be managed and operated in a centralised manner through a single Regional Multinational Organisation. In terms of operational efficiency, it has the following positive characteristics:

a) Uniform management;

b) Minimum coordination;

c) Uniform procedures;

d) Prompt reaction to contingencies;

e) Real-time awareness of the aeronautical situation in a broad CAR/SAM scenario, allowing for a realistic decision-making at a strategic level;

f) Allows for a uniform strategic operational planning

1.1.1 Characteristics that deserve special attention:

a) Need for specific and reliable procedures to address abnormal and contingency situations;

b) The facilities, services and back-up procedures that guarantee a seamless service operation must be clearly defined.

Summary: Criterion applicable - grade A = 2 PTS.

1.2 **Gradual implementation:** The implementation of a single Regional Multinational Organisation for the CAR/CAM/SAM Regions must take into account Principle J: "The institutionalisation of the regional ATM must take into account the multinational cooperation and integration concept, without excluding systems that are already in operation". Therefore, it only permits its implementation if COCESNA is considered to be the RMO for the scenario.

Grade: Criterion applicable with restrictions AWR = 1 PT.

1.3 **Operational coordination:** In this scenario, operational coordination is greatly facilitated and, undoubtedly, this is one of the most positive aspects of this option.

Grade: Criterion highly applicable - HA = 3 PTS.

1.4 **Maintenance management**: Maintenance management in a single scenario for the CAR/SAM Regions is feasible and offers positive aspects, such as:

a) Uniform management philosophy;

b) Uniform management;

c) Uniform maintenance procedures and norms;

d) Centralised monitoring, offering an overall awareness of the technical/operational status of the facilities and equipment under its responsibility

1.4.1 There are still some aspects that will require special attention, such as:

a) Due to the geographical extension of the area of responsibility of the CAR/CAM/SAM RMO, the Scope of Control Principle will always be at stake.

b) The uniformity in the management philosophy, procedures and norms will have to be the most appropriate for the tasks; otherwise, the consequences could be quite negative.

Summary: Centralised maintenance management of the facilities and equipment dispersed in such a vast geographical area has very positive aspects, but also inspires caution.

Grade: Criterion applicable - A = 2 PTS.

1.5 **Sharing**: Since there is a single scenario for the CAR/CAM/SAM Regions, the need for sharing facilities is restricted to negotiations between the States, and no difficulties are being anticipated, or, at least, they would be the same as those foreseen for the other scenarios in the study.

Grade: Criterion highly applicable HA = 3 PTS.

1.6 **Profitability**: At first sight, the single CAR/CAM/SAM scenario offers the very favourable possibility of being profitable, and its implementation and operation will be the least expensive. The Scope of Control principle can be a factor that deserves special attention. However, this will have to be confirmed through a CBA.

Grade: To be defined once the CBA has been completed.

1.7 **Cost recovery**: The recovery of the costs involved in operating and managing facilities in a single CAR/CAM/SAM scenario will require an effort and an organisation and monitoring that may be penalised by the Scope of Control Principle. We might say that the advantages and disadvantages are very similar to those mentioned for criterion 1.4 – Maintenance management.

Grade: To be defined once the CBA has been completed.

1.8 **Overhead expenses**: Overhead expenses for this configuration tend to be lower and can be monitored more efficiently. This perception needs to be confirmed in the CBA.

Grade: To be defined once the CBA has been completed.

1.9 **Training:** The training of technical/operational personnel has similar advantages and points of caution as the maintenance management criterion. Economics should also be highlighted, since the duplication of courses will be avoided and training centres can rationalise the use of material and human resources when providing training courses. However, some duplication of efforts will remain due to English (CAR and SAM Regions) and Spanish (CAR/Central America/SAM Regions) language requirements.

Grade: Criterion applicable A = 2 PTS.

1.10 **Human resources**: No difficulties are envisaged for the application of this criterion. Quite the contrary, a scenario that contemplates a single management for the two regions opens up a new outlook in terms of quality and quantity of human resources that will fully meet the needs of the CAR/CAM/SAM RMO.

Grade: Criterion applicable A = 2 PTS.

1.11 **Consideration of existing systems**: The scenario with a single RMO for the CAR/SAM Regions does not consider the existence of other RMOs with the same responsibilities in the two Regions. That could give rise to great difficulties in negotiating the roles and responsibilities of the RMOs that already exist in the CAR/SAM Regions.

Grade: Criterion applicable with restrictions: AWR = 1 PT.

II - Scenario C

2. **SAM AIRSPACE + CAM/CAR AIRSPACE**

2.1 **Operational efficiency**: In Scenario C, the operational efficiency criterion is fully met. Coordination will be much less intense than at present, and procedures will be standard throughout the continent. Likewise, awareness of the aeronautical situation will be in real time in this vast region, thus permitting a prompt reaction to contingencies and a realistic decision-making process at the continental strategic level. Also, considering the existence of two RMOs for the CAR/SAM Regions, it will be possible to establish a mutual back-up structure in the event of failure or abnormal catastrophic condition in one of the RMOs.

Grade: Criterion highly applicable HA = 3 PTS.

2.2 **Gradual implementation**: The implementation of this scenario, which is highly viable in technical and operational terms, presents a significant administrative and political difficulty, since it envisages the absorption of the Caribbean by COCESNA, which would manage the Caribbean and Central America area.

Grade: Criterion applicable with restrictions AWR = 1 PT.

2.3 **Coordination:** The level of operational/technical and administrative coordination required between the SAM and CAR RMOs is perfectly tolerable and should not affect safety and operational efficiency levels.

Grade: Criterion highly applicable HA = 3 PTS.

2.4 **Maintenance management**: Maintenance management in the scenario with two airspaces and, therefore, with two RMOs—one CAR and one SAM—is feasible and has some positive aspects, such as:

a) Uniform management philosophy for a vast geographical area;

b) Uniform management in the continental geographical area;

c) Uniform maintenance procedures and norms for each region;

d) Centralised regional monitoring, permitting a overall awareness of the technical/operational status of the facilities and equipment under its responsibility;

2.4.1 Compared to scenario B (1 CAR/CAM/SAM scenario), there is better compliance with the Scope of Control Principle.

Grade: Criterion applicable A = 2 PTS.

2.5 **Sharing**: Consideration should be given to the sharing of facilities between the two airspaces (CAR and SAM). This will require operational, technical and administrative agreements between the two organisations, which, if well executed, will not affect the critical criteria and the operational efficiency.

Grade: Criterion highly applicable HA = 3 PTS.

2.6 **Profitability**: In Scenario C, considering that we will have two airspaces of continental dimensions, a high profitability can be expected. The Scope of Control Principle will be better met than in Scenario B (one single RMO for the CAR/SAM Regions). However, this needs to be confirmed by a CBA.

Grade: To be defined once the CBA has been completed.

2.7 **Cost recovery**: This criterion is fully applicable. It will also have to be confirmed through a CBA.

Grade: To be defined once the CBA has been completed.

2.8 **Overhead expenses**: More overhead expenses can be expected in this scenario as compared to Scenario B (two RMOs X one RMO). On the other hand, it should be noted that the Scope of Control Principle is better met in Scenario C, and thus the monitoring and supervision of expenditures may be more efficient and effective. A CBA will be necessary to confirm (or discard) these perceptions.

Grade: To be defined once the CBA has been completed.

2.9 **Training**: In Scenario C, training can be rationalised, assigning the responsibility for training in Spanish to the SAM RMO, and that of training in English to the CAR RMO. Coordination will be important to maintain a standard and uniform quality in the training provided by the two RMOs.

Grade: Criterion applicable A = 2 PTS.

2.10 **Human resources**: The criterion is applicable in the SAM Region without major difficulties. It will require special attention in the CAR Region, since it will have to consider both English- and Spanish-speaking personnel.

Grade: Criterion applicable A = 2 PTS.

2.11 **Consideration of existing systems**: Scenario C would have to consider the existing system as the RMO for the CAR/SAM Regions.

Grade: Criterion applicable AWR = 2 PTS.

III Scenario D

3. **1 SAM AIRSPACE; 1 CAM AIRSPACE (COCESNA); 1 CAR AIRSPACE**

3.1 **Operational efficiency**: In Scenario D, the operational efficiency criterion is fully met. Coordination, although more intense than in Scenario C, will still be less than at present, and procedures will be standard at continental level. Likewise, awareness of the aeronautical situation will be in real time, permitting a prompt reaction to contingencies and a realistic decision-making process at the continental strategic level. Also, considering the existence of two RMOs for the CAR/SAM Regions, it will be possible to establish a mutual back-up structure in the event of failure or abnormal catastrophic situation in one of the RMOs.

Grade: Criterion applicable A = 2 PTS.

3.2 **Gradual implementation**: In Scenario D, not many difficulties are foreseen for a gradual implementation. In fact, it is the option that can be implemented in the shortest term, since it already has an RMO in operation: CAM (COCESNA).

Grade: Criterion highly applicable HA = 3 PTS.

3.3 **Coordination**. The level of operational/technical and administrative coordination required among the SAM, CAM (COCESNA) and CAR RMOs, although more intense than in Scenarios B and C, is perfectly tolerable and should not affect safety and operational efficiency levels.

Grade: Criterion applicable A = 2 PTS.

3.4 **Maintenance management**: Maintenance management in the scenario with three airspaces—CAR, Central America (CAM) and SAM—is feasible and offers positive aspects, such as:

a) Uniform management philosophy for a vast geographical area;

b) Uniform management in a continental or sub-continental geographical area;

c) Uniform maintenance procedures and norms for each region;

d) Centralised regional monitoring, which permits an overall vision of the technical/operational status of facilities and equipment under its responsibility.

3.4.1 Compared to Scenario B (1 CAR/SAM AIRSPACE) and RMO C (2 airspaces), there is a better compliance with the Scope of Control Principle. On the other hand, special care should be taken when standardising maintenance and quality control procedures for the facilities and equipment of the three airspaces.

Grade: Criterion applicable A = 2 PTS.

3.5 **Sharing**: Consideration should be given to the sharing of facilities among the three RMOs (CAR, CAM and SAM). This will require operational, technical and administrative agreements among the three organisations. If well executed, it will not affect the critical criteria or the operational efficiency.

Grade: Criterion applicable A = 2 PTS.

3.6 **Profitability**: The profitability of the three airspaces is considered feasible, but will need to be confirmed through a CBA.

Grade: To be defined once the CBA has been completed.

3.7 **Cost recovery**: This criterion is applicable. It will also need to be confirmed through a CBA.

Grade: To be defined once the CBA has been completed.

3.8 **Overhead expenses**: More overhead expenses can be expected in this scenario as compared to Scenarios B and C (three RMOs X one RMO; three RMOs X 2 RMOs). On the other hand, it should be noted that the Scope of Control Principle is better met in Scenario D, and thus the monitoring and supervision of expenditures can be more efficient and effective. A CBA will be required to confirm (or discard) these perceptions.

Grade: To be defined once the CBA has been completed.

3.9 **Training**: In Scenario D, training may be rationalised, assigning the responsibility for training in Spanish to the SAM and CAM RMOs, and the responsibility for training in English to the CAR RMO. Coordination will be important to maintain a standard and uniform quality in the training provided by the two RMOs.

Grade: Criterion highly applicable HA = 3 PTS.

3.10 **Human resources**: The criterion is fully applicable.

Grade: Criterion highly applicable HA = 3 PTS.

3.11 **Consideration of existing systems**: In Scenario D, this criterion is fully met, since there is already a RMO fully operational in the CAM Region.

Grade: Criterion highly applicable HA = 3 PTS.

IV Scenario A - STATUS QUO

4.1 **Operational efficiency**: In Scenario A, the operational efficiency criterion is not met. Coordination is much more intense than in Scenarios B, C, and D. Procedures will be consistent with the difficulties that currently exist in the continent. In these regions, it will be practically impossible to have an awareness of the aeronautical situation in real time to permit a prompt reaction to contingencies and a realistic decision-making process at the continental strategic level.

Grade: Criterion applicable AWR = 1 PTS.

4.2 **Gradual implementation**: In Scenario A, gradual implementation is expected to encounter difficulties. In fact, the option can be implemented in a time span that is consistent with the individual possibilities of the States. It already has an RMO in operation: CAM (COCESNA).

Grade: Criterion highly applicable A = 2 PTS.

4.3 **Coordination**. It will require a high level of operational/technical and administrative coordination among States and an intense coordination by ICAO Regional Offices. It is tolerable and should not affect safety and operational efficiency levels.

Grade: Criterion applicable AWR = 1 PTS.

4.4 **Maintenance management**: Maintenance management is feasible.

Grade: Criterion applicable A = 2 PTS.

4.5 **Sharing**: Consideration should be given to facility sharing by the States. This will require operational, technical and administrative agreements among them. If well executed, it will not affect the critical and operational efficiency criteria.

Grade: Criterion applicable A = 2 PTS.

4.6 **Profitability**: Profitability will be very low and needs to be confirmed through a CBA.

Grade: To be defined once the CBA has been completed.

4.7 **Cost recovery**: This criterion is applicable. It will also have to be confirmed through a CBA.

Grade: To be defined once the CBA has been completed.

4.8 **Overhead expenses**: More overhead expenses can be expected in this scenario as compared with Scenarios B, C and D. On the other hand, the Scope of Control Principle is better served in Scenario A, and thus the monitoring and supervision of expenditures can be more efficient and effective. A CBA will be necessary to confirm (or discard) these perceptions.

Grade: To be defined once the CBA has been completed.

4.9 **Training**: In the case of Scenario A, training can be rationalised, but it will be expensive and will require a significant coordination effort.

Grade: Criterion applicable A = 2 PTS.

4.10 **Human resources**: This criterion is perfectly applicable.

Grade: Criterion applicable A = 2 PTS.

4.11 **Consideration of existing systems**: In Scenario A, this criterion is fully met, since there is already an RMO in operation in the CAM Region.

Grade: Criterion highly applicable HA = 3 PT.

V- SCENARIO E - CAR/SAM AIRSPACE

5.1 **Operational efficiency:** The situation of a single CAR/SAM airspace in which ATM systems and their CNS elements must be managed and operated in a centralised manner through a Regional Multinational Organisation. In terms of operational efficiency, it has the following positive characteristics:

a) Uniform management;

b) Minimum coordination;

c) Uniform procedures;

d) Prompt reaction to contingencies;

e) Real-time awareness of the aeronautical situation in a broad CAR/SAM scenario, permitting a realistic decision-making process at the strategic level;

f) It permits a uniform strategic operational planning.

5.1.2 Characteristics that deserve special attention:

a) It needs specific and reliable procedures to address abnormal and contingency conditions;

b) The facilities, services, and back-up procedures that ensure an uninterrupted service operation must be clearly established.

Summary: Criterion applicable in grade A = 2 PTS.

5.2 **Gradual implementation:** The implementation of a single Regional Multinational Organisation for the CAR/SAM Regions will be very difficult and the process will probably be slow and will require total cooperation from the States, and will face all type of obstacles, mainly political and administrative.

Summary: The fulfilment of this criterion is not impossible, but successful fulfilment faces a certain level of difficulty.

Grade: Criterion applicable with reservations AWR = 1 PT.

5.3 **Operational coordination:** In this scenario, operational coordination is greatly facilitated and is, undoubtedly, one of the most positive aspects of this option.

Grade: Criterion highly applicable **-** HA = 3 PTS.

5.4 **Maintenance management**: Maintenance management in a single scenario for the CAR/SAM Regions is feasible and offers positive aspects, such as:

a) Uniform management philosophy;

b) Uniform management;

c) Uniform maintenance procedures and norms;

d) Centralised monitoring, permitting an overall awareness of the technical/operational condition of the facilities and equipment under its responsibility.

5.4.1 There are still some aspects that will require special attention, such as:

a) Due to the geographical extension of the area of responsibility of the CAR/SAM RMO, the Scope of Control Principle will always be at stake.

b) Uniformity in the management philosophy, procedures, norms and management itself will have to be consistent with the tasks; otherwise, it could have negative consequences.

Summary: Centralised maintenance management of facilities distributed in such a vast geographical area has positive aspects, but also calls for caution.

Grade: Criterion applicable A = 2 PTS.

5.5 **Sharing**: Since it is a single scenario for the CAR/SAM Regions, the need for sharing facilities is restricted to negotiations with the States, and no difficulties are being anticipated, or, at least, they would be the same as those foreseen for the other scenarios in the study.

Grade: Criterion highly applicable HA = 3 PTS.

5.6 **Profitability**: At first sight, the single CAR/SAM scenario offers the very favourable possibility of being profitable, and its implementation and operation will be the least expensive. The Scope of Control principle can be a factor deserving special attention. However, this will have to be confirmed through a CBA.

Grade: To be defined once the CBA has been completed.

5.7 **Cost recovery**: The recovery of the costs involved in operating and managing the facilities in a single CAR/SAM scenario will require an effort and an organisation and monitoring that may be penalised by the Scope of Control Principle. We might say that the advantages and disadvantages are very similar to those mentioned for criterion 1.4 – Maintenance management.

Grade: To be defined once the CBA has been completed.

5.8 **Overhead expenses**: Overhead expenses for this configuration tend to be lower and can be monitored more efficiently. This perception needs to be confirmed through the CBA.

Grade: To be defined once the CBA has been completed.

5.9 **Training:** The training of the technical/operational personnel has similar advantages and points of caution as the maintenance management criterion. Economics should also be highlighted, since the duplication of courses will be avoided and training centres can rationalise the use of material and human resources when providing training courses. However, some duplication of efforts will remain due to English (CAR and SAM Regions) and Spanish (CAR/SAM Regions) language requirements.

Grade: Criterion applicable A = 2 PTS.

5.10 **Human resources**: No difficulties are envisaged for the application of this criterion. Quite the contrary, a scenario that contemplates a single management for the two regions opens up a new outlook in terms of quality and quantity of human resources that will fully meet the needs of the CAR/SAM RMO.

Grade: Criterion highly applicable HA = 3 PTS.

5.11 **Consideration of existing systems**: The scenario of a single RMO for the CAR/SAM Regions does not consider the existence of other RMOs with the same responsibilities in those two Regions.

Grade: Criterion applicable: A = 2 PT.

Table No. 2

CRITERIA	OPERATIONAL EFFICIENCY	GRADUAL IMP.	COORDINATION	MANAGEMENT	SHARING	PROFITABILITY	COST RECOVERY	OVERHEAD EXPENSES	TRAINING	HUMAN RESOURCES	CONSIDERATION OF EXISTING SYSTEMS	TOTAL
RMO LEVEL												
SC B CAR/CAM/ SAM	2	1	3	2	3				2	2	1	16
SC C CAM/ CAR+ SAM	3	1	3	2	3				2	2	2	18
SC D CAM +CAR +SAM	2	3	2	2	2				3	3	3	20
SC E CAR/ SAM	2	1	3	2	3				2	3	2	18
SC STATUS QUO	1	2	1	2	2				2	2	3	15

APPENDIX D

PRINCIPLES FOR THE ESTABLISHMENT OF A STRATEGY FOR THE IMPLEMENTATION AND SUBSEQUENT ADMINISTRATION OF MULTINATIONAL FACILITIES IN THE CAR/SAM REGIONS

a) CNS/ATM technology, because of its nature, is technically and economically viable, and can provide services in large geographical areas, thus reducing the number of facilities required for the provision of ATM services;

b) Future ATM scenarios envisage much broader service areas and, as such, will require institutional arrangements that are different from those that have been developed throughout the years for the existing decentralised air navigation systems;

c) Within the regional planning process, a centralised control of some facilities would be beneficial in technical, operational and financial terms;

d) The new GLOBAL ATM OPERATIONAL CONCEPT requires a service management system in order to achieve a seamless regional airspace. Therefore, at the strategic level, a series of ATM functions will need to be carried out in the CAR/SAM Regions by regional or, at least, sub-regional facilities and/or services;

e) The results of air traffic forecast studies foresee a sustained traffic growth in the main CAR/SAM flows. This item will require a strategic planning in order to obtain an optimum configuration of air operations. Thus, we may infer that regional/sub-regional ATFM implementation could be an appropriate first step towards the evolutionary implementation of the ATM operational concept;

f) For purposes of managing and operating ATM systems or their elements, it is felt that it would be best to establish Regional/Sub-regional Multinational Organisations in the CAR/SAM Regions, based on the studies being carried out by GREPECAS;

g) The List of Possible Multinational Systems, approved by GREPECAS/12 through Decision 12/5, contains the systems that can be implemented as multinational facilities in the CAR/SAM Regions in a gradual and evolutionary manner.

h) A *sine-qua non* condition is that the structure to be chosen for the CAR/SAM Regional Multinational Organisation (RMO) **must meet the criteria** of operational, technical and economic viability;

i) The final decision regarding the structure to be chosen for the CAR/SAM RMO(s) will have a strong regional political component;

j) The institutionalisation of the regional ATM must take into account multinational cooperation and integration, without excluding those systems already in operation;

k) The Regional Multinational Organisation must have legal capacity, with financial/economic management and autonomy, to which end it should include, *inter alia*, a Joint Central Collecting Agency in its organisational structure.

REGIONAL STRATEGY FOR THE IMPLEMENTATION OF REGIONAL AND/OR SUB-REGIONAL FACILITIES

a) Initially, the CAR/SAM Regional Strategy for the implementation of CNS/ATM Systems should be used as a basis to promote ATM improvements through the use of modern CNS/ATM technologies in the main traffic flows identified in the homogeneous areas. These technologies must be implemented gradually and with a view to supporting and expanding the performance capabilities of air traffic facilities. The nature of the new CNS/ATM technologies will permit the provision of services in large geographical areas, thus reducing the number of facilities required to provide ATM services in CAR/SAM airspaces. It is important to note that these implementations must always be supported and justified by cost-benefit analyses (CBAs).

b) The **List of Possible Multinational Systems**, approved by GREPECAS/12 through Decision 12/5, lists the systems that can be implemented as multinational facilities in the CAR/SAM Regions.

c) The GLOBAL ATM OPERATIONAL CONCEPT requires a service management system in order to achieve an operationally seamless regional airspace. Therefore, **a series of ATM functions in the CAR/SAM Regions will need to be centralised and carried out by regional or, at least, sub-regional facilities and/or services;**

d) Strategic planning for an optimum configuration of air traffic operations in the main CAR/SAM flows will require **the implementation of regional/sub-regional ATFM bodies**, as an appropriate **first step** towards the evolutionary implementation of the ATM operational concept**;**

e) In the CAR/SAM airspace scenario, the best would be to establish **Regional/Sub-regional Multinational Organisations (RMOs) to manage and operate ATM systems or their elements**.

f) In establishing these RMOs, consideration should be given to the List of Possible Multinational Systems and to the fact that the first ATM function that will require a supra-national institutional arrangement for its management will be ATFM.

g) In a first phase, consideration would be given to the inclusion in this RMO structure of a Regional ATFM Centre and its supporting facilities (REDDIG, regional AIS data bank, regional SBAS system management).

h) The next step would be the establishment of the CAR/SAM airspace scenarios that will be managed by a given RMO, and the selection of the most viable scenarios in technical and economic terms. The economic-financial analysis of these scenarios is of special importance so that the process may be subsequently taken to the decision-making levels of the States through the GREPECAS mechanism.

i) Concurrently with the economic and financial analysis of the scenarios, studies should be made to define the principles leading to the establishment of an institutional framework, based on which the multinational facilities may be managed as part of a regional/sub-regional system for the provision of air navigation services.

APPENDIX E

LEGAL GUIDANCE MATERIAL FOR DRAFTING A DOCUMENT FOR THE CREATION OF A REGIONAL MULTINATIONAL ORGANISATION (RMO)

REFERENCES:

**Report of the 29th session of the Legal Committee (Montreal, 4-15 July 1994)(Doc. 9630).*
**Report of the first meeting of the Establishment of a legal framework for the GNSS panel (Montreal, 25-30 November 1996).*
**Report of the second meeting of the Establishment of a legal framework for the GNSS panel (Montreal, 6-10 October 1997).*
**Report of the third meeting of the Establishment of a legal framework for the GNSS panel (Montreal, 9-13 February 1998).*
**Resolution A32-19, Letter on rights and obligations of the States regarding GNSS services.*
**Resolution A32-20, Development and drafting of an appropriate long-term legal framework for GNSS implementation.*
**Final report on the work of the Legal Aspects of CNS/ATM Systems Study Group of the ICAO Secretariat, approved at the 171st session of the Council, on 5 March 2004.*
**Resolution A35-15, Revised statement of ICAO ongoing policies and methods concerning a global air traffic management (ATM) system and air traffic communication, navigation, and surveillance/air traffic management (CNS/ATM) systems (September-October 2004)*

1. In order to facilitate the establishment of a Regional Multinational Organisation (RMO), the GREPECAS Institutional Aspects Task Force has prepared this high-level guidance material.

2. In this sense, the instrument of incorporation should include an Agreement and Annexes. The Agreement should include the basic, main and essential provisions concerning the general obligations of States and the institutional organisation or structure. The Annexes should cover the dynamic aspects, that is, the technical-operational aspects related to the existing and future CNS/ATM systems, in keeping with ICAO standards and recommended practices.

3. As to the critical criteria related to national sovereignty, national security, and safety, it would be necessary to establish safeguards to ensure that the level of authority and control by the States over their airspaces will not be affected, in keeping with the documents mentioned in the References.

4. The basic or general clauses that should be included in the cited instrument are as follows:

a) Purpose of the instrument: The rationale for the joint decision of the States to provide the multinational facility.

b) A clear and precise definition and description of the facility and of the functions it will perform, and, if applicable, the functions that it will not perform.

c) Legal capacity: The appropriate one for the fulfilment of its work must be determined.

d) Liability and insurance: Aspect related to the previous one, which involves determining their extent and form.

e) Obligations of the participating States: The basic obligations include:

  1) Creating the RMO.

  2) Contributing its share in capital and goods.

  3) Following ICAO criteria, principles and practices.

  4) Meeting the established technical requirements.

f) Management, which includes:

  1) Governing and administrative bodies: It is necessary to define the nature and functions of these bodies.

    i) Board of Directors, Council, or Governing Board, made up by a representative of each of the Member States. It will elect a Chairperson from its own members, on a rotation basis.

    ii) General Manager or Executive Director, designated by the Board of Directors, Council, or Governing Board.

  2) Decision-making modalities: Type of vote and decision (unanimous, and qualified or simple majority).

g) Structure and staffing: Covers nationality, number, selection, categories, working conditions, by-laws to be applied, retirement payments and occupational risk coverage.

h) The financial aspects, considering the economic and financial autonomy that the organisation will have, include:

  1) Implementation costs to reach the operational phase.

  2) Costing.

  3) Cost sharing (portion corresponding to each State).

  4) Cost recovery.

  5) Budgeting: Income and costs or expenses must be estimated in advance in order to keep a proper financial control.

  6) Budget approval faculties (generally correspond to the governing body).

i) Term or duration: limited, with automatic renewal. Both periods must be predefined.

j) Auditing: It is a sign of good financial management, reason why an annual audit by an external auditor should be scheduled. It should also undergo the safety audits foreseen by ICAO.

k) Tax exemption or fiscal immunity.

l) Jurisdictional immunity: By virtue of this clause, which is very common in instruments of incorporation of similar international organisations, the RMO, its goods and resources, as well as its personnel, would enjoy jurisdictional immunity, that is, the courts of member States would not be able to try cases initiated by a State or third party against the RMO.

m) Conflict settlement procedure: Negotiation or arbitration procedures should be agreed upon, as well as the instance to which they can appeal to obtain an absolute rule.

n) Amendment.

o) Registration in the ICAO Council, according to Art. 83 of the Convention on International Civil Aviation (Chicago 1944).

p) Final provisions: effective date, ratification, accession, denouncement and dissolution.

APPENDIX F

IMPLEMENTATION PLAN FOR THE WAFS IN THE CAR/SAM REGIONS

TASK	DESCRIPTION OF TASK	DATE
1	WAFC Washington to provide global gridded W/T data in GRIB code.	Completed
2	WAFC Washington to produce SWH charts.	Completed
3	ICAO NACC and SAM Regional MET officers survey states ability to produce wind/temperature charts from GRIB data for the purpose of assessing training needs.	Completed
4	ICAO to coordinate with States and users if there is validated regional requirement for SWM Charts for limited geographical area.	Completed
5	U.S. to provide BUFR decode software to the workstation manufactures.	Completed
6	Provide the technical functionality specifications for the purpose of acquiring new WAFS workstations.	Completed
7	Buenos Aires and Brasilia RAFC close.	Completed
8	States to initiate a process to procure new workstations, service agreements, and training to support these stations with a planned installation of workstations by November 2003.	30/06/06
9	Establishment of back-up distribution arrangements for WAFS products.	Completed
10	Provision of test BUFR coded SIGWX via File Transfer Protocol Server (FTP) to selected States for testing.	Completed
11	Satellite distribution of global SWH and SWM for limited geographical areas in BUFR format.	Completed
12	Training in operational conversion of GRIB to wind and temperature charts and BUFR to significant weather charts at Regional seminars.	Completed
13	Forecasts into operational significant weather charts.	30/06/06
14	Removal of T4 upper-air wind and temperature forecasts from satellite broadcast.	30/06/05
15	Removal of T4 SIGWX forecasts from satellite broadcast.	30 November 2006

APPENDIX G

Meteorological Watch Office (MWO) to which Tropical Cyclone advisory is to be sent by the Tropical cyclone advisory centre, Miami

MWO	ADDRESS
Recife, Brazil	SBRFYMYX
Bogota, Colombia	SKBOYMYX
Caracas, Venezuela	SVMIYMYX
Cayenne, French Guiana (France)	SOCAYMYX
Georgetown, Guyana	SYCJYMYX
Habana, Cuba	MUHAYMYX
Honolulu, Hawaii (United States)	PHNLYMYX
Kingston, Jamaica	MKJPYMYX
Mexico, Mexico	MMMXYMYX
Panama, Panama	MPTOYMYX
Port of Spain, Trinidad and Tobago	TTPPYMYX
Port-au-Prince, Haiti	MTPPYMYX
San Juan, Puerto Rico (U.S.A.)	TJSJYMYX
Santo Domingo, Dominican Republic	MDSDYMYX
Tegucigalpa, Honduras	MHTGYMYX
Willemstad, Netherlands Antilles, (Netherlands)	TNCCYMYX
Zandery, Suriname	SMJPYMYX

As well as these addresses:

SADIS Uplink CAR Region	EGZZMCAR
SADIS Uplink SAM Region	EGZZMSAM
OPMET Data Bank, Brasilia	SBBRYZYX
OPMET Data Bank, Washington	KWBCYMYX
WAFC, London	EGRRYMYX
WAFC, Washington	KWBCYMYX

APPENDIX H

SELECTED VOLCANO OBSERVATORIES OR AUTHORITIES

ARGENTINA

Observatorio u Organismo de vulcanología	Instituto Antártico Argentino, Dpto. Ciencias de la Tierra
	Servicio Geológico y Minero Argentino (SEGEMAR)

CHILE

Observatorio u Organismo de vulcanología	Southern Andes Volcano Observatory (SAVO) Departamento de Ciencias Físicas Temuco
	Servicio Nacional de Geología y Minería (SERNAGEOMIN) Santiago

COLOMBIA

Observatorio u Organismo de vulcanología	INGEOMINAS Observatorio Vulcanológico de Colombia, Manizales

COSTA RICA

Observatorio u Organismo de vulcanología	Observatorio Vulcanológico y Sismológico de Costa Rica (OVSICORI-UNA) Heredia
	Observatorio Sismológico y Vulcanológico de Arenal y Miravalles, San José

ECUADOR

Observatorio u Organismo de vulcanología	Instituto Geofísico, Quito

EL SALVADOR

Observatorio u Organismo de vulcanología	Servicio Nacional de Estudios Territoriales (SNET) Ministerio de Medio Ambiente y Recursos Naturales Director, Servicio Geológico: Carlos Pullinger

FRENCH ANTILLES (FRANCE)

Observatory or Volcano Authority	GUADELOUPE Observatoire Volcanologique de la Soufriere MARTINIQUE Observatoire Volcanologique de la Montagne Pelée

GUATEMALA

Observatorio u Organismo de vulcanología	INSIVUMEH Sección Vulcanología, Ciudad de Guatemala

GUYANA

Observatorio u Organismo de vulcanología	Guyana Geology and Mines Commission Contacto: Sr. Brian Sucre, Commissioner

MEXICO

Observatorio u Organismo de vulcanología	Centro Nacional de Prevención de Desastres (CENAPRED) Centro Universitario de Investigaciones en Ciencias del Ambiente, Universidad de Colima Instituto de Geofísica, UNAM

MONTSERRAT (UNITED KINGDOM)

Observatorio u Organismo de vulcanología	Montserrat Volcano Observatory

NICARAGUA

Observatorio u Organismo de vulcanología	Dirección General del Inst. Nicaragüense de Estudios Territoriales (INETER), Managua Dirección de Vulcanología

PERU

Observatorio u Organismo de vulcanología	Instituto Geofísico del Perú (IGP)

APPENDIX I

Related to Aerodrome			State:		AFTN:		FAX:		E-mail:				
			METEOROLOGICAL MESSAGES RECEIVED										
			METAR			TAF			OTHERS				
			FORESEEN	RECEIVED	EFFICIENCY %	FORESEEN	RECEIVED	EFFICIENCY %	SP	WS	WC	WV	US
AFI													
ASIA													
CAR													
EUR													
NAT													
NAM													
PAC													
SAM													

F = METAR, SPECI and TAF requirement
S = METAR and SPECI requirement
T = TAF requirement

APÉNDICE J / APPENDIX J

HORAS DE OPERACIÓN DE LAS ESTACIONES MET DE LAS REGIONES CAR/SAM CON BASE EN LA TABLA MET 2A PARA TENER EN CUENTA EN LOS CONTROLES OPMET DEL 10 AL 16 DE JUNIO DE CADA AÑO

HOURS OF OPERATION OF MET STATIONS OF THE CAR/SAM REGIONS BASED ON THE TABLE MET 2A TO BE CONSIDERED FOR THE OPMET CONTROLS TO BE CARRIED OUT EVERY YEAR, FROM 10 TO 16 JUNE

ESTACIÓN/STATION	Ind. Lugar OACI /ICAO loc. Ind.	Horario de operación/ Hours of operation	METAR Previstos/ METAR Foreseen	TAF Previstos/ TAF Foreseen
CAR				
ANGUILLA (U.K.)	TQPF			
The Valley				
ANTIGUA AND BARBUDA				
Saint Johns	TAPA			
ARUBA (Netherlands)				
Oranjestad	TNCA			
BAHAMAS				
Alice Town	MYBS			
Cockburn Town	MYSM			
Freeport	MYGF			
George Town	MYEG			
Governor's Harbour	MYEM			
Marsch Harbour	MYAM			
Nassau	MYNN			
North Eleuthera	MYEH			
Stella Maris	MYLS			
Treasure Cay	MYAT			
West End	MIGW			
BARBADOS				
Bridgetown	TBPB			
BELIZE				
Belize	MZBZ			
CAYMAN IS. (U.K.)				
Cayman Brac	MWCB			
Georgetown	MWCR			
COSTA RICA				
Alajuela	MROC			
Liberia	MRLB			
Limón	MRLM			
Pavas	MRPV			
CUBA				
Camaguey	MUCM			
Cayo Largo del Sur	MUCL			
Ciego de Avila	MUCA			
Habana	MUHA			
Holguin	MUG			
Santiago de Cuba	MUCU			
Varadero	MUVR			

ESTACIÓN/STATION	Ind. Lugar OACI /ICAO loc. Ind.	Horario de operación/ Hours of operation	METAR Previstos/ METAR Foreseen	TAF Previstos/ TAF Foreseen
DOMINICA				
Melville Hall	TDPD			
Roseau	TDPR			
DOMINICAN REPUBLIC				
Barahona	MDBH			
Herrera	MDHE			
La Romana	MDLR			
Puerto Plata	MDPP			
Punta Cana	MDPC			
Santiago	MDST			
Santo Domingo	MDSD			
EL SALVADOR				
San Salvador/El Salvador Intl.	MSLP			
San Salvador/Ilopango Intl.	MSSS			
FRENCH ANTILLES (France)				
Fort-de-France	TFFF			
Pointe-a-Pitre	TFFR			
Saint Barthelemy	TFFJ			
Saint Martin	TFFG			
GRENADA				
Lauriston	TGPZ			
F. Georges	TGPY			
GUATEMALA				
Flores	MGFL			
Guatemala	MGGT			
Puerto Barrios	MGPB			
San José	MGSJ			
HAITI				
Cap Haitien	MTCH			
Port-au-Prince	MTPP			
HONDURAS				
La Ceiba	MHLC			
Croxen Hole	MHRO			
San Pedro Sula	MHLM			
Tegucigalpa	MHTG			
JAMAICA				
Kingston	MKJP			
Montego Bay	MKJS			
MEXICO				
Acapulco	MMAA			
Bahias de Huatulco	MMBT			
Campeche	MMCP			
Cancun	MMUN			
Chetumal	MMCM			
Chihuahua	MMCU			
Ciudad Acuña	MMMC			
Ciudad Juarez	MMCS			
Cozumel	MMCZ			
Culiacan	MMCL			
Durango	MMDO			
Guadalajara	MMGL			

ESTACIÓN/STATION	Ind. Lugar OACI /ICAO loc. Ind.	Horario de operación/ Hours of operation	METAR Previstos/ METAR Foreseen	TAF Previstos/ TAF Foreseen
Guaymas	MMGM			
Hermosillo	MMHO			
Ixtapa-Zihuatanejo	MMZH			
La Paz	MMLP			
Leon	MMLO			
Loreto	MMLT			
Manzanillo	MMZO			
Matamoros	MMMA			
Mazatlan	MMMZ			
Merida	MMMD			
Mexicali	MMML			
Mexico	MMMX			
Monterrey/Del Norte Intl.	MMAN			
Monterrey/Gral.Mariano Escobedo	MMMY			
Morelia	MMMM			
Nogales	MMNG			
Nuevo Laredo	MMNL			
Piedras Negras	MMPG			
Puerto Vallarta	MMPR			
Reynosa	MMRX			
San Felipe	MMSF			
San Jose del Cabo	MMSD			
Tampico	MMTM			
Tapachula	MMTP			
Tijuana	MMTJ			
Toluca	MMTO			
Torreón	MMTC			
Veracruz	MMVR			
Villahermosa	MMVA			
Zacatecas	MMZC			
MONTSERRAT I. (U.K.)				
Plymouth	TRPM			
NETHERLAND ANTILLES (Netherlands)				
Kralendijk	TNCB			
Oranjestad	TNCE			
Philipsburg	TNCM			
Willemstad	TNCC			
NICARAGUA				
Managua	MNMG			
Puerto Cabezas	MNPC			
PUERTO RICO (US)				
Aguadilla	TJBQ			
Fajardo	TJFA			
Ponce	TJPS			
San Juan, Puerto Rico	TJSJ			
Vieques	TJVQ			
SAINT KITTS AND NEVIS				
Basseterre	TKPK			
Charlestown	TKPN			
SAINT LUCIA				
Castries	TLPC			

ESTACIÓN/STATION	**Ind. Lugar OACI /ICAO loc. Ind.**	**Horario de operación/ Hours of operation**	**METAR Previstos/ METAR Foreseen**	**TAF Previstos/ TAF Foreseen**
Vieux-Fort	TLPL			
ST. VINCENT & GREN.				
Bequia	TVSB			
Canouan	TVSC			
Kingstown	TVSV			
Mustique	TVSM			
Union Island	TVSU			
TRINIDAD AND TOBAGO				
Port-of-Spain	TTPP			
Scarborough	TTCP			
TURKS AND CAICOS IS.(UK)				
Grand Turk	MBGT			
Providenciales	MBPV			
South Caicos	MBSC			
VIRGIN ISLANDS (U.K.)				
Roadtown	TUPJ			
Virgin Gorda I.	TUPW			
VIRGIN ISLANDS (U.S.)				
Christiansted	TISX			
Saint Thomas	TIST			
SAM				
ARGENTINA				
BUENOS AIRES/Aeroparque Jorge Newbery	SABE	24 h.	168	28
BUENOS AIRES/San Fernando	SADF	24 h.	168	28
CATARATAS DEL IGUAZÚ/My. D. Carlos Eduardo Krause	SARI	24 h.	168	28
COMODORO RIVADAVIA /General Mosconi	SAVC	24 h.	168	28
CORDOBA/Ing. Aer. A.L. Taravela	SACO	24 h.	168	28
FORMOSA/Formosa	SARF	24 h.	168	28
JUJUY/Gobernador Guzmán	SASJ	24 h.	168	28
MAR DEL PLATA/ Bgdier. Gral. B. de la Colina	SAZM	24 h.	168	28
MENDOZA/El Plumerillo	SAME	24 h.	168	28
NEUQUEN/ Presidente Perón	SAZN	24 h.	168	28
POSADAS/Libertador Gral. D. José de San Martín	SARP	24 h.	168	28
RESISTENCIA/Resistencia	SARE	24 h.	168	28
RIO GALLEGOS/ Piloto Civil N. Fernández	SAWG	24 h.	168	28
RIO GRANDE/Río Grande	SAWE	1000/2300UTC	98	28
ROSARIO/Rosario	SAAR	24 h.	168	28
SALTA/Salta	SASA	24 h.	168	28
SAN CARLOS DE BARILOCHE/ San Carlos de Bariloche	SAZS	24 h.	168	28
TUCUMAN/Tte. Benjamin Matienzo	SANT	24 h.	168	28
USHUAIA/Malvinas Argentinas	SAWH	24 h.	168	28
BOLIVIA				
COCHABAMBA/Jorge Wilsterman	SLCB	24 h.	168	28
LA PAZ/El Alto	SLLP	24 h.	168	28
SANTA CRUZ/Viru-Viru	SLVR	24 h.	168	28
TARIJA/Oriel Lea Plaza	SLTJ	1000-2300 UTC	98	21
TRINIDAD/Tte.Av. Jorge Henrich Arauz	SLTR	0900-2300 UTC	105	21
BRASIL/BRAZIL				
BELEM/Val de Caes	SBBE	24 h.	168	28

ESTACIÓN/STATION	Ind. Lugar OACI /ICAO loc. Ind.	Horario de operación/ Hours of operation	METAR Previstos/ METAR Foreseen	TAF Previstos/ TAF Foreseen
BELO HORIZONTE/Tancredo Neves	SBCF	24 h.	168	28
BOA VISTA/Boa Vista Intl	SBBV	24 h.	168	28
BRASILIA/Brasília Intl	SBBR	24 h.	168	28
CAMPINAS/Viracopos	SBKP	24 h.	168	28
CAMPO GRANDE/Campo Grande Intl	SBCG	24 h.	168	28
CORUMBA/Corumba Intl	SBCR	0900/2400 UTC	112	28
CRUZEIRO DO SUL/Cruzeiro do Sul Inl	SBCZ	1200/2400 UTC	91	28
CUIABA/Marechal Rondon	SBCY	24 h.	168	28
CURITIBA/Afonso Pena	SBCT	24 h.	168	28
FLORIANÓPOLIS/Hercílio Luz Intl	SBFL	24 h.	168	28
FORTALEZA/Pinto Martins	SBFZ	24 h.	168	28
FOZ DO IGUAÇU/Cataratas	SBFI	24 h.	168	28
MACAPA/Macapa Intl	SBMQ	24 h.	168	28
MANAUS/Eduardo Gomes	SBEG	24 h.	168	28
NATAL/Augusto Severo	SBNT	24 h.	168	28
PONTA PORA/Ponta Pora Intl	SBPP	1100/2200 UTC	84	28
PORTO ALEGRE/Salgado Filho	SBPA	24 h.	168	28
RECIFE/Guararapes	SBRF	24 h.	168	28
RIO DE JANEIRO/Galeao, Antonio Carlos Jobim Intl	SBGL	24 h.	168	28
SALVADOR/Deputado Luis Eduardo Magalhaes	SBSV	24 h.	168	28
SANTAREM/Santarém Intl	SBSN	24 h.	168	28
SAO LUÍS/Marechal Cunha Machado	SBSL	24 h.	168	28
SAO PAULO/Guarulhos Intl	SBGR	24 h.	168	28
TABATINGA/Tabatinga Intl	SBTT	1200/2400 UTC	91	28
URUGUAIANA/Rubem Berta	SBUG	0900/2100 UTC	91	28
CHILE				
ANTOFAGASTA/Cerro Moreno	SCFA	24 h.	24	21
ARICA/Chacalluta	SCAR	24 h.	24	21
CONCEPCION/Carriel Sur	SCIE	24 h.	24	28
IQUIQUE/Gral Diego Aracena Intl.	SCDA	24 h.	24	21
PUERTO MONTT/El Tepual	SCTE	24 h.	24	28
PUNTA ARENAS/Pdte. C. Ibañez del Campo	SCCI	24 h.	24	28
SANTIAGO/Arturo Merino Benitez	SCEL	24 h.	24	28
TEMUCO/Maquehue	SCTE	24 h.	24	28
COLOMBIA				
BARRANQUILLA/Ernesto Cortissoz	SKBQ	24 h.	168	28
CALI/Alfonso Bonilla Aragón	SKCL	24 h.	168	28
CARTAGENA/Rafael Núñez	SKCG	24 h.	168	28
CUCUTA/Camilo Daza	SKCC	11-23 UTC	84	-
LETICIA/Alfredo Vásquez Cobo	SKLT	11-23 UTC	84	28
RIONEGRO/José María Córdoba	SKRG	24 h.	168	28
SAN ANDRES I./Sesquicentenario	SKSP	11–05 UTC	126	28
SANTA FE DE BOGOTA/Eldorado	SKBO	24 h.	168	28

ECUADOR				
GUAYAQUIL/Simón Bolívar	SEGU	24 h.	168	28
LATACUNGA/Cotopaxi	SELT	11-05 UTC	126	21
MANTA/Eloy Alfaro	SEMT	24 h.	168	28
QUITO/Mariscal Sucre	SEQU	24 h.	168	28
GUYANA FRANCESA/FRENCH GUIANA (France)				
CAYENNE/Rochambeau	SOCA	24 h.	168	28
GUYANA				
TIMEHRI/Cheddi Jagan Intl	SYCJ			
PANAMA				
Panama/Tocumen Intl.	MPTO	00-24 UTC	168	28
Panama/Marcos A. Gelabert	MPMG	11-01 UTC	105	14
David/Enrique Malek	MPDA	11-23 UTC	91	14
Changuinola/Manuel Niño	MPCH	11-23 UTC	91	-
Bocas del Toro/Bocas del Toro	MPBO	11-23 UTC	91	-
PARAGUAY				
ASUNCION/Silvio Pettirossi	SGAS	24 h.	24	4
CIUDAD DEL ESTE/Guaraní	SGES	18	18	4
PERU				
AREQUIPA/Rodríguez Ballón Intl	SPQU	00-24 UTC	168	28
CHICLAYO/Cap. José Quiñones González	SPHI	00-24 UTC	168	28
CUSCO/Velazco Astete	SPZO	00-24 UTC	168	28
IQUITOS/Crnel. FAP Francisco Secada Vignetta	SPQT	00-24 UTC	168	28
LIMA-CALLAO/Jorge Chávez Intl	SPIM	00-24 UTC	168	28
PISCO/Pisco	SPSO	00-24 UTC	168	28
TACNA/Crnel. FAP Carlos Ciriani Santa Rosa	SPTN	11-03 UTC	119	28
TRUJILLO/Capitan Carlos Martinez de Pinillos	SPRU	12-24 UTC	091	28
SURINAME				
NEW NICKERIE/Maj. Fernandes	SMNI			
PARAMARIBO/Zorg en Hoop	SMZO			
ZANDERY/Johan Adolf Pengel Intl	SMJP			
URUGUAY				
COLONIA/International de Colonia	SUCA			
MALDONADO/Carlos A. Curbelo Laguna del Sauce	SULS			
MONTEVIDEO/Aeropuerto Angel S. Adami Intl	SUAA			
MONTEVIDEO/Carrasco Intl Gral. Cesáreo L. Berisso	SUMU			
RIVERA/Cerro Chapeu Intl	SURV			
SALTO/Nueva Hesperides Intl	SUSO			
VENEZUELA				
BARCELONA/Gral. José Antonio Anzóategui Intl	SVBC	24 h.	168	28
CARACAS/Simón Bolívar Intl, Maiquetia	SVMI	24 h.	168	28
MARACAIBO/La Chinita Intl	SVMC	24 h.	168	28
MARGARITA/Intl Del Caribe, Gral. Santiago Mariño	SVMG	24 h.	168	28
PARAGUANA/Joséfa Camejo Intl	SVJC	1000/2200 UTC	91	14
SAN ANTONIO DEL TACHIRA/San Antonio del Táchira Intl	SVSA	1000/2200 UTC	91	14
VALENCIA/Zim Valencia Intl	SVVA	1000/0200 UTC	119	21

APENDICE K / APPENDIX K

DIRECCIONES AFTN PARA EL INTERCAMBIO DE DATOS OPMET EN LOS ESTADOS DE LAS REGIONES CAR/SAM /AFTN ADDRESSES TO EXCHANGE OPMET DATA IN CAR/SAM STATES

Estado/Banco/ISCS, SADIS / State/Bank/ISCS, SADIS	AFTN
Anguilla I. (U.K.)	TQPFYMYX
Antigua and Barbuda	TAPAYMYX
Argentina	SAZZMAMX
Aruba (Netherlands)	TNCCYMYX
Bahamas	MYNNYMYX
Barbados	TBPBYMYX
Belize	MZBZYMYX
Bolivia	SLZZMAMX
Brazil	SBBRYZYX
Cayman Is. (U.K.)	MWCRYMYX
Chile	SCZZMAMX
Colombia	SKZZMAMX
Costa Rica	MROCYMYX
Cuba	MUHAYMYX
Dominica	TDPDYMYX
Dominican Republic	MDSDYMYX
Ecuador	SEZZMAMX
El Salvador	MSSSYMYX
French Antilles (France)	TFFFYMYX-TFRYMYX
French Guiana (France)	SOZZMAMX
Grenada	TGPYYMYX
Guatemala	MGGTYMYX
Guyana	SYZZMAMX
Haiti	MTPPYMYX
Honduras	MHTGYMYX
Jamaica	MKJPYMYX
Mexico	MMMXYMYX
Monserrat I. (U.K.)	TRPMYMYX
Netherland Antilles (Neherlands)	TNCCYMYX
Nicaragua	MNMGYMYX
Panama	MPZZMAMX
Paraguay	SGZZMAMX
Peru	SPZZMAMX
Puerto Rico (U.S.)	TJSJYMYX
Saint Kitts and Nevis	TKPKYMYX
Saint Lucia	TLPLYMYX
S. Vincent and the Grenadines	TVSVYMYX
Suriname	SMZZMAMX
Trinidad and Tobago	TTPPYMYX
Turks and Caicos Islands (U.K.)	MBGTYMYX
Uruguay	SUMUZZMAMX
Venezuela	SVZZMAMX
Virgin Islands (U.K.)	TUPJYMYX
Virgin Islands (U.S.)	TISTYMYX
Banco OPMET de Brasilia/rasilia OPMET data Bank	SBBRYZYX
Viena OPDB (Solo/only SIGMET WV)	LOZZMMSS
ISCS	KWBCYMYX
VAAC Buenos Aires	SAZZMAMX
VAAC Washington	KWBCYMYX
SADIS (Estados de la Región CAR/CAR Region States)	EGZZMCAR
SADIS (Estados de la Región SAM/SAM Region States)	EGZZMSAM

Nota: El envío de los ASHTAM y NOTAM sobre cenizas volcánicas al SADIS deben hacerse a través del VAAC de Londres a la dirección AFTN: EGZZVANW / The remittance of ASHTAM and NOTAM on volcanic ash to SADIS should be done through the VACC of London to the AFTN address: EGZZVANW

APPENDIX L

Part VI

METEOROLOGY (MET)

INTRODUCTION

1. This part of the CAR/SAM Basic Air Navigation Plan contains elements of the existing planning system and introduces the basic planning principles, operational requirements and planning criteria related to aeronautical meteorology (MET) as developed for the CAR/SAM Regions and considered to be the minimum necessary for effective planning of MET facilities and services. A detailed description/list of the facilities and/or services to be provided by States in order to fulfill the requirements of the Basic ANP is contained in the CAR/SAM Facilities and Services Implementation Document (FASID). During the transition and pending full implementation of the future CNS/ATM systems, it is expected that the existing requirements will gradually be replaced by the new CNS/ATM related requirements. Further, it is expected that some elements of the CNS/ATM systems will be subject to amendment, as necessary, on the basis of experience gained in their implementation.

2. The Standards, Recommended Practices and Procedures to be applied are contained in Annex 3 — *Meteorological Service for International Air Navigation*.

3. Background information of importance in the understanding and effective application of the plan is contained in the *Report of the Third Caribbean/South American Regional Air Navigation Meeting* (Doc 9749), supplemented by information appropriate to the CAR/SAM Regions which is contained in the reports of the other regional air navigation meetings.

4. RAN meeting recommendations or conclusions, CAR/SAM Regional Planning and Implementation Group (GREPECAS) conclusions and ICAO operations groups conclusions shown in brackets below a heading indicate the origin of all paragraphs following that heading. RAN Meeting recommendations or conclusions, GREPECAS conclusions and ICAO operations groups conclusions shown in brackets below a paragraph indicate the origin of that particular paragraph.

METEOROLOGICAL SERVICE REQUIRED AT AERODROMES AND REQUIREMENTS FOR METEOROLOGICAL WATCH OFFICES

(FASID Tables MET 1A and MET 1B).

5. The service to be provided at international aerodromes listed in the Appendix to Part III of the Basic CAR/SAM ANP is set out in FASID Table MET 1A.
[CAR/SAM/3, Rec. 7/7]

6. The service to be provided for flight information regions (FIRs), upper flight information regions (UIRs), control areas (CTAs) and search and rescue regions (SRRs) is set out in FASID Table MET 1B.
[CAR/SAM/3, Rec. 7/7]

7. Hourly routine observations should be made at all aeronautical meteorological stations, to be issued as local routine reports and METAR, together with special observations to be issued as local special reports and SPECI.
[GREPECAS Conclusion 13/…]

8. Aerodrome forecasts should be issued as TAF normally at intervals of 6 hours, with the period of validity beginning at one of the main synoptic hours (00, 06, 12, 18 UTC). The period of validity should of 24 hours' duration, to meet the requirements indicated in FASID Table MET 1A. The filing time of the forecasts should be approximately two hours before the start of the period of validity.
[GREPECAS Conclusion. 12/65]

9. The forecast maximum and minimum temperature

together with their respective times of occurrence should be included in TAF for certain aerodromes as agreed between the meteorological authorities and the operators concerned.
[GREPECAS Conclusion. 13/…]

10. Trend forecasts should be provided at the aerodromes as indicated in FASID Table MET 1A.
[CAR/SAM/3, Rec. 7/7]

11. Meteorological service should be provided on a 24-hour basis, except as otherwise agreed between the meteorological authority, the air traffic services authority and the operators concerned.
[CAR/SAM/3, Rec. 7/7]

12. At aerodromes with limited hours of operation, METAR should be issued at least [1] hour prior to the aerodrome resuming operations to meet pre-flight and in-flight planning requirements for flights due to arrive at the aerodrome concerned as soon as it is opened for use. Furthermore, TAF should be issued with adequate periods of validity so that, they cover the entire period during which the aerodrome is open for use.
[GREPECAS Conclusion 13/…]

13. When a meteorological watch office (MWO) is temporarily not functioning or is not able to meet all its obligations, its responsibilities should be transferred to another MWO and a NOTAM should be issued to indicate such a transfer and the period during which the office is unable to fulfil all its obligations.
[CAR/SAM/3, Rec. 7/7]

14. Details of the service provided should be indicated in Aeronautical Information Publications in accordance with the provisions of Annex 15.
[CAR/SAM/3, Rec. 7/7]

15. As far as possible, English should be among the languages used in meteorological briefing and consultation.
[CAR/SAM/3, Rec. 7/7]

16. FASID Tables MET 1A and MET 1B should be implemented as soon as possible, in the understanding that only those parts of the briefing and documentation called for in column 7 of FASID Table MET 1A that are required for current operations need to be available, and that the implementation of new MWO or changes to the area served by existing MWO indicated in FASID Table MET 1B, columns 1 and 3 respectively, should take place coincidentally with the implementation of, or changes to, the FIR/UIR/CTA/SRR concerned.
[CAR/SAM/3, Rec. 7/7]

AIRCRAFT OBSERVATIONS AND REPORTS
(FASID Table MET 1B)

17. The meteorological authority should adopt the approved list of ATS/MET reporting points, as it relates to points located within and on the boundaries of the FIR for which the State is responsible. Those ATS/MET reporting points should be published in the Aeronautical Information Publication (AIP), under GEN 3.5.6 — *Aircraft reports*, of the State concerned.
[CAR/SAM/3 Rec. 7/13]

Note. — The approved list of ATS/MET reporting points is published and kept up to date by the ICAO Regional Offices concerned, on the basis of consultations with ATS and MET authorities in each State and the provisions of Annex 3 in this respect.

18. The meteorological watch office (MWO) designated as the collecting centre for air-reports received by voice communications within the FIR/UIR for which they are responsible, is shown in FASID Table MET 1B, Column 1.
[CAR/SAM/3 Rec. 7/13]

SIGMET AND AIRMET INFORMATION
(FASID Tables MET 3A, MET 3B and MET 3C)

19. The period of validity of SIGMET messages should not exceed 4 hours. In the special case of SIGMET messages for volcanic ash cloud and tropical cyclones, the validity period should be extended up to 6 hours and an outlook should be added giving information for an additional period of up to 12 hours, concerning the trajectory of the volcanic ash cloud and positions of the centre of the tropical cyclone respectively.
"IAVWOPSG/1, Conclusion 1/1

20. In order to assist MWOs in the preparation of the outlook included in SIGMET messages for tropical cyclones, tropical cyclone advisory centre (TCAC) Miami has been designated to prepare the required advisory information and disseminate it to the MWOs concerned in the CAR/SAM Regions. FASID Table MET 3A sets out the area of responsibility, the periods of operation of the TCAC and the MWOs to which the advisory information should be sent. Advisory information should be issued for those tropical cyclones in which the surface wind speed averaged over 10 minutes is expected to equal or exceed 63 km/h (34 kt).
[GREPECAS/10, Conclusion 10/41 c)]

21. In order to assist MWOs in the preparation of the outlook included in SIGMET messages for volcanic ash, volcanic ash advisory centres (VAACs) Buenos Aires and Washington have been designated to prepare the required advisory information and disseminate it to MWOs and area control centres (ACCs) concerned in the CAR/SAM Regions following notification/detection of the ash cloud. FASID Table MET 3B sets out the areas of responsibility of the VAACs, and the MWOs and ACCs to which the advisory information should be sent.
[IAVWOPSG/1, Conclusion 1/1]

22. In order for the VAACs to initiate the monitoring of volcanic ash from satellite data and the forecast of volcanic ash trajectories, MWOs should notify the relevant VAAC immediately on receipt of information that a volcanic eruption has occurred or volcanic ash has been observed in the FIR for which they are responsible. In particular, any special air-reports of pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud, received by MWOs should be transmitted without delay to the VAAC concerned. Selected State volcano observatories have been designated for direct notification of significant pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash in the atmosphere to their corresponding ACC, MWO and VAAC. FASID Table MET 3C sets out the selected State volcano observatories and the VAACs, MWOs and ACCs to which the notification should be sent.
[IAVWOPSG/1, Conclusion 1/1]

23. AIRMET messages are not required to be issued by MWOs.
[CAR/SAM/3, Rec. 7/7]

EXCHANGE OF OPERATIONAL METEOROLOGICAL INFORMATION
(FASID Tables MET 2A and 2B)

International OPMET data banks

24. The International OPMET data banks in Brasilia Washington have been designated to serve States in the CAR/SAM Regions to access OPMET information, which is required but not received.
[GREPECAS Conclusion. 13/…]

Exchange of —METAR, SPECI and TAF

25. METAR, SPECI and TAF which should be available at meteorological offices, area control centres and flight information centres is contained in FASID Table MET 2A. This table should be updated, as necessary, by the ICAO Regional Offices concerned on the basis of changes in the pattern of aircraft operations and in accordance with the Statement of Basic Operational Requirements and Planning Criteria, in consultation with those States and international organizations directly concerned.
[CAR/SAM/3, Rec. 8/3]

26. The exchanges indicated in FASID Table MET 2A should be implemented as soon as possible to meet the requirements of current aircraft operations. The availability at meteorological offices of the required OPMET information should be reviewed continuously. Any changes in this respect (i.e. additional OPMET information needed or OPMET information no longer required) should be notified to the corresponding meteorological authority which, in turn, should amend its corresponding address lists and inform the ICAO Regional Offices.
[CAR/SAM/3, Rec. 8/3]

Exchange of SIGMET information and air-reports

27. The exchange requirements for SIGMET~~s~~ and special air-reports are contained in FASID Table MET 2B. This table should be updated, as necessary, by the ICAO Regional Offices concerned on the basis of changes in the pattern of aircraft operations, and in accordance with the Statement of Basic Operational Requirements and Planning Criteria, and in consultation with those States and international organizations directly concerned.
[CAR/SAM/3, Rec. 8/3]

28. Each MWO should arrange for the transmission to all aerodrome meteorological offices within its associated FIR of its own SIGMET messages and relevant SIGMET messages for other FIRs, as required for briefing and, where appropriate, for flight documentation.
[CAR/SAM/3, Rec. 7/7]

29. Each MWO should arrange for the transmission to its associated ACC/FIC of SIGMET messages and special air-reports received from other MWOs.
[CAR/SAM/3, Rec. 7/7]

30. Each MWO should arrange for the transmission of routine air-reports received by voice communications to all meteorological offices within its associated FIR. Special air-reports which do not warrant the issuance of a SIGMET should be disseminated by MWO in the same way as SIGMET messages, in accordance with FASID Table MET 2B.
[CAR/SAM/3 Rec. 7/13]

WORLD AREA FORECAST SYSTEM (WAFS)
(FASID Tables MET 5, MET 6 and MET 7)

31. FASID Table MET 5 sets out the CAR/SAM Regions requirements for WAFS forecasts to be provided by WAFC Washington.
[WAFSOPSG/1, Conclusion 1/2]

32. The levels for which forecasts of SIGWX in chart form are to be provided by the WAFC Washington and the areas to be covered by these charts are indicated in FASID Table MET 5.
[WAFSOPSG/1, Conclusion 2/2]

Note. — WAFCs will continue to issue forecasts of upper-air wind and temperature and of SIGWX in chart form until 30 November 2006.

33. FASID Table MET 6 sets out the responsibilities of WAFCs London and Washington for the production of WAFS forecasts. For back-up purposes, each WAFC should have the capability to produce WAFS forecasts for all the required areas of coverage.
[WAFSOPSG/1, Conclusion 1/2]

34. The projection of the WAFS forecasts in chart form and their areas of coverage should be as indicated in FASID Charts MET 4, MET 5 and MET 6 associated with FASID Table MET 6; their scale should be 1:20 X 10^6, true at 22.5° in the case of charts in the Mercator projection, and true at 60° latitude in the case of charts in the polar stereographic projection.
[WAFSOPSG/1, Conclusion 1/2]

Note. — WAFCs will continue to issue forecasts of upper-air wind and temperature and of SIGWX in chart form until 30 November 2006.

35. WAFS products should be disseminated by WAFC Washington using the international satellite communications system (ISCS1) covering the reception area shown in FASID Chart CNS [4].
[WAFSOPSG/1, Conclusion 2/2]

36. The amendment service to the SIGWX forecasts issued by WAFCs London and Washington should be by means of amended BUFR files disseminated through ISCS1.
[WAFSOPSG/1, Conclusion 1/2]

37. Each State should make the necessary arrangements to receive and make full operational use of WAFS products disseminated by WAFC Washington. FASID Table MET 7 lists the authorized users of the ISCS1 satellite broadcast in the CAR/SAM Regions and location of the operational VSATs.
[WAFSOPSG/1, Conclusion 1/2]

APPENDIX M

Part VI

METEOROLOGY (MET)

FASID

INTRODUCTION

1. The Standards, Recommended Practices and Procedures to be applied are as listed in paragraph 2, Part VI — MET of the CAR/SAM Basic ANP. The material in this part complements that contained in Part I — BORPC of the CAR/SAM Basic ANP and should be taken into consideration in the overall planning processes for the CAR/SAM regions.

2. This part contains a detailed description/list of the facilities and/or services to be provided to fulfil the basic requirements of the plan and are as agreed between the provider and user States concerned. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified. This element of the FASID, in conjunction with the CAR/SAM Basic ANP, is kept under constant review by the GREPECAS in accordance with its schedule of management, in consultation with user and provider States and with the assistance of the ICAO Regional Offices concerned.

METEOROLOGICAL SERVICE REQUIRED AT AERODROMES AND REQUIREMENTS FOR METEOROLOGICAL WATCH OFFICES

(FASID Tables MET 1A and MET 1B and FASID Chart MET 1)

3. The meteorological service to be provided to meet the requirements of international flight operations is outlined in FASID Table MET 1A. AFTN routing areas identified by the letters in FASID Table MET 1A are shown on FASID Chart MET 1. The requirements for meteorological watch offices (MWO), together with the service to be provided to flight information regions (FIR), upper flight information regions (UIR), control areas (CTA) and search and rescue regions (SRR) are listed in FASID Table MET 1B.

EXCHANGE OF MET INFORMATION FOR OPERATIONS

(FASID Tables MET 2A and MET 2B)

4. The requirements for the exchange of reports in the METAR/SPECI code forms and aerodrome forecasts in the TAF code form to satisfy international flights operations in the CAR/SAM regions are shown in FASID Table MET 2A.

5. FASID Table MET 2B contains the exchange requirements in the CAR/SAM regions for SIGMET messages and special air-reports.

TROPICAL CYCLONE AND VOLCANIC ASH ADVISORY CENTRES

(FASID Tables MET 3A, ~~and~~ MET 3B *and MET 3C* and FASID Charts MET 2 and MET 3)

6. The area of responsibility, the period of operation of the tropical cyclone advisory centre (TCAC), Miami and the MWOs to which advisory information should be sent by the TCAC are contained in FASID Table MET 3A. The areas of responsibility of the designated TCACs in all regions are shown on FASID Chart MET 2.

7. The areas of responsibility of the volcanic ash advisory centres (VAAC), Buenos Aires and Washington, the MWOs and ACCs to which the advisory information should be sent by the VAACs are contained in FASID Table MET 3B. The areas of responsibility of the designated VAACs in all regions are shown on FASID Chart MET 3.

8. FASID Table MET 3C sets out the selected State volcano observatories and the VAACs, MWOs and ACCs to which this *notification should be sent by these observatories.*

Note.— Operational procedures to be used for the dissemination of information on volcanic eruptions and associated ash clouds in areas which could affect routes used by international flights and necessary pre-eruption arrangements as well as the list of operational contact points are provided in the document entitled Handbook on the International Airways Volcano Watch (IAVW) — Operational procedures and contact list *(Doc 9766). Additional guidance regarding the IAVW is contained in the* Manual on Volcanic Ash, Radioactive Material and Toxic Chemical "Clouds" *(Doc 9691).*

WORLD AREA FORECAST SYSTEM (WAFS)
(FASID Tables MET 5, MET 6 and MET 7 and FASID Charts MET 4, MET 5 and MET 6)

8. FASID Table MET 5 sets out the CAR/SAM regions' requirements for WAFS forecasts to be provided by WAFC Washington.

9. FASID Table MET 6 sets out the responsibilities of WAFCs London and Washington for the production of WAFS forecasts. The ~~maximum~~ *fixed* areas of coverage of WAFS forecasts in chart form are shown on FASID Charts MET 4, MET 5 and MET 6.

Note - WAFCs will continue to issue forecasts of upper-wind and temperature and of SIGWX in chart form until ~~1 July 2005~~30 November 2006.

10. FASID Table MET 7 lists the authorized users of the ISCS1 satellite broadcast in the CAR/SAM regions and location of the operational VSATs. The table is included in the FASID for information purposes and kept up-to-date by the Regional Offices concerned.

Table MET 1B — Tableau MET 1B — Tabla MET 1B

METEOROLOGICAL WATCH OFFICES
CENTRES DE VEILLE MÉTÉOROLOGIQUE
OFICINAS DE VIGILANCIA METEOROLÓGICA

EXPLANATION OF THE TABLE

Column

1 Location of the meteorological watch office (MWO)

2 ICAO location indicator, assigned to the MWO

3 Name of the FIR, UIR and/or Search and Rescue Region (SRR) served by the MWO

4 ICAO location indicator assigned to the ATS unit serving the FIR, UIR and/or SRR

5 Remarks

Note. — Unless otherwise stated in Column 5, the MWO listed in Column 1 is the designated collecting centre for the air-reports received within the corresponding FIR/UIR listed in Column 3.

EXPLICATION DU TABLEAU

Colonne

1 Emplacement du centre de veille météorologique (MWO)

2 Indicateur d'emplacement OACI du MWO

3 Nom de la FIR, de l'UIR et/ou de la région de recherches et de sauvetage (SRR) desservie(s) par le MWO

4 Indicateur d'emplacement OACI des organismes ATS desservant la FIR, l'UIR et/ou les SRR

5 Remarques

Note.— Sauf indication contraire dans la colonne 5, le MWO indiqué dans la colonne 1 est le centre collecteur désigné des comptes rendus en vol reçus dans la FIR/UIR figurant dans la colonne 3.

EXPLICACIÓN DE LA TABLA

Columna

1 Lugar de la oficina de vigilancia meteorológica (MWO)

2 Indicador de lugar de la OACI asignado a la MWO

3 Nombre de las FIR, UIR o región de búsqueda y salvamento (SRR) a las que presta servicio la MWO

4 Nombre del indicador de lugar asignado a la dependencia ATS que presta servicio a las FIR, UIR o SRR

5 Observaciones

Nota.— Salvo indicación distinta en la Columna 5, la MWO que figura en la Columna 1 es el *centro colector designado para las aeronotificaciones recibidas en las FIR/UIR correspondientes reseñadas en la Columna 3.*

MWO location Emplacement du MWO Lugar de la MWO	ICAO loc.ind. Ind. d'empl. OACI Ind. lugar OACI	Area served/Région desservie/Zona atendida		Remarks Remarques Observaciones
		Name Nom Nombre	ICAO loc. ind. Ind. d'empl. OACI Ind. lugar OACI	
1	2	3	4	5
ARGENTINA				
BUENOS AIRES/Aeroparque, Jorge Newbery	SABE	Ezeiza FIR/SRR Ezeiza ACC/UIR	SAEF SAEU	
COMODORO RIVADAVIA/General Mosconi	SAVC	Comodoro Rivadavia FIR/SRR Comodoro Rivadavia UIR/ACC	SAVF SAVU	
CORDOBA/Ing. Aer. A.L. Taravela	SACO	Córdoba FIR/SRR Córdoba UIR/ACC	SACF SACU	
MENDOZA/El Plumerillo	SAME	Mendoza FIR/SRR Mendoza UIR/ACC	SAMF SAMV	
RESISTENCIA/resistencia	SARE	Resistencia FIR/SRR Resistencia UIR/ACC	SARR SARU	
BOLIVIA				
LA PAZ/El Alto Intl	SLLP	La Paz FIR/SRR	SLLP	
BRAZIL				
AMAZÓNICO/Eduardo Gomes	SBEG	Amazónico FIR/UIR/SRR	SBAZ	
BRASILIA/Brasilia Intl	SBBR	Brasilia FIR/SRR	SBBS	
CURITIBA/Afonso Pena	SBCT	Curitiba FIR/UTA/SRR	SBCW	
RECIFE/Guararapes	SBRF	Recife FIR/SRR Atlántico FIR	SBRE SBAO	
CHILE				
ANTOFAGASTA/Cerro Moreno	SCFA	Antofagasta FIR/SRR	SCFZ	
PUERTO MONTT/El Tepual	SCTE	Puerto Montt FIR/SRR	SCTZ	
PUNTA ARENAS/Pdte. C. Ibañez del Campo	SCCI	Punta Arenas FIR/SRR	SCCZ	
SANTIAGO/Arturo Merino Benitez	SCEL	Santiago FIR/SRR	SCEZ	
COLOMBIA				
SANTA FÉ DE BOGOTÁ/Eldorado	SKBO	Santa Fé de Bogotá FIR/UIR/SRR Barranquilla FIR below/por debajo de FL200 (cf. Bogotá UIR)	SKED SKEC	
CUBA				
HABANA/José Martí Intl	MUHA	Habana FIR/SRR	MUFH	
DOMINICAN REPUBLIC				
SANTO DOMINGO/De Las Américas Intl	MDSD	Santo Domingo FIR/SRR	MDCS	
ECUADOR				
GUAYAQUIL/Simón Bolívar	SEGU	Guayaquil FIR/SRR	SEGU	

MWO location Emplacement du MWO Lugar de la MWO	ICAO loc.ind. Ind. d'empl. OACI Ind. lugar OACI	Area served/Région desservie/Zona atendida Name Nom Nombre	ICAO loc. ind. Ind. d'empl. OACI Ind. lugar OACI	Remarks Remarques Observaciones
1	2	3	4	5
FRENCH GUIANA (France)				
CAYENNE/Rochambeau	SOCA	Rochambeau FIR Cayenne SRR	SOOO	
GUYANA				
TIMEHRI/Cheddi Jagan Intl	SYCJ	Georgetown FIR/SRR	SYGC	
HAITI				
PORT-AU-PRINCE/Port-au-Prince Intl	MTPP	Port-au-Prince FIR/SRR	MTEG	
HONDURAS				
TEGUCIGALPA/Toncontin Intl	MHTG	Central American FIR/SRR FIR/SRR Centroamericana	MHTG	~~Provides ATC service at FL 200 and above/Assure le service ATC au FL 200 et au-dessus/Suministra servicio ATC en el FL 200 y por encima del mismo~~
JAMAICA				
KINGSTON/Norman al Manley Intl	MKJP	Kingston FIR/SRR	MKJK	
MÉXICO				
MEXICO/Lic. Benito Juárez Intl	MMMX	Mazatlán Oceanic FIR/UIR	MMZT	~~Provides ATC service at FL 200 and above/Assure le service ATC au FL 200 et au-dessus/Suministra servicio ATC en el FL 200 y por encima del mismo~~
		México FIR/UIR/SRR	MMEX	~~Implemented in part to provide FIS on direct routes from Mexico to the west coast of South America/Mise en œuvre partielle pour un service FIS sur les routes directes du Mexique à la côte ouest de l'Amérique du Sud/ Parcialmente implantada para suministrar FIS en las rutas directas de México a la costa oeste del Pacífico~~
NETHERLANDS ANTILLES (Netherlands)				
WILLEMSTAD/Hato, Curaçao I.	TNCC	Curaçao FIR/SRR	TNCF	
PANAMA				
PANAMA/Tocumen Intl	MPTO	Panamá FIR/SRR	MPZL	
PARAGUAY				
ASUNCION/Silvio Pettirossi	SGAS	Asunción FIR/UIR/SRR	SGFA	
PERU				
LIMA-CALLAO/Jorge Chávez Intl	SPIM	Lima FIR/UIR/SRR	SPIM	
SURINAME				
ZANDERY/Johan Adolf Pengel Intl	SMJP	Paramaribo FIR/UIR	SMPM	

MWO location Emplacement du MWO Lugar de la MWO	ICAO loc.ind. Ind. d'empl. OACI Ind. lugar OACI	Area served/Région desservie/Zona atendida		Remarks Remarques Observaciones
		Name Nom Nombre	ICAO loc. ind. Ind. d'empl. OACI Ind. lugar OACI	
1	2	3	4	5
TRINIDAD AND TOBAGO				
PORT OF SPAIN/Piarco Intl, Trinidad I.	TTPP	Piarco FIR/SRR	TTZP	
UNITED STATES				
~~Miami/Tropical Prediction Center~~ Kansas City Aviation Weather Center	~~KNHC~~ KKCI	Houston Oceanic FIR Miami Oceanic FIR/SRR Nassau FIR San Juan FIR/SRR	KZHU KZMA MYNA TJZS	
URUGUAY				
MONTEVIDEO/Carrasco Intl Gral. Cesáreo L. Berisso	SUMU	Montevideo FIR/SRR	SUEO	
VENEZUELA				
CARACAS/Simon Bolivar Intl, Maiquetia	SVMI	Maiquetia FIR/UIR/SRR	SVZM	

Table MET 2A — Tabla MET 2A

EXCHANGE OF OPERATIONAL METEOROLOGICAL INFORMATION
INTERCAMBIO DE INFORMACIÓN METEOROLÓGICA OPERACIONAL

EXPLANATION OF THE TABLE

Column 1: Name of the aerodrome

Column 2: Location indicator

Column 3: F = METAR/SPECI + TAF
S = METAR/SPECI
T = TAF

EXPLICACIÓN DE LA TABLA

Columna 1: Nombre del aeródromo

Columna 2: Indicador de lugar

Columna 3: F = METAR/SPECI + TAF
S = METAR/SPECI
T = TAF

Note: Aerodromes not included in Table AOP 1 are in italics/los aeródromos que no están listados en la Tabla AOP 1 aparecen en letra cursiva

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
FROM/DE																																															
AFI																																															
ANGOLA																																															
Luanda	FNLU														T																															T	T
CANARY ISLANDS (SPAIN)																																															
Las Palmas	GCLP			T						T											T																						T			T	
Tenerife	GCTS			T						T																																	T			T	T
CAPE VERDE																																															
Sal I.	GVAC			T						F					T					T																										F	F
CONGO																																															
Brazzaville	FCBB									T					T																															T	T
COTE D'IVOIRE																																															
Abidjan	DIAP									F																																				F	F
GAMBIA																																															
Banjul	GBYD			T											T																															T	T
Accra	DGAA									T																																				T	T
GUINEA, REPUBLIC OF																																															
Conakry	GUCY									F																																				F	F
GUINEE-BISSAU																																															
Bissau	GGOV														T																															T	T
LIBERIA																																															
Monrovia	GLRB									T																																				T	T
MAURITANIE																																															
Nouadhibou	GQPP									T																																				T	T
Nouakchott	GQNN			T						T																																				T	T
MOROCCO																																															
Agadir	GMAA									T																																				T	T
Casablanca	GMMN									T																																				T	T
Rabat	GMME									T																																				T	T

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

	ICAO Loc./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
FROM/DE																																															
~~**NAMIBIA**~~																																															
~~Windhoek~~	~~FYWH~~																																														
NIGERIA																																															
Kano	DNKN									T																																				T	T
Lagos	DNMM									T																																				T	T
SENEGAL																																															
Dakar	GOOY			T						F					T					T																										F	F
SIERRA LEONE																																															
FreeTown	GFLL			T						F					T																															F	F
SOUTH AFRICA																																															
Bloemfontein	FABL									T																																				T	T
Cape Town	FACT			T						T																																				T	T
Durban	FADN									T																																				T	T
Johannesburg	FAJS			T						T																																				T	T
Upington	FAUP																																														
TOGO																																															
Lome	DXXX									T																																				T	T
ZAIRE																																															
Kinshasa	FZAA									T					T																															T	T
ASIA																																															
AUSTRALIA																																															
Sydney	YSSY			T																																										T	T
CHILE																																															
Isla de Pascua	SCIP																																													F	F
NEW ZEALAND																																															
Auckland	NZAA			T																																										T	T
ChriFchurch	NZCH			T																																										T	T
WellingTon	NZWN			T																																										T	T

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

FROM/DE	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
CAR																																															
ANGUILLA (U.K.)																																															
The Valley	TQPF		T																											T						F							F			F	F
ANTIGUA AND BARBUDA																																															
Saint Johns	TAPA	F			T		F								T	F				F		F		T	T				F	F					F	F	F			F			T	F	F	F	F
ARUBA (NeTherlands)																																															
Oranjestad	TNCA					F				T			F		F		F			F					F		F	T				F			F				F	F			F			F	F
BAHAMAS																																															
Alice Town	MYBS																																													F	F
Cockburn Town	MYSM			T																																										F	F
Freeport	MYGF			T	F		T							F	F												F	F		F				T							F					F	F
George Town	MYEG		F	T																																										F	F
Governor's Harbour	MYEM			T																																										F	F
Marsch Harbour	MYAM		F	T																																										F	F
Nassau	MYNN		F	T	F		T	F		T	F	T	F	F	F		F	T	F				F	T	F	F	F	F		F	F	F	T	T		F			~~F~~	T	F		F			F	F
North Eleuthera	MYEH		F	T																																										F	F
Rock sound	*MYER*																																													*F*	*F*
Stella Maris	MYLS			T																																										F	F
Treasure Cay	MYAT		F	T																																										F	F
West End	MYGW			T	F		T							F	F												F	F		F				T							F					F	F
BARBADOS																																															
Bridgetown	TBPB		F	T									F	T	F		F			F	T	F		F	F		F	F		F					F	F	F	F	F	F			F	F	F	F	F
BELIZE																																															
Belize	MZBZ														F				F							F	F	F															F			F	F
CAYMAN IS. (U.K.)																																															
Cayman Brac	MWCB													F													F	T				F		T									T			F	F
Georgetown	MWCR													F													F	T				F		T												F	F
COSTA RICA																																															
Alajuela	MROC			T	T	F				T		T	F		F		F	T	F				F			F	F	F		F	F	F		T	F								F			F	F
Liberia	MRLB			T															F												F	F		T												F	F
Limón	MRLM			T									F																			F														F	F
Pavas	MRPV																		F													F														F	F
San Jose (Ciudad)	*MRSJ*																																													*F*	*F*

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

FROM/DE	ICAO Loc./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
CUBA																																															
Baracoa	*MUBA*																																													*F*	*F*
Bayomo	*MUBY*																																													*F*	*F*
Camaguey	MUCM			T			T							F										T			F	T						T												F	F
Cayo Largo del Sur	MUCL																																													F	F
Ciego de Avila	MUCA			T			T							F										T			F	T						T												F	F
Guantánamo	*MUGT*																																													*F*	*F*
Habana	MUHA			T		F	T		F	T		T	T	F			F	T						T			F	T		F	F	F		T	F								F			F	F
Holguin	MUHG			T		F	T		F	T		T	T	F			F	T						T			F	T		F	F	F		T	F								F			F	F
Manzanillo	*MUMZ*																																													*F*	*F*
Moa	*MUMO*																																													*F*	*F*
Santiago de Cuba	MUCU												T				F										F																			F	F
Varadero	MUVR			T									T				F															F		T									F			F	F
DOMINICA																																															
Melville Hall	TDPD		T																	F																							F		F	F	F
Roseau	TDPR																			F															F											F	F
DOMINICAN REPUBLIC																																															
Barahona	MDBH																																													F	F
Herrera	MDHE																																													F	F
La Romana	MDLR																										T																F			F	F
Puerto Plata	MDPP														F							F			F									T							T		F			F	F
Punta Cana	MDPC			T									F																					T									F			F	F
Santiago	MDST																										T																			F	F
Santo Domingo	MDSD			T	F	F	F			T			F	F	F			T		F	T	F			F	F	F	T		F	F	F		T	F				~~F~~				F			F	F
EL SALVADOR																																															
San Salvador/El Salvador Intl.	MSLP			T				F						F	F								F			F	F	F			F	F		T	T											F	F
San Salvador/Ilopango Intl.	MSSS																															F														F	F
FRENCH ANTILLES (France)																																															
Fort-de-France	TFFF		F		F		F			F			T		F	F	F	T			F	F		F			F			F		F		T	F		F	F	~~F~~	F			F	F	F	F	F
Pointe-a-Pitre	TFFR		F		F		F			F			F		F	F	F	T			F			F	T		F		F	F		F			F	F	F		~~F~~	F			F	F	F	F	F
Saint Barthelemy	TFFJ	F																									T																			F	F
Saint Martin	TFFG			T									F																										F							F	F
GRENADA																																															
Lauriston	TGPZ			T																																										F	F
~~F.~~ Saint Georges	TGPY		F	T			F	F					F																								F	F	—	F			F			F	F

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

FROM/DE	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
GUATEMALA																																															
Flores	MGFL			T																																										F	F
Guatemala	MGGT				T	F		F		T			F	F	F		F	T	F						F	F	F	F		F	F	F		T	F								T			F	F
Puerto Barrios	MGPB			T																																										F	F
San José	MGSJ			T	T	F		F		T			F	F	F		F	T	F				F		F	F	F	F		F	F	F		T	F								T			F	F
Thika	*MGTK*																																													*F*	*F*
HAITI																																															
Cap Haitien	MTCH			T																																					F					F	F
Port-au-Prince	MTPP			T	T	F	T						F		F		F			F										F		F			F				T		F		F			F	F
HONDURAS																																															
La Ceiba	MHLC			T																																										F	F
Croxen Hole	MHRO			T				F						F	F				F				F				F	F			F	F														F	F
San Pedro Sula	MHLM							F					F	F	F				F				F				F	F			F	F														F	F
Tegucigalpa	MHTG			T				F					F	F	F				F				F					T			F	F		F												F	F
JAMAICA																																															
Kingston	MKJP			T	T	F	F	F			F		F	F	F		F	T			T		F	T	F	F		F		F		F		T	F					F			F			F	F
Montego Bay	MKJS					F	F	F			F		F	F	F								F		F	F		F		F		F		T	F								T			F	F
MEXICO																																															
Acapulco	MMAA			T		T				T			T	F	F			T	F				F			T						F	~~T~~	T												F	F
Aguascalientes	*MMAS*																																													*F*	*F*
Bahias de Huatulco	MMBT																																													F	F
Campeche	MMCP			T																																										F	F
Cancun	MMUN					F							T		F		F									F	T					F		T												F	F
Chetumal	MMCM																																													F	F
Chihuahua	MMCU																																													F	F
Ciudad Acuña	MMMC																																													F	F
Ciudad Del Carmen	*MMCE*																																													*F*	*F*
Ciudad Juarez	MMCS																																													F	F
Ciudad Obregón	*MMCN*																																													*F*	*F*
Ciudad Victoria	*MMCV*																																													*F*	*F*
Cozumel	MMCZ					F	T	F			F			F	F				F				F			T					F	F		T	T											F	F
Culiacan	MMCL																	T														~~F~~														F	F
Durango	MMDO																																													F	F
Guadalajara	MMGL			T		F				T			T		F			T														~~F~~		T												F	F
Guaymas	MMGM																																													F	F
Hermosillo	MMHO																																													F	F
Ixtapa-Zihuatanejo	MMZH																																													F	F

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

	ICAO Loc./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
FROM/DE																																															
La Paz	MMLP																		F																											F	F
Leon	MMLO																																													F	F
Loreto	MMLT																																													F	F
Manzanillo	MMZO																																													F	F
Matamoros	MMMA														F			T														F														F	F
Mazatlan	MMMZ			T															F																											F	F
Merida	MMMD					F	T	F			F			F	F				F				F		F	T					F	F		T	F											F	F
Mexicali	MMML																																													F	F
Mexico	MMMX			T		T		F	F	T		T	T	F	F		F	T	F				F			F					F	F	~~T~~	T	T								F			F	F
Monterrey/Del Norte Intl.	MMAN																	T														F											F			F	F
Monterrey/Gral.Mariano Escobedo	MMMY																	T														F														F	F
Morelia	MMMM																																													F	F
Nogales	MMNG																																													F	F
Nuevo Laredo	MMNL																																													F	F
Oaxaca	*MMOX*																																													*F*	*F*
Piedras Negras	MMPG																																													F	F
Puerto Escondido Intl	*MMPS*																																													*F*	*F*
Puerto Vallarta	MMPR			T		T		F	F	T		T	T	F	F		F	T	F				F			F					F	F	~~T~~	T	T											F	F
Reynosa	MMRX																																													F	F
San Felipe	MMSF																																													F	F
San Jose del Cabo	MMSD			T															F																											F	F
San Luis Potosi	*MMSP*																																													*F*	*F*
Tampico	MMTM			T		T		F	F	T		T	T	F	F		F	T	F				F			F					F	F	~~T~~	T	T											F	F
Tapachula	MMTP																		F																											F	F
Tijuana	MMTJ																																													F	F
Toluca	MMTO																																													F	F
Torreón	MMTC																	T														F														F	F
Veracruz	MMVR			T		T		F	F	T		T	T	F	F		F	T	F				F			F					F	F	~~T~~	T	T											F	F
Villahermosa	MMVA																																													F	F
Zacatecas	MMZC																																													F	F
MONTSERRAT I. (U.K.)																																															
Plymouth	TRPM		F																	F																F							F			F	F
NETHERLAND ANTILLES (Netherlands)																																															
Kralendijk	TNCB																							F	F									T									F			F	F
Oranjestad	TNCE												F																						F	F										F	F
Philipsburg	TNCM	F	F				F										F			F															F	F								F	F	F	F
Willemstad	TNCC		F	T		F				F			F	T	F		F	F		F			F	F	F		F	T				F		T	F				F	F			F			F	F

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
FROM/DE																																															
NICARAGUA																																															
Managua	MNMG							F					F	F	F		F		F				F			F		F				F			T								T			F	F
Puerto Cabezas	MNPC													F	F											F						F														F	F
PUERTO RICO (US)																																															
Aguadilla	TJBQ																																													F	F
Fajardo	TJFA																																													F	F
Ponce	TJPS	F	F		T		F						F	T		F	F	T		F			T		F		F	T		F		F	~~T~~		T	F							T	F		F	F
San Juan~~, Puert Rico~~	TJSJ	F	F	T	F		F			T			F	T	F	F	F	T		F	T		T		F	T	F	F		F		F	~~T~~	T		F	F		~~F~~	F			F	F		F	F
Vieques	TJVQ	F	F		T		F						F	T		F	F	T		F			T		F		F	T		F		F	~~T~~		T	F							T	F		F	F
SAINT KITTS AND NEVIS																																															
Basseterre	TKPK	F	F																	F									F	F					F					F				F	F	F	F
Charlestown	TKPN		F																											F					F											F	F
SAINT LUCIA																																															
Castries	TLPC		F				F													F		F		F											F			F		F						F	F
Vieux-Fort	TLPL		F				F	F					F	T			F			F		F	T		F		F			F					F	F				F			F	F	F	F	F
ST. VINCENT & GREN.																																															
Bequia	TVSB																							F																						F	F
Canouan	TVSC						F	F												F		F															F			F						F	F
Kingstown	TVSV						F	F												F		F		F													F			F						F	F
Mustique	TVSM																																													F	F
Union Island	TVSU																																													F	F
TRINIDAD AND TOBAGO																																															
Port-of-Spain	TTPP		F	T			F			F			F				F	T		F	T	F	T	F	F		F			F				T	F	F	F	F	F				F	F	F	F	F
Scarborough	TTCP		F				F													F		F		F						F						F	F						F			F	F
TURKS AND CAICOS IS.(UK)																																															
Grand Turk	MBGT																F								F																					F	F
Providenciales	MBPV					T																			F																					F	F
South Caicos	MBSC																								F																					F	F
VIRGIN ISLANDS (U.K.)																																															
Roadtown	TUPJ																																		F	F									F	F	F
Virgin Gorda I.	TUPW																																		F										F	F	F
VIRGIN ISLANDS (U.S.)																																															
Christiansted	TISX		F		T		F						F	T		F	F	T		F			T		F		F	T		F		~~F~~	~~T~~		T	F							T	F		F	F
Saint Thomas	TIST	F	F													F	F			F										F			~~T~~		F	F							T	F		F	F

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

FROM/DE	ICAO Loc./Ind./Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
EUR																																															
AUSTRIA																																															
Graz	LOWG			T											T																															T	T
Wien	LOWW			T											T		T																													T	T
BELGIUM																																															
Bruxelles	EBBR						T			T					T					T	T						T												T				T			T	T
CZECH REPUBLIC																																															
Praha	LKPR														T																															T	T
DENMARK																																															
Kobenhavn	EKCH									T																																				T	T
FINLAND																																															
Helsinki	EFHK						T																																							T	T
FRANCE																																															
Bale-Mulhouse	LFSB						T			T										T																										T	T
Bordeaux	LFBD			T			T			T										T	T																						T			T	T
Lyon Satolas	LFLL									T										T	T																						T			T	T
Marseille	LFML									T										T	T																						T			T	T
Montpellier	LFMT																			T																										T	T
Nice	LFMN			T						T					T					T																							T			T	T
Tarbes	LFBT																																													T	T
Paris/Charles de Gaulle	LFPG		T			T	T			T			T		T		T			T	T						T	T											T	T			T			T	T
Paris/Orly	LFPO		T	T	T	T	T			T			T		T		T			T	T						T	T											T	T			T			T	T
Toulouse	LFBO																				T																									T	T
GERMANY																																															
Berlin	ETBS			T											T																															T	T
Dresden	ETDN														T																															T	T
Dusseldorf	EDDL									T					T		T										T								T				T				T			T	T
Frankfurt	EDDF			T			T			T			T		T		T										T								T								T			T	T
Hamburg	EDDH																																										T			T	T
Hannover	EDVV																																														
Koln	EDDK														T		T																		T								T			T	T
~~Leipzig~~	~~EDDP~~																																														
Munchen	EDDM			T						T					T		T											T							T											T	T
Stuttgart	EDDS						T			T			T				T										T								T											T	T

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

FROM/DE	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
HUNGARY																																															
Budapest	LHBP			T											T																															T	T
IRELAND																																															
Dublin	EIDW														T																															T	T
Shannon	EINN									T					T												T													T						T	T
ITALY																																															
Alghero	LIEA																																														
Genova	LIMJ			T						T																																	T			T	T
Milano/Malpensa	LIMC			T						T					T		T																										T			T	T
Milano/Linate	LIML																																										T			T	T
Roma	LIRF			T						T			T		T		T																										T			T	T
Torino	LIMF																																										T			T	T
LUXEMBOURG																																															
Luxembourg	ELLX			T									T		T						T																		T							T	T
NETHERLANDS																																															
Amsterdam	EHAM			T	T					T			T							T							T	T		T									T	T			T			T	T
Rotterdam	EHRD			T	T					T																		T		T									T				T			T	T
POLAND																																															
Warszawa	EPWA														T																															T	T
PORTUGAL																																															
Faro	LPFR									T																																	T			T	T
Lisboa	LPPT			T						T			T		T		T			T	T							T		T				T	T					T			T			T	T
Porto	LPPR									T							T																	T									T			T	T
Porto Santo	LPPS																																										T			T	T
Santa Maria	LPAZ																																										T			T	T
RUSSIAN FEDERATION																																															
Moskva	UUEE														T																															T	T
SLOVAKIA																																															
Bratislava	LKIB														T																															T	T

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

FROM/DE	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
SPAIN																																															
Alicante	LEAL									T																																				T	T
Barcelona	LEBL			T						T																																	T			T	T
~~Gerona~~	~~LEGE~~																																														
Madrid	LEMD			T						T		T	T		T		T			T	T							T		T				T	T					T			T			T	T
Málaga	LEMG			T						T			T		T		T													T					T					T			T			T	T
Santiago	LEST									T																																	T			T	T
Sevilla	LEZL			T						T					T		T											T							T								T			T	T
Valencia	LEVC									T					T																			T												T	T
Zaragoza	LEZE									T																																				T	T
SWITZERLAND																																															
Geneva	LSGG			T						T					T		T			T																							T			T	T
Zurich	LSZH			T						T							T																										T			T	T
UNITED KINGDOM																																															
Cardiff	EGFF		T			T	T			T			T														T	T												T						T	T
London/Gatwick	EGKK		T			T	T			T			T		T		T										T										T			T			T			T	T
London/Heathrow	EGLL		T	T		T	T			T			T		T					T	T						T	T									T		T	T			T			T	T
Luton	EGGW		T			T	T			T			T														T	T												T						T	T
NAT																																															
BERMUDA (U.K.)																																															
Bermuda	TXKF		T	T		F	T								F												T								F								T			F	F
NAM																																															
CANADA																																															
Montreal/Dorval	CYUL		T	T	T	T	T			T					T		T			T					T		T	T									T			T			T			T	T
Montreal/Mirabel	CYMX		T			T	T								T					T				F				T																		F	F
Ottawa	CYOW		T		T	T	T								T					T				F			T	T												T						F	F
Sydney	CYQY														T																															T	T
Toronto	CYYZ		T	T		T	T			T	T	T			T		T			T				F			T	T								T	T			T			T			F	F
Vancouver	CYVR																											T																		T	T
Windsor	CYQG					T				T					T																					T	T									T	T

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

FROM/DE	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
UNITED STATES																																															
Atlanta	KATL				T	F					F		T														F	T				F											T			F	F
Baltimore	KBWI		T	T	T	F	T			T	T		T				T	T		T	T	T	T	F	T		T	T		T		~~T~~		T		T				T			T			F	F
Boston	KBOS		T	T	T	T	T			T			T		T		T	T		T			T	~~T~~	T		T	T		T		~~T~~		T		T				T			T			T	T
~~Charlotte~~	~~KCLT~~																																														
Chicago	KORD			T	T	T					F																T	T						T												F	F
Cleveland	KCLE		T		T	T	T																	F			T	T												T						T	T
~~Cincinnati~~	~~KLUK~~																																														
~~Corpus Cristi~~	~~KCRP~~																																														
Dallas-Fort Worth	KDFW				T																		T					F				F		T												F	F
Denver	KDEN																											T																		T	T
Detroit	KDTW		T	T	T	T	T			T	F				T												T	T						T		T	T			T						F	F
Fort Lauderdale	KFLL			T	T	F				T	F		T											F								F		T					~~F~~		F		T			F	F
Fresno	KFAT									T																		F				~~T~~		T												F	F
Houston/Intercontinental	KIAH				T	F		F			F		T						T				F			F	F	F				F		T									T			F	F
Indianapolis	KIND					T					F																																			F	F
~~Laredo~~	~~KLRD~~																																														
Las Vegas	KLAS									T										T								F				F		T												F	F
Los Angeles	KLAX			T						T		T	T						T	T			T				T	F				F		T												F	F
~~Memphis~~	~~KHEM~~																																														
Miami	KMIA		F	T	F	F	T	F	F	T	F	T	F	F	F		F	T	F	T	T		F	F	F	F	F	F		F	F	F	T	T		T			F	T	F		F			F	F
Milwaukee	KMKE					T					F																																			F	F
Newark	KEWR					T	T																	F								F		T												T	T
New Orleans	KMSY				T	F		F			F		T		F				T				F			F	F	F				~~s~~											T			F	F
New York/Kennedy InTl.	KJFK		T	T	T	T	T			T	T	T	T				T	T		T	T	T	T	T	F		T	T		T		F		T		T	T		~~T~~	T			T			F	F
~~New York/La Guardia~~	~~KLGA~~																															F															
Niagara Falls	KIAG		T		T	T	T			T	T				T												T	T						T		T	T			T						T	T
Oakland	KOAK									T			T																																	T	T
Ontario	KONT									T			T									T						F				~~T~~		T												F	F
Orlando	KORL			T									T																			F		T												T	T
Philadelphia	KPHL		T	T	T	T	T			T	T		T				T	T		T	T	T	T	F	T		T	T		T		F		T		T				T			T			T	T
Phoenix	KPHX																											F						T												F	F
Pittsburgh	KPIT																										T																			T	T
Pueblo	KPUB																											T																		T	T
~~Raleigh~~	~~KRDU~~																																														
~~Richmond~~	~~KRIC~~																																														
San Antonio	KSAT				T						F		T									T						F				F		T									T			F	F
San Diego	KSAN									T			T					T		T		T						F				T		T												F	F
San Francisco	KSFO		F	T						T		T	T					T	T				T					F				T		T												F	F
~~Saint Louis~~	~~KSTL~~																																														

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

FROM/DE	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
~~San Jose~~	~~KSJC~~																																														
Seattle-Tacoma	KSEA																											T																		T	T
Stockton	KSCK									T																																				T	T
Tampa	KTPA		F	T	F	F	T	F	T	T	F	T	F	F	F		F	T	F	T			F	T	F		F	F		F	F	F	T	T	T	T			~~T~~	T			F			F	F
Tucson	KTUS																											F						T												F	F
Washington	KIAD		T	T	T	F	T			T	T		T				T			T	T	T	T		T		T	T		T		T		T		T				T			T			T	T
West Palm Beach	KPBI		F	T	F	F	T	F	T	T	F	T	F	F	F		F	T	F	T			F	T	F	F	F	F		F	F	F	T	T					~~T~~	T			F			F	F
Windsor Locks	KBDL		T		T	T	T																				T	T						T						T						T	T
PAC																																															
FRENCH POLYNESIA																																															
Rangiroa	NTTG											F																																		F	F
Tahiti	NTAA											F																																		F	F
CHILE																																															
Isla de Pascua	SCIP																																													F	F
SAM																																															
ARGENTINA																																															
Buenos Aires/Aeroparque Jorge Newberry	SABE								F	F		F																					F									F				F	F
Buenos Aires/Don Torcuato	SADD																																													F	F
Buenos Aires/Ezeiza Ministro Pistarini	SAEZ								F	F		F	T		T		T	T										T				F	F	T								F	T			F	F
Buenos Aires/San Fernando	SADF																																													F	F
Cataratas del Iguazú	SARI									F																							F													F	F
Comodoro Rivadavia	SAVC									T		F																																		F	F
Córdoba	SACO								F	F		F	T					T										T				F	F	F								F	T			F	F
Formosa	SARF																																F													F	F
Jujuy	SASJ								F			F	T																				F	F												F	F
Mar de Plata	SAZM									F		F																					F									F	T			F	F
Mendoza	SAME								F	F		F	T		T			T														F	F	T								F	T			F	F
Neuquen	SAZN								F	F		F	T		T			T															F	F								F	T			F	F
Posadas	SARP																																F													F	F
Resistencia	SARE								F	F		F																					F	F								F	T			F	F
Rio Gallegos	SAWG											F																																		F	F
Rio Grande	SAWE											F																																		F	F
Rosario	SAAR														T																		F	F								F				F	F
Salta	SASA								F			F																					F													F	F
San Carlos de Bariloche	SAZS									T		F																																		F	F
Tucuman	SANT																																F													F	F
Ushuaia	SAWH											F																																		F	F

	ICAO Loc. Ind./Ind. Lugar OACI	TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN																																													
FROM/DE		Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
BOLIVIA																																															
Cobija	*SLCO*																																													*F*	*F*
Cochabamba	SLCB			F						T																						T	F	F									T			F	F
El Trompillo	*SLET*																																													*F*	*F*
La Paz	SLLP			F	F					F		F	F					T										T				F	F	F								F	T			F	F
Potosi	*SLPO*																																													*F*	*F*
Puerto Suarez	*SLPS*																																													*F*	*F*
Santa Cruz	SLVR			F						F		F	F																			F	F	F								F	T			F	F
Sucre	*SLSU*																																													*F*	*F*
Tarija	SLTJ			F						T																						T	F	F									T			F	F
Trinidad	SLTR																																F													F	F
BRAZIL																																															
Belém	SBBE				T		T		F				T		T			T			F			F				T		F		F							F				F			F	F
Belo Horizonte	SBCF								T			T																					T	T												F	F
Boa Vista	SBBV								T												F			F															F				F			F	F
Brasilia	SBBR			F					F			T	T					T														~~F~~	F	T									T			F	F
Campinas	SBKP			F					F			T	T					T															F	T								F	T			F	F
Campo Grande	SBCG			T					F																								F												F	F	F
Corumba	SBCR																																F													F	F
Cruzeiro do Sul	SBCZ																																													F	F
Cuiaba	SBCY			T	T		T		F				T		T						F			F				T		F		T	F	T					~~F~~				F			F	F
Curitiba	SBCT			T					F																								F													F	F
Florianopolis	SBFL			F																													F													F	F
Fortaleza	SBFZ			T								T									F												F													F	F
Foz do Iguacu	SBFI			F								T																					F	T												F	F
Macapá	SBMQ				T		T		F				T		T			T			F			F				T		F		F							F				F			F	F
Manaus	SBEG			T	T		T		F				T		T						F			F				T		F		T	F	T					~~F~~				F			F	F
Natal	SBNT			T								T																					T													F	F
Ponta Porá	SBPP																																F													F	F
Porto Alegre	SBPA			F					T			F	T																				F	T					~~T~~			F	T			F	F
Recife	SBRF			T								T																					F													F	F
Rio de Janeiro	SBGL			F					F			F	T					T														~~F~~	F	T								F	T			F	F
Salvador	SBSV			T								T																				~~F~~	F	T								F	T			F	F
Santarem	SBSN						T		F				T																			F											F			F	F
Sao Luis	SBSL																				F																									F	F
Sao Paulo	SBGR			F					F			F	T		T			T														F	F	T					~~F~~			F	T			F	F
Tabatinga	SBTT								F	F	T																							F												F	F
Uruguaiana	SBUG																																													F	F

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

	ICAO Loc./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
FROM/DE																																															
CHILE																																															
Antofagasta	SCFA			F					F	T			T																			F		F												F	F
Arica	SCAR			F					F				T																			F	F	F												F	F
Balmaceda	*SCBA*																																													*F*	*F*
Calama	*SCCF*																																													*F*	*F*
Concepción	SCIE			F						T								T															F	F								F	T			F	F
Copiapo	*SCHA*																																													*F*	*F*
Iquique	SCDA								F																								F	T												F	F
La Serena	*SCSE*																																													*F*	*F*
Osorno	*SCJO*																																													*F*	*F*
Puerto Montt	SCTE			F																														T												F	F
Punta Arenas	SCCI			F																																										F	F
Santiago/Arturo Merino Benitez	SCEL			F					F	F			T					T														F	F	F								F	T			F	F
Santiago/Los Cerrillos	*SCTI*																																													*F*	*F*
Temuco	SCTC			F						T								T															F	F								F	T			F	F
COLOMBIA																																															
Barranquilla	SKBQ				F				F	F		T		F	F		F	F	T	T			T		T	F	F	T		F	F	F		F	F								F			F	F
Bucaramanga	*SKBG*																																													*F*	*F*
Cali	SKCL			T	F				F	F		T						F				T					F	T		F		F		F	T								F			F	F
Cartagena	SKCG			T	F										T											F						F		T									F			F	F
Cucuta	SKCC																															F														F	F
Leticia	SKLT								F	F	T																							F												F	F
Pereira	*SKPE*																																													*F*	*F*
Rionegro	SKRG									F		T						F				T				F	F			F		F		T												F	F
San Andrés I.	SKSP													F	F				F				F			F	F				F	F														F	F
Santa Fe de Bogota	SKBO			T	F				F	F		T		F	F		T	F		T		T				F	F	T		F		F		F	T					F			F			F	F
ECUADOR																																															
Guayaquil	SEGU			T					F	F	T	T	F		T													T		F		F	F	F	T								F			F	F
Latacunga	SELT			T					F	F	T	T	F	T	T													T		F		F	F	F	T								F			F	F
Manta	SEMT								F			T																																		F	F
Quito	SEQU			T					F	F		T	F	T	T													T		F		F		F	T								F			F	F
FRENCH GUIANA (France)																																															
Cayenne	SOCA						F			F								T		F				F						F									F	F			F			F	F
GUYANA																																															
Timehri	SYCJ						F			F			F		F					F	F						F			F		F			F		F		F	F			F			F	F

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
FROM/DE																																															
PANAMA																																															
Bocas del Toro	MPBO																																													F	F
Changuinola	MPCH																																													F	F
David	MPDA			T	F	F			F	F	F	T	F	F	F		F	F	T				F		T	F	F	F		F	F			F	F					F			F			F	F
Panamá/Marco A. Gelabert	MPMG			T	F	F			F	F	F	T	F	F	F		F	F	T				F		T	F	F	F		F	F			F	F					F			F			F	F
Panamá/Tocumen	MPTO			T	F	F			F	F	F	T	F	F	F		F	F	T				F		T	F	F	F		F	F			F	F					F			F			F	F
PARAGUAY																																															
Asuncion	SGAS			F					F	F		F	T															T				T		T								F	T			F	F
Ciudad del Este	SGES			T																														T												F	F
PERU																																															
Andahuaylas	*SPHY*																																													*F*	*F*
Arequipa	SPQU											F																																		F	F
Ayacucho	*SPHO*																																													*F*	*F*
Chiclayo	SPHI			T	T				F	F	T	F	F	T	T			F										T		F		F	F		T								F			F	F
Cuzco	SPZO								F																																					F	F
Iquitos	SPQT									F	T		F																																	F	F
Juliaca	*SPJL*																																													*F*	*F*
Lima-Callao	SPIM			T	T				F	T	T	F	F	T	T			F										T		T		F	F										T			F	F
Pisco	SPSO			T					F	T	T	F	F	T	T			F														F	F										T			F	F
Puerto Maldonado	*SPTU*																																													*F*	*F*
Tacna	SPTN			T					F			F																																		F	F
Talara	*SPYL*																																													*F*	*F*
Trujillo	SPRU			T	T				F	T	T	F	F	T	T			F										T		T		F	F										T			F	F
Tumbes	*SPME*																																													*F*	*F*
SURINAME																																															
New Nickerie	SMNI						F			F			F					T		F	F			F	T					F				T	F					F			F			F	F
Paramaribo	SMZO																							F																						F	F
Zandery	SMJP						F			F			F					T		F	F			F	T					F				T	F					F			F			F	F
URUGUAY																																															
Colonia	SUCA			F																													F													F	F
Maldonado	SULS			F						F																							F	F												F	F
Montevideo/Angel S. Adami Intl.	SUAA			F																																										F	F
Montevideo/Carrasco Intl.	SUMU			F					F	F		F	T		T													T					F	F									T			F	F
Rivera	SURV																																F													F	F
Salto	SUSO																																F													F	F

TO BE AVAILABLE IN/ESTARÁN DISPONIBLES EN

FROM/DE	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	S. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Brasilia/Washington OPMET Data Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
VENEZUELA																																															
Acarigua	*SVAC*																																													*F*	*F*
Barcelona	SVBC																																							F						F	F
Barinas	*SVBI*																																													*F*	*F*
Barquisimeto	*SVBM*																																													*F*	*F*
Calabozo	*SVCL*																																													*F*	*F*
Caracas/B.A. Gen. F. de Miranda	*SVFM*																																													*F*	*F*
Caracas/Simón Bolívar	SVMI		F	T	F	F	F		F	F		T	F		F	F	F	F		F	F	F	T	F	F		F	T		F		F		T	F	F	F		F	F					F	F	F
Ciudad Bolivar	*SVCB*																																													*F*	*F*
Coro	*SVCR*																																													*F*	*F*
Cumana	*SVCU*																																													*F*	*F*
Guanare	*SVGU*																																													*F*	*F*
Guiria	*SVGI*																																													*F*	*F*
Higuerote	*SVHG*																																													*F*	*F*
Maracaibo	SVMC			T	F	F			T	T			F		F		F	F					T				F	T		F		F		T	F											F	F
Margarita	SVMG			T	T		F			T			F					F		F			T					T		F		F			F				F	F						F	F
Maturin	*SVMT*																																													*F*	*F*
Merida	*SVMD*																																													*F*	*F*
Paraguana	SVJC																																													F	F
Puerto Ayacucho	*SVPA*																																													*F*	*F*
San Antonio del Táchira	SVSA																															F														F	F
San Fernando de Apure	*SVSR*																																													*F*	*F*
San Juan de los Morros	*SVJM*																																													*F*	*F*
Santo Domingo	*SVSO*																																													*F*	*F*
Valencia	SVVA		F	T	F	F	F		F	F		T	F		F	F	F	F		F	F	F	T	F	F		F	T		F		F		T	F	F	F		F	F					F	F	F
Valle de la Pascua	*SVVP*																																													*F*	*F*

Table MET 2B — Tableau MET 2B — Tabla MET 2B

EXCHANGE OF SIGMET AND SPECIAL AIREP MESSAGES
ÉCHANGE DE MESSAGES SIGMET ET DE MESSAGES AIREP SPÉCIAUX
INTERCAMBIO DE MENSAJES SIGMET Y AIREP ESPECIALES

EXPLANATION OF THE TABLE

S =SIGMET, SIGMET with OUTLOOK (for volcanic ash and/or tropical cyclones) and special AIREP

s =SIGMET and special AIREP

s' =SIGMET with OUTLOOK (for volcanic ash and/or tropical cyclones)

Note.— The first column refers to Meteorological Watch Offices (MWOs).

EXPLICATION DU TABLEAU

S = SIGMET, SIGMET avec OUTLOOK (pour les cendres volcaniques et les cyclones tropicaux) et AIREP spéciaux

s = SIGMET et AIREP spéciaux

s' = SIGMET avec OUTLOOK (pour les cendres volcaniques et les cyclones tropicaux)

Note.— La première colonne indique le centre de veille météorologique (MWO).

EXPLICACIÓN DE LA TABLA

S =SIGMET, SIGMET con PROYECCIÓN (para cenizas volcánicas y ciclones tropicales) y AIREP especiales

s =SIGMET y AIREP especiales

s' =SIGMET con PROYECCIÓN (para cenizas volcánicas y ciclones tropicales)

Nota.— La primera columna se refiere a las Oficinas de vigilancia meteorológica (MWO).

TO BE AVAILABLE IN/ESTARÁN DISPONIBLE EN

FROM/DE	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	St. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Vienna Data Bank	Brasilia/Washington OPMETData Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlance Ascendente ISCS y SADIS
AFI																																																
CANARY ISLANDS (SPAIN)																																																
Las Palmas	GCLP			s'					s'		s'	s'				s'	s'			S								s'		s'		s'		s'						s'		s'	s'				S	S
CAPE VERDE																																																
Sal I.	GVAC								S					s'						S			s'																s	S			s'				S	S
GAMBIA																																																
Banjul	GBYD																		S																												S	S
GHANA																																																
Accra	DGAA								s																																						S	S
SENEGAL																																																
Dakar	GOOY			s'					S																														S	S		s'					S	S
SOUTH AFRICA																																																
Cape Town	FACT			S					s																																						S	S
Johannesburg	FAJS			S					s																																						S	S
CAR																																																
CUBA																																																
Habana	MUHA			s'		S			S	s'		S	S				S	s'						s'	S	S	S	S		S		S	S	S	S					S			S			s'	S	S
DOMINICAN REPUBLIC																																																
Santo Domingo	MDSD					s'				S			s'		S					S	S			s'	S	S	S	S		S		S			S				S	s'			S	s'		s'	S	S
HAITI																																																
Port-au-Prince	MTPP					S				s'			S		S		S			S						S	S	S		S		S			S					s'			S			s'	S	S

TO BE AVAILABLE IN/ESTARÁN DISPONIBLE EN

FROM/DE	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	St. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Vienna Data Bank	Brasilia/Washington OPMETData Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlance Ascendente ISCS y SADIS
HONDURAS																																																
Tegucigalpa*	MHTG									S			S	s'	S		S	s'	s'				s'		S		S	s'		S	s'	S	S	S	S								S			s'	S	S
JAMAICA																																																
Kingston	MKJP			s'		S						S	S		S		s'	s'			S			s'	S	S		S		S		S		S	S					S			S			s'	S	S
MEXICO																																																
Mexico	MMMX			s'		S	s'		S	s'			S		S		S	S							s	S	S			s'		S	S	S	S					s'			S			s'	S	S
NETHERLAND ANTILLES (Netherlands)																																																
Willemstad	TNCC			s'		S	s'			S			S		S		S	S		S	S			S	S	S	S	S				S		S	S				S	S			S			s'	S	S
PUERTO RICO (US)																																																
San Juan, Puerto Rico	TJSJ									S			S		S		S				S			S	S	S	S	S		S		S							S	S			S			s'	S	S
TRINIDAD AND TOBAGO																																																
Port-of-Spain	TTPP			s'		s'				S			s'		s'		S			S	S			S	S		S	s'		S		s'		S	S				S				S			s'	S	S
EUR																																																
FRANCE																																																
Toulouse	LFPW																				S																										S	S
ITALY																																																
Milano	LIMM			s'													S																										s'				S	S
Roma	LIIB									s'					s'		S																														S	S
PORTUGAL																																																
Lisboa	LPPT			s'						s'			s'		s'		S			S	S			s'						s'					S				s'	S			S				S	S
UNITED KINGDOM																																																
London/Bracknell	EGRR		s'	s'		s'	s'		s'	s'																	s'	s'		s'		s'			s'		s'		s'	s'			s'				s'	s'

*The Tegucigalpa MWO serves Central American FIR/SSR, which is under Corporation Centroamericana para los Servicios de Navegacion Aerea (COCESNA)'s responsability, comprising Belize, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua.

*La MWO de Tegucigalpa presta servicios a la FIR/SSR de Centroamérica, que está a cargo de la Corporación Centroamericana para los Servicios de Navegación Aérea (COCESNA), conformada por Belice, Costa Rica, El Salvador, Guatemala, Honduras y Nicaragua.

TO BE AVAILABLE IN/ESTARÁN DISPONIBLE EN

FROM/DE	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	St. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Vienna Data Bank	Brasilia/Washington OPMETData Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlance Ascendente ISCS y SADIS
NAM																																																
CANADA																																																
Toronto	CWTO																S							S				s'									s'										S	S
UNITED STATES																																																
Kansas City	KMKC																											s				S															S	S
Miami	KMIA	s'	s'	s'	s'	S	s'		S	S	s'	S	S		S	s'	S	s'		S	S	s'		S	S	S	S	s'	s'	S		S	S	s'	s'	s'	s'	s'	S	s'	s'	S	S	s'	s'		S	S
SAM																																																
ARGENTINA																																																
Buenos Aires/Aeroparque, Jorge Newberry	SABE								S	S		S	s'		s'		S	s'									s'	s'		s'			S	S						s'		S				s'	S	S
Comodoro Rivadia	SAVC											S																														S				s'	S	S
Córdoba	SACO								S	S		S					S																S	S								S				s'	S	S
Mendoza	SAME									S		S																					S									S				s'	S	S
Resistencia	SARE								S	S		S																					S	S								S				s'	S	S
BOLIVIA																																																
La Paz	SLLP				S					S		S	S																			S	S	S									S			s'	S	S
BRAZIL																																																
Amazónico	SBEG								S			S	S		S		S	S			S			S	S		S			S		S	S	S	S				S	S		S	S			s'	S	S
Brasilia	SBBR			S					S			S	S				S	S															S	S	S				S			S	S			s'	S	S
Curitiba	SBCT			S					s'			S																					S	S								S	S			s'	S	S
Recife	SBRF																				S												S									S				s'	S	S

TO BE AVAILABLE IN/ESTARÁN DISPONIBLE EN

FROM/DE	ICAO Loc. Ind./Ind. Lugar OACI	Anguilla I. (U.K.)	Antigua and Barbuda	Argentina	Aruba (Netherlands)	Bahamas	Barbados	Belize	Bolivia	Brazil	Cayman Is. (U.K.)	Chile	Colombia	Costa Rica	Cuba	Dominica	Dominican Republic	Ecuador	El Salvador	French Antilles (France)	French Guiana (France)	Grenada	Guatemala	Guyana	Haití	Honduras	Jamaica	Mexico	Montserrat I. (U.K.)	Netherland Antilles (Netherlands)	Nicaragua	Panama	Paraguay	Peru	Puerto Rico (U.S.)	Saint Kitts and Nevis	Saint Lucia	St. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Turks and Caicos Islands (U.K.)	Uruguay	Venezuela	Virgin Islands (U.K.)	Virgin Islands (U.S.)	Vienna Data Bank	Brasilia/Washington OPMETData Banks	SADIS and ISCS Uplink Stations/ Estaciones de Enlace Ascendente ISCS y SADIS
CHILE																																																
Antofagasta	SCFA			S					S				S					S														S	S	S												s'	S	S
Puerto Montt	SCTE																																														S	S
Punta Arenas	SCCI			S																																						S				s'	S	S
Santiago	SCEL			S					S	S			s'		s'		S	s'									s'					S	S	S					s'			S	s'			s'	S	S
COLOMBIA																																																
Santa Fe de Bogota	SKBO			s'					S	S		S			S		S	S			S			s'	s'	S	S	S		S		S		S	S					s'			S	s'		s'	S	S
ECUADOR																																																
Guayaquil	SEGU			s'					S	S		S	S		S											s'		S		S		S		S									S			s'	S	S
FRENCH GUIANA (France)																																																
Cayenne	SOCA					s'				S					s'					S				S				s'		S									S	S			S			s'	S	S
GUYANA																																																
Timehri	SYCJ			s'						S					S		S				S						s'			S				S	S				S	S			S			s'	S	S
PANAMA																																																
Panamá/Tocumen	MPTO			s'		S	s'		S	S		S	S		s'		S	S							s'	S	S	S		S				S	S				s'	s'		S	S			s'	S	S
PARAGUAY																																																
Asuncion	SGAS								S	S		S																						S								S				s'	S	S
PERU																																																
Lima-Callao	SPIM			S					S	S		S	S		s'		S	S		S						s'	s'	S		S		S	S							s'		S	S			s'	S	S
SURINAME																																																
Zandery	SMJP									S							s'				S			S	s'		s'			S		s'		S	S					S			S			s'	S	S
URUGUAY																																																
Montevideo/Carrasco Intl.	SUMU			S					S	S		S	S																				S	S									S			s'	S	S
VENEZUELA																																																
Caracas	SVMI			s'		S			S	S		S	S		S		S	S		S	S			S	S	S	S	S		S		S	S	s'	S				S	S		s'				s'	S	S

Table MET 3A — Tableau MET 3A — Tabla MET 3A

TROPICAL CYCLONE ADVISORY CENTRE
CENTRE D'AVIS DE CYCLONES TROPICAUX
CENTRO DE AVISOS DE CICLONES TROPICALES

EXPLANATION OF THE TABLE

Column

1 Location of the tropical cyclone advisory centre (TCAC).

2 Area of responsibility for the preparation of advisory information on tropical cyclones by the TCAC in Column 1.

3 Period of operation of the TCAC.

4 MWO to which the advisory information on tropical cyclones should be sent.

5 Location indicator assigned to the MWO in Column 4.

~~*Note.— ICAO location indicators for MWOs are shown in Table MET 1B.*~~

EXPLICATION DU TABLEAU

Colonne

1 Emplacement du centre d'avis de cyclones tropicaux (TCAC).

2 Zone pour laquelle le TCAC indiqué dans la colonne 1 doit produire les renseignements consultatifs sur les cyclones tropicaux.

3 Période de fonctionnement du TCAC.

4 MWO auxquels les renseignements consultatifs sur les cyclones tropicaux devraient être communiqués.

5 Indicateurs d'emplacement OACI des MWO indiqué dans la colonne 4.

~~*Note.— Les indicateurs d'emplacement OACI des MWO figurent dans le Tableau MET 1B.*~~

EXPLICACIÓN DE LA TABLA

Columna

1 Lugar del centro de avisos de ciclones tropicales (TCAC).

2 Zona de responsabilidad para la preparación de la información de asesoramiento sobre ciclones tropicales por el TCAC en la Columna 1.

3 Período de operación del TCAC.

4 MWO a la que debe enviarse la información de asesoramiento sobre ciclones tropicales.

5 Indicador de lugar de la OACI asignado a la MWO de la Columna 4.

~~*Nota.— Los indicadores de lugar OACI de las MWO se presentan en la Tabla MET 1B.*~~

Table MET 3A — Tableau MET 3A —Tabla MET 3A

Tropical cyclone advisory centre Centre d'avis de cyclones tropicaux Centro de avisos de ciclones tropicales	Area of responsibility Zone de responsabilité Zona de responsabilidad	Period of operation Période de fonctionnement Período de operación	MWO to which advisory information is to be sent MWO auquel les renseignements consultatifs doivent être communiqués MWO a la que debe enviarse información de asesoramiento	
			Name Nom Nombre	ICAO Loc Ind. Ind. d'empl. OACI Ind. De lugar OACI
1	2	3	4	5
Miami (United States) (États-Unis) (Estados Unidos)	Tropical Atlantic, Caribbean Sea, Gulf of Mexico Relevant parts of the Pacific East of E180º Atlantique tropical, mer des Caraïbes, golfe du Mexique Parties concernées du Pacifique à l'est de 180ºE Atlántico Tropical, Mar del Caribe, Golfo de México Partes pertinentes del Pacífico al este de los 180º E	1 June – 30 November 1er juin – 30 novembre 1 de junio – 30 noviembre	~~Amazónico~~ Bogotá Caracas Cayenne ~~Georgetown~~ Timehri Habana Kingston ~~Maiquetía~~ México Kansas Ciity Panama Port of Spain Port-au-Prince Recife ~~San Juan, Puerto Rico~~ Santo Domingo Tegucigalpa Willemstad Zandery	~~SBEG~~ SKBO SVMI SOCA SYCJ MUHA MKJP ~~SVMI~~ MMMX KKCI MPTO TTPP MTPP SBRF MDSD MHTG TNCC SMJP

Table MET 3B — Tableau MET 3B — Tabla MET 3B

VOLCANIC ASH ADVISORY CENTRE
CENTRO DE AVISOS DE CENIZAS VOLCÁNICAS

EXPLANATION OF THE TABLE

Column

1 Location of the volcanic ash advisory centre (VAAC).

2 Area of responsibility for the preparation of advisory information on volcanic ash by the VAAC in Column 1.

3 MWOs to which the advisory information on volcanic ash should be sent.

4 ICAO locations indicators assigned to the MWOs in Column 3

5 ACC to which the advisory information on volcanic ash should be sent.

6 ICAO location indicator assigned to the ACC in Column 5.

~~*Note.— ICAO location indicators for MWOs are shown in Table MET 1B.*~~

EXPLICATION DU TABLEAU

Colonne

1 Emplacement du centre d’avis de cendres volcaniques (VAAC).

2 Zones pour lesquelles le VAAC indiqué dans la colonne 1 doit produire les renseignements consultatifs sur les cendres volcaniques.

3 MWO auxquels les renseignements consultatifs sur les cendres volcaniques devraient être communiqués.

4 Indicateur d’emplacement OACI de l’ACC indiqué dans la colonne 3.

5 ACC auxquels les renseignements consultatifs sur les cendres volcaniques devraient être communiqués.

6 Indicateur d’emplacement OACI de l’ACC indiqué dans la colonne 5.

~~*Note.— Les indicateurs d’emplacement OACI des MWO figurent dans le Tableau MET 1B.*~~

EXPLICACIÓN DE LA TABLA

Columna

1 Lugar del centro de avisos de cenizas volcánicas (VAAC).

2 Zona de responsabilidad para la preparación de la información de asesoramiento sobre cenizas volcánicas por el VAAC de la Columna 1.

3 MWO a la que debe enviarse información de asesoramiento sobre cenizas volcánicas.

4 Indicador de lugar de la OACI asignado al ACC de la Columna 4.

5 ACC al que debe enviarse información de asesoramiento sobre cenizas volcánicas.

6 Indicador de lugar de la OACI asignado al ACC de la Columna 5.

~~*Nota.— Los indicadores de lugar OACI de las MWO se presentan en la Tabla MET 1B.*~~

Table MET 3B — Tableau MET 3B — Tabla MET 3B

Volcanic ash advisory center Centre d'avis de Cendres volcaniques Centro de avisos de cenizas volcánicas	Area of responsibility Zone de responsabilité Zona de responsabilidad	MWO to which advisory information is to be sent MWO auxquels les renseignements consultatifs doiven être communiqués MWO a la que debe enviarse información de asesoramiento		ACC to which advisory information is to be sent ACC auxquels les renseignements consultatifs doiven être communiqués ACC a la que debe enviarse información de asesoramiento	
		Name Nom Nombre	ICAO Loc Ind. Ind. d'empl. OACI Ind. De lugar OACI	Name Nom Nombre	ICAO Loc Ind. Ind. d'empl. OACI Ind. De lugar OACI
1	2	3	4	5	6
Buenos Aires	SAM Region: South of S10°	Amazonico	SBEG	Amazonico	SBAZ
(Argentina)	between W10° and W90°	Antofagasta	SCFA	Antofagasta	SCFZ
		Asunción	SGAS	Asunción	SGFA
	Région SAM: Sud de 10°S entre	Brasilia	SBBR	Brasilia	SBBS
	10°W et 90°W	Buenos Aires (Aeroparque)	SABE	Ezeiza	SAEF/ SAEU
		Comodoro Rivadavia	SAVC	Comodoro Rivadavia	SAVF/ SAVU
	Región SAM: Al sur de los 10°S	Córdoba	SACO	Córdoba	SACF/ SACU
	entre 10°W y 90°W	Curitiva	SBCT	Curitiba	SBCW
		La Paz	SLLP	La Paz	SLLF
		Lima	SPIM	Lima	SPIM
		Mendoza	SAME	Mendoza	SAMF/ SAMV
		Montevideo	SUMU	Montevideo	SUEO
		Puerto Montt	SCTE	Puerto Montt	SCTZ
		Punta Arenas	SCCI	Punta Arenas	SCCZ
		Recife	SBRF	Recife	SBRE
		Recife	SBRF	Atlantico	SBAO
		Resistencia	SARE	Resistencia	SARR/ SAEU
		Santiago	SCEL	Santiago	SCEZ
Washington	CAR/SAM Regions: North of	Amazonico	SBEG	Amazonico	SBAZ
(United States)	S10° 140°W	Caracas	SVMI	Maiquetía	SVZM
(États-Unis)		Cayenne	SOCA	Rochambeau	SOOO
(Estados Unidos)	Région CAR/SAM: Nord de	Guayaquil	SEGU	Guayaquil	SEGU
	10°S 140°W	Habana	MUHA	Habana	MUFH
		Kansas City	KKCI	Houston Oceanic	KZHU
	Regiones CAR/SAM:	Kansas City	KKCI	Miami Oceanic	KZMA
	Al norte de los 10°S 140°W	Kansas City	KKCI	Nassau	MYNA
		Kansas City	KKCI	San Juan	TJZS
	New York Oceanic*	Kingston	MKJP	Kingston	MKJK
	Oakland Oceanic*	Lima	SPIM	Lima	SPIM
	United States Continental FIRs*	México	MMMX	Mazatlán	MMZT
		México	MMMX	México	MMEX
		~~Miami~~	~~KNHC~~	~~Houston Oceanic~~	~~KZHU~~
		~~Miami~~	~~KNHC~~	~~Miami Oceanic~~	~~KZMA~~
		~~Miami~~	~~KNHC~~	~~Nassau~~	~~MYNA~~
		~~Miami~~	~~KNHC~~	~~San Juan~~	~~TJZS~~
		Panamá	MPTO	Panamá	MPZL
		Port of Spain	TTPP	Piarco	TTZP
		Port-au-Prince	MTPP	Port-au-Prince	MTEG
		Recife	SBRF	Recife	SBRE
		Recife	SBRF	Atlantico	SBAO
		Santa Fe de Bogotá	SKBO	Barranquilla	SKEC
		Santa Fe de Bogotá	SKBO	Bogotá	SKED
		Santo Domingo	MDSD	Santo Domingo	MDCS
		Tegucigalpa	MHTG	Central American	MHTG
		Timehri	SYCJ	Georgetown	SYGC
		Willemstad	TNCC	Curacao	TNCF
		Zandery	SMJP	Paramaribo	SMPM

* Requirement shown in NAM, NAT and PAC Regional Air Navigation Plans/
Besoin indiqué dans les plans régionaux de navigation aérienne NAM, NAT et PAC/
Requisito mostrado en los planes regionales de navegación aérea NAM, NAT y PAC.

|*Nota Editorial. — Incluir nueva tabla*

FASID Table MET 3C
TABLA MET 3C DEL FASID

SELECTED STATE VOLCANO OBSERVATORIES
OBSERVATORIOS VULCANOLÓGICOS DE ESTADOS SELECCIONADOS

EXPLANATION OF THE TABLE

Column

1 Provider State of the volcano observatory.

2 Name of the volcano observatory.

3 Location of the volcanic ash advisory centre (VAAC) to which the information related to pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash cloud should be sent.

4 Area control centre (ACC) to which the information related to pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash cloud should be sent.

5 ICAO location indicator assigned to the ACC in Column 4.

6. Meteorological watch office (MWO) to which information related to pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash cloud should be sent.

7 ICAO location indicator assigned to the MWO in Column 6.

EXPLICACIÓN DE LA TABLA

Columna

1 Estado Proveedor del observatorio vulcanológico.

2 Nombre del observatorio vulcanológico.

3 Centro de aviso de ceniza volcánica (VAAC) al cual se debe enviar la información relacionada con actividad volcánica previa a una erupción, una erupción volcánica y/o nubes de ceniza volcánica.

4 Centro de Control de Área (ACC) al cual se debe enviar la información relacionada con actividad precursora de erupción volcánica, una erupción volcánica y/o nubes de ceniza volcánica.

5 Indicador de lugar de la OACI asignado al ACC de la Columna 4.

6 Oficina de vigilancia meteorológica (MWO) a la cual se debe enviar la información relacionada con a actividad volcánica previa a una erupción, una erupción volcánica y/o nubes de ceniza volcánica

7 Indicador de lugar de la OACI asignado a la MWO de la Columna 6.

Table MET 3C — Tabla MET 3C

Provider State of volcano observatory Estado Proveedor del observatorio vulcanológico	Volcano observatory Observatorio vulcanológico	VAAC to which the information related to pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash cloud should be sent VAAC al cual se debe enviar la información relacionada con actividad volcánica previa a una erupción, una erupción volcánica y/o nubes de ceniza volcánica	ACC to which the information related to pre-eruption volcanic activity/eruption/volcanic ash cloud should be sent ACC a la cual se debe enviar la información relacionada con actividad volcánica previa a una erupción/erupción volcánica/nubes de ceniza volcánica		MWO to which information related to pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash cloud should be sent MWO a la cual se debe enviar la información relacionada con actividad volcánica previa a una erupción, una erupción volcánica y/o nubes de ceniza volcánica	
			Name Nombre	ICAO Loc Ind. Ind. de lugar OACI	Name Nombre	ICAO Loc Ind. Ind. De lugar OACI
1	2	3	4	5	6	7
Argentina	Instituto Antártico Argentino, Dpto. Ciencias de la Tierra[1] Servicio Geológico y Minero Argentino (SEGEMAR)	Buenos Aires	Ezeiza Comodoro Rivadavia Córdoba Mendoza Resistencia	SAEF/ SAEU SAVF/ SAVU SACF/ SACU SAMF/ SAMV SARR/ SAEU	Buenos Aires (Aeroparque) Comodoro Rivadavia Córdoba Mendoza Resistencia	SABE SAVC SACO SAME SARE
Chile	Southern Andes Volcano Observatory (SAVO) Departamento de Ciencias Físicas, Temuco Servicio Nacional de Geología y Minería (SERNAGEOMIN), Santiago	Buenos Aires	Antofagasta Puerto Montt Punta Arenas Santiago	SCFZ SCTZ SCCZ SCEZ	Antofagasta Puerto Montt Punta Arenas Santiago	SCFA SCTE SCCI SCEL
Colombia	INGEOMINAS - Observatorio Vulcanológico de Colombia, Manizales	Washington	Barranquilla Bogotá	SKEC SKED	Santa Fe de Bogotá Santa Fe de Bogotá	SKBO SKBO
Costa Rica	Observatorio Vulcanológico y Sismológico de Costa Rica, (OVSICORI-UNA), Heredia Obs. Sismológicao y vulcanológico de Arenal y Miravalles, San José	Washington	Central American	MHTG	Tegucigalpa	MHTG
Ecuador	Instituto Geofísico, Quito	Washington	Guayaquil	SEGU	Guayaquil	SEGU
El Salvador	Servicio Nacional de Estudios Territoriales (SNET), Ministerio de Medio Ambiente y Recursos Naturales, El Salvador	Washington	Central American	MHTG	Tegucigalpa	MHTG
French Antilles (France)	GUADELOUPE, Observatoire volcanologique de la Soufriere MARTINIQUE, Observatoire volcanologique de la Pelée	Washington Washington	Piarco	TTZP	Port of Spain	TTPP
Guatemala	INSIVUMEH Sección Vulcanología,	Washington	Central American	MHTG	Tegucigalpa	MHTG

Provider State of volcano observatory Estado Proveedor del observatorio vulcanológico	Volcano observatory Observatorio vulcanológico	VAAC to which the information related to pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash cloud should be sent VAAC al cual se debe enviar la información relacionada con actividad volcánica previa a una erupción, una erupción volcánica y/o nubes de ceniza volcánica	ACC to which the information related to pre-eruption volcanic activity/eruption/volcanic ash cloud should be sent ACC a la cual se debe enviar la información relacionada con actividad volcánica previa a una erupción/erupción volcánica/nubes de ceniza volcánica		MWO to which information related to pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash cloud should be sent MWO a la cual se debe enviar la información relacionada con actividad volcánica previa a una erupción, una erupción volcánica y/o nubes de ceniza volcánica	
			Name Nombre	ICAO Loc Ind. Ind. de lugar OACI	Name Nombre	ICAO Loc Ind. Ind. De lugar OACI
1	2	3	4	5	6	7
	Ciudad de Guatemala					
Guyana	Guyana Geology and Mines Commission	Washington	Georgetown	SYGC	Timheri	SYCJ
México	Centro Nacional de Prevención de Desastres (CENAPRED) Centro Universitario de Investigaciones en Ciencias del Ambiente, Universidad de Colima Instituto de Geofísica, UNAM Observatorio Vulcanológico, Universidad de Colima	Washington	Mazatlán México	MMZT MMEX	México México	MMMX MMMX
Montserrat (U.K.)	Montserrat Volcano Observatory	Washington	Piarco	TTZP	Port of Spain Port of Spain Port of Spain Port of Spain	TTPP TTPP TTPP TTPP
Nicaragua	Dirección General del Inst. Nicaragüense de Estudios Territoriales (INETER), Managua Dirección de Vulcanología	Washington	Central American	MHTG	Tegucigalpa	MHTG
Panamá	Instituto de Geociencias	Washington	Panamá/Tocumen	MPZL	Panamá	MPTO
Perú	Instituto Geofísico del Perú (IGP), Arequipa	Buenos Aires and/y Washington	Lima	SPIM	Lima	SPIM
Trinidad y Tabago	Seismic Research Unit, University of Indies St. Augustine	Washington	Piarco	TTZP	Port of Spain	TTPP

Note.—- Contact information of VAACs is shown in Doc 9766, Part 4 and contact information of volcano observatories, ACCs and MWOs is shown in Doc 9766 Part 5, available at web page: www.icao.int.

Nota.— La información de contacto de los VAAC se presenta en la parte 4 del Doc 9766 y la información de contacto de los observatorios vulcanológicos, de los ACC y de las MWO se presenta en la Parte 5 del Doc 9766, disponible en la página web: www.icao.int.

TABLE MET 5/TABLA MET 5

REQUIREMENTS FOR WAFS PRODUCTS

REQUISITOS DE INFORMACIÓN ELABORADA POR EL WAFS

EXPLANATION OF THE TABLE

Column

1 WAFS products required by the CAR/SAM States, to be provided by WAFC Washington.

2 Area of coverage required for the WAFS forecasts, to be provided by WAFC Washington.

EXPLICACIÓN DE LA TABLA

Columna

1 Productos del WAFS requeridos por los Estados CAR/SAM, que ha de proporcionar el WAFC de Washington.

2 Zona de cobertura requerida para los pronósticos del WAFS, que ha de proporcionar el WAFC de Washington.

Forecast required Pronóstico requerido	Areas required Zonas requeridas
1	2
SWH CHART/MAPA (FL 250 – 630)	[A, B, B1, C, D, E, F, G, H, I, J, K, M]
SWM/SWH CHART/MAPA (FL 100 - 450)	NIL
SWH forecasts (FL 250 – 630) in the BUFR code form/ Pronósticos de SWH (FL 250 – 630) en la clave BUFR	Global/Mundial
SWM forecasts (FL 100 – 250) in the BUFR code form/ Pronósticos de SWM (FL 100 – 250) en la clave BUFR	NIL
Upper-air wind, temperature, altitude of flight levels and humidity forecasts in the GRIB code form Pronósticos en altitud de viento, temperatura, niveles de vuelo en altitud y humedad en la clave GRIB	Global/ Mundial

Note 1.— Combined SWM/SWH charts are provided for limited geographical areas as determined by regional air navigation agreement. The chart covers the SWH range only up to FL 450.

Nota 1.— Se proporcionan mapas combinados SWM/SWH para zonas geográficas limitadas según se determine por acuerdo regional de navegación aérea. Los mapas cubren solamente el rango del SWH hasta el FL 450.

Note 2.— Note.- WAFCs continue to issue forecasts of SIGWX in chart form until 30 November 2006.

Nota 2.—. Los WAFC continúan emitiendo mapas pronosticados de SIGWX hasta el 30 de noviembre de 2006.

TABLE MET 6/TABLA MET 6

RESPONSIBILITIES OF THE WORLD AREA FORECAST CENTRES

RESPONSABILIDADES DE LOS CENTROS MUNDIALES DE PRONÓSTICOS DE ÁREA

EXPLANATION OF THE TABLE

Column

1 Name of the world area forecast centre (WAFC).

2 Area of coverage of significant weather (SIGWX) forecasts in the BUFR code form prepared or relayed by the WAFC in Column 1.

3 Area of coverage of the SIGWX forecasts in chart form prepared or relayed by the WAFC in Column 1.

4 Area of coverage of upper-wind, temperature, altitude of flight levels and humidity forecasts in the GRIB code form issued by the WAFC in Column 1.

EXPLICACIÓN DE LA TABLA

Columna

1 Nombre del centro mundial de pronósticos de área (WAFC).

2 Zona de cobertura de los pronósticos del tiempo significativo (SIGWX) en la clave BUFR preparados o retransmitidos por el WAFC indicado en la Columna 1.

3 Zona de cobertura de los mapas pronosticados de SIGWX preparados o retransmitidos por el WAFC indicado en la Columna 1.

4 Zona de cobertura de los pronósticos en altitud de viento, temperatura, altitud de niveles de vuelo y humedad en la clave BUFR, emitidos por el WAFC indicado en la Columna 1.

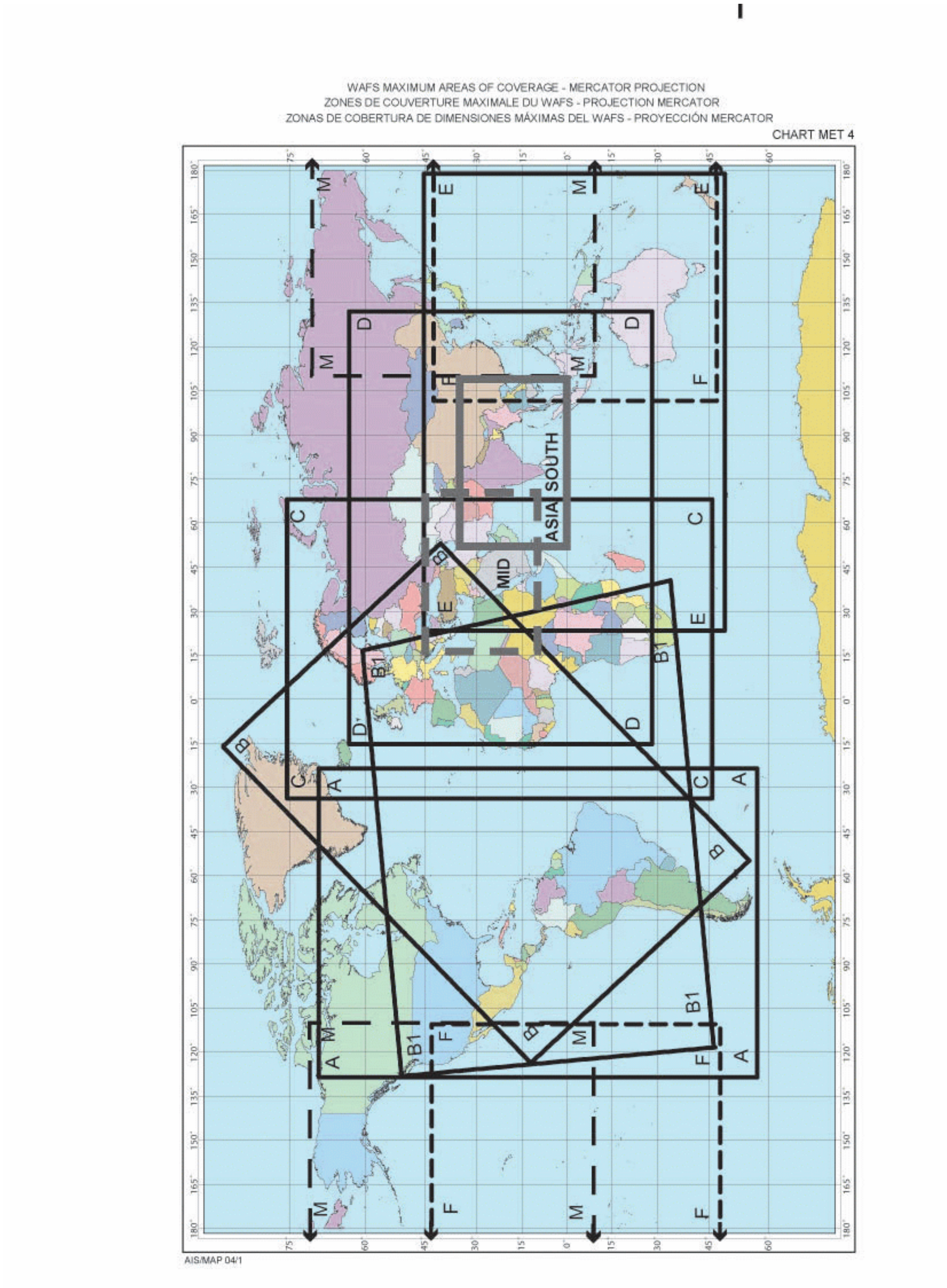
WAFC	Areas of coverage of/Zonas de cobertura de		
	SIGWX forecasts/ Pronósticos de SIGWX		Upper-air wind, temperature, altitude of flight levels and humidity forecasts Pronósticos en altitud de viento, temperatura, altitud de niveles de vuelo y humedad
	In the BUFR code form/ En la clave BUFR	In chart form/ En forma de mapa	In the GRIB code form/En la clave GRIB
1	2	3	4
London	SWH (FL 250 – 630): global/mundial SWM (FL 100 – 250): ASIA SOUTH, EUR and/y MID	SWH (FL 250 – 630): B, C, D, E, G, H and/y K SWM/SWH (FL 100 – 450): ASIA SOUTH, EUR and/y MID	Global /mundial
Washington	SWH: (FL 250 – 630): global/mundial SWM (FL 250 – 250): NAT	SWH (FL 250 – 630): A, B1, F, H, J, I and/y M SWM/SWH (FL 100 – 450): NAT	Global /mundial

Note. — WAFCs continue to issue forecasts of SIGWX in chart form until 30 November 2006

Nota. — Los WAFC continúan emitiendo mapas pronosticados de SIGWX hasta el 30 de noviembre de 2006

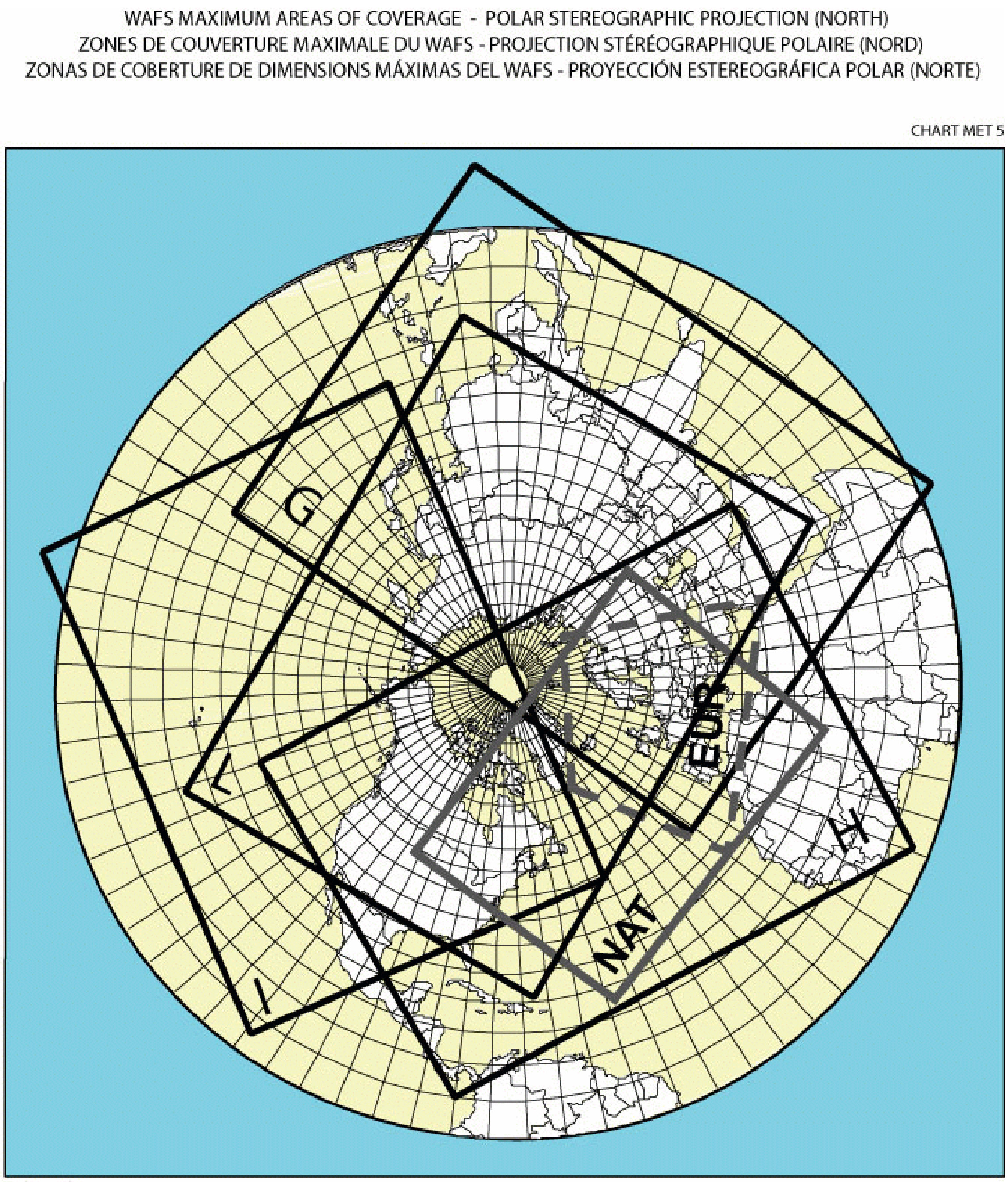
ZONAS DE COBERTURA DE DIMENSIONES MAXIMAS DEL WAFS – PROYECCION MERCATOR
WAFS MAXIMUM AREAS OF COVERAGE– MERCATOR PROJECTION

FASID Chart MET 4



ZONAS DE COBERTURA DE DIMENSIONES MAXIMAS DEL WAFS – PROYECCION ESTEREOGRAFICA POLAR (NORTE)
WAFS MAXIMUM AREAS OF COVERAGE – POLAR STEREOGRAPHIC PROJECTION (NORTH)

FASID Chart MET 5



ZONAS DE COBERTURA DE DIMENSIONES MAXIMAS DEL WAFS – PROYECCION ESTEREOGRAFICA POLAR (SUR)
WAFS MAXIMUM AREAS OF COVERAGE – POLAR STEREOGRAPHIC PROJECTION (SOUTH)

FASID Chart MET 6

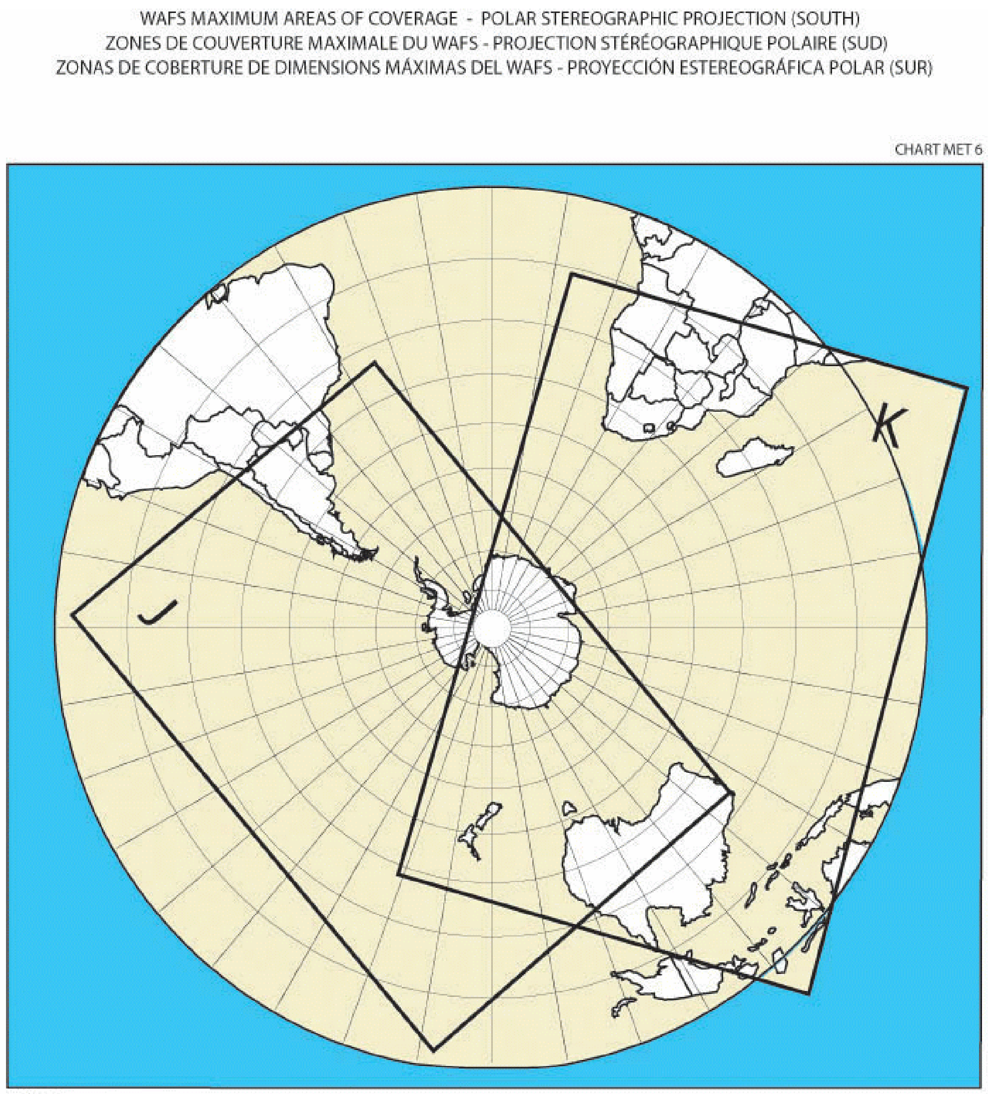


TABLE MET 7/TABLA MET 7

AUTHORIZED USERS OF THE ISCS/1 SATELLITE BROADCAST IN THE CAR/SAM REGIONS

AUTORISÉ DES UTILISATEURS DE L'ISCS/1 AUX DIFFUSIONS PAR SATELLITE DANS LES RÉGIONS CAR/SAM

USUARIOS AUTORIZADOS PARA LA RADIODIFUSIÓN POR SATÉLITE ISCS/1 EN LAS REGIONES CAR/SAM

EXPLANATION OF THE TABLE

Column

1 Name of the State or territory.

2 User of the satellite broadcast. Abbreviations used:

CAA — civil aviation authority
NMS — national meteorological service
O — other than the civil aviation authority or the national meteorological service.

3 Location of VSAT: town and, where applicable, aerodrome to be indicated.

4 Indication whether the equipment is operational:

2w — two-way VSAT operational
1w — one-way VSAT operational
F — only WAFS Internet-based FTP service
[blank] — no.

EXPLICATION DU TABLEAU

Colonne

1 Nom de l'État ou du territoire

2 Utilisateur des diffusions par satellite. Abréviations:

CAA – administration de l'aviation civile
NMS – service météorologique national
O – autre que l'administration de l'aviation civile ou le service météorologique national

3 Emplacement du VSAT: les noms de la localité et, le cas échéant, de l'aérodrome doivent éter indiqués.

4 Indication d'approbation de l'accès aux diffusions par satellite:

X – accès approuvé
[néant] – accès non approuvé

5 Indication d'équipament opérationnel:

2w – VSAT bidirectionnel opérationnel
1w – VSAT unidirectionnel opérationnel
[néant] – équipment non opérationnel

EXPLICACIÓN DE LA TABLA

Columna

1 Nombre del Estado o territorio.

2 Usuario de la radiodifusión por satélite. Las abreviaturas empleadas son:

CAA — administración de aviación civil
NMS — servicio meteorológico nacional
O — otros que no sean la administración de aviación civil o el servicio meteorológico nacional.

3 Lugar de la VSAT: ha de indicarse la ciudad y, de ser aplicable, el aeródromo.

4 Indicación si el equipo está ~~en funcionamiento~~ operativo:

2w — VSAT ~~funcional~~ operativa en ambos sentidos
1w — VSAT ~~funcional~~ operativa en un sentido
F — sólo WAFS por Internet-basado en el servicio FTP
[en blanco] — no.

International Satellite Communication System (ISCS/1) provided by the United States Systeme de communications internationales par satellite (ISCS/1) fourni par les États-Unis Sistema Internacional de comunicaciones por satélite (ISCS/1) proporcionado por Estados Unidos			
State/Territory État/Territoire Estado/Territorio	User of satellite broadcast Utilisateur des diffusions par satellite Usuario de la radiodifusión por satélite	Location of VSAT Emplacement du VSAT Lugar ~~del~~ la VSAT	Equipment operational Équipement pérationnel Equipo ~~funcional~~operativo
1	2	3	4
ANGUILLA (United Kingdom)	CAA	Headquarters NMS Antigua Saint Johns/V.C. Bird Airport	Relayed by/ Retransmis par/ Retransmitido por Antigua
ANTIGUA AND BARBUDA	NMS	Saint Johns/V.C. Bird Airport	2w
ARGENTINA	NMS	National Meteorological Service, Buenos Aires	1w
ARUBA (Netherlands)	NMS	MET Headquarters/Hato Airport (Curaçao)	Relayed by/ Retransmis par/ Retransmitido por Curaçao
BAHAMAS	NMS	Nassau/New Providence Intl. Airport	2w
BARBADOS	NMS O	Bridgetown/Grantley Adams Intl Airport Caribbean Meteorological Institute	2w 2w
BELIZE	NMS	Belize/Philip S.W. Goldson Intl Airport	2w
BOLIVIA	CAA	La Paz/El Alto Int. Airp.	1w
BRAZIL	CAA NMS	CNMA MET Headquarters, Brasilia	1w 1w
CAYMAN ISLANDS (United Kingdom)	CAA	Georgetown/Owen Roberts Intl.	2w
CHILE	NMS	DMC, Santiago de Chile/Arturo Merino Intl Airport	1w
COLOMBIA	NMS	Headquarters of the Hydrology and Met Institute, Santa Fé de Bogotá	2w
COSTA RICA	NMS	Headquarters in San José	2w
CUBA	CAA NMS	Met Office/MWO, La Habana/ José Martí Intl. Airport Met. Institute, La Habana	1w 2w
DOMINICA	CAA	Headquarters NMS Barbados Bridgetown/Grantley Adams Intl Airport	Relayed by/ Retransmis par/ Retransmitido por Barbados
DOMINICAN REPUBLIC	NMS	Sto. Domingo National Met. Office	2w
EL SALVADOR	NMS	San Salvador/Ilopango Intl. Airport	2w
ECUADOR	NMS CAA CAA	Headquarters in Quito Quito/Mariscal Sucre Guayaquil/Simón Bolivar	1w 1w
FRENCH ANTILLES (France)	NMS NMS	Le Raizet Airport (Guadeloupe) Le Lamentin Airport (Martinique)	2w 2w
FRENCH GUIANA (France)	NMS	Cayenne - Rochambeau Airport	2w
GRENADA	NMS	Saint Georges/Point Salines Airport	2w
GUATEMALA	NMS	Guatemala/La Aurora Intl. Airport	2w
GUYANA	NMS	Timheri/Cheddi Jargan Intl. Airport	2w
HAITI	NMS	Port-au-Prince Intl. Airport	2w

International Satellite Communication System (ISCS/1) provided by the United States Systeme de communications internationales par satellite (ISCS/1) fourni par les États-Unis Sistema Internacional de comunicaciones por satélite (ISCS/1) proporcionado por Estados Unidos			
State/Territory État/Territoire Estado/Territorio	User of satellite broadcast Utilisateur des diffusions par satellite Usuario de la radiodifusión por satélite	Location of VSAT Emplacement du VSAT Lugar de~~l~~ la VSAT	Equipment operational Équipement pérationnel Equipo ~~funcional~~operativo
1	2	3	4
HONDURAS	NMS	Tegucigalpa/Toncontín Intl. Airport	2w
JAMAICA	NMS	Kingston/Norman Manley Intl.	2w
MEXICO	CAA NMS	Mexico/Benito Juárez Intl. Airport Headquarters in Mexico City	1w 2w
MONTSERRAT (United Kingdom)	NMS	Headquarters NMS Antigua Saint Johns/V.C. Bird Airport	Relayed by/ Retransmis par/ Retransmitido por Antigua
NETHERLANDS ANTILLES (Netherlands)	NMS NMS	MET Headquarters/Hato Airport (Curaçao) MET Philipsburg/Princess Juliana Airport (St. Maarten)	2w 2w
NICARAGUA	NMS	Managua/Managua Intl. Airport	2w
PANAMA	CAA	Panama/Tocumen Int. Airport	2w
PARAGUAY	NMS	Asunción/Silvio Pettirossi Airport	1w
PERU	CAA NMS	Lima-Callao/Jorge Chávez Int. Airport Headquarters	1w 1w
PUERTO RICO (United States)	NMS	National Weather Service Forecast Office	2w
SAINT KITTS AND NEVIS	CAA	Headquarters NMS Antigua Saint Johns/V.C. Bird Airport	Relayed by/ Retransmis par/ Retransmitido por Antigua
SAINT LUCIA	NMS	Vieux-Fort/Hewanorra Intl Airport	2w
SAINT VINCENT AND THE GRENADINES	CAA	Headquarters NMS Barbados Bridgetown/Grantley Adams Intl Airport	Relayed by/ Retransmis par/ Retransmitido por Barbados
SURINAME	NMS	Zandery/Johan Adolf Pengel	1w
TORTOLA (United Kingdom)		Headquarters NMS Antigua Saint Johns/V.C. Bird Airport	Relayed by/ Retransmis par/ Retransmitido por Antigua
TRINIDAD AND TOBAGO	NMS	Port of Spain, Piarco Intl. Airport	2w
TURKS AND CAICOS IS. (United Kingdom)			2w
URUGUAY	NMS	MET Office, Montevideo/ Carrasco Intl Gral Cesareo L. Berisso Airport	1w
VENEZUELA	NMS INAC	Servicio Meteorológico ~~FAV/Maracay~~ de la Aviación Militar Venezolana MWO Maiquetía	1w 1w

Editorial Note1.— The contents of FASID Table MET 7 is to be kept up-to-date by the PIRGs and regional offices concerned.

Nota editorial.— El contenido de la Tabla MET 7 del FASID es para que sea actualizado por los PIRG y por las oficinas regionales concernientes.

APPENDIX N

EVALUATION OF THE TRAINING IN MET AREA FOR THE STATES OF THE CAR/SAM REGIONS

1. Introduction

1.1 The development of a worldwide air transport and the insertion of developed technologies in the system imply a challenge in the current training of aeronautical personnel. Lack of training of highly qualified aeronautical meteorology personnel is one of the specific problems that affect this progress in order to allow an efficient meteorological service in all CAR/SAM Regions.

1.2 The professional education standards are at higher level, according to the current and future technology level, since the provision of meteorological service for the international civil aviation is a major factor that contributes in safe and efficient air operations.

1.3 Aviation is the most important economic sector served by national weather services (NWSs) and, nevertheless, the professional training will always be necessary. The resources to support this training seems to be limited or non-existence in several States, as well as the deficit in human resources, especially in qualified personnel in aeronautical meteorology. This situation might affect negatively in costs recovery of NWS for the provision of aeronautical service.

2. Development in Task Force Working Group on MET training area

2.1 Based on the AERMETSG/6 deliberations on training aeronautical meteorology personnel in CAR/SAM States, a Task Force was established on training MET area which, among its terms of references, will be to identify the current training needs and evaluate the States' capacities in giving the necessary resources to support a Regional Plan on this issue. This Plan might be presented as a Project to be elaborated in close collaboration with the WMO and the SAM and NACC ICAO Regional Offices.

2.2 The main task within the Work Programme of this Group, was to develop a draft questionnaire on training needs to carry out a survey in CAR/SAM States. Once this questionnaire was completed, it was analyzed and circulated to all States/Territories in the CAR/SAM Regions by the ICAO SAM and NACC Regional Offices. The available resources in each State (economic resources, trained personnel able to prepare programmes, professors, etc.) were discussed in this document and on the availability on centres to update the meteorologists and instructors that might collaborate in the implementation of a Training Regional Plan.

2.3 The reception of the States responses was carried out through ICAO SAM and NACC Offices. Lately, the Task Force processed these questionnaires and the results were analyzed and are presented as **Appendix A**.

2.4 Replies were received from Cuba, Mexico, Nicaragua and United States, 10% of the 32 States/Territories of CAR Region. Nevertheless, the SAM Office received 100% of compliance of 14 States in SAM Region. Despite the responses received from the CAR Region, the total analysis of the results allow to identify some main problems and deficiencies that might be associated to most of the States/Territories in CAR/SAM Regions, regarding MET training area.

2.5 The survey was structured in two parts. The first referred to obtaining most of the possible information on the availability of resources in the States, which might be taken into account for an effective implementation of a coordinated training programme in the CAR/SAM Regions. The second part of the survey was centered in determining the specific training needs, and the results allowed to focus more precisely on the most interesting and important operational issues in the current aeronautical meteorology at regional level.

3. Presentation and analysis of the results

3.1 **Summary of Part I: Available resources in States** (Results of survey: **Appendix B)**

3.1.1 **General Information:**

3.1.1.1 In the CAR/SAM Regions, the education of meteorologists is given, basically, at universities and in the national meteorological service (SMN). According to responses obtained from States, the Civil Aviation Administrations use to have more participation in the specialization and training in aeronautical meteorology, together with the SMN. Only two States informed to have other sponsors different from the ones mentioned.

3.1.2 **Financial Resources:**

3.1.2.1 The availability of financial resources is one of the most important aspects to carry out the training. These resources are given, mainly, to support the meteorologist's professional education and in the updating of knowledge in most States, although a significant number of them requires support for this education (33% of these cases), and personnel updating (39% of these situations). In the responses received, it has been pointed out by several States the lack of financial resources, as a main cause that impel the personnel training, as well as the participation in workshops or seminars.

3.1.2.2 Only 3 countries (17%) count with resources to support the regional training. This result is similar to States' possibility to support and guarantee the training of aeronautical meteorology personnel in seminars and courses planned in other State.

3.1.3 **Premises and specialized centres:**

3.1.3.1 Most of the States count on with centres or institutions in which the education of meteorological personnel, specifically aeronautical, is carried out. 44% of these centres (half of the responses to the questionnaire) are Aeronautical Training Centres or similar. Specifically, in the aeronautical training centres, in all cases the possibility to be used to support the regional training in aeronautical meteorology was positive, with the capacity to hold 2 simultaneous courses and 15 students in each course.

3.1.3.2 There are 8 TRAINAR centres in CAR/SAM Regions. A proposal to foster the regional training and the education of instructors might be the advantage of available human resources in the preparation of the TRAINAR system.

3.1.3.3 A very important aspect to take into account in the regional training and the use of TRAINAR centres is the deficit of instructors with the necessary educational qualifications in more that half of States, in order to face the challenge that implies the development and implementation of the current training and the future requirements in this area.

3.1.4 **Programmes and courses in the education and training:**

3.1.4.1 Together with State's support in MET personnel education and in the availability of the resources, most States count with courses for the meteorological personnel education, according to the World Meteorological Organization guidelines (WMO), and the implementation of technical cooperation projects with the WMO is also planned. Regarding training in the aeronautical field, more collaboration with WMO is required, according to the development of programmes supporting these plans.

3.1.4.2 There is a marked deficit in human resources to cover the operational needs in aviation services, according to the concerned expressed by 67% of States. To solve this problem, work is being carried out actively on education and training in the Region, although it is required to pay more attention to the refresher of personnel knowledge that develop these operational tasks.

3.1.5 **Technical resources to support this training:**

3.1.5.1 The necessary technical resources for this training, according to the needs of the current development, are the availability of personal computers, workstations linked through Intranet. This will allow a better progress in the required training in aeronautical meteorology systems.

3.1.5.2 Most of States count with computers and Internet, but not always these technical resources can be used in training. To improve the capacity in the information exchange in training, technical resources should be guaranteed and the existent Intranet should be developed.

3.1.5.3 Most of States are standardized in the use of Microsoft software, such as Windows operating systems and Office applications. This standardization will facilitate the development and exchange of electronic modules on a broader scale for training.

3.1.5.4 Lack of texts and technical documentation in electronic format is a factor that should be improved in order to implement regional training through digital courses and seminars. Several States count with libraries and technical documentation on aeronautical meteorology topics that could be transferred in electronic format as guidance material for more diffusion in future training courses and seminars.

3.1.6 **Human resources:**

3.1.6.1 The human resources available to guarantee the provision of meteorological services to aviation is closely linked with the education and future personnel training. 81% of States count with meteorologists and operational meteorologists, although few States (between 22% and 39%) have their current needs covered.

3.2 **Part II:Specific needs in Aeronautical Meteorological training**
(Results survey: **Appendix C**)

3.2.1 This part of the questionnaire was on training needs of the States in CAR/SAM Region. It was considered that the issues included in the questionnaire should be part of a Study Programme for Specialized Meteorologists in Aeronautical Meteorology.

3.2.2 The results from 18 States were analyzed and a priority scale was assigned taking into account the percentage of the answers of a specific item. The items listed below were considered as high priority based on its importance (selected by more than 90% States):

- use of new types of meteorological data;
- strong winds and gusts at the surface;
- methods of immediate forecasts (now casting);
- interpretation of the meteorological data processed as values expressed as grid data in binary form (GRIB and BUFR);
- operative conversion of the significant weather forecast in BUFR code form and of the winds and temperatures forecast in GRIB code form to T4 charts;
- interpretation and use of the WAFS products in the improvement of the local and area forecast;
- use of the WAFS information in support of the international air navigation, particularly in supporting CNS/ATM systems;
- verification and validation of quality of the meteorological information for aviation;
- cost recovery and supply of alternative services for aviation;
- quality management systems for the aeronautical meteorology service and quality assurance, and
- use of MET products and services in Air Traffic Management (ATM) for the decision making process.

4. Conclusions

4.1 The safety, regularity and efficiency in air navigation are the main objectives in States to guarantee the compliance of Standards and Recommended Practices of ICAO Annex 3 and other documents. In aeronautical meteorology field, this objective will only be achieved providing pertinent information to operators, flight crewmembers, AIS/ATM/CNS operational personnel, airport authorities and to all interested air transport operators.

4.2 It should be defined with the support of WMO and ICAO a strategy and action plan to solve the current and future training needs in CAR/SAM Regions. This strategy should take into consideration the human, financial and technical resources required by States in order to apply efficiently any action plan proposed.

4.3 Through the results of the questionnaires, the needs and available capacities are noted, which can be applied to most of the States. These results can be used in order to elaborate an Action Plan Project in collaboration with WMO and ICAO, to support the solution of deficiencies in aeronautical meteorology training. This Plan project can be based on:

a) the development of modules (distance programmes or via regional exchange) for a wide variety of specific items that could be given in courses or national seminars and, if possible, to facilitate the participation of operational personnel;
b) short terms seminars to allow the consolidation of knowledge and refresher courses to instructors to develop the training in their respective States; and
c) more use of the modern means of communications, as the Internet as well as the electronic mail for the material exchange.

REPORT OF THE TASK GROUP IN TRAINING IN MET AREA FOR THE STATES OF CAR/SAM REGIONS

Part II Specific necessities of training in Aeronautical Meteorology.

Results of the answers are presented as sent by the States, in percent (%) of the total of answers (18 States).
A scale of priorities has been assigned keeping in mind the percentage of answers according to the specific topic:

A.- High priority: more than 90% of the States.

B.- Between 75% and 90% of the States; intermediate priority.

C.- Less than 75% of the States; smaller priority. This priority means that those cases should be included in more elaborated programs for training in applied aeronautical meteorology.

Besides the results here shown, some countries included topics that should be take into account in very specific cases; among these is the training about Climatology and their applications (meteorological minima at aerodromes); the use of AWOS systems and their features, including RVR and laser ceilometers.

Part II Specific necessities of training in Aeronautical Meteorology (Percent of the total of answers.)		**%**	**priority**
2.1 Interpretation and diagnose of dangerous phenomena for air navigation.	Synoptic analysis.	61	C
	Mesoscale analysis.	78	B
	Microscale analysis.	89	B
	Meteorological radar interpretation.	78	B
	Doppler radar interpretation.	72	C
	Meteorological satellite pictures interpretation.	72	C
	Use of new types of meteorological data.	94	A
	Manipulation, archive and presentation of meteorological data.	78	B
2.2 Detection and forecast of dangerous meteorological conditions for the air navigation in route.	Turbulence.	94	A
	Wind shear (horizontal and vertical).	89	B
	Icing.	89	B
	Convection and thunderstorms areas.	89	B
	Extensive areas of precipitation .	83	B
	Hail.	78	B
	Volcanic ashes.	78	B
	Tropical cyclone.	67	C

Part II: (cont.)		**%**	**priority**
2.3 Detection and forecast of dangerous meteorological conditions in aerodrome terminal, included the approaching–landing and take off–initial climbing phases.	Turbulence	89	B
	Strong winds and gusts in surface.	94	A
	Wind shear (horizontal and vertical).	89	B
	Icing.	72	C
	Thunderstorms, electric discharges.	89	B
	Squall lines.	89	B
	Hail.	78	B
	Intense precipitation.	72	C
	Conditions of reduced visibility; formation of fog and stratus; low ceiling.	89	B
	Volcanic ashes.	72	C
	Extreme temperatures.	56	C
2.4 Use of tools for forecast. *(in general and/or jointly with anyone of the aspects pointed out in 2.3 and 2.4)*	Global numeric models.	56	C
	Regional numeric models.	83	B
	Local numeric models (mesoscale models).	83	B
	Methods of immediate forecasts (nowcasting).	100	A
	Forecast methods for medium and long range.	78	B
	Synoptic data of surface; reports of ships.	56	C
	Upper air observations; wind profiles and PIREPS.	61	C
	Meteorological radar data.	83	B
	Doppler radar data.	78	B
	Meteorological satellite observations.	83	B
2.5 Professional formation on the use and application of the WAFS products	Interpretation of the meteorological data processed as values expressed as grid data in binary form (GRIB and BUFR).	100	A
	Operative conversion of the significant weather forecast in BUFR code form and of the winds and temperatures forecast in GRIB code form to ICAO´s T4 charts.	100	A
	Interpretation and use of the WAFS products in the improvement of the local and area forecast.	100	A
	Use of the WAFS information in support to the international air navigation, particularly in supporting CNS/ATM systems.	100	A
	Elaboration of appropriate products adapted to specific needs of the aviation users.	89	B

2.6	Training and seminars in verification of the meteorological information.	Verification and validation of quality of the meteorological information for the aviation.	100	A
		Verification of aerodrome forecasts.	89	B
2.7	Seminars and conferences.	Cost recovery and supply of alternative services for the aviation.	100	A
		Systems of administration of quality for the aeronautical meteorological service and guarantee of quality.	100	A
2.8	Training about CNS-ATM systems.	Basic knowledge of CNS.	89	B
		Basic knowledge of ATM.	89	B
		Basic knowledge of other aspects of aviation for meteorologists (operations, navigation, etc.).	89	B
2.9	Training in the use of meteorological products and services (training the users).	Using of meteorological products and services in Air traffic Management (ATM) decision making process.	100	A
		Using of meteorological products and services by airline dispatchers.	83	B

APPENDIX O

IMPLEMENTATION OF AERODROME CERTIFICATION IN THE STATES/TERRITORIES OF THE CAR REGION

AERODROMES INCLUDED IN THE REGIONAL AIR NAVIGATION PLAN (ANP)

Table 01 – Progress of the basic documentation for aerodrome certification

STATE/TERRITORY	N° OF AERODROMES	BASIC DOCUMENTATION FOR CERTIFICATION					
		Responsible body	Finalized	On-going		Planned	
			Published in:	Started in:	Publication foreseen for:	Started in:	Finalization:
Anguilla	**1**	CAA		**X**			
Antigua and Barbuda	**1**	OECS/CAD		**X**			
Aruba	**1**	DCA	**1998**				
Bahamas	**11**	DCA		**X**			
Barbados	**1**	TDA	**2004**				
Belize	**1**	CAD		**X**			
Bermuda	**3**	CAA		**X**			
British Virgin Islands	**2**	CAA		**X**			
Cayman Islands	**2**	CAD		**X**			
Costa Rica	**4**	DGAC	**2004**				
Cuba	**7**	IACC	**2003**				
Dominican Republic	**7**	DGAC	**2004**				
El Salvador	**2**	AAC		**X**			
French Antilles	**4**	DRAC	**2002**				
Grenada	**2**	OECS/CAD		**X**			
Guatemala	**4**	DGAC				**2005**	
Haiti	**2**	OFNAC		**X**			
Honduras	**4**	DGAC	**2004**				
Jamaica	**2**	JCAA	**2003**				
Mexico	**42**	DGAC			**2005**		
Montserrat	**1**	CAA		**X**			
Netherlands Antilles	**5**	CANA	**1998**				
Nicaragua	**2**	DGAC		**X**			

STATE/TERRITORY	Nº OF AERODROMES	BASIC DOCUMENTATION FOR CERTIFICATION					
		Responsible body	Finalized	On-going		Planned	
			Published in:	Started in:	Publication foreseen for:	Started in:	Finalization:
Saint Kitts and Nevis	**2**	OECS/CAD		**X**			
Saint Lucia	**2**	OECS/CAD		**X**			
Saint Vincent and the Grenadines	**5**	OECS/CAD		**X**			
Trinidad and Tobago	**2**	TTCAA			**2005**		
Turks and Caicos Islands	**3**	CAA		**X**			
United States	**7**	FAA	**1972**				
Dominica	**2**	OECS/CAD		**X**			
TOTAL	**134**						

Table 02 – Progress on certification of aerodromes included in Doc 8733/FASID

STATE/ TERRITORY	Nº OF AERODROMES	RESPONSIBLE BODY	NUMBER OF CERTIFIED AERODROMES /ON-GOING/PLANNED		
			Certified	On-going	Planned
Anguilla	**1**	CAA			**X**
Antigua and Barbuda	**1**	OECS/CAD			**X**
Aruba	**1**	DCA	**1**		
Bahamas	**11**	DCA			**X**
Barbados	**1**	TDA		**X**	
Belize	**1**	CAD			**X**
Bermuda	**3**	CAA			**X**
British Virgin Islands	**2**	CAA			**X**
Cayman Islands	**2**	CAD			**X**
Costa Rica	**4**	DGAC			**X**
Cuba	**7**	IACC	**3**		
Dominican Republic	**7**	DGAC			**X**
El Salvador	**2**	AAC			**X**
French Antilles	**7**	DRAC	**7**		
Grenada	**2**	OECS/CAD			**X**
Guatemala	**4**	DGAC			**X**

STATE/ TERRITORY	**N° OF AERODROMES**	**RESPONSIBLE BODY**	**NUMBER OF CERTIFIED AERODROMES /ON-GOING/PLANNED**		
			Certified	**On-going**	**Planned**
Haiti	**2**	OFNAC			**X**
Honduras	**4**	DGAC			**X**
Jamaica	**2**	JCAA		**X**	
Mexico	**42**	DGAC			**X**
Montserrat	**1**	CAA			**X**
Netherlands Antilles	**5**	CANA	**5**		
Nicaragua	**2**	DGAC			**X**
Saint Kitts and Nevis	**2**	OECS/CAD			**X**
Saint Lucia	**2**	OECS/CAD			**X**
Saint Vincent and the Grenadines	**5**	OECS/CAD			**X**
Trinidad and Tobago	**2**	TTCAA			**X**
Turks and Caicos Islands	**3**	CAA			**X**
United States	**7**	FAA	**7**		
Dominica	**2**	OECS/CAD			**X**
TOTAL	**134**				

APPENDIX P

RESULTS OF THE EMERGENCY PLAN AND EMERGENCY OPERATION CENTRES (EOC) SURVEY TO STATES/TERRITORIES

AERODROMES INCLUDED IN THE AIR NAVIGATION REGIONAL PLAN (ANP)

Table 01 – Survey Results CAR Region

STATE/ TERRITORY	Nº OF AERODROMES	EMERGENCY PLANS				EOC		
		How many		Updated Exercises				
		They have	Updated (1)	Complete (2)	Partial (3)	How many	Updated (1)	Planned
Anguila	1	1	1			1	1	
Antigua and Barbuda	1							
Aruba	1							
Bahamas	11							
Barbados	1	1	1			1	1	
Belize	1	1	1	1	1	1	1	
Bermuda	3							
British Virgin Islands	2							
Cayman Islands	2							
Costa Rica	4							
Cuba	7	7	7		7	7	7	
Dominican Republic	7							
El Salvador	2							
French Antilles	4	4	4			4	4	
Grenada	2							
Guatemala	4							
Haiti	2							
Honduras	4	4	4	4	4	4	3	
Jamaica	2	2	2	2	2	2	2	
Mexico	42	1	1	1	1	1	1	
Montserrat	1							

STATE/ TERRITORY	Nº OF AERODROMES	EMERGENCY PLANS				EOC		
		How many		Updated Exercises				
		They have	Updated (1)	Complete (2)	Partial (3)	How many	Updated (1)	Planned
Netherlands Antilles	5	3	3		3	3	3	
Nicaragua	2							
Saint Kitts and Nevis	2	2	2			2	2	
Saint Lucia	2	1	1		1	1	1	
Saint Vincent and the Grenadines	5							
Trinidad and Tobago	2	2	2			2	2	
Turks and Caicos Islands	3	1	1			1	1	
United States	7	7	7	7	7	7	7	
Dominica	2	1	1			1	1	
TOTAL	**134**	**38**	**38**	**15**	**24**	**38**	**37**	

(1) Have not been updated for more than 5 years (before 1998)
(2) Every two years
(3) In the year subsequent to the complete exercise (confusion on behalf of States/Territories)

Table 01 – Survey Results SAM Region

STATE/ TERRITORY	Nº OF AERODROMES	EMERGENCY PLANS				EOC		
		How many		Updated Exercises				
		They have	Updated (1)	Complete (2)	Partial (3)	How many	Updated (1)	Planned
Argentina	21	21	17	18	20	21	21	---
Bolivia	05	03	03	03	02	03	03	00
Brazil	26	26	26	26	21	21	21	00
Chile	08	08	08	08	07	05	05	03 (2004)
Colombia	08							
Ecuador	04	04	03	03	03	03	02	00
French Guyana	01							
Guyana	01							
Panama	05							
Paraguay	02							
Peru	08	08	08	08	01	08	08	---
Surinam	03							
Uruguay	06							
Venezuela	07							
TOTAL	**105**	**70**	**65**	**66**	**54**	**61**	**60**	**3**

(1) Have not been updated for more than 5 years (before 1998)
(2) Every two years
(3) In the year subsequent to the complete exercise (confusion on behalf of States/Territories)

Table 02 – Survey results in percentage CAR Region

STATE/ TERRITORY	Nº OF AERODROMES	EMERGENCY PLANS				EOC (%)		
		How many		Updated Exercises				
		They have	Updated (1)	Complete (2)	Partial (3)	How many	Updated (1)	Planned
Anguilla	1	100	100			100	100	
Antigua and Barbuda	1							
Aruba	1	100	100			100	100	
Bahamas	11							
Barbados	1	100	100			100	100	
Belize	1							
Bermuda Islands	3							
British Virgin Islands	2							
Cayman Islands	2							
Costa Rica	4							
Cuba	7	100	100			100	100	
Dominican Republic	7							
El Salvador	2							
French Antilles	4	100	100			100	100	
Grenada	2							
Guatemala	4							
Haiti	2							
Honduras	4	100	100	100	100	100	75	
Jamaica	2	100	100			100	100	
Mexico	42	2	2	2	2	2	2	
Montserrat	1							
Netherlands Antilles	5	60	60			60	60	
Nicaragua	2							
Saint Kitts and Nevis	2	100	100			100	100	
Saint Lucia	2	50	50		50	50	50	
Saint Vincent and the Grenadines	5							

STATE/ TERRITORY	Nº OF AERODROMES	EMERGENCY PLANS				EOC (%)		
		How many		Updated Exercises				
		They have	Updated (1)	Complete (2)	Partial (3)	How many	Updated (1)	Planned
Trinidad and Tobago	2	100	100			100	100	
Turks and Caicos Islands	3	33	33			33	33	
United States	7	100	100	100	100	100	100	
Dominica	2	50	50			50	50	
TOTAL	**134**							

Table 02 – Survey results in percentage SAM Region

STATE/ TERRITORY	Nº OF AERODROMES	EMERGENCY PLANS				EOC (%)		
		How many		Updated Exercises				
		They have	Updated (1)	Complete (2)	Partial (3)	How many	Updated (1)	Planned
Argentina	21	100	81	86	95	100	100	0
Bolivia	5	60	60	60	40	60	60	0
Brazil	26	100	100	100	81	81	81	0
Chile	8	100	100	100	88	63	63	38
Colombia	8							
Ecuador	4	100	75	75	75	75	50	0
French Guyana	1							
Guyana	1							
Panama	5							
Paraguay	2							
Peru	8	100	100	100	13	100	100	0
TOTAL	**105**							

APPENDIX Q

INSPECTION GUIDE
ANNEX 14

1- PRESENTATION OF THE GUIDE

This Inspection Guide is only a suggested reference for monitoring compliance with the Standards and Recommendations detailed in Annex 14. It is a likely tool for Inspectors conducting daily control, supervision and, sometimes, audits.

As of 2005, the States that are parties to the Chicago Convention of 1944 will be subject to safety oversight audits (USOAP) by the International Civil Aviation Organization. These audits will be done on a regular basis, and will be mandatory and systematic, focusing on compliance with the Standards and Recommendations (SARPs) of Annex 14 "Aerodrome design and operations", Volume I.

The States, through the Civil Aeronautics Authority (DGAC), and as part of their planning for the audits they will be subject to, shall implement, duly in advance, control means to verify the strict compliance with the SARPs.

In turn, aerodrome operators, as the parties responsible for ensuring safety, regularity and efficiency of air operations, shall take measures to ensure strict compliance of ICAO Annex 14 SARPs in their daily activities.

2 – SUGGESTED PROFILE OF AERODROME INSPECTORS

Inspectors must be:

- Civil engineers (pavement experts)
- Electrical engineers (visual aid experts)
- Electronic engineers (radio aids and system experts)
- Environmental engineers (environmental management experts)
- Aeronautical engineers (noice and environmental pollution experts)
- Surveying engineer (expert in AGA maps and WGS coordinates)
- Architects (experts in airport planning and urban development)
- Aeronautical technicians (experts in operational procedures and services)
- Meteorologists (experts in aeronautical equipment and meteorology)
- Air traffic graduates (ATS and AIS experts)
- Aircraft commanders (safety experts)
- Airport management graduates (airport management experts)
- Lawyers (aeronautical law experts)

They must all have a minimum of five years of proven experience in aerodrome planning, operation, maintenance, management, design and construction. They must have a sound knowledge of Annex 14, Volume I, and of all ICAO manuals related to it. They must have ample knowledge of the standards and practices of the State.

3- CERTIFICATION OF THE AERODROME INSPECTOR

The background of Aerodrome Inspector applicants shall be analyzed and graded by the State CAA, which will decide if the applicant meets the minimum requirements to fulfill the task of Aerodrome Inspector.

The CAA, as the aeronautical authority of the State, will organize training courses and draft the certification requirements for all Aerodrome Inspectors pursuant to ICAO provisions.

Inspectors are understood to be the group of professionals that specializes in Annex 14, but, since this document is too broad, a single inspector should not be considered as an expert in all fields. Therefore, However, it is recommended that a team leader be appointed, The team leader should have a general understanding of all the disciplines contained in ICAO Annex un 14.

4- RESPONSIBILITIES OF THE AERODROME INSPECTOR

Aerodrome inspectors will have the delicate responsibility of verifying compliance with the standards contained in Annex 14, and determining the degree of compliance with the recommendations in said document. Their function entails recommending whether the aerodrome will be certified pursuant to ICAO regulations.

The inspection of an aerodrome for certification requires a detailed and suitable revision of all the requirements stipulated in Annex 14 SARPs. These standards and recommendations shall be applied using the Reference Code and operational category of the runway. Failure to comply with any specification of the Annex and a deficient inspection of the aerodrome could create a potential hazard for air operations. Consequently, an aerodrome inspector assumes full responsibility for the results of the inspection.

5- DOCUMENTS FOR THE AERODROME INSPECTION

The minimum list of documents recommended for proper aerodrome inspection is shown below:

ICAO DOCUMENTS:

- Annex 14, Volume I
- Annex 14 checklist
- Inspection Guide
- Manual on certification of aerodromes, ICAO Doc 9774
- Aerodrome design manual, ICAO Doc 9157, Parts 1 to 5
- Airport planning manual, ICAO Doc 9184, Parts 1 to 3
- Airport services manual, ICAO Doc 9137, Parts 1 to 9
- Manual on the ICAO bird strike information system, ICAO Doc 9332
- Manual of surface movement guidance and control systems, ICAO Doc 9476

AERODROME DOCUMENTS:

- Manual on certification of aerodromes
- Airport emergency plan (PEA)
- Aeronautical Information Publication (AIP)
- Aerodrome blueprints

6- INSPECTIONS

It is absolutely necessary for all inspections to be governed by a common standard. Consequently, they must be conducted following methods and criteria aimed at eliminating contradictions which might result from the use of different procedures and different inspector backgrounds.

The development of an inspector manual which describes in detail the inspection procedures and techniques will facilitate standardization. Likewise, the members of the CAA Inspection Organization should participate in the development of standard techniques and methods, meeting frequently to exchange ideas and practical experiences.

The analysis of the various inspection reports will highlight the deficiencies and will permit the identification of the causes, their likely solutions, and the required notification.

7- PROFICIENCY, FUNCTIONS AND RESPONSIBILITIES OF INSPECTORS

Aerodrome inspectors will be under the Inspection Organization designated by the CAA of each country to perform such function.

The main purpose of the inspection service is to determine the level of compliance by aerodrome operators with the standards and recommended practices.

The authorized inspection personnel may inspect and conduct trials on aerodrome facilities, services and equipment, inspect the documents and records of the aerodrome operator, and check the safety management system of the aerodrome operator, prior to the granting or renewal of an aerodrome certificate, and, afterwards, verify the maintenance of safety standards.

The aerodrome operator will allow the inspection personnel access to the public and aeronautical parts of the aerodrome to check the infrastructure, equipment and services related to Annex 14. The inspector may also request records, documents and/or payrolls available at the aerodrome. He/she may interview the staff from various services, so that they may contribute to the conduction of the required activities.

Inspectors must perform the following tasks:

A – Verification of SARPs in Annex 14 and of the aerodrome data contained in the Aerodrome manual:

- Location of the aerodrome
- Name and address of aerodrome operator
- Stated runway distances
- Movement area: physical characteristics of runways, taxiing, parking areas, de-icing and isolated parking space for aircraft (runway strips and taxiways, runway end safety areas, shoulders, stopways, clearways)
- Obstacle restriction and elimination: Type-A chart
- Visual aids (signalling indicators and devices, markings, lights, signs, markers, visual aids to indicate obstacles and restricted use)
- Equipment and facilities (secondary power source, security fences, security lighting, siting and construction of equipment in operational)
- Emergency services (rescue and fire-fighting)

B – Verification of the plan and standards for the maintenance of all the infrastructure in the movement area and of the corresponding equipment (lights, markings, pavements, etc.)

C - Verification and audit of aerodrome operational procedures:

- Aerodrome safety management system
- Aerodrome emergency plan (PEA)
- Plan for daily inspection of aerodrome by the operator
- Ramp safety management and parking control
- Control of vehicles operating in the movement area
- Wildlife (birds, mammals) management plan
- Monitoring of obstacle hindering surfaces and relevant notices
- Transfer of unserviceable aircraft
- Handling of hazardous materials, including aviation fuel
- Protection of navaid critical and sensitive areas
- Operations under low-visibility conditions
- Records of in-flight and aerodrome visual and non-visual aids inspections
- Unserviceable aircraft transfer plan
- Records and inspection of pavement surface friction coefficient measuring equipment
- Medical service plan
- Dissemination of changes to published aerodrome information
- Prevention of entry to the movement area by unauthorized individuals
- Protection of personnel and public from jet engine blast and propeller wake
- Planning and conduction of aerodrome construction and maintenance work, including compliance with construction safety requirements

8- PLANNING AND WORK METHODOLOGY

Inspecting an aerodrome for subsequent certification involves two types of work: office and field work. The recommended stages for proper organization of the activities to be conducted are outlined below:

- Office work: during this stage, the inspector shall collect aerodrome-related information, which should be properly contained in the Aerodrome Manual. Based on the aerodrome reference code and the runway operational category, the standards and recommendations that need to be verified at the aerodrome shall be identified, following the methodology used in Annex 14.

- Field work: based on the guidelines defined following the office work, the aerodrome inspector shall proceed to conduct a detailed inspection of the standards to be met by the aerodrome. Here too, this task will be easier if the Checklist is available.

Because of the characteristics of all the elements to be verified, daytime and nighttime inspections must be programmed. Failure to comply with this aspect will compromise the reliability of elements whose performance depends on the time operations are conducted.

9- CHECKLIST

The proposed checklist for determining the level of compliance with the SARPs contained in Annex 14 was the result of a joint work at the following events: Workshop on the Certification of Aerodromes for the NAM/CAR/SAM Regions, Santiago, Chile, 24-27 September 2002 (17 countries), and ICAO Workshop for Aerodrome Inspectors, Buenos Aires, Argentina, 22-26 March 2004 (14 countries) .

The checklist was developed through the participation of civil aviation professionals from 17 countries in Chile (88 participants) and from 14 countries in Argentina (108 participants). As mentioned before, it is intended to serve as a tool that summarizes Annex 14 but in no way replaces it. Its use and specific tailoring require a clear understanding of Annex 14.

The checklist is divided into the following sections: General information about the aerodrome, runway, taxiing, apron, facilities, services, maximum secondary power source switching time, and an Excel spreadsheet, which summarizes Chapter 3 of Annex 14, “Physical characteristics” and Chapter 5 “Visual aids” (markings), which will serve as quick search of the specifications contained in the Standards and Recommendations of Annex 14, according on the aerodrome reference code and the type of runway approach.

This checklist is designed to inspect one airport unit, por instance, the runway, a taxiway, etc. If there is more than one runway and/or taxiway, a spreadsheet will have to be completed for each runway or taxiway that exists in the airport.
As concerns a runway inspection, the checklist is ordered in such a way that it permits concurrent assessment of a specification applicable to both runway ends.

The grouping of the checklist does not follow the order specified in Annex 14, since it is believed that it is simpler and more systematic to review all items belonging to one same sector, checking their physical characteristics together with the visual aids (markings, lights, signs, etc.) that correspond to a single location. This facilitates the work of the inspector, since he/she does not need to go back to an item to check another specification that comes afterwards according to the order defined in Annex 14

10- CLOTHING AND EQUIPMENT OF THE INSPECTOR

The inspector must wear clothing that is comfortable and suitable for the weather conditions prevailing during the inspection. Footwear must have insulating soles, preferably of the boot type. He/she must have a hat or cap for protection against the sun, as well as a container with water and other edible items deemed necessary.

Measuring and testing elements used to verify the physical characteristics of the runway, taxiway, apron, lights, markings, electrical facilities, etc. must be provided by the operator. Therefore, during his/her office work, the aerodrome inspector shall request the operator, and the latter shall place at his/her disposal, the necessary means and tools to conduct the verifications that are deemed relevant.

11- CONTINUED PROFICIENCY OF INSPECTORS

The staff of the CAA Inspection Organization shall periodically evaluate and train the inspectors, through courses on the various specialties.

Only through specialized theoretical and practical training will the inspectors be able to maintain a high level of knowledge and expertise for performing their tasks.

APPENDIX R

AIRPORT

Country code: **ICAO code** **IATA code:**

AERODROME CHECKLIST FOR AIRPORT CERTIFICATION

Name of airport										
Authority to be inspected										
Inspecting authority										
Chief inspector		Name and surname								
Inspector		Name and surname								
Inspector		Name and surname								
Inspector		Name and surname								
Date and time inspection starts				Day:	Month:		Year:	Time:	Remarks:	
Date and time inspection ends				Day:	Month:		Year:	Time:	Remarks:	
Weather conditions:										
Type of airport										
Design aircraft on main runway:						Design aircraft on secondary runway:				
Operating aircraft on main runway:						Operating aircraft on secondary runway:				
				Visual	Non-precision	CAT I	CAT II	CAT IIIA	CAT IIIB	CAT IIIB
Main runway end approach type										
Main runway end approach type										
Secondary runway end approach type										
Secondary runway end approach type										
Main runway reference code						Secondary runway reference code				
Inspected documentation										
AIP										
PEA										
Bird strike prevention plan										

AIRPORT

RUNWAY

TOPIC	Annex 14 SARPs Item	ITEM	INSPECTION										DESK WORK								
			Inspection		Current status	Conditio			Current status	Conditio			Annex 14 specification	Compliance		Difference	Maintenance standards	Compliance		Difference	Remarks
			YES	NO	Runway end	B	R	M	Runway end	B	R	M		YES	NO			YES	NO		
PHYSICAL CHARACTERISTICS	3.1	**Runway**																			
	3.1.6	Runway length																			
	Stated distances	TORA (Take-off run available)																			
		TODA (Take-off distance available) (TORA + CWY)																			
		ASDA (Accelerate-stop distance available) (TORA + SWY)																			
		LDA (Landing distance available)																			
	3.1.9	Runway width																			
	3.1.10	Minimum distance between parallel runways, visual flight conditions																			
	3.1.11	Minimum distance between parallel runways, instrument flight conditions																			
	3.1.12/13	Runway longitudinal slope																			
	3.1.18	Runway transversal slope																			
	3.1.20	Runway strength																			
		Pavement characteristics (concrete, asphalt, etc.)																			
		Concrete pavement, pathology and severity																			
		Asphalt pavement, pathology and severity																			
	3.1.21	Runway surface (irregularities, loss of friction characteristics)																			
		Sewage and drainage																			
		Geometric analysis of surface intersections																			
	3.1.22/23	Runway surface, wet runway friction coefficient																			
	3.2	**Shoulders**																			
	3.2.1/2	Shoulders. General, use																			
	3.2.3	Shoulder width																			
	3.2.4	Transversal slope																			
	3.2.5	Pavement strength																			
		Pavement characteristics (concrete, asphalt, etc.)																			
		Concrete pavement, pathology and severity																			
		Asphalt pavement, pathology and severity																			
		Sewage and drainage																			
	3.6	**Stopway (SWY)**																			
	3.6.1	Width																			
	3.6.2	Longitudinal slope																			
	3.6.2	Transversal slope																			
	3.6.3	Pavement strength																			
		Pavement characteristics (concrete, asphalt, etc.)																			
		Concrete pavement, pathology and severity																			
		Asphalt pavement, pathology and severity																			
		Sewage and drainage																			
	3.3	**Runway strip**																			
	3.3.2	Length																			
	3.3.3	Strip width on each side of runway centre line (precision approaches)																			
	3.3.4	Strip width on each side of runway centre line (non-precision approaches)																			
	3.3.5	Strip width on each side of runway centre line (visual flight runway)																			
	3.3.6	Minimum distance to objects																			

RUNWAY

TOPIC	Annex 14 SARPs Item	ITEM	INSPECTION: Inspection YES	Inspection NO	Current status Runway end	Condition G	Condition F	Condition B	Current status Cabecera	Condition G	Condition F	Condition B	DESK WORK: Annex 14 specification	Compliance YES	Compliance NO	Difference	Maintenance standards	Compliance YES	Compliance NO	Difference	Remarks
PHYSICAL CHARACTERISTICS	3.3.7	a) Precision approach runway - CAT I, II and III (4F)																			
	3.3.7	b) Precision approach runway - CAT I, II and III (Code No. 3 and 4)																			
	3.3.7	c) Precision approach runway - CAT I (Code No. 1 and 2)																			
	3.3.8	Level strip width on each side of runway centre line (instrument flight)																			
	3.3.9	Level strip width on each side of runway centre line visual flight)																			
	3.3.12	Longitudinal slope																			
	3.3.14	Transversal slope																			
	3.3.16	Strip strength, instrument runway																			
	3.3.17	Strip strength, visual flight runway																			
		Sewage and drainage																			
	3.4	**Runway end safety area (RESA)**																			
	3.4.1	Runway end safety area. General, use																			
	3.4.2/3	Length, distance from runway strip end																			
	3.4.5	Width																			
	3.4.9	Longitudinal slope																			
	3.4.10	Transversal slope																			
	3.4.11	Ground strength																			
		Sewage and drainage																			
	3.5	**Clearways (CWY)**																			
	3.5.1/2	Length from end of take-off run available																			
	3.5.3	Width on each side of runway centre line extension																			
	3.5.4	Climb gradiend																			
MARKINGS	**5.2**	**Runway markings**																			
	5.2.2	**Runway designation marking**																			
	5.2.2.3	Location: distance to threshold marking																			
	5.2.2.4	Characteristics (Figure 5-2)			Width:				Width:												
					Length:				Length:												
	5.2.3	**Runway centre line marking**																			
	5.2.3.2	Location																			
	5.2.3.3	Characteristcs			Length:																
					Interval:																
					Width:																
	5.2.4	**Threshold marking**																			
	5.2.4.1	Application																			
	5.2.4.4	Location, distance to runway end																			
	5.2.4.5	Characteristics, Figure 5-2 (A, B, C)			N° strips				N° strips												
					Width:				Width:												
					Length:				Length:												
					Spacing:				Spacing:												
	5.2.4.6	Threshold marking. Lateral extension on runway edge																			
	5.2.4.7	Transversal strip. Location (Figure 5-4 (B)																			
	5.2.4.8	Transversal strip. Strip width																			

RUNWAY

			INSPECTION										DESK WORK								
TOPIC	Annex 14 SARPs Item	**ITEM**	Inspection		Current status	Conditio			Current status	Conditio			Annex 14 specification	Compliance		Difference	Maintenance standards	Compliance		Difference	Remarks
			YES	NO	Runway end	G	F	B	Runway end	G	F	B		YES	NO			YES	NO		
MARKINGS	**5.2.4.9**	**Permanently displaced threshold marking**																			
		Distance from threshold to arrow (Figure 5-4 (B)																			
		Arrows. Characteristics			Lenght:				Length:												
					Width:				Width:												
					Arrow width:				Arrow width:												
					Spacing between arrows				Spacing between arrows												
	5.2.4.10	**Temporarily displaced threshold marking**																			
		Distance from transversal strip to arrows (Figure 5-4 (A o B)																			
		Arrows. Characteristics			Length:				Length:												
					Width:				Width:												
					Arrow width:				Arrow width:												
					Spacing between arrows				Spacing between arrows												
	5.2.5	**Aiming point marker**																			
	5.2.5.2/3	Application																			
	5.2.5.4	Location: threshold distance (Table 5-1)																			
	5.2.5.5	Characteristics (Table 5-1)			Length:				Length:												
					Width:				Width:												
					Spacing:				Spacing:												
	5.2.6	**Touchdown zone marking**																			
	5.2.6.1/2	Application																			
	5.2.6.3	Distance to runway threshold																			
	5.2.6.4	Characteristics (Figure 5-5 (A and B)			Number pairs:				Number pairs:												
					Length:				length:												
					Width:				Width:												
					Interval:				Interval:												
					Inner marking lateral spacing:				Inner marking lateral spacing:												
	5.2.7	**Runway lateral strip marking**																			
	5.2.7.1/2	Application																			
	5.2.7.3	Location																			
	5.2.7.4	Characteristics, width																			
	5.2.1.4	**Colour and perceptivity of runway markings**																			
LIGHTS		**Runway lights**																			
	5.3.8	**Runway threshold identification lights**																			
	5.3.8.1	Application																			
	5.3.8.2	Lateral distance to threshold																			
	5.3.8.3/4	Characteristics																			
	5.3.9	**Runway edge lights**																			
	5.3.9.3/4	Location, distance to runway edge																			
	5.3.9.6/10	Characteristics			Colour:																
					Interval:																
					Intensity:																
	5.3.10	**Runway threshold and wing bar lights**																			
	5.3.10.1	Application																			

RUNWAY

TOPIC	Annex 14 SARPs Item	ITEM	INSPECTION										DESK WORK								
			Inspection		Current status	Conditio			Current status	Conditio			Annex 14 specification	Compliance		Difference	Maintenance standard	Compliance		Difference	Remarks
			YES	NO	Runway end	G	F	B	Runway end	G	F	B		YES	NO			YES	NO		
LIGHTS	5.3.10.2	Location, runway end distance																			
	5.3.10.9/11	Characteristics (Figure 5-18)			Colour				Colour												
					Number:				Number:												
					Spacing between lights				Spacing between lights												
					Intensity:				Intensity:												
	5.3.10.6/7	Wing bar lights. Application																			
	5.3.10.8	Wing bar lights. Location, runway edge light spacing																			
	5.3.10.9				Colour:				Colour:												
					Number of lights:				Number of lights:												
	a	Wing bar lights. Characteristics			Spacing between lights:				Spacing between lights:												
	5.3.10.11				Intensity:				Intensity:												
	5.3.11	**Runway end lights**																			
	5.3.11.2	Location, distance to runway end																			
	5.3.11.4/5	Characteristics (Figure 5-18)			Colour:				Colour:												
					Number:				Number:												
					Spacing between lights:				Separation between lights:												
					Intensity:				Intensity:												
	5.3.12	**Runway centre line lights**																			
	5.3.12.1-4	Application																			
	5.3.12.5	Location, distance to runway centre line																			
	5.3.12.7	Characteristics			Colour																
					Interval																
					Intensity:																
	5.3.13	**Touchdown zone lights**																			
	5.3.13.1	Application																			
	5.3.13.2	Location, distance to threshold																			
	5.3.13.3				Colour:				Colour:												
					Number of barrette lights:				Number of barrette lights:												
					Spacing between barrette lights:				Spacing between barrette lights:												
	a	Characteristics			Barrette length:				Barrette length:												
					Interval between barrettes:				Interval between barrettes:												
					Spacing between barrettes:				Spacing between barrettes:												
	5.3.13.6				Intensity:				Intensity:												
	5.3.14	**Stopway lights**																			
	5.3.14.1	(SWY). Application																			
	5.3.14.2	Location, edge and end distance																			
	5.3.14.3	Characteristics			Colour:				Colour:												
					Interval:				Interval:												
	5.3.4	**Approach lighting system**																			

RUNWAY

TOPIC	Annex 14 SARPs Item	ITEM	INSPECTION										DESK WORK								
			Inspection		Current status	Conditio			Current status	Conditio			Annex 14 specification	Compliance		Difference	Maintenance standards	Compliance		Difference	Remarks
			YES	NO	Runway end	G	F	B	Runway end	G	F	B		YES	NO			YES	NO		
APPROACH LIGHTING SYSTEMS	**5.3.4**	**Simple lighting system** (Figure A-5, Appendix A)																			
		System length																			
		System configuration. Point lights																			
		System configuration. Barrette lights																			
		Longitudinal spacing between centre line lights																			
		Number of lights in each barrette, centre line or point lights																			
		Longitudinal spacing between flashing lights																			
		Cross bar width (spacing between lights)																			
		Cross bar location, from runway threshold																			
		Colour of lights																			
		Intensity of lights																			
	5.3.4	**Approach lighting system - CAT I** (Figure A-6, Appendix A)																			
		System length																			
		System configuration. Point lights																			
		System configuration. Barrette lights																			
		Longitudinal spacing between centre line lights																			
		Number of lights in each barrette, centre line or point lights																			
		Longitudinal spacing between flashing lights																			
		Cross bar width (spacing between lights)																			
		Cross bar location, from runway threshold																			
		Width of additional cross bars																			
		Location of additional cross bars, from runway threshold																			
		Spacing between lights in each barrette o point lights																			
		Colour of lights																			
		Intensity of lights																			
	5.3.4	**Approach lighting system - CAT II and III** (Figure 5-10 and 5-11)																			
		System length																			
		System configuration. Point lights																			
		System configuration. Barrette lights																			
		Longitudinal spacing between centre line lights																			
		Number of lights in each barrette, centre line and point lights																			
		Longitudinal lights between flashing lights																			
		Cross bar width (spacing between lights)																			
		Cross bar location, from runway threshold																			
		Width of additional cross bars																			
		Location of additional cross bars, from runway threshold																			
		Spacing between lights in each barrette o point lights																			
		Colour of lights																			
		Intensity of lights																			
		Side rows. Longitudinal spacing																			
		Side rows. Transversal spacing																			

RUNWAY

TOPIC	Annex 14 SARPs Item	ITEM	INSPECTION										DESK WORK								
			Inspection		Current status	Conditio			Current status	Conditio			Annex 14 specification	Compliance		Difference	Maintenance standards	Compliance		Difference	Remarks
			YES	NO	Runway end	G	F	B	Runway end	G	F	B		YES	NO			YES	NO		
VISUAL APPROACH SLOPE INDICATOR SYSTEMS		Side rows. Longitudinal spacing																			
		Side rows. Transversal spacing																			
		Number of lights in each side barrette, of side rows																			
		Side rows. Colour																			
		Side rows. Light intensity																			
	5.3.5	**Visual approach slope indicator systems**																			
		Type of system (T-VASIS, AT-VASIS, PAPI, APAPI) (Figure 5-12)																			
	5.3.5.9	T-Vasis and AT-VASIS. Location																			
	5.3.5.10				Number of elements:				Number of elements:												
					Distance from threshold to bar:				Distance from threshold to bar:												
					Bar width:				Bar width:												
	a	T-VASIS and AT-VASIS. Characteristics (Figure 5-13)			Spacing between bar axis and runway edge:				Spacing between bar axis and runway edge:												
	5.3.5.17				Distance between elements from threshold:				Distance between elements from threshold:												
	5.3.5.27	PAPI and APAPI. Location																			
	5.3.5.28				Distance to threshold (estimate):				Distance to threshold (estimate):												
	a	PAPI and APAPI. Characteristics (Figure 5-15)			Distance from element N° 1 to runway edge:				Distance from element N° 1 to runway edge:												
					Separation between elements (boxes):				Spacing between elements (boxes):												
	5.3.5.34				Number of elements:				Number of elements:												
VISUAL AIDS	**3.7**	**Radio altimeter range**																			
	3.7.2	Length before threshold																			
	3.7.3	Width on each side of runway centre line extension																			
	3.7.4	Slope changes																			
	5.1	**Indicators and signalling devices**																			
	5.1.1.2	Wind direction indicator, Location																			
	5.1.1.3	Wind direction indicator, Dimensions																			
	5.1.1.3	Wind direction indicator, Characteristics																			
	5.1.1.4	Wind direction indicator, Location																			
	5.1.1.5	Wind direction indicator, Lighting																			
	5.1.2.1	Landing direction indicator, location																			
	5.1.2.2	Landing direction indicator, characteristics																			

RUNWAY

TOPIC	Annex 14 SARPs Item	ITEM	INSPECTION										DESK WORK								
			Inspection		Current status	Conditio			Current status	Conditio			Annex 14 specification	Compliance		Difference	Maintenance standards	Compliance		Difference	Remarks
			SI	NO	Runway end	G	F	B	Runway end	G	F	B		YES	NO			YES	NO		
SIGNS	**5.4**	**Signs**																			
	5.4.3	**Information signs** (Figure 5-25)																			
	5.4.3.17	Runway exit sign. Location (Table 5-4)			Perpendicular distance from runway pavement edge to sign edge:																
	5.4.3.23	Destination sign (Figure 5-25). Location (Table 5-4)			Perpendicular distance from runway pavement edge to sign edge:																
	5.4.3.31	Destination sign. Characteristics (Table 5-4)			Height:																
					Width:																
					Inscription:																
					Colour:																
	5.4.3.21	Take-off sign. (Figure 5-25) Location (Table 5-4)			Perpendicular distance from runway pavement edge to sign edge:																
	5.4.3.30	Take-off sign. Characteristics (Table 5-4)			Height:																
					Width:																
					Inscription:																
					Colour:																
	5.4.3.21	Take-off from intersection sign. (Figure 5-25) Location (Table 5-4)			Perpendicular distance from runway pavement edge to sign edge:																
	5.4.3.30	Take-off from intersection sign. Characteristics (Table 5-4)			Height:				Height:												
					Width:				Width:												
					Inscription:				Inscription:												
					Colour:				Colour:												
RESTRICTED AREA	**7.1**	**Totally or partially closed runway marking**																			
	7.1.3	Location																			
	7.1.4/7	Characteristics (Figure 7-1)			Marking width:				Marking width:												
					Length:				Length:												
					Stroke width:				Stroke width:												
					Colour:				Colour:												
	7.3	**Area prior to threshold**																			
	7.3.2	Location																			

RUNWAY

TOPIC	SARPs Anexo 14 Numeral	ITEM	INSPECTION: Inspection YESI	NO	Current status Runway end	Conditio G	F	B	Current status Runway end	Conditio G	F	B	DESK WORK: Annex 14 specification	Compliance YES	NO	Difference	Maintenance standards	Compliance YES	NO	Difference	Remarks
RESTRICTED AREA	7.3.3	Characteristics (Figura 7-2)			Interval:				Interval:												
					Arrow width:				Arrow width:												
					Angle of arrow to runway centre line:				Angle of arrow to runway centre line:												
					Spacing between arrows and runway edge:				Spacing between arrows and runway edge:												
					Spacing between last marking and runway edge :				Spacing between last marking and runway edge:												
					Stroke width:				Stroke width:												
					Colour:				Colour:												
BEACONS	**5.3.3**	**Aeronautical beacon**																			
	5.3.3.4/5	Loction																			
	5.3.3.6/7	Characteristics			Flashing frequency:																
					Flashing colour:																
					Flashing intensity:																
		Identification beacon																			
	5.3.3.9/10	Location																			
	5.3.3.11/14	Characteristics			Flashing intensity:																
					Flashing colour:																
					Emission speed (Morse):																

AIRPORT

TAXIING (Designation)

TOPIC	SARPs Anexo 14 Numeral	ITEM	INSPECTION: Inspection YES	Inspection NO	Current status	Condition G	Condition F	Condition B	DESK WORK: Annex 14 specification	Compliance YES	Compliance NO	Difference	Maintenance standards	Compliance YES	Compliance NO	Difference	Remarks
PHYSICAL CHARACTERISTICS	**3.8**	**Taxiway**															
		Length															
	3.8.3	Clearance between landing gear outer tire and taxiway edge															
	3.8.4	Width															
	3.8.19	Taxiway width in bridges															
	3.8.7	Distatnce between taxiway centre line and the centre line of a runway. (Table 3-1)															
	3.8.7	Distance between taxiway centre line and the centre line of another taxiway. (Table 3-1)															
	3.8.7	Distance between taxiway centre line that is not aircraft stand taxilane and a object. (Table 3-1)															
	3.8.7	Distance between aircraft stand taxilane centre line and an object. (Table 3-1)															
	3.8.8	Longitudinal slope															
	3.8.9	Vertical curves and longitudinal slope change															
	3.8.11	Transversal slope															
	3.8.15	Turn curv radius in taxiways/rapid exit															
	3.8.18	Taxiway/rapid exit intersection angle															
		Horizontal fillets with runway/apron and other taxiings															
		Taxiway strength															
		Pavement characteristics (concrete asphalt etc.)															
		Concrete pavement, pathology and surface damage (degree of severity)															
		Asphalt pavement, pathology and surface damage (degree of severity)															
		Geometric analysis of surface intersections (creepage and maximum slope)															
		Sewage and drainage															
	3.9	**Shoulders**															
	3.9.1	Total width including taxiway															
	3.10	**Taxiway strip**															
	3.10.2	Width on both sides of taxiway centre line															
	3.10.4	Leveling width of centre strip															
	3.10.5	Level section. Transversal climb gradient															
	3.10.5	Level section. Transversal descent gradient, mesured in reference to the horizontal															
	3.10.6	Transversal slope beyond level section															
		Terrain strength (varies with humidity, remains only to ensure a constructive method)															

TAXIING (Designation)

TOPIC	Annex 14 SARPs Item	ITEM	INSPECTION						DESK WORK									
			Inspection		Current status	Condition			Annex 14 specification	Compliance		Difference	Maintenance standards	Compliance		Difference	Remarks
			YES	NO		G	F	M		YES	NO			YES	NO		
PHYSICAL CHARACTERISTICS		Sewage and drainage																
	3.11	**Holding bay**																
		Width																
		Length																
	3.11.6	Distance to runway centre line (Table 3-2)																
		Longitudinal slope																
		Transversal slope																
		Horizontal curves with runway and/or taxiing																
		Runway strength																
		Pavement characteristics (concrete, asphalt etc.)																
		Concrete pavement, pathology and degree of severity																
		Asphalt pavement, pathology and degree of severity																
		Sewage and drainage																
MARKINGS	**5.2.8**	**Taxiway centre line marking**																
	5.2.8.1	Application																
	5.2.8.4/5	Location																
	5.2.8.7	Characteristics			Stroke:													
					Stroke width:													
					Colour:													
	5.2.9	**Runway holding position marking**																
	5.2.9.1	Application																
	5.2.9.1	Location																
	5.2.9.2	Runway holding position marking. Characteristics. Configuration A (Figure 5-6)																
		Runway holding position marking. Characteristics. Configuration B (Figure 5-6)																
		Distance from marking to runway centre line (Table 3-2)																
	5.2.10	**Intermediate holding position marking**																
	5.2.10.1	Aplicación																
	5.2.10.1/3	Intermediate holding position marking. Location																
	5.2.10.4	Distance between intermediate holding position marking and continuous taxiway (Table 3-1)																
	5.2.10.5	Characteristics (Figura 5-7)																
		Taxiway paved side shoulder marking																
		Marking width																
		Extension of marking to outer edge of stabilized pavement																
		Colour																
LIGHTS	**5.3**	**Lights**																
	5.3.15	**Taxiway centre line lights**																
	5.3.15.1	Application																
	5.3.15.10	Location, spacing of light from centre line																

TAXIING (Designation)

TOPIC	Annex 14 SARPs Item	ITEM	INSPECTION: Inspection YES	Inspection NO	Current status	Condition G	Condition F	Condition B	DESK WORK: Annex 14 specification	Compliance YES	Compliance NO	Difference	Maintenance standards	Compliance YES	Compliance NO	Difference	Remarks
LIGHTS	5.3.15.6/9 y 5.3.15.11/13	Taxiway centre line lights on taxiways. Characteristics (Figure 5-20)			Interval in straight-line section:												
					Interval in curve radii:												
					Colour:												
					Intensity:												
	5.3.15.14	Taxiway centre line lights on rapid-exit taxiways. Location (Figure 5-21)															
	5.3.15.15	Taxiway centre line lights on rapid-exit taxiways . Characteristics			Interval:												
					Colour:												
					Intensity:												
	5.3.15.16	Taxiway centre line lights on other exit taxiways. Location, site of first light. (Figure 5-21)															
	5.3.15.17	Taxiway centre line lights on other exit taxiways. Characteristics.			Interval:												
					Colour:												
					Intensity:												
	5.3.15.18	Taxiway centre line lights on runway. Location and characteristics			Interval:												
					Colour:												
					Intensity:												
	5.3.16	**Taxiway edge lights**															
	5.3.16.1	Application															
	5.3.16.1/2/5	Location															
	5.3.16.3/4 y 5.3.16.6	Taxiway edge lights. Characteristics			Interval:												
					Colour:												
					Intensity:												
	5.3.17	**Stop bar**															
	5.3.17.1	Application															
	5.3.17.6	Stop bar lights. Location															
	5.3.17.7/14	Stop bar lights. Characteristics			Interval:												
					Colour:												
					Intensity:												
					Combination with taxiway lights (selective switching):												
	5.3.18	**Intermediate holding position lights**															
	5.3.18.1	Application															
	5.3.18.3	Intermediate holding position lights. Location			Distance before marking:												
	5.3.18.4	Intermediate holding position lights. Characteristics			Interval:												
					Colour:												
					Intensity:												
	5.3.20	**Runway protection lights**															
	5.3.20.1/2	Application. Configuration A (Figure 5-23)															
	5.3.20.3	Application. Configuration B (Figure 5-23)															
	5.3.20.4	Runway protection lights. Location. Configuration A (Table 3-2)			Distance to runway centre line:												
	5.3.20.5	Runway protection lights. Location. Configuration B (Table 3-2)			Distance to runway centre line:												

TAXIING (Designation)

TOPIC	Annex 14 SARPs Item	ITEM	INSPECTION Inspection YES	NO	Current status	Condition G	F	B	DESK WORK Annex 14 specification	Compliance YES	NO	Difference	Maintenance standards	Compliance YES	NO	Difference	Remarks
LIGHTS	5.3.20.6/7 y 5.3.20.10/12 y 5.3.20.16	Luces de protección de pista. Características, Configuración A (Figura 5-23)			Intervalo:												
					Color:												
					Intensidad:												
					Frecuencia de encendido y apagado:												
	5.3.20.8 y 5.3.20.13/15 y 5.3.20.17	Luces de protección de pista. Características, Configuración B (Figura 5-23)			Intervalo:												
					Color:												
					Intensidad:												
					Frecuencia de encendido y apagado:												
SIGNS	**5.4**	**Letreros**															
	5.4.3	**Letreros de información** (Figura 5-25) (Tabla 5-4)															
	5.4.3.16/35	Letrero de emplazamiento - dirección. Emplazamiento (Tabla 5-4)			Distancia perpendicular desde borde pavimento de la calle de rodaje hasta borde letrero:												
	5.4.3.27	Letrero de emplazamiento - dirección. Características (Tabla 5-4)			Alto:												
					Ancho:												
					Inscripción:												
					Color:												
	5.4.3.23	Letrero de destino (Figura 5-25). Emplazamiento (Tabla 5-4)			Distancia perpendicular desde borde pavimento de la calle de rodaje hasta borde letrero:												
	5.4.3.31	Letrero de destino. Características Tabla 5-4)			Alto:												
					Ancho:												
					Inscripción:												
					Color:												
	5.4.3.19/20	Letrero de pista libre. Emplazamiento (Tabla 5-4)			Distancia perpendicular desde borde pavimento de la calle de rodaje hasta borde letrero:												
					Distancia entre eje de pista y perímetro área critica/sensible ILS:												
					Distancia entre eje de pista y borde inferior superficie de transición interna:												
	5.4.3.29	Letrero de pista libre. Características (Tabla 5-4) (Figura 5-25) Configuración A			Alto:												
					Ancho:												
					Inscripción:												
					Color:												
	5.4.2	**Letreros obligatorios** (Figura 5-24 y 5-26) (Tabla 5-4)															
	5.4.2.8	Letrero de designación de pista. Emplazamiento															

TAXIING (Designation)

TOPIC	SARPs Anexo 14 Numeral	ITEM	INSPECTION: Inspection YES	Inspection NO	Current status	Condition G	F	B	DESK WORK: Annex 14 specification	Compliance YES	Compliance NO	Difference	Maintenance standards	Compliance YES	Compliance NO	Difference	Remarks
SIGNS	5.4.2.13/14	Runway designation sign. Characteristics			Height:												
					Width:												
					Inscription:												
					Colour:												
	5.4.2.9	Holding point sign for CAT I, II or III. Location (Table 5-4)															
	5.4.2.15 y 5.4.2.17/18	Holding point sign for CAT I, II, III. Characteristics (Table 5-4)			Height:												
					Width:												
					Inscription:												
					Colour:												
	5.4.2.10	No entry sign. Location (Table 5-4)															
	5.4.2.16	Mandatory instruction signs: No entry sign. Characteristics (Table 5-4)															
	5.4.4	**VOR check-point sign**															
	5.4.4.1	Application															
	5.4.4.2	VOR check-point signs. Location															
	5.4.4.3/4	VOR check-point signs. Characteristics (Figure 5-27)			Inscription:												
	5.4.5	**Aerodrome identification sign**															
	5.4.5.1	Application															
	5.4.5.2	Aerodrome identification sign. Location															
	5.4.5.3/5	Aerodrome identification sign. Characteristics			Colour:												
					Height of characters:												
RESTRICTED AREAS	**7.1**	**Totally or partially closed taxiway sign**															
	7.1.3	Location															
	7.1.4/7	Characteristics (Figure 7-1)			Marking width:												
					Length												
					Stroke width:												
					Colour:												
	7.2	**Non-load bearing surface**															
	7.2.2	Location															
	7.2.3	Characteristics			Line width												
					Spacing between lines												
					Colour												

AIRPORT

APRON (Designation)

TOPIC	Annex 14 SARPs number	ITEM	INSPECTION						DESK WORK								
			Inspection		Current status	Condition			Annex 14 specifications	Compliance		Difference	Maintenance standards	Compliance		Difference	Remarks
			YES	NO		G	F	B		YES	NO			YES	NO		
PHYSICAL CHARACTERISTICS		Type of apron (commercial, general aviation, cargo, industrial, isolated parking position, etc.)															
		Surface															
		Length															
		Ancho															
	3.12.5	Longitudinal slope															
	3.12.5	Transversal slope															
		Distance between centre line of taxiway that is not aircraft stand taxilane and an object (Table 3-1)															
		Distance between aircraft stand taxilane centre line and an object (Table 3-1)															
		Distancia entre eje de calle de rodaje en plataforma y eje de otra calle de rodaje (Tabla 3-1)															
		Apron strength															
		Pavement characteristics (concrete, asphalt etc.)															
		Concrete pavement, pathology and surface damage (degree of severity)															
		Asphalt pavement, pathology and surface damage (degree of severity)															
		Geometric analysis of surface intersections (creepage and maximum slope)															
		Sewage and drainage															
		Number of contact positions (with air bridge)															
		Number of remote positions															
	3.12.6	Separation margins between aircraft stands or between an aircraft and an object															
	3.13	**Isolated aircraft parking position**															
	3.13.2	Location			Distancia a otros puestos de estacionamiento o edificios o áreas públicas:												
		Apron strength															
		Pavement characteristics (concrete, asphalt etc.)															
		Concrete pavement, pathology and surface damage (degree of severity)															
		Asphalt pavement, pathology and surface damage (degree of severity)															
	3.14	**De-icing, anti-icing facilities**															
	3.14.2/4	Location															

APON (Designation)

TOPIC	Annex 14 SARPs number	ITEM	INSPECTION						DESK WORK								
			Inspection		Current status	Condition			Annex 14 specification	Compliance		Difference	Maintenance standards	Compliance		Difference	Remarks
			YES	NO		B	R	M		YES	NO			YES	NO		
PHYSICAL CHARACTERISTICSFISICAS	3.14.7	Longitudinal slope															
	3.14.7	Transveral slope															
	3.14.8	Strength															
		Pavement characteristics (concrete, asphalt, etc.)															
		Concrete pavement, pathology and surface damage (degree of severity)															
		Asphalt pavement, pathology and surface damage (degree of severity)															
	3.14.9	Minimum distances between aircraft or between aircraft and objects (Table 3-1, column 12)															
	3.14.9	Circumvallation, separation minima established for: distance between aircra stand taxilane centre line and an object (Table 3-1, column 12)															
	3.14.10	Distance between taxiway centre line and an object (Table 3-1, column 11)															
MARKINGS		**Marking**															
	5.2.12	Aircraft stand markings. Location															
	5.2.12.3/12	Aircraft stand markings. Characteristics															
		Lead-in line															
		Simple lead-in line for bow guide (Figure 2-3 A, Visual aids, Part 4)			Stroke width:												
					Colour:												
					Arrow:												
					Number/letter to designate stand:												
		Offset lead-in line for bow guide (Figure 2-3 B, Visual aids, Parte 4)			Stroke width:												
					Colour:												
					Arrow:												
					Number/letter to designate stand:												
		Straight lead-in line (Figure 2-3 C, Visual aids, Part 4)			Stroke width:												
					Colour:												
					Arrow:												
					Number/letter to designate stand:												
		Bars															
		Turn bar (Figure 2-4 and 2-8, Visual aids, Part 4)			Bar length:												
					Width:												
					Colour:												
		Turning line (Figure 2-4, Visual aids, Part 4)			Stroke width:												
					Colour:												
					Arrow												

APRON (Designation)

TOPIC	Annex 14 SARPs nunber	ITEM	INSPECTION: Inspection YES	INSPECTION: Inspection NO	INSPECTION: Current status	INSPECTION: Condition G	INSPECTION: Condition F	INSPECTION: Condition B	DESK WORK: Annex 14 specification	DESK WORK: Compliance YES	DESK WORK: Compliance NO	DESK WORK: Difference	DESK WORK: Maintenance standards	DESK WORK: Compliance YES	DESK WORK: Compliance NO	DESK WORK: Difference	DESK WORK: Remarks
MARKINGS		Stop bar (Figure 2-4, Visual aids, Part 4)			Bar length:												
					Width:												
					Colour:												
		Alignment bar (Figure 2-4, Visual aids, Part 4)			Bar length:												
					Width:												
					Colour:												
		Lead-out line															
		Simple lead-out line for bow tire guide (Figure 2-5, A. V. Part 4)			Stroke width:												
					Colour:												
					Arrow:												
		Offset lead-out line for bow tire guide (Figure 2-6, A. V. Part 4)			Stroke width:												
					Colour:												
					Arrow:												
	5.2.13	**Apron safety line**															
	5.2.13.2	Location															
	5.2.13.3/4	Characteristics			Line width												
					Colour:												
	5.2.14	**Road-holding position marking**															
	5.2.14.2	Location															
	5.2.14.3	Characteristics (according to local car traffic regulations)															
LIGHTS		**Lights**															
	5.3.21	**Apron lighting with searchlights**															
	5.3.21.2	Apron lighting with searchlights. Location															
	5.3.21.3/4	Apron lighting with searchlights. Characteristics			Mean horizontal lighting												
					Mean vertical lighting:												
	5.3.21	**Lighting of de-icing anti-icing facilities**															
	5.3.21.2	Apron lighting with searchlights. Location															
	5.3.21.3/4	Apron lighting with searchlights. Characteristics			Mean horizontal lighting												
					Mean vertical lighting:												
	5.3.19.2	De-icing anti-icing facility exit lights. Location			Distance to intermediate holding position marking, on the facility exit boundary:												
	5.3.19.3	De-icing anti-icing facility exit lights. Characteristics			Light interval:												
					Colour:												
	5.3.21	**Isolated aircraft parking position lighting**															
	5.3.21.2	Apron lighting with searchlights. Location															
	5.3.21.3/4	Apron lighting with searchlights. Characteristics			Mean horizontal lighting												
					Mean vertical lighting:												
	5.3.22	**Visual docking guidance system**															

APRON (Designation)

TOPIC	Annex 14 SARPs number	ITEM	Inspection						DESK WORK								
			Inspection		Current status	Condition			Annex 14 specification	Compliance		Difference	Maintenance standards	Compliance		Difference	Remarks
			YES	NO		G	F	B		YES	NO			YES	NO		
LIGHTS	5.3.22.1	Location															
	5.3.22.3/9	Characteristics															
	5.3.22.10	Azimuth Location															
	5.3.22.12/13	Azimuth guide. Características			Colour:												
	5.3.22.14/16	Stop position indicator. Location															
	5.3.22.17/20	Stop position indicator. Characteristics			Colour:												
	5.3.23	**Guide lights for manoeuvres in aircraft stand positions**															
	5.3.23.2	Guide lights for manoeuvres in aircraft stand positions. Location															
	5.3.23.3/7	Guide lights for manoeuvres in aircraft stand positions. Characteristics			Colour:												
					Lead-in lines: spacing lights straight sectors												
					Lead-in lines: spacing lights curved sectors												
					Stand position:												
					Intensity:												
	5.3.24	**Road-holding position lights**															
	5.3.24.3	Road-holding position lights. Location			Distance to edge of vehicle												
	5.3.24.4/7	Road-holding position lights. Characteristics			Colours of street lights:												
					Flashing light												
					Flashing frequency:												
					Intensity:												
		Signs															
	5.4.6	**Aircraft stand position identification sign**															
	5.4.6.2	Location															
	5.4.6.3	Characteristics			Inscription colour::												
	5.4.7	**Road-holding position sign**															
	5.4.7.2	Location			Distance to edge :												
	5.4.7.3/5	Characteristics			Colour of inscription												
					Background colour												
	7.2	**Non-load bearing surface**															
	7.2.2	Location															
	7.2.3	Characteristics			Line width												
					Spacing between line pairs												
					Colour												

AIRPORT

FACILITIES

TOPIC	Annex 14 SARPs Number	ITEM	INSPECTION						DESK WORK								
			Inspection		Current status				Annex 14 specifications	Compliance		Difference	Maintenance standards	Compliance		Difference	Remarks
			YES	NO		G	F	B		YES	NO			YES	NO		
		Secondary power source. Location															
	8.1.2	Secondary power source. Characteristics															
	8.1.4	Secondary power source. Maximum switchover times															
	8.4.4	Cercos perimetrales. Emplazamiento															
		Perimetrical fence. Characteristics															
	8.8.1	Operation of vehicles at the airport. Flow															
	8.8.2	Operation of vehicles at the airport. Instructions for vehicle drivers															
	8.8.4	Operation of vehicles at the airport. Vehicle driver requirements															
	8.9.2 a 8.9.8	Surface movement guidance and control system. Characteristics															

AIRPORT

SERVICES

TOPIC	Annex 14 SARPs Number	ITEM	INSPECTION						DESK WORK								
			Inspection		Current status				Annex 14 specifications	Compliance		Difference	Maintenance standards	Compliance		Difference	Remarks
			YES	NO		G	F	B		YES	NO			YES	NO		
		Doc 9137 Medical Services 16.2 Transfer of injured individuals															
		Doc 9137 Identification of Emergency Service personnel															
		Doc 9137 Medical Services, 16.4 Communications															
		Doc 9137 Medical Services, 16.5 Protection from weather conditions															
		Doc 9137 Medical Services, 16.6 Emergency equipment															
		Rescue and Fire Fighting, SEI. Location															
		Doc 9137, 17.2 Rescue and Fire Fighting Category															
	9.2.2 a 9.2.6	Rescue and Fire Fighting, SEI. Level of protection															
	9.2.7 a 9.2.17	Rescue and Fire Fighting, SEI. Extinguishing agents															
	9.2.18	Rescue and Fire Fighting. SEI. Rescue team															
	9.2.19 a 9.2.21	Rescue and Fire Fighting, SEI. Response time															
	9.2.22 a 9.2.24	Rescue and Fire Fighting, SEI. Emergency access roads, Characteristics															
	9.2.22 a 9.2.24	Rescue and Fire Fighting, SEI. Emergency access roads, Characteristics															
	9.2.25 a 9.2.26	Rescue and Fire Fighting, SEI. Fire-fighting service station, Characteristics															
	9.2.29	Rescue and Fire Fighting, SEI. N° of vehicles															
	9.2.30 a 9.2.34	Rescue and Fire Fighting, SEI. Personnel. Requirements, staffing and equipment															
	9.3.1	Removal of disabled aircraft															
	9.5	Bird Strike Hazard. Prevention plans															
	9.5	Bird Strike Hazard. Passive and active measures implemented															

SECONDARY POWER SOURCE				
MAXIMUM SWITCH-OVER TIME				
RUNWAY TYPE	**VISUAL AIDS**	**TIME**	**RADIOAIDS**	**TIME**
VISUAL	Precision approach path indicators, (PAPI)(a)	2 minutes		
	Runway edge (b)	2 minutes		
	Runway threshold (b)	2 minutes		
	Runway end (b)	2 minutes		
	Obstacle lights(a)	2 minutes		
NON-PRECISION APPROACH	Approach lighting system (ALS)	15 seconds	SRE	15 seconds
	Precision approach path indicators, (PAPI) (a)(e)	15 seconds	VOR	15 seconds
	Runway edge (e)	15 seconds	NDB	15 seconds
	Runway threshold (e)	15 seconds	DME	15 seconds
	Runway end	15 seconds	Radio direction finding facility	15 seconds
	Obstacle lights (a)	15 seconds		
PRECISION APPROACH CAT I	Approach lighting system (ALS)	15 seconds	ILS localizer (LLZ)	10 seconds
	Precision approach path indicators, (PAPI) (a)(e)	15 seconds	ILS glide path (GP)	10 seconds
	Runway edge (e)	15 seconds	Inner locator	10 seconds
	Runway threshold (e)	15 seconds	Outer locator	10 seconds
	Runway end	15 seconds	Markers (IM; MM; OM)	10 seconds
	Essential taxiway (a)	15 seconds	PAR	10 seconds
	Obstacle lights (a)	15 seconds	DME-associated GP	10 seconds
PRECISION APPROACH CAT II	Inner 300 m of the approach lighting system (ALS)	1 second	ILS localizer (LLZ)	0 second
	Other parts of the approach lighting system	15 seconds	ILS glide path (GP)	0 second
	Runway edge	15 seconds	Inner locator	1 second
	Runway threshold	1 second	Outer locator	1 second
	Runway end	1 second	Markers (IM, MM)	1 second
	Runway centre line	1 second	Marker (OM)	10 seconds
	Runway touchdown zone	1 second	PAR	1 second
	Taxi-holding position stop bar	1 second	DME-associated GP	0 seconds
	Essential taxiway with stop bars	15 seconds		
	Obstacle lights(a)	15 seconds		
PRECISION APPROACH CAT III	Inner 300 m of the approach lighting system (ALS)	1 second	ILS localizer (LLZ)	0 second
	Other parts of the approach lighting system	15 seconds	ILS glide path (GP)	0 second
	Runway edge	1 second	Inner locator	1 second
	Runway threshold	1 second	Outer locator	1 second
	Runway end	1 second	Markers (IM, MM)	1 second
	Runway centre line	1 second	Marker (OM)	10 seconds
	Touchdown zone	1 second	PAR	1 second
	All stop bars	1 second	SRM	1 second
	Essential taxiway with stop bars	1 second	DME-associated GP	0 seconds
	Obstacle lights (a)	15 seconds		
PISTA DESPEGUE RVR < 800 m	Runway edge	15 seconds (d)		
	Runway end	1 second		
	Runway centre line	1 second		
	All stop bars	1 second		
	Essential taxiway (a)	15 seconds		
	Obstacle lights (a)	15 seconds		
(a) Secondary power supply is provided when their operation is essential for safety				
(b) An aerodrome with runway lighting, with no secondary power supply, should have emergency lights that can				
become operational in 15 minutes.				
(e) One second when approach is done over dangerous or rugged terrain.				
(d) One second when runway centre line lights are not provided.				

APPENDIX S

EN-ROUTE ALTERNATE AERODROMES

(Comments from Argentina, Bolivia, Chile and Peru)

State/ Territory	City	Aerodrome (ICAO code)	Type of alternate Destination En-route Both	City pair-route	Aircraft	Hour of operations required
Argentina	Buenos Ayres	Aeroparque (SABE)	Alternate	SAM	A320	H24
Argentina	Buenos Ayres	Ezeiza (SAEZ)	Destination	EUR, SAM, NAM	B747-400	H24
Argentina	Cataratas del Iguazu	Cataratas del Iguazu/My. Carlos E. Krause (SARI)	En-route	EUR, SAM	B747-400	H24
Argentina	Córdoba	Cordona/Ing. A. Taravella (SACO)	Destination	AFI, EUR, SAM, NAM	B747-400	H24
Argentina	Jujuy	Jujuy/Gob. Guzmán (SASJ)	En-route	NAM	B777	H24
Argentina	Mar del Plata	Mar del Plata/Brig. Brné. de la Colina (SAZM)	Destination	EUR, SAM, NAM	B767	H24
Argentina	Mendoza	Mendoza/El Plumerillo (SAME)	Destination	EUR, SAM, NAM	B747-400	H24
Argentina	Resistencia	Resistencia (SARE)	En-route	EUR, SAM, NAM	A340-300	H24
Argentina	Rosario	Rosario/Islas Malvinas (SAAR)	Destination	EUR, NAM	B747-400	H24
Bolivia	La Paz	El Alto/(SLLP)	Both	SAM	A310/B757	H24
Bolivia	Cochabamba	Jorge Wilstermann/(SLCB)	Both	SAM, NAM	B767	H24
Bolivia	Santa Cruz	Viru Viru/(SLVR)	Both	SAM, NAM	B767	H24
Chile	-	Cerro Moreno (SCFA)	Both	SAM, NAM	B767-300	H24
Chile	-	Chacalluta (SCAR)	Both	SAM, NAM	B767-300	(*)
Chile	-	Carriel Sur (SCIE)	Destination	SAM, EUR, NAM	A340-300	H24
Chile	-	Diego Aracena (SCDA)	Both	SAM, NAM	B777/A340-300	H24
Chile	-	El Tepual (SCTE)	Both	SAM	B767-300	(*)
Chile	-	Arturo Merino Menítez (SCEL)	Destination	SAM, EUR, NAM	B777/A340-600	H24
Peru	Chiclayo	Chiclayo (SPHI)	Both	SAM, EUR, NAM	B747-400	H24
Peru	Iquitos	Iquitos (SPOT)	En-route	NAM	B777	H24
Peru	Lima	Lima (SPIM)	Both	SAM, EUR, NAM	B747-400	H24
Peru	Pisco	Pisco (SPSO)	Destination	SAM, EUR, NAM	B747-400	H24
Peru	Trujillo	Trujillo (SPRU)	Destination	SAM, EUR, NAM	B747-400	H24

(*) The operation time of Arica and Puerto Montt airports will be equal to those published by the AIP-Chile and AIP MAP

APPENDIX T

PROGRESS OF THE AGA/AOP SUBGROUP ON THE CAR/SAM/3 RAN MEETING CONCLUSIONS AND OTHER IMPORTANT ISSUES FOR THE CAR/SAM REGIONS

CAR/SAM/3 RAN		Results obtained by the AGA/AOP/SG	Obtained PRODUCTS	Used Methods
2/1	**Planning for en-route alternate aerodromes**	---	List of en-route alternate aerodromes	Preliminary list prepared by IATA, circulated twice to States/Territories and reviewed by ICAO
3/2	**Amendment of the Table AOP 1**	Preparation of proposal for amendment for Bolivia, Brazil, Chile, Peru, Suriname and Uruguay	---	---
3/4	**Aerodromes in the vicinity of international boundaries**	Draft Conclusion of the Subgroup to have States preparing bilateral agreements	---	---
3/5	**Retention of visual and non-visual aids in excess of those tabulated in Table AOP 1**	Conclusion of the Subgroup provides that States that provide visual and non visual aids consider their preservation for safety purposes	---	---
4/3	**Resources for implementation of aerodrome facilities and services**	Conclusion of the Subgroup provides that States adopt measures to have airport revenues allotted to facilities and services	---	---
4/4	**Aerodrome equipment, installations and services**	no	no	No

CAR/SAM/3 RAN	Results obtained by the AGA/AOP/SG	Obtained PRODUCTS	Used Methods
4/7 Updating of disabled aircraft removal plan	Conclusion of the Subgroup for States to update in consultation with aircraft operators and manufacturers the plans for disabled aircraft removal	---	---
4/8 Rescue and fire fighting services	Has just started (Emergency Plans/EOC)	---	---
4/9 Implementation of aerodrome emergency plans	Proposal to create an Emergency Plan / Emergency Operation Centre (EOC) Task Force –AGA/AOP/SG/04 Meeting	---	---
4/10 Bird hazard control and reduction	---	**Creation of the CAR/SAM Regional Bird Hazard Prevention Committee** **Reactivation of two National Committees (Argentina and Uruguay)** **Creation of 3 National Committees (Colombia, Cuba and Mexico) There was one in Brazil and Panama** **Creation of 66 Airport Coordinating Committees (there were none)**	Task Force Technical Meeting (Seminar) for the Creation of the Regional Committee
4/11 Power supply at aerodromes	no	no	No

CAR/SAM/3 RAN	Results obtained by the AGA/AOP/SG	Obtained PRODUCTS	Used Methods
4/12 Aerodrome fencing	Conclusion of the Subgroup provides that States urgently install and maintain fences at aerodromes in order to prevent the entrance of persons and animals Proposal to GREPECAS for ICAO to study the implementation of fences at aerodromes in compliance with Annex 17 (**At ICAO Headquarters for the proper consideration**)	---	---
4/13 Establishment of preventive maintenance programmes	Conclusion for States to take measures for airport operators to implement and keep aerodrome maintenance programmes that are intended to eliminate and prevent deficiencies that have a direct impact on safety	**Foundation of ALACPA – Latin American and Caribbean Airport Pavement Association (July 2002)** **Translation of the Handbook of Airport Infrastructure Maintenance Management (Review Phase)** **Preparation of a Guidance Manual for Aerodrome Inspection in the CAR/SAM Regions in accordance with Annex 14**	Seminar on Pavement Maintenance and Short Course on the aircraft/pavement interaction, Santa Cruz de la Sierra, Bolivia, 22-27 July 2002 (62 participants) Coordination with the ICAO Technical Cooperation Bureau ICAO Workshop on Aerodrome Certification for the NAM/CAR/SAM Regions, Spanish Santiago, Chile, 24 to 27 September 2002 (88 participants) ICAO.ACI/LAC Seminar ON Pavement Management Systems (PMS) Short Course on the PCI Method (Pavement Condition Index) for the CAR/SAM Regions, Lima, Peru, from 19 to 25 November 2003 (128 participants) ICAO Workshop for Aerodromes Inspectors for the NAM/CAR/SAM Regions, Argentina, Buenos Aires, 2004 (129 participants)

CAR/SAM/3 RAN	Results obtained by the AGA/AOP/SG	Obtained PRODUCTS	Used Methods
4/14 Land use at airports and adjacent areas	That States review and adopt regulations that regulate land use in the adjacent areas of an airport That ICAO studies the inclusion in Annex 14 of the specifications related to noise and hazard of constructions in order to minimize the severity of damages in case an accident occurs during landing or take-off (Being considered by the ICAO AGA Section)	---	---

OTHER ISSUES DEALT BY THE SUBGROUP

CAR/SAM/3 RAN	Results obtained by the AGA/AOP/SG	Obtained PRODUCTS	Used Methods
Airport Demand and Capacity (Terms of Reference of the Subgroup)	On-going		Task Force Creation
Acoustic, pollution and treatment of residues Conditions (Terms of Reference of the Subgroup)	---	**Translation of the Environment Manual**	Coordination with the ICAO Technical Cooperation Bureau
Runway Incursions (Terms of Reference of the Subgroup)	Update of the “Runway Incursion” definition by ICAO Proposal to have all activities related to WILDLIFE be treated by the Bird Hazard Committee in order to coordinate actions in aspects related to runway incursions (On-going)	---	Task Force Creation
Runway Strips and Runway End Safety Areas (RESA)	Conclusion of the Subgroup to have States evaluate the provision of RESA and to publish the reduction of dimensions in the AIP Presentation and review of the information from the deficiencies database That IATA supports the Task Force to evaluate the impact of reduced declared distances for aircraft operations Relevance of the situation of the CAR/SAM Regions for the corrections to keep in mind for the solution of problems	**Preparation of Pavements Maintenance Guidance** **Statistical indications that differentiate the RESA problems (CAR Region, lack of RESA). SAM Region (Problems in RESAs such as obstacles and unevenness). This allows the indication of different regional strategies for the elimination/control of deficiencies for each Region**	Task Force Creation Seminar on Pavement Maintenance and Short Course on the aircraft/pavement interaction, Santa Cruz de la Sierra, Bolivia, 22-27 July 2002 (62 participants)

APPENDIX U

INTERNATIONAL CIVIL AVIATION ORGANIZATION

GUIDANCE MANUAL FOR THE IMPLEMENTATION OF AN AIS/MAP QUALITY MANAGEMENT SYSTEM OF THE CAR/SAM REGIONS

PART 1:

GUIDANCE MATERIAL
AN AIS QUALITY MANAGEMENT SYSTEM

FIRST EDITION - 2004

**CAR/SAM REGIONAL PLANNING AND IMPLEMENTATION GROUP
(GREPECAS)**

RECORD OF AMENDMENTS

Amendments			
No.	**Date of issue**	**Date entered**	**Entered by**

States may wish to suggest changes to any of the documents that are associated with this Manual. Suggested changes should be forwarded to the ICAO NAM/CAR Regional Office, Mexico City, Mexico.

Introduction

Role of the AIS and the Globalization of CNS/ATM

Clearly, the role of the AIS is one of the main elements for the successful transition to a global ATM system. At the core of these elements lies the Quality System that will provide quality and timely aeronautical data and information to the aviation community.

"Annex 15 notes at 3.2 that:

> *Note. - International Organization for Standardization (ISO) 9000 series of quality assurance standards provide a basic framework for the development of a quality assurance programme. The details of a successful programme are to be formulated by each State and in most cases are unique to the State organization."*

In addition to the requirements described in Annex 15 for Quality Systems, Chapter 9 of the Global Air Navigation Plan for CNS/ATM Systems (Doc. 9750-AN/963) makes the following comments:

> "9.4 The role and importance of aeronautical information/data has changed significantly with the implementation of RNAV, RNP and airborne computer-based navigation systems. These systems are all data-dependent, and in that respect, aeronautical data have become the crucial and critical components of the system. Consequently, corrupt or erroneous aeronautical information/data can potentially affect the safety of air navigation. In this respect, as of 1 January 1998, each Contracting State must take necessary measures to introduce a properly organized quality system containing procedures, processes and

resources necessary to implement quality management at each functional stage of the data process. Established quality systems must provide users with the necessary assurance and confidence that distributed aeronautical information/data satisfy established requirements for data quality (accuracy, resolution and integrity) and timeliness.”

The first part of this Manual contains Guidance Material that has been developed to assist States for the development and implementation of Quality Management Systems for Aeronautical Information Services in the CAR/SAM Regions.

The Guidance Material will provide key stepping-stones to assist States with an understanding of the requirements for a Quality System, and provide a foundation for distributed aeronautical data and information to satisfy the established requirements for timeliness and accuracy in compliance with the requirements of ICAO Annex 15 and other relevant standards.

This Guidance Material also contains a Project Manual for AIS Quality and a Plan for the Implementation of a Quality Management System.

Guidance Material

An AIS

Quality Management System

Document control

Version	Status	Date
1.000	Initial Draft	19 April 2004

Guidance Material
An AIS

Quality Management System

Table of Contents

GUIDANCE MATERIAL

AN AIS

QUALITY MANAGEMENT SYSTEM

1. Introduction

This Guidance Manual has been prepared to provide information for States about the implementation of a quality system for their aeronautical information service, and should be read in conjunction with the appropriate ICAO and International Standards Organisation (ISO) references.

The ISO 9000 standards are elements that form a quality management system. The application of these elements guarantees the control of administrative, technical and human activities within organizations that have a bearing on the quality of products and/or services.

The ISO 9001 standard is one of the most effective work methods, and it is the best one to measure consumer quality and satisfaction. The current version is from the year 2000 – ISO 9001:2000, has been adopted as the role model to obtain a quality certification. Every competitive company who wants to remain and survive in today's market should tend to aspire to these standards.

ICAO Annex 15 – Aeronautical Information Services shows the need for States to "…take all necessary measures to introduce a properly organised quality system containing procedures, processes and resources necessary to implement quality management at each function stage as outlined…." In this context, the function stages relate to the functions of an AIS "to:

- receive and/or originate
- collate or assemble
- edit
- format
- publish/store
- distribute

aeronautical information/data concerning the entire territory of the State as well as areas in which the State is responsible for air traffic services outside its territory."

These International Standards specify the requirements for a quality management system where an organisation needs:

(a) to demonstrate its ability to consistently provide products that meet customer and applicable regulatory requirements, and
(b) to address customer satisfaction through the effective application of the system, including processes for continual improvement and the prevention of non-conformity.

The ICAO references and the International Standards provide clear directions towards the needs and requirements for a Quality System within a State's AIS to meet customer needs and expectations, and where continuous improvement is a pattern of organisational behaviour.

1.1 What is in these Guidelines?

These guidelines contain information about a number and variety of topics designed to assist States with the implementation of a Quality System. The guidelines have been formulated based on the ISO 9001:2000 Standards "Quality Management Principles, Requirements", in order to provide assistance and to provide easy-to-read material as a starting point for the development and maintenance of a Quality Management System for an AIS.

The Guidelines are not intended to replace ISO documentation and should be read in conjunction with the appropriate Standards. To ease their use, along every guideline, the ISO 9001:2000 Standard corresponding number is included.

1.2 The Way Ahead

In addition to these Guidelines, you will find that there are a number of other sources on information that will provide you with advice about the introduction or enhancement of your Quality System. Some of these sources might be:

- Government Departments;
- Standards Associations bodies;
- Internet web sites;
- Industry and professional associations who have already implemented a Quality Management System; and
- Other businesses establishing in a Quality Management System.

After reading through the Guidelines and deciding what needs to be done to introduce a Quality System, the next important decision is "How are we going to do it?" The answer to this might be extra staff or other resources, or through external assistance. In any case, you will need to formulate a plan to determine exactly what is required, and what the next steps are.

In some instances, these might be small, carefully planned incremental steps leading to a fully functional Quality System. Depending on your resources, you may wish to implement one or two parts at a time before moving on.

The 9 Steps leading to the implementation of a Quality System are shown in Section 9.

Organizations are recommended to hire external consultation. If you decide that the best way forward is to engage a consultant to progress the implementation of your Quality System, an important step will be, to clearly establish the outcomes and what will be provided at the end of the project.

An effective Quality System is one that has been written and organised around the way your AIS operates. Treat "ready-made" solutions with some degree of caution.

When your AIS staff is involved in the development and implementation of a Quality System, they will develop a sense of "ownership" and provide an easier path to making the Quality System work. It is often difficult to inspire ownership of a Quality System when it has been developed in isolation.

There are no shortcuts in the development and documentation of a robust Quality System. It takes time and effort, but at the end is a worthy prize.

1.3 Certification and Registration

Certification is generally regarded as the formal recognition by others of your Quality Management System. In some States, certified Quality Management Systems are considered to be registered and the term "registration" is used instead of certification.

Certification or Registration is not a mandatory requirement to implement the ISO 9000 series of Standards, but some of your customers may require it. The decision to seek Certification or Registration may be equally influenced by regulatory or statutory requirements.

If you choose to have your AIS Certified or Registered, the first step should be to contact Certification or Registration agencies to determine what is offered by these groups and what the likely costs will be for the initial Certification or Registration, and any ongoing costs that might apply to re-assessments of your Quality System. Section 10 provides some additional information about the Certification and Registration process.

2. A Quality System

2.1 The Need for a Quality System

The importance of aeronautical data and information to the world's aviation community cannot be overstated. Aeronautical data and information provides one of the essential elements and the backbone to enable safe and efficient aircraft operations throughout the world.

ICAO Annex 15 points to the need for a Quality Management System as follows:

"The established quality system shall provide users with the necessary assurance and confidence that distributed aeronautical information/data satisfy stated requirements for data quality (accuracy, resolution and integrity) and for data traceability by the use of appropriate procedures in every stage of data production or data modification process. The system shall also provide assurance of the applicability period of intended use of aeronautical data as well as that the agreed distribution dates will be met."

This means that the worldwide aviation community is looking at AIS so that they can have confidence that they are being provided with accurate data and information that meets the required resolution and retains its integrity throughout its life cycle. While this is the principal reason for having a quality system, a Quality System also provides opportunities for:

- Meeting regulatory requirements;
- Performance, coordination and productivity improvements;
- Increased focus on your Organization's objectives and customer expectations;
- Achievement and maintenance of the quality of your products and services to meet your customers stated or implied needs;
- Increased customer awareness and satisfaction;
- Confidence that your intended quality is being achieved and maintained;
- Being able to demonstrate your organisation's capabilities to customers and potential customers;
- Expanded market opportunities.

By itself, introduction of a Quality System will not lead to automatic improvements in product or service quality, or an improvement in work practices and processes. What it will do however, is provide the tools and guidance for those working in the AIS field to use a defined and systematic approach to their work and business.

2.2 What is a Quality Management System?

A quality management system for AIS might best be described as the way the organisation carries out its business activities for the provision of aeronautical information services and, relates to:

- an organisational structure; together with the
    - documentation
    - processes, and
    - resources.

necessary for the AIS to achieve its quality objectives and to meet customer's requirements.

A Quality System means that everything must fit together, to form one cohesive and effective system. This means that an organisation with a Quality System will have:

- documented statements of a Quality Policy and Quality Objectives:
    - a Quality Manual that outlines the quality management system;
    - documented procedures required by the ISO Standard;
    - necessary documents for all the activities within that system in order to ensure an effective planning, operation and control of processes; and
    - Planning activities to ensure resources are available for the effective conduct of the quality management system.

One of the most important things that must be in place for a Quality System to work is the commitment from all of those affected to ensure that the documented procedures, processes and practices are not only in place, but are vigorously applied.

A Quality System will strive for excellence, always looking for ways to improve their work through a program of continuous improvement.

2.3 Permissible Exclusions

In some AIS, there may be processes that are not performed, for example Procedures Design work. Only Part 7 of the ISO Standard makes some allowances to exclude some aspects from a Quality Management System in case they are not being carried out. These are known as Permissible Exclusions, and could arise due to the following:

- The nature of the range of products or services provided by a particular AIS;
- Customer requirements;
- Regulatory requirements.

However, a Permissible Exclusion cannot be claimed simply because one does not want to do it. If a requirement is questioned within this Part of the ISO Standard, then one should ask oneself:

- What is the idea or principle behind this requirement?
- What kind of problem could be prevented by meeting this requirement?
- Why would meeting this requirement give confidence to the customer?

Within Part 7 of the ISO Standard, the part that belongs to “Design and development” is the most likely to be considered as a Permissible Exclusion.

It is important to note that, if you decide to proceed with Permissible Exclusions, you will need to justify this in the Quality Manual and, if you are seeking Certification or Registration, you will need to justify it with these organizations.

2.4 What is ISO 9000 about?

In simple terms, the requirements of the ISO International Standards for a Quality Management System can be summarized in three simple tasks:

- Say what you do;
- Do what you say, and
- Show that you did it.

2.4.1 Say what you do

This task demands that the AIS document how they carry out their activities.

2.4.2 Do what you say

This task demands that the AIS undertakes its activities just as they are recorded in the documented procedures

2.4.3 Show how you did it

This task demands that the AIS maintains records to prove that activities have been undertaken as documented and that they have been performed for a recognized period of time.

2.5 Products

Among the various terms used in a Quality Management System, one can find the term “product”. Within the context of International Standards and within the diagrams that appear in this manual, a “product” is defined by the standards as:

Product: The result of an activity or a process.

The Standards note that there are four generic product categories:

- Services
- Software
- Hardware
- Processed materials

Products may be combinations of the four generic product categories.

3. The Process Model

Activities that receive inputs and convert them to outputs can be considered a process. In many cases, an output from one process will form the input to the next process, for example data is received from an aerodrome operator, entered into the AIS database, and when combined with other data, is provided as an output for charting or a document.

To function effectively within a quality system, an AIS must identify and manage numerous linked processes. Systematic identification and management of these many processes and the interactions between these processes that are used within an AIS are often referred to as a "process approach".

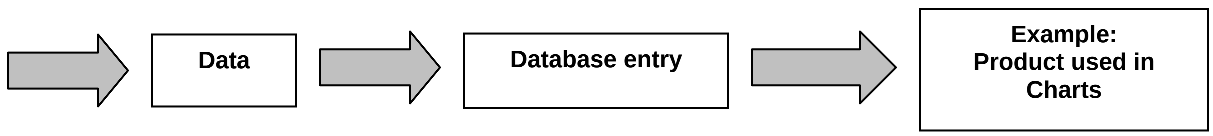


Fig. 1 – A simplified process

A more sophisticated conceptual process model recognises the role that the customer plays in the definition of requirements as inputs. By monitoring customer satisfaction, or in some cases dissatisfaction, we are able to monitor and evaluate whether or not defined customer requirements have been met.

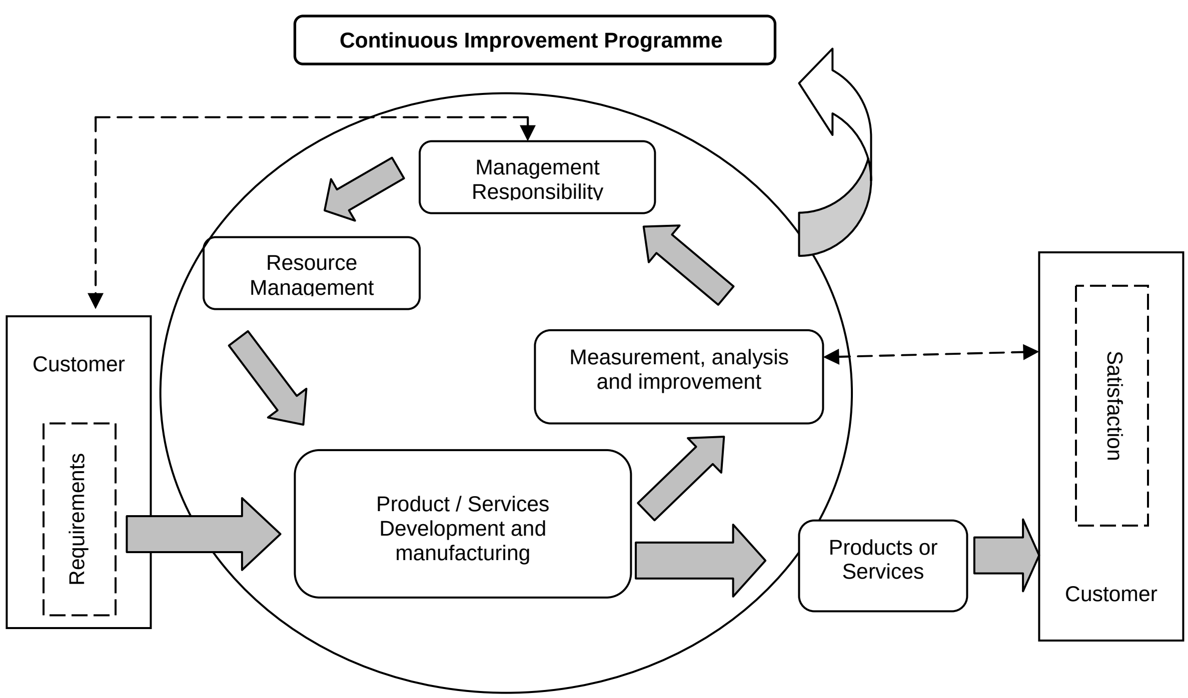


Fig. 2 - Conceptual model of the "Process Approach"
(According with ISO 9001:2000 Standard, paragraph 0.2, Focus based on processes)

Fig. 2 demonstrates that the process approach model and the Quality Management System begins and finishes with the customer. In the first instance, there is the customer requirement on the left hand side of the diagram, on the right hand side there is the degree of customer satisfaction with the product or service that has been provided because of a number of inputs. Customer satisfaction is measurable against the initial requirements and specifications.

Perhaps the most important feature of the model is the need to obtain information about customer satisfaction, this feeds back into the monitoring and evaluation phase, which are in turn a measure of overall performance.

The loop into management responsibility is there to show that management has an important role to review customer feedback to ensure that the appropriate policies, objectives and strategies are in place, along with the necessary resources, to meet the quality challenges.

Resources are a key component of the Quality System. Resources are the equipment, materials and people that make the overall system work. Human resources need to be properly trained and competent to achieve the desired outcomes.

As noted earlier, a Quality System will strive for excellence, always looking for ways to do the work better through a program of continuous improvement. A Quality System will continue to challenge the outputs against the customer requirements and specifications to ensure that customer's expectations are met and exceeded. This is why all of the elements in the Continuous Improvement Program are so important. Outputs must be monitored and evaluated; management must consider the evaluations and apply the planning and resources to achieve the desired outcomes.

4. Quality Management System

4.1 General Requirements

The General Requirements for the implementation of a Quality Management System are to:

(a) identify the processes necessary for a quality management system and for its application through the organization;
(b) determine the sequence and interaction of these processes;
(c) determine criteria and methods required to ensure that both the operation and control of these processes are effective;
(d) ensure the availability of resources and information necessary to support the operation and follow-up of these processes;
(e) follow-up, measure and analyse these processes; and
(f) implement the necessary actions to achieve the planned results and the continuous improvement of these processes.

4.2 Documentation Requirements

4.2.1 General

Documentation for a Quality Management System must include:

(a) documented declarations of Quality Policies and Quality Objectives;
(b) a Quality Manual;

(c) documented procedures required by the International Standard (ISO);
(d) documents needed by the Organization in order to ensure an effective process planning, operation and control; and
(e) required registries.

The terms Documented Procedure and/or Procedure, imply that the procedure needs to be established, documented, implemented and maintained.

Notwithstanding, the magnitude of the Quality Management System depends on the following and in can adopt any form or type of media:

(a) size of the Organization and type of activities;
(b) complexity of processes and interactions; and
(c) personnel competence.

4.2.1.1 Documented Procedures

ISO requirements for a Quality Management System establish the need to have six quality management system procedures. These are mandatory Documented Procedures that describe how an organization should performs and control the activities described in each of the six quality management system procedures described below:

1. Document Control;
2. Record Control;
3. Internal Audit;
4. Non-conformity Control;
5. Corrective Actions; and
6. Preventive Actions.

Documented Procedures should indicate who does what, as well as where, when, why and how they do it. It is up to the organisation itself to decide the level of detail that will be included in the Documented Procedures. Largely, this will depend on:

(a) methods used;
(b) skills required;
(c) training;
(d) extent of required supervision.

Documented Procedures should not contain what you would like to happen in the organisation, but rather an accurate description of what really happens.

A robust Quality Management System will involve staff in the preparation of the Documented Procedures, to the extent that they can contribute. The more staff is involved and the sooner they become involved, the larger they will participate, comprehend and accept the procedures and methods.

4.2.2 Quality Manual

The Quality Manual is a controlled document that is an important part of the Quality Management System. It is in the Manual where the system begins and it includes details about:

- the reach of the quality management system, including details and justification of any type of exclusion;
- the established documented procedures, or their references; and
- a description of the sequence and interaction between the processes contained in the quality management system.

The Quality Manual is the "map" of the Organization and it should normally contain:

- title, subject and application field;
- table of contents
- introductory pages about the subject organization and the manual itself;
- the quality policies and objectives of the organization;
- a description of the organization structure, the responsibilities and authorities;
- a description of the quality system elements as well as any reference related to the quality system documented procedures;
- a definitions section, as necessary;
- a guidance to the Quality Manual, as necessary;
- an appendix for support data, as necessary.

The order of the Quality Manual contents may change according to the user's needs.

Regarding the structure and format of the Quality Manual, one of the methods to ensure that the issue is being taken care of properly, would be to relate the Quality Manual sections to the quality elements of the current system standard that the organization applies.

The ISO 10013 Standard "Guidelines for the development of Quality Manuals" offers advice to elaborate a Quality Manual.

4.2.3 Document Control

All documents required in a quality management system must be controlled. Procedures must be documented to:

- approve the documents regarding their adequacy before they are published and used;
- review and update the documents whenever it is necessary and approve them again;
- ensure that the changes and the revision status of the documents are identified;
- ensure that the pertinent versions of the applicable documents are available in points where they will be used;
- ensure that documents are legible, easy to identify and retrievable;
- ensure that documents are legible and easy to identify;
- ensure that documents of external origin are identified and that their distribution s controlled; and
- prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.

Records are a special type of document and should be controlled; they are known as "Quality Records".

Document control means to ensure that the document that is being used is an approved version and is applicable for the job to be carried out. This is of special importance if, in order to carry out activities, the personnel needs to have the required information in order to perform their job in a correct manner, therefore complying with the specified requirements.

A simple way to control the documents is by making them accessible through a computer network and preferably with no hard copies. There are series of Software that make document control a relative simple task. For example, one can attach the “save date” in a footer of header within each page. One can also add a note indicating that any printed copy lacks control and that the reader should consult the network in order to confirm that the copy that is being used is in fact the latest version.

There are no limits for the number of documents that can be controlled in a Quality Management System, but the additional overhead in controlling the document must be balanced against any potential problems caused by using an inaccurate or obsolete version.

Another way to control documents is by stamping in the cover a legend that reads “Controlled Copy” and by applying the pertinent records of distribution and control of controlled documents.

4.2.3.1 Document Master Copy

Each controlled document has one master copy. This is the copy to which all changes are initially made and from which further copies are made and issued as required. The location of the master copy is recorded on the Document Master List, which generally should be filed or kept in the Management or Document Production area.

4.2.3.2 Document Owner

Each controlled document has an owner. This is the person or persons authorised to review and approve changes requested to the document. The document owner is also recorded on the Document Master List.

4.2.3.3 Controlled and Uncontrolled Copies

Documents may be issued as controlled or uncontrolled copies. Controlled copies are those issued to particular persons with a record of who has which copy. This record is kept with the document master copy. For controlled copies, the document owner is responsible for ensuring that the registered holder of the copy is given an updated copy when the document is modified.

Uncontrolled copies are issued with no record of who has a copy. For uncontrolled copies, the document holder is responsible for ensuring that the copy they have is up-to-date.

4.2.4 Record Control

Records exist in all organisations. Quality Records are required to provide evidence of conformance with requirements and of effective operation of the quality management system. Records should be legible, easily to identify and retrievable. A documented procedure to define the necessary controls should be established for the identification, storage, retrieval, protection, retention time and disposition of quality records.

4.2.4.1 What is a Quality Record?

A Quality Record is a record produced after performing any activity described in a Quality Management System procedure. This record serves as a reference for the analysis of results and it is often a form.

Each Quality System document must include definitions of the Quality Records that will be produced and kept.

Quality records will provide an AIS with information to help manage their activities better. This part will enable you to "show how you did it".

4.2.4.2 Storage and Record form

In some instances, retention periods will be dictated by legal or regulatory requirements, financial requirements or customer's specifications. Details about specific retention periods should be recorded in the documented procedures.

Examples of Quality Records include:

- customer orders, specifications and requirements;
- meeting notes (e.g. Management review)
- audit reports;
- non-conformance records (service failure reports, customer complaints);
- corrective action records;
- files on suppliers (e.g. evaluation of suppliers and their performance history);
- process control records;
- inspection and testing reports;
- training records;
- records of goods received and delivered.

Records, indexing and filing can be in any appropriate form; hard copy, or electronic. Storage needs to be appropriate to the circumstances and the medium and should be such that the risk of deterioration, damage or loss is minimised.

The International Standards also call for the organisation to identify and document who has access to the quality records.

To help in deciding what quality records need to be kept, it is useful to consider that all quality records can be handled in three different categories:

(a) What is received before a procedure starts;
(b) What is produced to show intermediary steps have been completed; and
(c) What is produced to show a procedure has been completed.

Quality records are usually produced internally; however, they may also be produced outside the AIS (for example a customer's order, or an external auditor's report).

For each quality record identified, the following aspects need to be defined:

(a) what is the record about;
(b) who is responsible for its preparation;
(c) who is responsible for its filing;
(d) how long the record is required to be kept;
(e) where the record will be kept; and
(f) who is responsible for the record's disposal

Table 1. A tabular layout may be useful to present the information required.

Record	**Responsibility**	**Retention period**	**Location**
What is the record about (Record name and ID)	Who is responsible for its filing. Who is responsible for its final disposal.	Minimum time that the record should be kept.	Where will the record be kept.

In a certain way, by default, the person who is deemed responsible for the record's filing is also responsible for and authorised to dispose of a record. In this case, a position can be assigned as responsible for the record, for the filing and for its final disposition.

A minimum retention period must be specified to trace future investigations and audits as official evidence.

If required, this minimum retention period will allow maintaining the records for additional time. Records are often kept at hand as long there is enough space for this.

To sum up, the record management process ensures the identification and control of all the quality records in order to provide a quick reference for the effectiveness of all the documents of our Quality Management System.

The record management process is developed in the course of a long period as it is combined with other processes, particularly with those for document development and control.

An example on how to handle the record management process is contained in the following table:

Table 2. How to handle the record management process.

Stage	Description	Explanation
1.	The need for a record is identified	
2.	The record definition is produced and documented.	
3.	The record is produced.	
4.	The record is indexed.	The unique identification of each record assists in filing and retrieval. Those records with no unique identifier can be marked by allocating a specific location for storage. Whatever approach is taken should be recorded as part of the record definition.
5.	The record is filed in the location specified in the record definition.	The location should be chosen to ensure that the record is not damaged for the period in which it is to be retained.
6.	The record is stored for the period specified in the record definition.	Depending on the retention period, it might be necessary to regularly review the storage to ensure that the records are not being damaged.
7.	The record is disposed of.	The person responsible for its storage (as provided for in the record definition) is authorised to carry out the final disposal of the record.

5. Management Responsibility

5.1 Management Commitment

High management will provide evidence of its commitment with the development and implementation of the Quality Management System, as well as with the continuous improvement of its effectiveness by:

(a) communication to the organization the importance of satisfying the customer, legal and regulation requirements;
(b) establishing a Quality Policy;
(c) ensuring that Quality Goals are being established;
(d) carrying out Management Reviews, and
(e) ensuring the availability of resources.

Each one of these responsibilities will be analysed further on.

A Quality Management System relies on the fact that everyone involved has a clear idea of his or her responsibilities and faculties. This can be accomplished through the preparation and use of precise post descriptions of all the AIS personnel. These descriptions should indicate both the responsibilities and faculties of each one of the posts. The defined procedures could also help to assign responsibilities according to the activities described in them.

5.2 Focusing on the client

High management should ensure that the client requirements are being met and complied with in order to increase customer satisfaction.

Our main issue is to comply with the mandatory and client requirements. In order to ensure that these requirements are being complied with and in order to maintain the client's trust, the AIS must have a clear idea as well as defined specifications of the users' requirements. Without this specification, measurement and analysis of the results it would be hard if not impossible.

5.3 Quality Policy

International Standards demand the management to establish a Quality Policy in writing. The Quality Policy is an important element for the work of the AIS, therefore, high management should ensure that the Quality Policy:

- is adequate for the Organization's purpose;
- includes de commitment to comply with requirements and continuously improve the Quality Management System efficiency;
- provides a frame of reference to establish and review the quality objectives;
- is communicated and understood within the Organization; and
- is reviewed for its continuous adequacy.

A Quality Policy includes the definition of quality according to the AIS as well as the manner in which management and personnel show their commitment to the policy. It also provides an identifiable focus in which all personnel can centre their daily activities.

One of the better techniques to develop a Quality Policy is a meeting with all the personnel in order to consolidate the individual definitions of "quality". This will provide a definition and declaration that encloses all the opinions and interpretations of all the staff.

The Quality Policy must be placed for all the AIS personnel in a visible spot.

5.3.1 Commitment to Quality

The AIS manager has to assume an active responsibility in the establishment and maintenance of a Quality Management System. This role includes:

- the definition of the AIS objectives, strategies and goals that are derived from the policy;
- the description of each position, indicating the role, responsibilities and faculties of all the personnel;
- ensure that there are sufficient and adequate resources;
- the designation and support of a Management Representative; and
- regular reviews to verify the effectiveness of the system.

5.4 Planning

5.4.1 Quality Objectives

Following the publication of the Quality Policy, it is necessary to define the objectives, strategies and goals that show the manner in which the Organization expects to put the Quality Policy into practice.

The Strategic Planning of the Organization and the Quality Policy provide a frame of reference for the establishment of the Quality Objectives. High Management must ensure that the quality objectives, including those necessary to comply with the product requirements, are established within the pertinent functions and levels in the organization. The quality objectives should be measurable and coherent with the Quality Policy.

The objectives should be established so they provide an effective and efficient System Review by the Management.

When establishing the objectives, the following should also be considered:

- the current and future needs of the organization;
- the current performance of the processes;
- the satisfaction levels of all parties involved;
- the results of self-evaluations and self-controls;
- improvement opportunities; and
- the necessary resources to comply with objectives.

Quality objectives should be communicated in order to let AIS personnel contribute to their accomplishment. If necessary, the objectives should be systematically reviewed and modified.

5.4.2 Planning a Quality Management System

High management must ensure that the Quality Management System planning is being carried out in order to comply with the system requirements, as well as with the Quality Objectives. It should also be sure that the integrity of the Quality Management System is maintained when changes are planned or implemented.

The quality planning results of the organization, should define the product elaboration processes and the necessary support in terms of:

- the measurement of the abilities and performance of the personnel;
- the responsibility and authority for the implementation of the processes improvement plans;
- the indicators to evaluate the accomplishment improvements within the organization;
- the measurements of the service performance in general;
- the personnel competencies and training requirements;
- the necessary resources, such as finance and infrastructure;
- the improvement needs, including methods and tools; and
- the documentation needs, including registries.

In some cases, the planning can be performed as a routine – i.e., yearly – while, in others, it may be required to have a specific planning for products or new services or their substantial alterations.

The planning allows an Organization to control the routine affairs and changes, therefore guaranteeing that the Quality Management System is effective during the routine activities and after the changes.

5.5 Responsibility, authority and communication

5.5.1 Responsibility and authority

A Quality Management System demands High Management to define and communicate within the organization the responsibilities and authority of all its members. This means that everyone in the organization knows what are their own responsibilities, the level of authority they have and who they should report to. With the publication of each post description, all responsibilities and faculties will be identified, registered and communicated. An organizational chart should complement each post description.

The personnel at the organization should have the responsibility and authority that enables them to contribute to the accomplishment of quality objectives and it should establish their participation, motivation and commitment.

5.5.2 Management Representative

Quality Management Systems should have a Management Representative. High management should designate a member who, regardless of other responsibilities, should have an authority that includes:

- ensuring that the necessary processes for the quality management system are being established, implemented and maintained;
- informing high management about the quality management system performance as well as any improvement needs; and
- promoting the customer needs awareness within all the levels of the organization.

The representative should be under the high management and should communicate with clients as well as other interested parties for issues related to the Quality Management System.

5.5.3 Internal Communication

Internal communication refers to maintain all members of the team informed about what is happening and to keep them updated about the processes, changes and results. This includes both good and bad news.

An efficient internal communication will allow to:

- promptly receive information and adopt corresponding actions;
- create confidence and commitment among the personnel to achieve goals;
- accomplish a larger participation from all personnel;
- identify the opportunities to be improved.

5.6 Management Review

Quality Management Systems should be reviewed on a regular basis in order to confirm that they are still appropriate and pertinent. High Management should review the organization's quality management system in planned intervals. The review should include:

- the evaluation of improvement opportunities; and
- the need to make changes in the quality management system, including the Quality Policy and Quality Objectives.

The management review's records should be recorded. The review should be a process that covers the whole organization and that evaluates the efficiency of the system. Through its leadership, high management should stimulate the exchange of new ideas with open discussions and with the evaluation of entry information during management reviews.

5.6.1 Review information

In order to be sure that the whole Quality Management System is being covered, entry information to be reviewed by management should include:

- the application of the Quality Policy and Objectives to the current needs;
- the quality audit result reports (both internal and external)
- client feedback;
- process performance and product conformity;
- status of corrective and preventive actions;
- follow-up actions by previous Management Reviews;
- changes that could affect the quality management system;
- training needs and results;
- equipment status, work environment and maintenance; and
- improvement recommendations.

5.6.2 Review Results

Every system management review should provide results that can be used by high management as entry elements for improvement processes. The review results should include all the decisions and actions that are related with:

- the quality management system effectiveness improvement and its processes;
- the product improvement in relation with the client's requirements; and
- the resources' needs.

6. Resources' Management

6.1 Provision of Resources

According to the International Standards, the organizations should determine and provide, in a timely manner, the necessary resources to:

- implement and maintain the quality management system processes and continuously improve its effectiveness; and
- increase the client satisfaction through the compliance of requirements.

Within this context, the term “resource” is applied to people, infrastructures, work environment, information, providers, business partners and financial resources.

6.2 Human Resources

The personnel who has defined responsibilities within the Quality Management System and who carries out work that affects the quality of a product or service should be competent in regards to proper education, formation, abilities and experience.

The designated persons to carry out quality activities should be competent in the performance of these activities; otherwise, there will be less probabilities to develop a quality product or service. Standards demand that proficiency should be derived from a proper or applicable formation or instruction as well as from the ability and experience that people has. However, proficiency should be required only in those specific tasks that a particular person carries out, whether it is NOTAM, Publications or Aerodrome AIS.

A previous requirement to have an AIS Organization provides safe aeronautical information is to have sufficient personnel duly qualified and experimented.

The main users of aeronautical information are Pilots. Other users of the information are those involved in the control of airline operations and those involved in the provision of Air Traffic Services. The AIS should be technically oriented towards the nature of the services he/she provides. Due to the aeronautical data/information application in the worldwide air traffic, it is important to promote a proper level of technical proficiency within the AIS and that the AIS have a proper position within the organization he/she belongs to.

This part of the Quality Management System requires that the AIS have procedures to evaluate the personnel proficiency that the organization needs to verify, edit and publish aeronautical information/data. These procedures should contemplate the levels of instruction, qualifications and experience to accomplish a quick publication of the information.

In addition, the personnel who are responsible for the reception, checking, verification and edition of the aeronautical information/data that is published in the aeronautical information integrated documentation, should also sully understand that the content, rules, format and other user requirements are related with the published material.

Ideally, the personnel who are responsible for checking or assembling, verifying and editing aeronautical information/data, should have a broad formation as a pilot or within the air traffic services, or should have specialized training in the AIS field.

For instance, the personnel who are responsible for operating the NOTAM office must:

- know the NOTAM normal format, codes and abbreviations;

- know the operational requirement that establishes that air traffic services, flight operations personnel, flight crew and services responsible for the information prior to flight should have the relevant operations information that could affect the air navigation safety;
- know how the AFTN works.

6.3 Proficiency, awareness and formation

This part of the International Standards establishes that the Organization must:

- determine the necessary competence for the personnel who performs tasks that affect the quality of a product;
- provide formation or take any other actions to satisfy these needs;
- evaluate the effectiveness of the actions taken;
- ensure that the personnel is aware of the relevance and importance of their activities and of their contribution for the accomplishment of the quality objectives; and
- maintain the appropriate Records of education, formation, abilities and experience.

6.3.1 Proficiency Checking

In the context of a Quality Management System, the required qualifications and knowledge for each function should be identified. All the assigned staff will be properly trained in order to perform such functions. The AIS management will ensure that the personnel have the required qualifications and competence to perform the assigned functions; management will also keep the corresponding records in order to confirm the personnel qualifications. Initial and periodical evaluations will be established in order to prove that the personnel have the required qualifications and competency. The staff periodical evaluations will be used as a means to correct the identified deficiencies.

Training is necessary when deficiencies are observed or when new employees start a job. Any training required may be given in stages and it may be taught in the workplace, in the Organization or in an outside facility.

For the most part, the Organization determines the scope of the instruction and checking, but, in general, the AIS training must include the following topics:

- The principles and foundations of the Aeronautical Information Service;
- The AIS Organization within the State;
- The AIS Functions and Responsibilities;

  - ➢ ICAO Documentation
  - ➢ AIS Products
  - ➢ Responsibilities and boundaries

- The Aeronautical Information Integrated Documentation;
- The relationships with related technical services;
- The management of changes;

  - ➢ Applicable policies and procedures
  - ➢ Standardized operational procedures
  - ➢ Quality processes

- ➢ Coordination requirements
- ➢ Compilation and Processing
- ➢ Income and data checking
- ➢ Data structure
- ➢ Formats to be used
- ➢ Procedures and checking processes
- ➢ Handling of files
- ➢ Filing system
- ➢ Publishing and Production
- ➢ Distribution

- AIS Automation

In their simpler version, Records can be an “approval marking”, therefore confirming that the personnel can carry out specific processes or follow certain procedures. These Records should include a clear statement when a person is considered competent to carry out an instructed task.

6.4 Infrastructure and Work Environment

Aside from having sufficient personnel, with enough experience and competence, the AIS should have a room and proper facilities to perform their work and in order to provide the services with the required quality.

The ISO Standard establishes that the Organization must determine, provide and maintain the necessary infrastructure in order to accomplish the conformity with product requirements, including:

- Workspace and associated services;
- Processes equipment (hardware and software); and
- Support services such as transportation and/or communication.

In a few words, this means that the AIS should identify, provide and maintain a large space and appropriate equipment, tools and systems to let personnel carry out their work.

ICAO Doc 8126 provides guidance about the facilities and equipment for aeronautical information services.
On a basic level, AIS facilities should include:

- Appropriate furnishings to allow personnel work comfortably, efficiently and ergonomically;
- Enough room between workstations in order to avoid interruptions on the work of the rest of the staff;
- Locate the noisy equipment far from the staff and in a sound-proof place;
- Proper or specialized lighting in order to easily read the source documents;
- A quiet area to detect and correct errors;
- Proper computer equipment for data and text processing.

AIS Organizations are tending to use automated systems in order to improve the efficiency, precision and effectiveness of the activity costs. The AIS should ensure that any system and service automation is designed in order to avoid incompatibilities, differences, an unnecessary duplicity of efforts, and most importantly, that a general management plan to integrate the systems exists. The standardization of the procedures, products and services is fundamental to successfully automate the aeronautical information services.

7. Product realisation

7.1 Product preparation planning

The product preparation planning is a sequence of processes and sub-processes that are necessary to accomplish a product delivery. The planning of the necessary processes to prepare a product must be coherent with the requirements of the remaining processes of the Organization quality management system.

During the product preparation planning, the AIS must determine, when appropriate, the following:

(a) the quality objectives and product requirements;
(b) the need to establish processes, documents and the provision of specific resources for the product;
(c) activities required for the product review, checking, validation, follow-up and inspection as well as the product acceptance criteria;
(d) the Records necessary to provide evidence that the production processes and the resulting product comply with the requirements.

All this planning information should be documented. For a product and/or regular service, this planning activity should also be carried out in the initial stages and it should be reviewed when a change in the process or resources that affect the service delivery or product production is made.

For a work project and for “unique articles” the planning process may be performed for each project and article.

Note: The documentation that specifies the Quality Management System processes and the resources that should be applied to a product, project or specific contract, can be known as a Quality Plan.

7.2 Client related processes

7.2.1 Determination of the product related requirements

As in any other activity, the AIS must determine which the product related requirements are. These requirements include:

(a) the requirements specified by the client, including the delivery and post delivery activities requirements;
(b) the requirements not specified by the client, but necessary for a specific use or for a foreseen use, when it is known;
(c) the legal and mandatory requirements related to the product; and
(d) any additional requirement determined by the organization.

The following definition has been adopted for this Guidance Material:

Client Organization or person that receives a product. The eventual user (individual) of the AIS products or services.

*7.2.1.1 **Who are the clients?***

The AIS provides a variety of aeronautical information/data for Pilots, aircraft operators, air traffic services personnel and flight planning organizations. Each one of these might be considered an AIS client.
The Client can be internal or external to the organization.

7.2.2 Product-related requirements review

The AIS that has an established Quality Management System or who is in process of establishing this system, will review the product-related requirements, as well as any other additional requirements that might be necessary.

This review must be carried out before the organization commits to provide a product to the client (i.e. a bidding presentation, offer sending, and acceptance of contracts or orders) and must ensure that:

(a) the product requirements are defined;
(b) in those cases where the client has not made a documented declaration of their requirements, that these requirements are confirmed before the acceptance;
(c) the existing differences are resolved between the contract or order requirements as well as the previously mentioned; and
(d) the Organization has the capacity to comply with the defined requirements.

The review results and the follow-up actions must be recorded and be a part of the Quality Records.

When the product requirements are modified, the AIS should ensure that any documentation, procedure and other associated elements are also amended in a way that they reflect the modifications and that the personnel is aware of these new requirements.

An example of the client's requirements could be related with the provision of the aeronautical information/data in a specific electronic format to satisfy the client needs and specifications.

7.2.3 Communication with the client

An effective communication with our clients is an important part of the AIS work. The Standard establishes that the Organization must determine and implement efficient dispositions for the communication with clients that is related with:

(a) product information;
(b) consultations, contracts or order attention, including modifications; and
(c) client feedback, including complaints.

7.2.3.1 Understanding and satisfying the client's requirements

Every part of the order or the client contract should be reviewed in order to have the certainty that every commitment can be complied with.

The manner in which the client makes an order may vary in the following form:

(a) a written request;
(b) a verbal agreement; or
(c) a phone order.

Problems may often occur due to a misunderstanding regarding the original order. Therefore, an optimum communication with the client represents an essential part of a proper commercial practice and it is fundamental to solve any misunderstandings. This could mean that the AIS will specifically assign the responsibility to communicate with clients to one single person.

Written requests, for instance, received through mail or fax, offer a permanent record of the order details.

When phone or computer orders are received, there should be special measures to register and confirm them. Applicable methods could be:

A method for phone orders is to give the person who is receiving the order a note pad (it could even be a printed form) in order to register the order details and to read them again to the client to confirm. In addition, details could be resent to the client by fax or mail.

If it is an electronic media, there are two choices: to keep the details permanently in a disk or to print them.

When receiving an order, one has to determine if the order contains a design requirement and if it can be complied with.

The review Records can be as simple as a note in the order indicating that they can be complied with; they should be signed by the person who has made the review and should include the date. When a more complex review is required, the method to record each review is a decision that lies within the organization.

7.3 Design and development

7.3.1 Design and development planning

Many AIS offer the design of instrument flight procedures. This means that the AIS have to plan and control the design and/or development of these procedures.
Note: If the AIS does not design instrument flight procedures, this part of the Standard could be excluded and duly notified in the Quality Manual.

The standard demands that during the design and development planning, the organization must determine:

(a) the stages of design and development;
(b) the appropriate review, checking and validation for each design and development stage; and
(c) the responsibilities and authorities for the design and development.

The organization should deal with the interfaces among the different groups involved in design and development in order to ensure that there is an efficient and clear assignment of responsibilities.

7.3.1.1 A disciplined focus for design and development

It is important to understand that the purpose of this part of the ISO Standard is to provide control in design and development process and in no way it pretends to restrain the designer creativity.

Generally, design controls should cover the following in order to establish:

(a) design goals, planning how the design will be developed and who will be developing it;
(b) all you need to know in order to make the design;
(c) the design format; and
(d) review, once the design is finished, if the desired result has been accomplished (checking – validation – flight);
(e) the design modification should include any changes that might occur in any stages of process and the reasons.

7.3.1.2 Who will do what?

Regarding the design, the organization must plan all tasks to be performed and who will be performing them. Design responsibilities should be assigned in a clear manner and methods should be established to develop and update current design plans.

Design plans do not need to be complex. They could be as simple as a flowchart, showing all steps to be performed and who should be performing them.

As part of the requirements, the AIS should also plan the method to perform the review, checking and validation activities for design and development.

7.3.2 Entry elements for design and development

Entry elements related to the product requirements should be determined and recorded. These entry elements must include:

(a) functional and performance requirements;
(b) legal requirements and applicable regulations;
(c) the information from previous designs, if applicable; and
(d) any other essential requirements for design and development.

These elements must be reviewed to verify their adequacy. Requirements must be complete with no ambiguity and should not be contradictory.

7.3.3 Design and development results

Results should be provided in such a way in order to allow an entry element checking for design and development and they should be approved before releasing them.
Results must:

(a) comply with entry elements for design and development;
(b) provide proper information for the service purchase, production and provision;
(c) include or make reference of the product acceptance criteria; and
(d) specify the product characteristics that are essential for the safe and proper use.

7.3.4 Design and development review

In the proper stages, there should be systematic reviews of the design and development according to plan in order to:

(a) evaluate the design and development result capacity in order to comply with requirements; and
(b) identify any problem and propose necessary actions.

Participants in these revisions should include the representatives of the design stages that are under review. The records of the revision and necessary actions should be kept.

7.3.5 Design and development checking

Checking must be performed according to plan in order to ensure that the design and development results comply with the entry element requirements of design and development. The records of the checking and necessary actions should be kept.

7.3.5.1 Have we done it right?

The checking consists in proving through the provision of objective evidence if the results of the design process comply with the entry elements of design and development. For larger projects, the design process is often divided in stages and the design checking can be performed one-step at a time.

Design planning should identify the checking method to be used, including who will be performing it how they will be performing it and the records to be kept. There are many ways to check a design, for instance:

(a) making alternative calculations;
(b) comparing the new design with a similar design previously proved (if applicable);
(c) making proofs and demonstrations; for instance, a check flight
(d) reviewing the design stage documents before submitting them.

One should determine which are appropriate and effective. Sometimes, regulating agencies describe the required methods to check a design. The records of the checking results and necessary actions should be kept.

7.3.6 Design and development validation

The design and development validation should be carried out according to plan in order to ensure that the resulting product is able to meet the requirements for the specific application or use, if it is known. As long as it is possible, the validation should be completed before the delivery or implementation of the product. The records of the validation results and necessary actions should be kept.

7.3.6.1 Does it work?

This can include operational evidence. It is the final stage of the design process and it is an important opportunity to avoid a large financial loss as a result for not being able to provide an acceptable product and/or service. The results of the checking and validation process can be used in each stage of the design process, therefore generating modifications and improvements, or even the following review of the design or the next generation of products and/or services.

For many products and/or services, validation is a relatively simple process. An example could be the new design for a visual chart, which could be validated through prototype tests.

For other types of products and/or services, the performance total will not be validated until real conditions are provided.

It is also acceptable for a client to perform the validation and to report about the design results. Many software projects are validated this way.

7.3.7 Design and development track changes

The changes to design and development need to be identified and maintained. All changes must be reviewed, verified and validated, as appropriate and they should be approved before being implemented. The design and development changes must include the evaluation of the effects that changes could have in the delivered parts and product.

The records of the revision results and necessary actions should be kept.

7.3.7.1 Tracking changes

For the AIS, a change is a way of life. All changes that result from the client's activities, market, verification or design validation must be recorded, reviewed and approved. It must be considered how to modify the design as result of a change.

The quality management system has formal requirements for the control of documents and changes that have to be complied with.

In addition, the design changes can require a review to show the client's real needs.

The track changes process in design does not have to be more complicated than the previously mentioned system for document control. In some cases, controls might need to be more complicated; for instance, people who are involved in Software design might be involved in the configuration management. More advice related on this issue can be found in the Quality Management ISO 10007 – Guidelines for configuration management.

7.4 Purchasing

7.4.1 Purchasing process

The supply/production control does not have much sense if the material that the AIS receive is not satisfactory. Therefore, it would be convenient to establish the following:

(a) Documented procedures to ensure that the acquired products comply with requirements;
(b) Contractors evaluation, selection and review;
(c) Clear definitions for contractors requirements; and
(d) Checking procedures and allow a checking on behalf of the client on the contractor operations in the contractor facilities.

As in any other business, the AIS needs, and the ISO Standards demand, that the purchasing processes are controlled in order to ensure that the purchased goods comply with the specified purchase requirements. The type of control and scope applied to the provider and to the acquired product must depend on the impact of the purchased good in the product manufacturing or in the final product.

Some of the products or services that can be acquired by the AIS are:

(a) Hardware
(b) Software
(c) Aeronautical Data
(c) Chart Services
(d) Printing/Reproduction material

The Organization must evaluate and select providers by measuring their capacity to provide products that comply with AIS requirements. A selection criterion needs to be established for the selection, evaluation and re-evaluation. The records of the evaluation results and any necessary action should be kept.

7.4.1.1 Who do we shop from?

Purchased services and materials that could affect the quality of a product and/or service need to be identified. From those providers who are able to supply these materials and services, you will have to keep which ones you plan to use. Remember that the hired services, such as design, transportation and delivery, calibration services, etc., can affect the quality and must be considered.

Most of the AIS have a series of reasons to make business with a determined provider. You can keep on using your current providers when developing your quality management system. The Standard simply requires that the selection is made in a controlled manner.

Whenever you are deciding to use a determined provider, you should take note of the criteria and grounds for your selection. Among the questions that you should ask providers, you should include one or more of the following:

(a) How reliable are they?
(b) Can they provide all your needs?
(c) Do they have the necessary resources; i.e. equipment and staff?
(d) Are the delivery deadlines and price acceptable?
(e) Do they have a quality management system?
(f) Have you previously done successful business with them?
(g) Do they have a good commercial reputation?

Whenever we are dealing with a patented product or brand, an obvious source could be a retail store that offers a serial or tailored service. There is a wide selection of available products from these sources, such as chart devices and desks, hardware and some software supplies.

Under these circumstances, the criteria to select providers and associated records can be minimum.
You may want to consider purchasing for a trial period, at the end of which there would be a review to establish the acceptance of the provided product and/or service or of the provider.

Asides from keeping the records of the approved providers and the reason why they were approved, you should also regularly monitor the capacity of these providers to confirm that they are still complying with selection criteria. However, as it is a relatively small business, you have to be aware that you have a limited budget and that the threats to remove providers from your approval system can be ineffective. This is especially true when you are receiving a product and/or service from large national or international organizations. Your quality manual must reflect the real situation.

The level to monitor the provider capacity depends on the importance that the provided product and/or service has for the quality of your service and/or product.

For instance, paper quality can be fundamental for an external business that provides printing services for the AIS. Other businesses might use normal bond paper that does not require a purchase control related to quality. In the case of some AIS products, the thickness and duration of the paper, the paper colour or the printing quality can create a series of problems for the delivery of quality products.

The printer can closely monitor the performance of the paper providers in order to ensure that the quality of their printed product and/or service is at the expected level.

7.4.2 Purchasing information

The information should describe the product to be purchased, including, when appropriate:

(a) approval requirements of:
- the product,
- the procedures,
- the processes, and
- the equipment.

(b) personnel qualification requirements; and

(c) quality management system requirements.

The Organization must be sure about the specific purchase requirements before informing the provider.

When making a purchase, and before preparing the purchase documentation, the AIS should confirm that the specific requirements in the purchase are appropriate.

7.4.2.1 What do we need?

In order to obtain everything the AIS needs, purchase instructions should not leave any doubts about what is needed. It is preferred that instructions come in written order. As previously mentioned, remember that phone instructions might be misunderstood by the provider that you may have to take additional precautions to ensure that your instructions are properly understood. Notwithstanding, if it is a written or verbal order, you have to keep a track of the order, to later confirm that you got what you requested.

This part of the purchase requirement refers to the details that you should include, depending on the case, when establishing your purchase requirements. The way through which the details included in paragraphs (a) and (b) are applied depends on the way the requested assets and services affect the main business and the quality of your product and/or service.

It is fundamental to clearly enunciate all the details related to the desired articles or services the moment you are ordering. This can include some drawings, a catalogue number or model and the date and delivery location that is required. In some cases, a catalogue or item number can be all the description available. It is essential to fully describe what you need; however, unnecessary details can generate a misunderstanding and a wrongful delivery.

7.4.3 Verification of purchased goods

The Organization must establish and implement an inspection and other necessary activities to ensure that the product complies with the specific purchase requirements.

When an organization or their clients want to verify a provider's facilities, the organization must establish in the purchase information the requirements for the intended verification and the method to liberate a product.

7.4.3.1 Did the customer receive what was ordered?

Most companies do some kind of measurement and monitoring in the products they receive, even if it is just an employee reviewing the delivery note and signing it to confirm that the valuables have been delivered. A subsequent verification confirms that the products are what was ordered and that they have been received in optimum condition. However, you must decide who should inspect the received valuables and services, and how.

Whenever a provider has a quality management system, it is possible to reduce the measuring and monitoring level.

The measuring and monitoring level also depends on the nature of the received goods; for instance, the inspection of office supplies can consist of simply checking if the requested amount was received. The delivery note signed by an employee could be the only required documentation.

I you have requested valuables or services, or both, from a provider, and you wish to inspect them in the provider facilities, it will be necessary to agree the inspection arrangements and include them in the order. Some examples of this requirement are:

(a) acceptance evidence at the Software/Hardware factory before receiving it;
(b) training of the employees in charge of monitoring at a training facility.

If your client wishes to visit the provider facility in order to inspect the product and/or service, it will be necessary to indicate so both in the request the client makes you and in the request, you make to the provider.

Whether or not the client makes the visit or not, you are still responsible to check that all the products and/or services received from providers have to comply with the client order.

7.5 Service production and provision

7.5.1 Production and service provision control

The Organization must plan and carry out the service production and provision under controlled conditions. The controlled conditions must include, when applicable:

(a) the availability of information that describes the product characteristics;
(b) the availability of work instructions, when necessary;
(c) the use of proper equipment;
(d) the availability and use of follow-up and measuring devices;
(e) the implementation of follow-up and measurements; and
(f) the implementation of pre and post delivery liberation activities.

7.5.1.1 Controlling what we do

Perhaps an easier title to understand this part of the Standard would be Process Management. Remember that this applies to hardware services and products.

The interaction and order of the necessary processes to produce a product and/or service need to be planned and then executed.

Please note that there is no documented procedure required, although it could be useful to have one for the AIS personnel to understand all the processes and relationships.

It must be understood that the manner in which all of these processes influence the final product and/or service is to make sure that the appropriate controls to comply with client requirements exist. In many companies, the control is carried out through internal orders, drawings, production programs, service requests, operator instructions, etc.

Comprehensible specifications or work instructions are necessary to ensure that a product and/or service comply with the specific normal or client requirements. One of the key points here is that it is not necessary to draft a document that includes all the details that a competent operator should know.

For instance, it should not be necessary to describe a trained cartographer how to operate CAD equipment. If the cartographer cannot operate the equipment, the answer is not to give him instructions but training. However, the procedure could refer to ICAO standards, where all the routine descriptions or measures of file and record maintenance.

When the quality of a product depends on avoiding any deterioration on the process equipment condition, you should establish measures for the maintenance of this equipment; for instance, plotters and printers can continue generating a quality product if the toner or ink cartridges receive periodic maintenance.

Process control will demand that you verify that your equipment is appropriate for the use it is intended and that the work area does not generate any problems.

Many of the requirements related with equipment and work environment control can be specified by your client or by a regulation, such as the Occupational Health and Safety and should be reflected in their process controls.

Process controls should also include the way in which the process condition or product will be monitored; for instance, if the printer can monitor the chart colour values or the operation of the printing equipment. In order to help this task, there can be example charts or photographs that show the required colours for the product and the way the product should be folded. Another example would be to check the integrity of the data in order to confirm that the result is the one required.

Many valuables and services are sold with the commitment to provide maintenance and support in the post-delivery stage (for instance, the Hardware ad Software as a part of the total contract). Remember that the commitments made as part of a guarantee are also part of the contract, and this is an important part.

Regarding the activities after the delivery, the process should consider the following aspects:

(a) the general dispositions of a service programme;
(b) the planning of service activities;
(c) the necessary staff and any training demands;
(d) replacement part management;
(e) the preparation of service instructions;
(f) the service activities records.

When providing a service or product, it is important to remember that any disparity with a product and/or service should be notified to the corrective action system in order to identify the motive for the failure. Remember that in case it is necessary to make reparations during the period of the warranty, it means that the product did not work the way it was supposed to and this counts as a disparity.

There should be records to show everything that has been done in order to measure the control of a process.

7.5.2 Service production and provision validation

The organization should validate those service production and provision processes in which the resulting products cannot be checked through subsequent follow-up activities or measurements. This includes any process in which deficiencies are observed only after using a product or after providing a service.

The validation should demonstrate the capacity that these processes have to comply with planned results.

The organization must establish the dispositions for these processes, including, when applicable:

(a) Defined criteria for the process review and approval;
(b) Approval of equipment and personnel appraisal;
(c) Use of specific methods and procedures;
(d) Record requirements; and
(e) Renewal.

In the AIS, the NOTAM area is one of the activities after which, when a product is being used, it is possible to detect deficiencies or errors. Therefore, all the aforementioned requirements should be taken into account during the service production or provision process.

7.5.3 Identification and traceability

The International Standard establishes, as a requirement, that an organization must identify a product using proper methods through its entire production.

The organization must identify the status of a product with respect to the follow-up and measurement requirements.

For the AIS, traceability is a requirement; therefore, the unique identification of a product should be controlled and recorded.

The AIS must:

(a) identify a product while it goes through the service provision and production processes, using the proper methods, depending on the case;
(b) identify the condition of a product with respect to the follow-up and measurement requirements; and
(c) record the unique identification of a product in those cases where traceability is a requirement.

Some examples of this could be to number amendments or to identify specific pages.

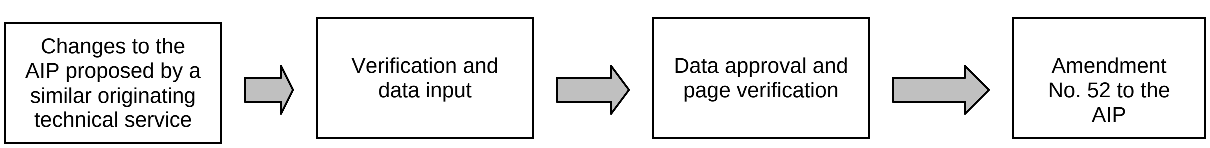
7.5.3.1 Keeping a Record of what is being done

Identification consists in knowing what will be the resulting product and/or service of a determined process, even an intermediate process. When there is a need to identify a product and/or service, the methods to be used and the records to keep must be defined. The piece numbering record, a job number, the bar code, the name of the person who performed the service, the code colour or revision status, and the version number of the Software used in the development process are some examples of identification.

Traceability means to know where a product and/or service came from, where it is currently located, and, in case it is a service, in which stage it is now. Most businesses, regardless of their size, in any stage of their processes, will need to know what goes where, what has been done and what needs to be done. When traceability is a requirement, the typically used methods include:

(a) work card annotations;
(b) data verification and confirmation, data input;
(c) services records, for instance, placing a mark in a determined aspect of the work;
(d) labelling, and
(f) computer tracing.

7.5.3.2 Example of how to keep a Record.



When a car is being serviced, each operation condition in a checklist changes from “pending” to “completed” by placing a mark on the side of each operation once it has been finished.

In a phone answering service, the initial condition of received messages is “received message”. Once a message has been sent to the client, the condition changes to “message delivered”. A phone answering service probably has some sort of method to identify this condition.

Some of the aforementioned techniques can be used for identification purposes. One has to be aware that the traceability requirements can generate more paperwork and cost, so one has to know how to balance the true need to know and the superfluous information.

Example of a checklist:

Action		**Condition**	
	Reg. No.	**Finalized**	**Pending**
Recording the details of a change	WP16/00	**4** (DS)	
Data review and checking		**4** (DS)	
Data input		**4** (CS)	
Letter input		**4** (CH)	
Airspace Manual			**4**
AIP Manual			**4**
Finalization of the document review			**4**
Finalization of the chart review			**4**
Publications to print			**4**
Publications to dispatch			**4**

The internal requirements have to be established and documented.

In the AIS, both identification and traceability are specified requirements. If there is the need to withdraw a product from the market, an efficient identification and tracking system will ease this task. An efficient identification and tracking system will ease enormously the replacement of a deficient quality service and the beginning of actions to avoid duplication, such as re-training or to review the activities of a process.

The Records that allow tracking (including the change requirements) should be maintained as part of the Quality Records.

The method(s) that you adopt as the most appropriate for your business should be described (for instance, in your work instructions), in a way that everyone knows how they work.

7.5.4 Customer property

The AIS must be careful with the client’s assets while they are under the control of, or being used by the organization. The Organization must identify, verify, protect and keep the client’s assets that have been supplied to be used or incorporated within a product. Any asset of a client that is lost, deteriorated or that is considered improper in any way should be recorded and communicated to the client.

Note: Client’s assets include intellectual property.

7.5.4.1 Taking care of client deliveries

There might be situations in which the client delivers material or equipment to you in order to use them in the preparation of articles or in the provision of a service. Some examples could be:

(a) the instruments provided by the client to be measured;
(b) the training room provided by the client;
(c) special Hardware or Software;
(d) special paper for specific products.

Although this aspect does not require documented procedures, the Organization has the responsibility to ensure that the client property control is well documented in order to describe the manner in which is identified and taken care of. The document could simply refer to the internal procedures that are being used.

7.5.5 Product preservation

The organization must preserve the conformity of a product during the internal process and the delivery to the foreseen destination. This preservation must include identification, manipulation, packing, storage and protection. The preservation should also be applied to the parts that form a product.

This part of the Standard means that none of the activities can affect the quality of a provided product and/or service. You should determine how to ensure that this happens.

There is a series of areas in which the quality of a product and/or service can be affected by manipulation, storage and preservation problems. You can find some examples in the following areas:

Manipulation: It could be the use of computers and/or an archive system, work cards or work packages to control the work that is being performed.

Storage/Preservation: Use of computer systems to store the work that is being performed and the external arrangements or other backup measures.

Packing/Delivery: The transfer of electronic data to send chart products to a printer for their reproduction.

You should examine your own procedures to determine how many special handling procedures you need to document them.

Packing should be appropriate for the material. In many cases, a little or no packing will be required. In bulk materials, such as sand, carbon, wheat, etc., are examples where packing consists simply in filling a container to transport them. Even for this type of in bulk packing, the container needs to be checked for appropriateness and to prevent product contamination. Large products can simply be loaded and tied down to a truck.

Packing should be appropriate for the product, projected transportation and final use. If packing and marking materials are used, you should verify that these are compatible with the products you are packing or marking. Marking materials can be corrosive or cause any other type of damage to products, they should be carefully chosen. In addition, you should be aware of existing packing regulations. These regulations could demand to indicate the “expiration” date in the package, as well as the handling instructions or specific information regarding the contents.

An example of this could be the packing required to dispatch chart negatives to the printer’s. Packing must be resistant in order to prevent the film from damaging in the journey, and it could require a certain marking to avoid that the contents are bent or folded.

7.6 Control of measuring and monitoring devices

The organization must determine the follow-up and measurement to be performed as well the measurement and monitoring devices to provide the evidence of the product compliance with requirements.

The organization must establish processes to ensure that the follow-up and measurements can be and are performed in a coherent manner through the follow-up and measurement requirements.

This part of the standard is only applicable for those AIS who use measurement or trial equipment (including the Software to perform tests) in order to prove that the client's requirements are being met (for instance the electronic data provision to a data provider), such as the cyclic redundancy checking (CRC). However, if an inspection method is visual, like the one used for some maps and charts, it might not need equipment or measuring instruments and therefore this part of the Standard will not be applicable.

When it is necessary to ensure the validity of the results, the measuring equipment must:

(a) calibrate or verify in specific intervals or before their use, comparing with national or international measuring patterns; when there are no such patters, the basis used for calibration or verification must be recorded;
(b) adjust or readjust as necessary;
(c) identify in order to determine the calibration status;
(d) protect against adjustments that could invalidate the measurement status;
(e) protect against damages and deterioration during manipulation, maintenance and storage.

Furthermore, the organization must evaluate and record the validity of the previous measurement results when it detects that the equipment is not in accordance with the requirements. The organization must take into account the appropriate actions about the equipment and any affected product. Records of calibration and verification results must be kept.

The capacity of the information programmes needs to be confirmed in order to satisfy the foreseen application when these programmes are used in the follow-up and measurement activities of the specific requirements.

Note: See ISO Standards 10012-1 and 10012-2 for guidance.

Calibration is an expensive operation. For an AIS, the costs of calibration can be considerable. You should ensure, therefore, that you know the difference between checking that process control equipment is fit for purpose and calibrating equipment that is required to give confidence in your inspection and test measurements.

You need to make sure that the calibration frequency, and standards of accuracy specified are appropriate to the actual equipment usage and not excessive. Once having determined the initial calibration procedure it does not have to remain fixed forever; it can be adjusted in light of experience.

In addition to calibrating equipment, records need to be kept to show:

(a) when the equipment was last calibrated, who did it, the calibration procedure, the acceptance criteria, what the result was, its acceptability and how this affects the equipment suitability (calibration status); and
(b) when the next calibration is due-the period is dependent on the type of equipment, its usage and how critical the measurements are to the process.
(c) Measuring equipment needs to be suitably stored when not in use, to protect it from damage or deterioration. It should also be suitable for use in the proposed operating environment. These precautions apply even more so to any 'master' measuring equipment or reference standards used for calibration purposes.

8. Measurement, analysis and improvement

8.1 *General*

The organization must plan and implement the follow-up, measurement, analysis and improvement processes needed for:

(a) demonstrate the product conformity;
(b) make sure of the conformity of the quality management system; and
(c) continuously improve the effectiveness of the quality management system.

This must determinate the applicable methods, including the statistics techniques and the reach of their use.

8.1.1 *Checking things are right*

Some examples of measurement and monitoring include:

(a) measuring dimensions;
(b) proof-reading publications;
(c) matching colours; and
(d) checking that things match with the original request.

You need to decide what your measurement and monitoring requirements are and how they are to be complied with. People who carry out measurement and monitoring may need to be trained for what they are doing.

You also need to decide and record who has the authority to decide when a job is finished and when a product and/or service can be delivered.

Individuals may check their own work, without secondary checking by another person. Such flexibility is sometimes necessary in an AIS where excessive duplication of effort should be avoided. However, one should not discard the advantages that can be obtained when a job can be reviewed by other persons of the same or higher level of competency that the person who is performing the job.

Verification, i.e. examining something to see if it meets requirements, is also a measurement and monitoring operation. In some industries, such as publishing industry, visual verification may be the main form of measurement and follow-up carried out; this can be applied by the AIS in the production of aeronautical charts.

Someone has to be responsible for the actual measurement and monitoring. The person does not have to have a staff or managerial status. For example, in a small AIS with only a few employees, it may be necessary for cartographers to inspect their own work before passing it on to the printing and dispatch area. A work slip or record can de included with the work when an operator signs off when concluding a job. This works well because the work of the next operator down the line is affected if the incoming work is not correct.

The final approval phase includes not only checking the finished product and/or service, but that all the inspections and tests that ought to have been done, have in fact been done and that if any paperwork is to go with the product and/or service, that it has been prepared and is satisfactory. In other words, if you were the customer, these are all the things you would want to know have happened before you took delivery of the product and/or service.

The measurement and follow-up to be carried out may be listed in a number of ways, such as:

(a) a quality plan;
(b) a sampling plan;
(c) an inspection and test plan;
(d) a procedure;
(e) an instruction;
(f) the customer's order.

There needs to be a consistent method of recording that the measurement and monitoring has been carried out. In an AIS, the supervisor could sign off a checklist to show all the inspections have taken place.

Your quality management system should be capable of identifying the job and include a procedure to recall the job if the item subsequently proves defective.

You need to have a system for keeping the necessary testing and inspection records or have other means of showing that the inspections have taken place.

Your records should indicate whether any failures occurred and the proposed action.

Inspection and test failures are handled by the activities described for nonconforming products.

Inspection and test failures should not be confused with normal processing activities to bring the product and/or service within specification before it is released to the next stage of operations.

A typical example might be a cartographic service that measures, adjusts and readjusts colour densities on a chart until the required levels are achieved. Such an iterative approach does not constitute an inspection failure.

However, if the printer signs the system off as meeting specification, and it is subsequently found to be outside specification, this is a non-conformance.

8.2 Follow-up and measurement

8.2.1 Customer satisfaction

The Standards require an organization to monitor information on customer satisfaction and/or dissatisfaction as one of the measurements of the performance of the quality management system. The methodologies for obtaining and using this information must be determined.

8.2.1.1 How satisfied are your customers?

This is an important new aspect to the 2000 version of ISO 9001. You are required to monitor your performance as a supplier to your customers. More specifically, you are required to monitor information on satisfaction or dissatisfaction. To do this you will need to find out how satisfied your customers are.

8.2.1.2 More that one type of customer

More that one type of customer Firstly it is important to remember that you may have more than one type of customer. For example, if you are a map or chart manufacturer, you may sell to wholesalers who then sell to retailers who then sell to the general public. In this case, you have three types of customer and they all have different requirements. You may be satisfying one group and upsetting another. For your product and/or service to sell successfully you will need to satisfy them all.

8.2.1.3 Satisfaction and dissatisfaction

Another important point is to understand that satisfaction is not the opposite of dissatisfaction. Your customers are entitled to be satisfied and may take good quality of products and/or services for granted. On the other hand, if they are dissatisfied, they may react quite badly or strongly. Therefore, satisfaction may produce a neutral response whereas dissatisfaction may produce a strong negative response. There is a third possibility, which is a strong positive response. This is sometimes referred to as 'delight', something beyond the normal level of satisfaction.

8.2.1.4 Monitoring satisfaction

There are many ways of finding out what your customers think of you. Amongst the most widely used are:

- (a) telephone calls made periodically or e-mail messages after delivery of a product and/or service;
- (b) questionnaires and surveys;
- (c) using a market research company;
- (d) focus groups.

All of these have merits and disadvantages. For a small AIS organisation, it recommended that you start with simple methods such as calling your customers. You may gain a useful insight by calling someone who is senior to the one that you normally deal with. Such a person is likely to know how you perform and is likely to tell you, good or bad.

Surveys and questionnaires are being extensively used. For example, how many do you receive in a year? You may get some good ideas from the ones sent to you. You can give your customers the option of giving their name or staying anonymous. You may get more negative responses from anonymous people, because some people do not like being the bearer of bad news. If they can hide their identity, they may tell you something they would not otherwise do. Remember criticism is vital information, which will help grow the process and should be seen as major improvement opportunities.

Questionnaires and surveys have their disadvantages because they are time consuming. If you use a questionnaire, keep it simple. Choose your questions very carefully. Ensure that they are clear. Why not test it out on a trusted friend before you send it out?

If you really want to know what your customers think, it is probably best left to the professional market research companies. Their independence enables them to gather an objective perspective of you performance and your customers' satisfaction.

Customer focus groups are a powerful tool for finding out the reasons behind the measure of satisfaction. A group of customers is brought together in a small meeting where they discuss the merits of your product and/or service. This needs facilitation, which is best left to a professional.

8.2.1.5 Satisfaction as a measure of your system performance

The new version of the Standard makes it clear, that you are to use customer satisfaction as a measure of the performance of your quality management system.

At its simplest, this could be the percentage of dissatisfied, satisfied and delighted customers. In reality, it tends to be more complicated than that!

One customer may be both satisfied and dissatisfied. He or she may be satisfied with the product and/or service but dissatisfied with your delivery performance, for instance. Therefore, you need to think it through and come up with a practical measure. Perhaps you could ask your customers to rate your performance on a scale from 1 to 10. Alternatively, perhaps it would be worthwhile measuring several aspects of your business, for example, appearance, delivery performance, packaging, functionality, and value for money.

8.2.2 Internal audit

Civil Aviation Administrations must conduct periodic internal audits to determine whether the quality management system:

(a) conforms with planned arrangements, with the requirements of the ISO International Standard and with the quality management system requirements that have been established by the organization; and
(b) has been effectively implemented and maintained.

Civil Aviation Administrations must plan the audit program taking into consideration the status and importance of the activities and areas to be audited as well as the results of previous audits. The audit scope, frequency and methodologies must be defined. Auditor selection and audit performance must be done with objectivity and neutral to the audit process. Auditors cannot audit their own work.

A documented procedure must include the responsibilities and requirements for conducting audits, ensuring their independence, recording results and reporting to management.

The management of the audited area must take timely corrective action on deficiencies found during the audit. Follow-up actions shall include the verification of implementation of corrective action and the reporting of verification results.

Note: See ISO 10011-1, ISO 10011-2 and ISO 10011-3 for guidance.

8.2.2.1 Are you doing what you said you would do and is it working?

Audits are about getting information, in a planned way, from a variety of sources and comparing it all to confirm that things are being done properly. The steps of gathering this information should include:

(a) reading the documented procedures;
(b) reading relevant process control documents;
(c) observing processes being carried out;
(d) talking to the people carrying out the processes; and
(e) looking at the records; and
(f) summarize the data analysis and the performance indicators.

All these need to tell the same story; i.e. that you are doing things right, the way you said you would.

For an AIS that is well organised and run, where familiarity with the day-to-day activities is the norm, a properly conducted audit can be beneficial. You should use audits to stand back and look at your business objectively to confirm that the quality management system is helping you do what you want to do and what you need to do.

You need to find some form of evidence, documented or otherwise, which can confirm that the quality management system is performing in the way it was intended. It is not sufficient to simply do an overview and conclude without any proper basis or supporting evidence that the quality management system is operating satisfactorily. This requirement is reinforced to require you to develop some means for measuring how the quality management system is performing.

Seeking out areas for improvement is now particularly important as it is this information that is required to be added to the data to be analysed.

The information from internal audits should also be used as part of your management review. The better your audit, the more useful your management review will be.

When an internal quality audit shows up non-conformances and inconsistencies, you need to develop the necessary corrective actions and then put them in place.

These may be as simple as:

(a) writing or revising a documented procedure or a process control document;
(b) redesigning a form to incorporate more information; and
(c) arranging for employee retraining.

Audits should be scheduled to cover all the quality-related activities you undertake and all the requirements of the standard. In deciding how to manage the audit schedule and how often any particular aspect should be audited, the following factors may be considered:

(a) Are there any complex procedures or processes that would justify individual audits?
(b) Are there any aspects or areas that have a history of problems?
(c) Does your 'hands-on' approach indicate a need for less frequent audits?

A report or summary of each audit should be prepared, listing the findings and what action, if any, is to be taken. The record need not necessarily be complex. For example, a simple entry in a daybook may be sufficient. If the previous audit recommended or required action to be taken, the current audit should check how effective the change was and this should be recorded.

There is a requirement in the Standards that “audits shall be conducted by personnel other than those who performed the activity being audited”. For example, it is acceptable for the office personnel to audit the production/service activities and vice-versa. This can provide benefits in developing an understanding of each other's problems.

In a small AIS where there may be only one or two people in the entire management structure, this requirement may not be achievable. It is suggested that in such cases, the manager, carrying out the duties of an auditor tries to step back from direct involvement in the business operations and be very objective about the audit.

Another approach would be to seek the cooperation of another work area and each provides the internal quality audit facility for the other. This may prove attractive if there are good relations between the two businesses.

Effective use of internal quality audits is an area that you may use to minimize the ongoing costs of certification/ registration. If the auditor from the certification/registration body can see that internal quality audits are being used to effectively monitor and control the quality management system, the auditor does not need to spend as much time verifying the quality management system operation. Again, it must be emphasized that what the auditor will be seeking is objective evidence with respect to internal quality audits.

8.2.3 Measurement and Monitoring of Processes

The organization must apply appropriate methods for monitoring and, if applicable, for measuring the quality management system processes. These methods have to demonstrate the capacity of the processes in order to obtain the planned results. If so, when these planned results are not reached, several corrections and corrective actions should be performed in order to ensure the conformity of a product.

8.2.4 Measurement and Monitoring of a product

The organization must measure and monitor the product characteristics in order to verify that its requirements are being met. This has to be performed in the appropriate stages of the production process in accordance with planned dispositions.

All evidence of the acceptance criteria has to be kept. The records must indicate which person(s) authorized the release of a product.

The release of a product and the provision of a service should not be performed until the planned dispositions have been carried out successfully or have been approved through another process by the pertinent authorities or, if applicable, by the customer.

8.3 Control of Non-conformity products

The organization must ensure that products not conforming to requirements be identified and controlled to prevent unintended use or delivery. Controls, responsibilities and authorities related to non-conformity products shall be defined in a documented procedure.

The organization must deal non-conformity products through one or more of the following steps:

(a) taking action to eliminate non-conformity detected;
(b) authorizing its use, release or acceptance under concession by an appropriate authority and, when applicable, by the customer;
(c) taking action to prevent its originally foreseen use or application

Registries should be kept non-conformity nature and of any subsequent action taken, including concessions obtained.

When a non-conformity product is corrected, it should be subject to re-verification to demonstrate conformity with requirements.

When a non-conformity product is detected after delivery or its use has started, the organization shall take appropriate action regarding the consequences or potential effects of the non-conformity.

Some customers may demand notification of any non-conforming product and/or service and to approve measures to be taken. If this is the case, it will be necessary to notify the customer following detection of non-conformity product and/or service. You may wish to include measures proposed along with the notification.

Records should be kept of any decision taken, approval granted by the customer, any rework or repair procedure, and the results of inspections and tests on any rework or repair.

For example, if a publishing company discovers that it has inadvertently used inks that are beyond their “use by-date” in the printing of maps and charts, adoption of a number of actions might be required to fix the problem:

(a) investigation to find out the extent of the problem;
(b) segregation and quarantine of the remaining ink from that consignment;
(c) segregation and quarantine of affected maps and charts awaiting delivery;
(d) recall of those maps and charts likely to be similarly affected, and that could affect safety.

Depending on potential risks, perhaps it may be necessary to involve the appropriate regulatory authorities and make the public aware of the problem.

8.4 Data Analysis

This part of the Standard requires that the organization must determine, compile and analyze appropriate data to determine the suitability and effectiveness of the quality management system and to evaluate where a continuous improvement of the quality management system effectiveness can be made. This should include data resulting from measuring, monitoring, and other relevant sources.

In this regard, the AIS must analyze data to provide information on:

(a) customer satisfaction;
(b) conformance to product requirements
(c) characteristics and trends of processes and product, including opportunities to carry out preventive actions; and
(d) suppliers

8.4.1 Do the measurements reveal any trends?

Because of your measuring and monitoring activities, you will probably have collected significant amounts of data, which could be analyzed to indicate any trends. Any trend found could suggest where problems in your quality management system are, which allow identifying areas where improvement is needed.

You may also find activities that, although effective as they are now performed, could be further improved.

The use of statistical techniques could be a useful tool for the analysis process.

The Standard identifies four areas where analysis is to be applied but you can extend data analysis to whatever areas provide useful information.

8.5 Improvement

8.5.1 Continual Improvement

The organization must continually improve the effectiveness of the quality management system through the use of the quality policy, quality objectives, audit results, data analysis, corrective and preventive action and review by the management.

8.5.1.1 What improvements do you plan to make?

Continual improvement of the quality management system is now a mandatory requirement. It is important to understand that continual improvement does not mean that it occurs without a break or without ceasing. Instead, improvement should be interpreted as a repetitive activity to be carried out as each opportunity is identified and exists justification for proceeding.

The standard lists a number of tools and inputs that can be uses for planning as well as implementing improvements.

8.5.2 Corrective Action

The organization must take action to eliminate the cause of non-conformities in order to prevent recurrence. Corrective action must be appropriate to the impact of non-conformities encountered.

A documented procedure must be established to define requirements for:

(a) reviewing non-conformities (including customer complaints);
(b) determining the causes of non-conformities;
(c) evaluating the need for actions to ensure that non-conformities do not recur;
(d) determining and implementing action needed;
(e) recording results of action taken; and
(f) reviewing corrective action taken.

8.5.3 Preventive Action

The organization must identify action to eliminate the causes of potential non-conformities to prevent occurrence. Preventive action taken shall be appropriate to the impact of the potential problems.

A documented procedure should be established to define requirements for:

(a) determining potential non-conformities and their causes;
(b) evaluating the need to act for preventing occurrence of non-conformities;
(c) determining and implementing necessary action;
(d) recording results of action taken; and
(e) reviewing preventive action taken.

8.5.3.1 Fixing the Causes of Problems

Both corrective and preventive action can be seen as steps in a quality improvement cycle. The need for adopting corrective action can arise when an internal non-conformity (product and/or service or quality management system) occurs, or from external sources such as a customer complaint or warranty claim, or problems encountered with a supplier.

Corrective action involves finding the cause of a particular problem and adopting the necessary measures to prevent the problem recurring.

Preventive action starts considering and analyzing the data from all incidences of non-conformities, all the customer complaints, all the warranty claims, all the problems with suppliers, as well as any other source of problems to find out if a trend is occurring.

If this analysis shows that a potential problem exists, preventive action then involves adopting the necessary measures to eliminate these potential causes.

The documented procedures for both corrective and preventive action should define the responsibilities and authorities for these activities.

8.5.3.2 Fixing the cause of known problems

There is a difference between carrying out corrective action and fixing non-conformities. Fixing non-conformities is to fix the problem either by reworking, replacing or any of the other activities described in the guidance material. A corrective action is concerned with finding out why the nonconformity occurred and making sure that the problem does not occur again.

The need for corrective action could be determined by a number of factors, some of which could be:

(a) customer complaints;
(b) non-conformances;
(c) rework or repairs;
(d) audit reports.

Analysis of the causes may suggest some solutions such as retraining employees or amending a process control practice.

The size of the problem and the associated risks to your business will determine the action to be adopted.

When a corrective action is taken, it should be recorded and followed up within a reasonable period to find out whether it has worked. It may be necessary to change the Quality Manual, documented procedures, instructions and any other relevant documentation. Changes should be made in accordance with the provisions established for the control of documents.

8.5.3.3 Fixing the cause of potential problems

You should use your records to see if any trend exist showing that a potential problem could arise. Typical examples of where information might be found and used for such analysis are from sources as:

(a) difficulties with suppliers;
(b) in-process problems, rework rates, wastage levels;
(c) final inspection failures;
(d) customer complaints and customer surveys.

Other sources might include market surveys, audit reports and quality records. Where a potential problem is identified, a course of action may need to be developed and put in place to reduce or eliminate the risk of the problem.

If preventive action is found to be necessary, it should be recorded and followed up within a reasonable period to find out whether it has worked. Because of preventive action, the Quality Manual, documented procedures, instructions and any other relevant documentation may need to be changed.

Some examples of where preventive action may be applied include:

(a) identifying possible situations where product damage may occur and implementing practices to prevent it from happening;
(b) feedback from personnel may indicate a more efficient process; and
(c) re-assessment of suppliers to overcome potential supply problems.

In an AIS, there is little justification in separating management review arrangements from long-term corrective and preventive action. Where there are few personnel and the same people are involved in both activities, an artificial separation may result in duplication of effort. If this approach is taken, it should be included in the Quality Manual.

9. Steps towards Implementing a Quality Management System

An Organization could implement a quality management system in many ways. This part of the Guidance Material is intended to provide an implementation example into AIS. In the Guidance Manual for the Implementation of AIS/MAP Quality Management System in the CAR/SAM Regions, Part 3 "Plan for the implementation of an AIS/MAP Quality Management System in the CAR/SAM Regions" more detailed information is provided on steps to follow for implementing this type of system.

Note: This example is intended as guidance only and should not be considered as the only implementation method, nor necessarily as the best or only implementation method.

The approach in this example consists of three stages:

(a) analyzing what happens in AIS;
(b) implementing a quality management system;
(c) improving the quality management system.

Stage 1 Analyzing what happens in an AIS	Step 1	Analyze the process of an AIS, i.e. the different flows of work of the Organization and list them
	Step 2	With this list in mind, decide if there are any "permissible exclusions" (refer to Standards Guidelines referring to Part 7 of the Standard for details) applicable to the AIS. Remember that any exclusion will need to be justified in the Quality Manual.
Stage 2 Implementing a Quality Management System	Step 3	Get people involved in writing down what their jobs cover.
	Step 4	Collate this in sequences relevant to the list of main process activities collected in Step 1.
	Step 5	Identify where the Standards and this list of your main process activities link together.
	Step 6	Apply the Standard and the quality management system.
	Step 7	Keep the quality management system simple and functional, i.e. relevant to the process activities.
Stage 3 Improving the Quality Management System	Step 8	Analyze information from the quality management system leading to improvement in processes and activities
	Step 9	Monitor and measure changes so that everybody is aware of the benefits made by the system.

Now that it has been decided to make an analysis of the process and to work in a more efficient manner, where to start?

Stages and their associated steps have been outlined above; the next section provides more details.

<table>
<tr><td>Step 1</td><td>ANALYZE WHAT YOUR MAIN PROCESS ACTIVITIES ARE AND LIST THEM

Those elements described in Annex 15 form the main process activities of AIS.
receive and/or originate
collate or assemble
edit
format
publish/store
distribute
Aeronautical information/data</td></tr>
</table>

<table>
<tr><td>Step 2</td><td>WITH THIS LIST OF MAIN PROCESS ACTIVITIES, DETERMINE IF ANY OF THE ACTIVITIES REQUIRE A DESIGN WORK.

Design means taking raw ideas or concepts and either through design drawing, computer design or academic thought process; develop a product and/or service design or project plan to suit the needs of your customer. Generally, design work in AIS will be evident through the design of instrument approach procedures.

If decided not to design and products and/or services are developed based on previously developed standards or specifications, maybe a “permissible exclusion” could be claimed.

To achieve the next step, the list of main business activities should be kept firmly in mind. At this stage, it may be helpful to produce these activities in the form of a flow chart to assist in the development of a quality management system.

The purpose of setting out activities in this way is to:
identify the different components of the AIS and decide if all they fit together, or if changes are required so the whole process work better; and
determine where and if elements of the standard are covered.</td></tr>
</table>

<table>
<tr><td>Step 3</td><td>GET PEOPLE INVOLVED BY WRITING DOWN WHAT THEIR JOBS COVER

Now is the time to get everyone concerned involved in writing down how they carry out the parts of the AIS activities under their responsibility, stating:
who is responsible for performing and checking activities;
where the activity takes place;
when it will happen; and
what happens, that is, how the activity is performed.
Some important points to be considered are:

(a) as the job is being carried out by a specialist, you will only need to refer to the type of person and the qualifications.
(b) if the work is done by non-specialist staff, or if there are specific in-house requirements, more details may be required.
(c) the sequence of the activities may still need to be defined, for example:
How a task is initiated.
How does the work get started?
Who monitors the progress?</td></tr>
</table>

	• How is the work processed and inspected? • Who decides when a work is finished? • How is delivery made? • What follow up action is needed and who does it? • What records are kept and who keeps them? If your Organization has written details as operating or work instructions, half your job is already done. Do not rewrite what is already documented, make a note of the name and title of the document so it can be controlled and if necessary, referenced in other quality management system documentation at a later date. (d) the most important ... Keep written documentation Simple!

Step 4	**COLLATE THIS IN SEQUENCES RELEVANT TO THE LIST OF MAIN PROCESS ACTIVITIES (STEP 1)** Once everyone has written down (or collected previously written) work instructions relevant to their part of the activity or particular job responsibilities, you, as manager should take time to review with someone else from the business: • what has been written; • check that it all fits together; and • deal with any gaps or inconsistencies. By appointing someone to assist you, you have basically appointed a Management Representative or if you are doing most of this yourself as manager, you are assuming the role of management representative. You have now addressed one of the first requirements of the standard. By collating all these documents, you now have a procedures manual (which is another requirement of the Standard). You should adopt a consistent style for these documents, which you and your people are comfortable with. This may allow the review and improvement of the procedures themselves.
Step 5	**IDENTIFY WHERE THE STANDARDS AND THIS LIST OF MAIN PROCESS ACTIVITIES LINK TOGETHER** You or your Management Representative need to go through the documents written with a copy of the standard beside you, to determine if you have met: • the requirements of the standard; and • your process control requirements. If you identify an area of the standard you have not addressed you will need to consider how you will cover that particular requirement. You may need to add some detail to one of the existing procedures to ensure the requirement is met. It may require some additional documentation, but be careful, make sure it is relevant to the work of the AIS. You may have to use external documents in your business activities, for example dealers' manuals, maintenance manuals and installation manuals. It is not necessary to rewrite these to include them in your quality management system. All that is needed is to make an appropriate reference to the process control document in your Manual.

<table>
<tr><td>Step 6</td><td>APPLY THE STANDARD AND THE QUALITY MANAGEMENT SYSTEM

If you continue to involve others in your Organization, they are more likely to grow with the quality management system and have input. The quality management system will then reflect reality rather than become irrelevant paperwork. The following points should be noted:

• Do not create unnecessary paperwork, forms, and other documents. Look at what is currently done and write your procedures to show how the job is done, not how you wish it was done or should be done.
• Create a form only if it is going to capture a critical activity or is going to help someone. A signature on or an extension to an existing form may suffice.
• Remember, keep records when:
⇒ a problem arises;
⇒ a good suggestion is raised; or
⇒ a customer or employee expresses a need for action.
• To implement the quality management system, everybody needs to have access to the documentation that relates to their activities. They need to be given some insight into how the quality management system works and why, for example, document control ensures that they have the latest information relevant to their jobs and decisions will be based on up-to-date information.
• Everybody needs to be trained to understand how to keep the quality management system up-to-date, if changes take place in areas under their responsibility. Everybody needs to know how to make changes to the quality management system as well as noting problems and putting forward ideas for improvement. Remember that you need to approve any change before it is in place.</td></tr>
</table>

<table>
<tr><td>Step 7</td><td>KEEP THE QUALITY MANAGEMENT SYSTEM SIMPLE, FUNCTIONAL AND RELEVANT TO THE PROCESS ACTIVITIES

The following points are worth noting:

• The purpose of implementing a quality management system is to ensure that the business activities of the AIS are developed in a controlled manner and the people responsible for the various activities know and understand their roles and responsibilities.
• Quality management system documentation should be a ready reference to identify how, when, where and sometimes why a job should be done, or an activity managed. For that reason, the wording should be simple and in the language used in the workplace on a daily basis.
• Documentation should be in a format that is easily used in the Organization. For example:
⇒ if computers are available, it may be easier to have a computerized system, rather than a paper system;
⇒ where there may be language or other differences in the workforce, it may be necessary to use pictures or several translations of the documents.
• Documentation should reflect what is currently happening in the business. During the audit process, questions will be asked and objective evidence sought, to show that personnel is using and understanding the quality management system. The objective evidence is provided by the documentation.</td></tr>
<tr><td></td><td></td></tr>
</table>

<table>
<tr><td>IMPROVING THE QUALITY MANAGEMENT SYSTEM

An effective quality management system uses feedback loops to improve how things are done, which in turn should lead to an improvement in product and/or service quality.</td></tr>
</table>

Step 8	**ANALYZE FEEDBACK OF INFORMATION FROM THE QUALITY MANAGEMENT SYSTEM LEADING TO IMPROVEMENT IN PROCESSES AND ACTIVITIES** By noting areas of concern from corrective action activities (Step 6), you could gather data, or record trends that could be considered and analyzed for improvements. Improvements may be simple and easily achieved in the initial stages but may become more challenging once the obvious opportunities for improvement have been taken. It is worthwhile to persist in a systematic approach to quality improvement, since the benefits can be considerable. Normally, improvements are adopted over a period of time as money and resources become available. A realistic approach and steady progress will build confidence and maintain enthusiasm.
Step 9	**MONITOR AND MEASURE CHANGES SO YOU KNOW WHAT YOU HAVE GAINED** It is important to remember the measuring of your progress. A way of doing this is to monitor mistakes and their cost. This gives you the opportunity of identifying areas where cost savings may be made. Noting how long or how many resources are spent on an activity or service delivery could also obtain measurements. This should always be recorded, prior to commencement, of any activity that has been chosen for improvement, and compared again at the end, even though the activity may be small and simple.

CONCLUSION

Remember: small, steady, well-thought and effective changes leading to improvement will have long-term advantages.

These nine steps can help in taking advantage of the quality management system approach and allow it to contribute in the development of your process.

10. What does Certification and Registration Mean?

10.1 Starting Out

Certification/Registration of Quality Management System is not mandatory but the following provides a brief outline for those wishing to follow this path.

Before the Certification/Registration can take place, it is essential to have all aspects of the quality management system implemented and running for several months. You can then see the quality management system in operation and have the opportunity to improve it. Any improvement you can achieve at this stage can simplify the Certification/Registration process. This can save time and money.

Certification/Registration bodies do not operate on the principle of “what is going to happen”, they want to see what has happened. You will need sufficient records to demonstrate that your quality management system has been implemented and is effective.

10.2 Who does the Certification/Registration?

There are two types of Certification/Registration; one is carried out by your customer(s) and other by an independent party. The outline below is based on that typically adopted by independent Certification/Registration bodies.

10.2.1 Brief Outline

The process generally consists of the following steps: You make a formal request to the Certification/Registration body. The request normally includes a description of your business activities, the product and/or service range, and any other information. The Certification/Registration body may ask for a questionnaire to be filled out.

Next, the Certification/Registration body will review your Quality Manual to verify if the Quality Manual describes faithfully what you say happens against what the standard says should happen.

When there are deficiencies, the Certification/Registration body will indicate where the problems are. Amendments to the Quality Manual will usually overcome most problems, but you may also have to develop additional procedures.

A further review of any change is carried out and is often combined with one of the subsequent stages. The Certification/Registration body may then hold a pre-assessment check or go straight to the Certification/Registration audit.

In the Certification/Registration audit, the auditor (and there may be more than one) will use the Quality Manual and any procedures as a guide to how your business operates. The auditor's operative words will be “Show me”. The auditor will be looking for records, documents, or other objective evidence to see that you are doing what your Quality Manual/Procedures say you do.

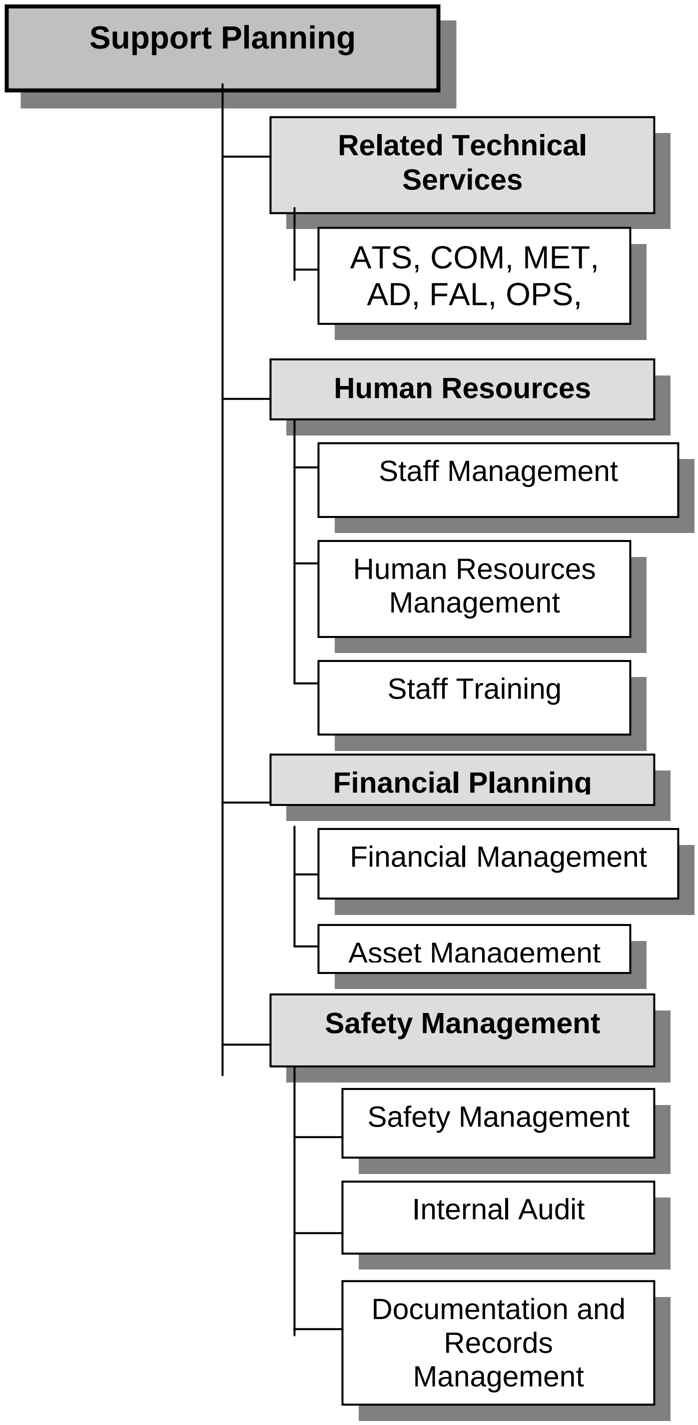
Where inconsistencies (non-conformities) are found, the auditor's actions depend on how serious these are. For major non-conformities, the Certification/Registration could be withheld pending rectification. For minor non-conformities, a conditional Certification/Registration might be issued, pending rectification by the next compliance audit.

Once Certification/Registration is granted, the Certification/Registration body will carry out re-certification audits of the quality management system over the period for which the Certification/Registration is valid. These audits are not as comprehensive, in that the full quality management system is not necessarily assessed.

If non-conformities are found during a re-certification audit and not rectified within specified times, Certification/Registration may be withdrawn. Minor non-conformities need to be rectified before the next re-certification audit, which under these circumstances may seem to come too soon.

11. AIS Process Support Planning

The following organizational chart presents the Support Processes related to AIS, which intervenes in all type of resources and contributes to a more effective achievement of AIS processes.



The main Support Processes interacting with AIS are:

- Related Technical Services;
- Human Resources;
- Financial Planning; and
- Safety Management.

There are other Processes called Operational, having also a narrow relation and interaction with AIS and are contemplated within the Related Technical Services, such as:

- Airports, Airplane and Crew Services;
- Air Traffic Services; and
- Aerodrome Maintenance.

The management of the AIS Process together with the identification and interaction of these Processes, might be called as and “approach based on processes”, which constitutes one of the quality management principles.

12. Bibliography

- ISO 9000:2000 – Quality Management System: Fundamentals and vocabulary
- ISO 9001:2000 – Quality Management System: Requirements
- ICAO Annex 15 – Aeronautical Information Services

13. Terms and definitions

Audit: systematic, independent and documented process, to obtain audit evidence and evaluate it objectively aimed at determining the extent to which audit criteria is fulfilled.

NOTE: Internal audits, sometimes called first-party audits, are performed by, or in the name of the own organization for internal purposes and may be the base of auto conformity statement of an organization. External audits include what are generally called "second-party and third-party audits"

Audit Conclusions: result of an audit provided by the auditor team after considering the audit objectives and all audit findings.

Audit Criteria: group of policies, procedures or requirements used as reference.

Audit Customer: organization or person requesting an audit.

Audited: organization audited.

Audit Evidence: records, statements or any other verifiable information, relevant for the audit findings.

NOTE: Audit evidence could be qualitative or quantitative.

Audit Findings: results of the evaluation of the audit evidence collected compared to the audit criteria.

NOTE. Audit findings could indicate conformity or non-conformity with the audit criteria or improvement opportunities.

Auditor: person with the competence of carrying out an audit.

Auditor's Team: one or more auditors carrying out an audit.

NOTE: An auditor from the auditor's team is generally appointed as lead auditor. The auditor team could include training auditors and, when required, technical experts. Observers could join the auditor's team but not act as part of it.

Conformity: compliance of a requirement.

Continual Improvement: recurring activity to improve the capacity of fulfilling requirements.

NOTE: The process to establish objectives and identify opportunities for the improvement of a continual process through the use of the audit findings, audit conclusions, data analysis, review by the managing or other means, and generally leads to a corrective and preventive action.

Customer: organization or person receiving a product. For example: consumer, final user, retailer, beneficiary or buyer.

NOTE: Customer could be internal or external to the organization.

Customer Satisfaction: customer perception on the degree of achieving requirements.

Effectiveness: extension in which planning activities are performed and planning results are achieved.

Efficiency: relation between the result achieved and the resources used.

High Management: person or group of persons that manage and control at the highest level of an organization.

Interested Party: person or group having interest in the development or success of an organization. For example: Customers, owners, organization personnel, suppliers, bankers, labour unions, partners or society.

Non-conformity: non-compliance of a requirement.

NOTE: There could be more than one cause for non-conformity. The corrective action is taken to prevent something recurring while the preventive action is taken to prevent something happens.

Objective Evidence: data supporting the existence or veracity of something.

Organization: group of persons and facilities with a regulation of responsibilities, authorities and relations. For example: company, corporation, firm, institution, charity institution, individual company, association or party or a combination of the previous.

Procedure: specific form to carry out an activity or process.

NOTE. Procedures could be or could not be documented

Process: group of activities mutually related or interacting, which converts incomings in outgoings.

Product: a process result.

Quality Management System: management system to manage and control an organization regarding quality.

Quality Manual: document specifying an organization quality management system.

Quality Objective: something ambitioned or expected related to quality.

NOTE: The quality objectives are generally based on the organization quality policy. The quality objectives are generally specified for levels and functions of the Organization.

Quality Policy: global intentions and organization direction on quality as formally expressed by the high management.

NOTE: The quality policy is generally coherent with the organization's global policy and provides a frame of reference for the establishment of the quality objectives.

Record: document presenting results been achieved or providing evidence of activities performed.

NOTE: Records could be used, for example, to document traceability and provide evidence of verifications, preventive action and corrective action.

Requirement: a generally implicit or compulsory need or expectation established.

Supplier: organization of person providing a product. For example: producer, distributor, retailer or product vendor, or service provider or information.

NOTE: A supplier could be internal or external to the organization. In a contractual situation, a supplier could be called as "contractor".

Traceability: ability to follow the history, application or location of all what is under consideration.

NOTE: When considering a product, traceability could be related with:
- *origin of materials and parts;*
- *processing history;*
- *distribution and location of the product after delivery.*

Validation: confirmation by providing objective evidence that requirements have been achieved for their use or specific planned application.

Verification: confirmation by providing objective evidence that specific requirements have been achieved.

APPENDIX U

INTERNATIONAL CIVIL AVIATION ORGANIZATION

GUIDANCE MANUAL FOR THE IMPLEMENTATION OF AN AIS/MAP QUALITY MANAGEMENT SYSTEM OF THE CAR/SAM REGIONS

PART 2:

MODEL OF A QUALITY MANUAL FOR AERONAUTICAL INFORMATION SERVICES

FIRST EDITION - 2004

CAR/SAM REGIONAL PLANNING AND IMPLEMENTATION GROUP (GREPECAS)

Organization's logo	Air navigation authority Aeronautical information service QUALITY MANUAL	Code: MC-01 Revision: 0 Date: April 2004 Page: x of 38 Copy Num. ______

QUALITY MANUAL

Made by:	Reviewed and approved by:
Signed:	Signed:
Date:	Date:

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I Scope and field of application

This Manual applies to the Aeronautical Information Service (AIS) of <Name of the State>.

The Quality Management System documented in this Manual applies to the AIS activities concerning:

- receipt or origin;
- collating or assembling;
- edition;
- formatting;
- publicaction/storage, and
- distribution/provision

of aeronautical information/data gathered in:

- AIP, with the correspondent amendments;
- Supplements to the AIP;
- NOTAMs and PIBs;
- AICs, and
- Check lists and lists of valid NOTAMs.

The Manual also applies to the personnel working in the different areas of AIS/MAP, such as:

- Chief AIS
- AIS Publications;
- Cartography;
- International NOTAM Office, and
- AIS aerodrome offices

Exclusions

<List any exclusion to the Standards or other areas that are not covered by this Manual. This is to ensure that there is no ambiguity about what is within the scope of the AIS and what is outside. It also includes the exclusions on those parts of the ISO Standard that may not be applicable. In the case of those AIS that do not perform the functions of design and development of ATS procedures, an exclusion should be reflected in point 7.3, "Design and Development" of the ISO 9001:2000.>

Note: The activities described, the elements of the Integrated Documentation and the areas of the related AIS may vary depending on the organisation and the aspects defined by the organisation so that they may create their Quality Management System.

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II Document control sheet

Document

Codification:	QM
Title:	Quality Manual
Owner:	<Insert>
Location of master copy:	Aeronautical information service
Date last updated:	<Insert>

Change Control

Revision number	Date	Part changed	Description of the change
0	April 2004	-	Initial

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III Amendments and Amendment List Record Sheet

Amendments

Amendments to this Manual must be by page replacement, addition, deletion or by complete re-issue.

Staff carrying out an amendment to this Manual must complete the Amendments Record sheet below.

Amendments Record

Amendment Number	Amendment Date	Amended by	Date

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	QUALITY MANUAL	

IV Table of Contents

Note: As Appendices to the document and discretion of the organisation, the Rules and States Provisions or an excerpt of them might be included, as web as any other ruling documentation of the organisation.

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V Reference Documentation

The basic reference document used in the development of the Quality system has been the International Standard ISO 9001:2000 "Quality Management System – Requirements."

Other documents consulted:

- Standard ISO 9000:2000 "Quality Management System – Fundaments and Vocabulary".
- Standard ISO 10013:1997 "Guidelines for the development of Quality Manuals".
- <Insert other standards used as a reference, as applicable >

The technical regulatory documents applicable to AIS are the following:

- ICAO Annex 4 - Aeronautical charts.
- ICAO Annex 15 - Aeronautical information services.
- ICAO Doc. 8126 Aeronautical information services Manual.
- ICAO Doc. 8697 Aeronautical charts Manual.
- ICAO Doc. 8400 ICAO Abbreviations and Codes.
- ICAO Doc. 8585 Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.
- ICAO Doc. 8643 Aircraft Type Designators.
- <Insert other relevant documents, e.g.: National regulations, Business Plan, etc.>

Note: The list of Standards and Documents of ICAO, Regulations of the State and other applicable documents will vary depending on the references used by each AIS organisation.

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VI Terms and definitions

General Definitions

The definitions indicated in standard ISO 9000:2000 and the abbreviations of the AIP of <Name of the State> are adopted.

Other Definitions <Specify only in case of existing differences with regard to those of the Standard or other reference documents, for example:>

Document:	Any Manual, Procedure or page thereof used to implement the Quality Management System. Note: This should not be confused with the AIP documents, which could be products of this quality system. Where an AIP document is referred to within this Manual, it should be specified by its name.
Originator:	Any organisation that provides information/data to AIS for publication in the AIP or as an Amendment, Supplement or NOTAM.
Sub-Contractor:	Any organisation or person hired to provide products or services directly related with the production process of the Quality system.

Abbreviations

AIP	Aeronautical information publication
AIC	Aeronautical information circular
SUP	Supplement to the AIP
ICAO	International Civil Aviation Organization
RET:	Record of errors tracking.

Note: The definitions above serve as guidelines. They may need to be amended to include specific policies of the States.

The use of standardized terms and definitions with reference to recognized terminological documents on quality is highly recommended; this section of the Quality Manual shall contain definitions of the terms and concepts used in a specific manner in the Manual.

The definitions shall provide a comprehensive, uniform and unambiguous understanding of the contents of the Quality Manual.

1. Introduction

The Quality Manual defines the structure, responsibilities, activities, resources and generic procedures that an organisation establishes to perform quality management.

This Quality Manual is property of the <Insert the organisation within which AIS/MAP is set> and provides guidance on the policies and procedures applicable for the provision of an Aeronautical information service of <Insert name of the State>.

The policies and procedures within this Manual have been implemented to ensure that the requirements for a Quality Management System of the AIS/MAP of <Insert name of the State> are documented so to ensure the compliance with the requirements of ICAO Annex 15 and other international relevant standards.

The AIS/MAP <or insert only the AIS Unit to which the Manual is applied to> forms part of <Insert name of the organisation, example: Air Traffic Division, Air Navigation Directorate, etc.> within the <Insert name of parent body, example: Civil Aviation Administration of ...>.

The AIS/MAP of <Insert name of the State> <or the AIS Unit in case the system does not apply to the entire AIS organisation > is located in:

<Insert postal address>

Tel:	<insert contact number >
Fax:	<insert contact number >
E-mail:	<insert address >
AFTN:	<insert address >
Website:	<insert URL, example: www. >

The information contained in the Manual cannot be totally or partially reproduced nor can it be facilitated to third parties, without the corresponding written authorization of <Insert name of the organisation or authorization incumbent>.

The basic structure of this Quality Manual is adjusted to all the requirements requested by standard ISO 9001:2000 “Quality Management System – Requirements”

The contents of this Manual will be updated whenever a review of it is made (not less than annually) on an as required basis. <Insert who is responsible for coordinating changes to the Manual, example: The Administration Manager> is responsible for coordinating requests for changes and amendments to the Manual.

The Quality Manual is developed by <In general, it is developed by the Representative of the Directorate>.

The review and official approval and the approving officer and issuing authority for this Manual and subsequent amendments is <Insert title or position of authority, names shall not be referred to>.

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<Insert who is responsible for the Manual, for example: the Administration Manager, the Representative of the Directorate or the Aeronautical information services> is responsible for the maintenance and distribution of this Manual, according to the control system of the documentation and control of the distribution.

Note: The following might be added or might be taken into account if the organisation deems it suitable: This Manual shall be available to all AIS personnel. It might be advantageous to distribute the Manual to all those organisations that have a substantial contribution to the AIP. Example: ATS. Various methods of distribution may be considered, example: paper and electronic formats.

All the controlled copies will be updated each time a modification to the Quality Manual is made, and the owner of the Manual will keep the archive of the obsolete copies duly identified as such.

This Manual is a controlled document and is identified with a label of “Controlled Copy” shown in the title page of this Manual. The copies distributed without control should be identified with the label of “Uncontrolled copy”.

The Chief of the Aeronautical information services <Insert if someone else is responsible > keeps a distribution list and the control master copy of the Quality Manual and is responsible for keeping a distribution record of the controlled copies.

The uncontrolled copies may be distributed without a record of who has the copy. With regard to the uncontrolled copies, the owners of the document are responsible for ensuring that the copies possessed are up-to-date.

The Quality Manual will be identified by a code with the acronym MC. Each page of the Manual will be identified with the title, revision number, date and the number of pages of the total pages of the Manual, as well as the number of the copy, according to the record of distribution of the controlled copies. On the first page the names, signatures and dates of the person(s) responsible for the development, revision and approval will be included.

Note: In this part of the Manual additional information may be included, for example, business line, brief description of background, historical, dimensions, etc.

Signed: <Name and title of the authority responsible
for making apply the contents of the Manual>

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2. Quality policies

Note: The following statement should clearly and simply state quality policy or policies relevant to the provision of AIS.

<insert the parent organisation name> mission is to provide a safe, efficient and effective air traffic system. <insert the organisation name> recognises that high quality aeronautical information services are essential to achieving this mission.

The <insert name of the State or AIS Unit if the system does not apply to all the organisation > AIS is committed to providing high quality aeronautical information services to meet the needs and requirements of its users and to seek continuous improvement in the provision of those services through a quality Management System.

Quality will be an integral part of all AIS activities.

The quality Management System will be based on the ISO 9000 series of International Standards and will draw as appropriate, on ICAO Standards and other requirements and national <insert the name of the State> Standards.

AIS will be provided in a manner consistent with the standards and recommended practices contained in the applicable ICAO Annexes, in particular Annexes 4 and 15.

Note: A statement similar to the following may be used in circumstances where the AIS provider also has commercial objectives:

The AIS will be provided in a manner that is consistent with the commercial objectives of both the < name of government department or agency responsible for the provision of AIS > and customers.

Note: The following statement should be included in all the cases.

The policies and procedures detailed in this Manual are binding on all AIS staff.

Note: Within the contents of the Policy of Quality the values holding its intention should be described, it may be as wide as the organization determines, the basic principles of the systems may be included, or other items determined as:

- *Eliminating the "Inter.-departments barriers" for the good use of the System.*
- *Foster the work in multi and Inter-disciplinary teams for the exchange of experiences.*

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2.1 Quality Objectives

Note: These Quality Objectives should reflect the principles of the Quality policy.

The Quality Objectives of <insert name of the State > AIS are (e.g.):

(a) To provide quality information/data services to meet the demands and requirements of our internal and external customers.
(b) To ensure that products are constructed, produced and distributed in such a way as to enable users to operate safely and efficiently.
(c) To ensure the quality and timely promulgation of products for which AIS is responsible.
(d) To ensure that products comply with applicable standards and regulations.
(e) To ensure as far as practicable that the information published is accurate and up to date.
(f) To provide the end user with value-added, defect-free products, that are timely and competitively priced
(g) To institute a program of continuous learning within the AIS
(h) To foster an environment where quality is the accepted way of doing business
(i) To foster the participation of our staff in the work and decision making processes of the AIS
(j) To pursue commercial business opportunities within the areas of expertise of the AIS.

2.2 Communicating the Quality Policy and Quality Objectives

Each staff member in the <insert name of the State> AIS has access to this Quality Manual and consequently to the Quality Policy and Quality Objectives.

The <insert who is responsible e.g. AIS Manager, and/or AIS Management Representative> is/are responsible for making staff aware of the Quality Policy and Quality Objectives, for the implementation of a quality Management System, to achieve these Objectives, and to monitor their application and improvement.

AIS members are kept informed of these matters through the Manual itself, staff meetings and seminars, implementation of agreements, appraisals and competency checks, through exposure in the auto-information boards, workshops and other available means.

3. Organisation

Provide here a summary of how the AIS is organised, where it is located, how it is staffed and the relationship of the AIS to other departments of the Civil Aviation administration.
Doc 8126, Chapter 2 provides guidance on the establishment of a sound organisational base and management structures. An organisation chart such as the example shown in Fig 1. below is a useful way of showing the how the AIS is organised and its relationship to other departments and work areas.

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Organisational Arrangements - AIS

<Insert as appropriate, according to your organisation>

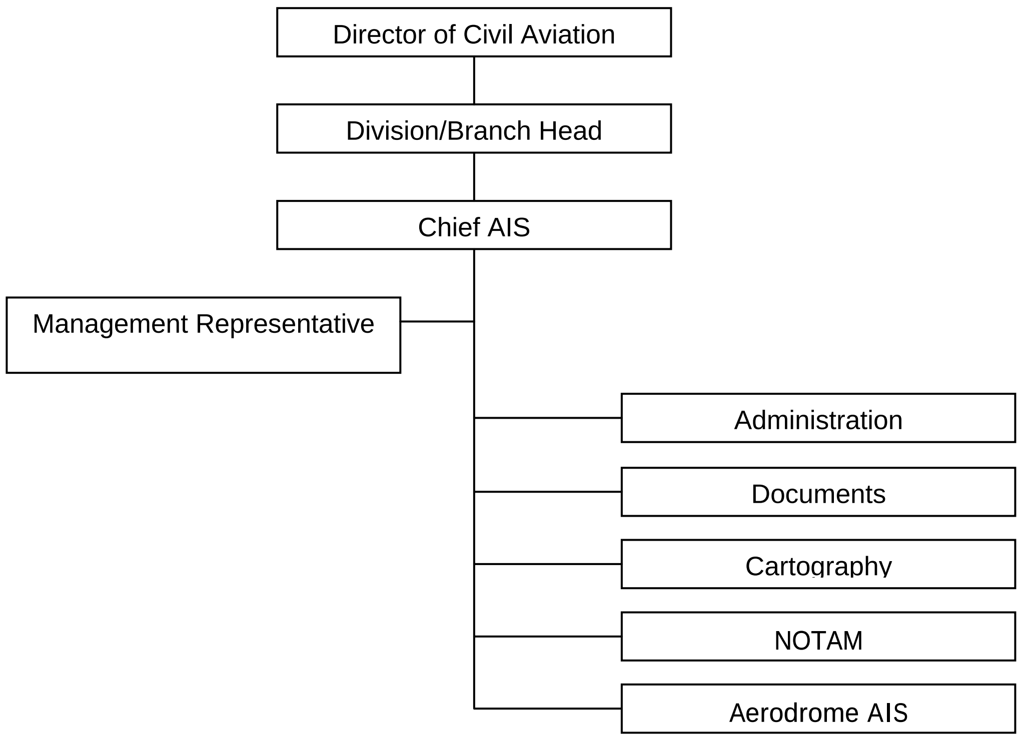

Fig. 1

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Management Representative

Note: It is important to identify one person within the management division who has overall responsibility and authority for the implementation and monitoring of the Quality Policies and procedures described in this Manual.

Responsibility and authority for all quality processes and functions described in this Manual and associated aspects of the AIS are held by the < specify title or position of Manager with overall responsibility for the AIS quality system >.

Specify title or position of the manager with overall responsibility for the AIS quality Management System > has the responsibility and authority for:

(a) ensuring that identified processes for the quality Management System are established and maintained;
(b) reporting to Senior Management on the performance of the quality Management System, including improvements, and
(c) promoting awareness of customer requirements throughout the organisation.

As shown in the above organisation chart, it may be useful to structure the AIS as sections or Departments, where each could be responsible for certain aspects or activities of the AIS. These could include an Information Section, Cartographic Section, Publishing Section, NOTAM Section, Aerodrome AIS Section and an Administration Section. Suggestions on the responsibilities of each of these are shown below.
It is not necessary to adopt a similar organisation, remember that in a quality Management System, it is about to describe what is done.

Documents Section

The Documents Section includes a Coordinator and <insert number > assistants.
This team has primary responsibility for the processing of changes provided by the Information and Cartographic Section to create AIP amendments and other document changes for printing and distribution.

Cartography Section

The Cartographic Section includes a Coordinator and <insert number > assistants.
This team has primary responsibility for the processing of amendments to charts.

NOTAM Section

The NOTAM Section includes a Coordinator and <insert number > NOTAM Officers.
This team has primary responsibility for operation of the International NOTAM Office with its corresponding NOTAM exchange and the maintenance of the NOTAM Data Bank.

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Aerodrome AIS Section

The Aerodrome AIS Section includes a Coordinator and <insert number> assistants.
In the section, the primary responsibility is the provision of Pre-flight information.

Administration Section

The Administration Section includes a Coordinator and <insert number > assistants.
This team provides administration support to the AIS.

3.1 Responsibilities and Authority

3.1.1 Position Descriptions

The responsibilities and authorities of each AIS staff member are detailed in individual Position Descriptions, copies of which are held by each staff member and on file <insert the file name and reference.>

> *Note: Position Descriptions are important - they should clearly specify the responsibilities of each individual staff member.*
>
> *Position Descriptions should be held on file and not included within this Manual. This enables changes in staff to be made without the need to amend this Manual. A suggested position description for an AIS team member is shown in Appendix 1.*
>
> *Position Descriptions might be kept at the Human Resources Directorates or Departments. The Responsibilities of the positions may also be described in the Procedures of the quality Management System.*

Written contracts are held by <the AIS or Human Resources Unit, as applicable> for the provision of those services.

4. Quality Management System

4.1 General Requirements

The AIS of <Insert name of the State or AIS Unit> has identified a series of processes controlling the main activities of the AIS, establishing an adequate sequence and interaction between them, which is represented in the map of processes of the Appendix 2. These processes are described through the Specific Procedures and are classified by AIS areas:

AIS Publications and Aeronautical Cartography:

- Development of Integrated Documentation
- Distribution and/or provision of the integrated Documentation
- Sale of publications upon request
- Processing of requests of NOTAM issuance

International NOTAM Office:

- NOTAM issuance
- Processing foreign NOTAMs
- Updating and maintenance of static and basic database

Aerodrome AIS:

- Development of Pre-flight Information bulletins
- Dispatch of pre-flight information.

Note: The quantity of Processes, as well as their classification and identification will depend on the own AIS organisation of each State.

In each Procedure the Acceptance Criteria of the product or service are established, with their respective assessment methods in order to ensure that the operation and control of them are efficient.

In the AIS the necessary resources and information for the development and monitoring of the processes are ensured, and processes to ensure the measurement and analysis of the results have been also implemented and the necessary actions for continual improvement of these processes are performed.

Moreover, other General Procedures have been established, which constitute requirements of the ISO Standard and control the implemented Quality Management System, as follows:

- PG-02, Control of the Documentation and of the Quality Records.
- PG-03, Internal Auditing.
- PG-04, Control of Non-conformities, Corrective and Preventive actions.

4.2 Requirements of the documentation

4.2.1 Generalities

The documentation of the Quality Management System in AIS is structured in four levels:

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- Quality Manual
- General Procedures
- Specific Procedures
- Technical Instructions, Manuals, Rules, other kind of documents.

4.2.1.1 Quality Manual

It is the first-level document of the system. It expresses in an orderly manner the statement of the Policy, Objectives, organisation and general rules of conduct of the AIS for the activities with an influence over quality.

The management of the Quality Manual is carried out in accordance with the introductory part of this Manual.

4.2.1.2 General Procedures

They are the second-level documents of the system. The aim of them is to detail how to carry out the guidelines provided in the Quality Manual. The General Procedures are developed in accordance with the ISO Standard, according to the Documented Procedures it requires. The General Procedures apply in general to all the AIS.

The management of the General Procedures is described in procedure PG-02, "Control of the Documentation and of the Quality Records".

4.2.1.3 Specific Procedures

They are the third-level documentation. They are basically documents of a technical contents, that define in written the processes and the activities carried out by the AIS, they also detail the incumbents, the resources, the assessment methods and the registers of the system.

The management of the Specific Procedures is described in procedure PG-02, "Control of the Documentation and of the Quality Records".

4.2.1.4 Technical Instructions and other kind of Documents

These form the fourth-level documentation. Their aim is to provide the personnel with clear and detailed instructions necessary for the right operation of determined parts of the Quality Management System. The management is documented in the aforementioned procedure PG-02.

Apart of the aforementioned documentation, AIS also uses regulatory documents that establish obligations, as well as other reference documents of a consultative nature. That documentation is also controlled and permanently updated by the Authorities or Departments responsible for its use. Its management is documented in procedure PG-02, "Control of the Documentation and of the Quality Records".

Note: The quantity of Procedures, their size, and the nature of their format and presentation, will be determined according to the complexity of each AIS organisation and the processes that are determined.

4.2.2 Quality Manual

This Quality Manual is the documental basis of the Quality Management System in the AIS of <Insert name of the State>. The compliance with its contents is mandatory to all the members of the organisation and related activities within the AIS.

In the introduction part of this Manual the specifications concerning its management are described.

4.2.3 Document Control

> ***Note:*** *These procedures relate to the amendment and control of this Manual as well as some other processes and procedures for the AIS Quality Management System. The Document Control and measures in place in the AIS should be specified in this part or in a Document Procedure. Parts of the text shown below may be suitable for inclusion in this Quality Manual.*

The objective of this part of the Quality Manual is to describe the procedures followed in the AIS for the Control of the Documentation related with activities affecting quality, with the aim of ensuring that only applicable documents known by all the staff are used.

In the AIS, Document Control is applied in accordance with PG-02 "Control of the Documentation and of the Quality Records".

The requirements established in this part apply to the following documents:

- Quality Manual
- General Procedures
- Specific Procedures
- Technical Instructions and other kind of documents.

The technical and regulatory documentation of external origin applicable to the activities of the AIS is also included, such as, among others:

- ICAO Annex 4 - Aeronautical charts.
- ICAO Annex 15 - Aeronautical Information Services.
- ICAO Doc. 8126 Aeronautical information Services Manual.
- ICAO Doc. 8697 Aeronautical Charts Manual.
- National AIS Regulation.
- <Insert other relevant documents >

All the documentation of the system developed by the AIS will be duly revised, updated and approved prior to its issuance and application.

With the Document Control, it is ensured that the identification of changes and the status of revision of the documents are adequate, as well as the fact that they are available en the use points, the applicable guidelines and registers are described in PG-02 "Control of the Documentation and of the Quality Records".

The external origin documentation arrives to AIS by different systems and in diverse ways, this documentation serves as a basis for its adaptation and subsequent development of the quality documentation issued by the AIS, therefore, it is duly identified and its distribution is controlled.

In order to prevent the non-intentional use of obsolete documents, identification is applied to all the documents of the system developed by AIS, containing, as a minimum, the following elements:

- Title
- Code
- Revision Number
- Date
- Number of pages
- Number of the copy (as per the distribution control).

4.2.4 Records Control

In the AIS, the records control is applied as per PG-02 "Quality Documentation and Entry Control". the identified records in the system have been established and are kept to provide evidence of the compliance with the requirements, as well as of the efficient operation of the Quality Management System in the AIS.

AIS records are kept legible, they are easily identified and retrieved. In each Procedure, whether it is General or Specific, its storage form, protection, retrieving, withholding time and use availability are defined.

5. Responsibility of the Directorate

5.1 Commitment of the Directorate

AIS Directorate <insert the Authority Directorate under which AIS is located or the AIS Unit, as applicable> has the COMMITMENT of developing and implementing a Quality Management System based on the International Standards of series ISO 9000, as well as of ensuring continual improvement of its efficiency.

This commitment involves all the personnel of the organisation, communicating the importance of complying with the established requirements.

The evidence of this commitment is the establishment of the Quality Policy and objectives of the organisation, carried out by the Directorate, as well as the revisions to ensure that the system is effective and efficient, ensuring at all times the necessary resources to attain the objectives.

5.2 Customer Focus

AIS Directorate <insert the Authority Directorate under which AIS is located or the AIS Unit, as applicable> has established the necessary mechanisms and methods for ensuring that the requirements of the customer have been determined and are complied with, keeping the firm purpose of increasing the customer's satisfaction.

Among the Customers of AIS the main one has been identified: *The Pilot*.

Other AIS identified customers are:

- Representatives and operations personnel of the airlines;
- Organisations and Authorities of the State;
- Firms that manufacture Charts and Manuals;
- Other States' AIS, and
- <Insert other as appropriate >.

5.3 Quality policy

AIS Quality policy is described in part 2, of this Quality Manual. This Policy will be diffused at all the levels of the organisation so as to ensure that it is understood, implemented and kept up-to-date.

The diffusion of the Policy will be carried out in accordance with what is established in part 2.2 "Communicating Quality Policies and Quality Objectives" of this Manual.

The responsibility of diffusing the Policy corresponds to the Directorate, delegating in the Representative of the Directorate the implementation of the necessary actions for the diffusion.

When making revisions to the quality Management System, the degree of implementation of the policy and its adaptation to the organisation will be verified.

5.4 Planning

5.4.1 Quality Objectives

The AIS Quality Objectives are described in part 2.1 of this Quality Manual. They have been established at all the levels of the organisation and are in line with the AIS Quality policies.

5.4.2 Planning the Quality Management System

AIS Directorate, starting from the general requirements of the system, described in part 4.1 of this Manual, guides its planning process towards the fulfillment of the requirements mentioned in the identified Processes and Procedures, as well as the fulfillment of the implemented Quality Objectives.

Planning keeps the integrity of the Management System within the AIS when changes to this latter are planned and implemented, with the objective of ensuring the customer's satisfaction and the increase of his/her expectations.

5.5 Responsibility, Authority and Communication

5.5.1 Responsibility and Authority

AIS Directorate has ensured that the responsibilities and authorities that take part in the Quality Management System have been well defined and communicated within the AIS. In the Management System Procedures the specific responsibilities of each member of the AIS are described for each specified process or activity.

The areas that integrate the AIS are the following: <as an example >

- AIS and Aeronautical Cartography Publications
- NOTAM
- AIS of aerodromes

Each one of these areas is composed by a Section Chief or Coordinator and the corresponding AIS Assistants. Details on this matter may be found in this Manual in part 3, "Organisation".

The functions assigned to each one of these areas are described in the National Regulation of the AIS <insert other applicable document as appropriate>, corresponding to the Aeronautical Authority <specify>, edition dated <insert number of edition, date, etc.>.

With the aim of obtaining an effective development of the Quality Management System, the AIS Quality Committee has been created. The Committee is composed by: <for example>

- Chief AIS, as Chairman of the Committee
- Chief AIS Documents Section, as Secretary of the Committee
- Chief NOTAM Section
- Chief Cartography Section

> *Note: The composition of the Quality Committee will depend on the structure of the organisation and it may be also integrated by persons in charge or AIS assistants with experience in AIS*

The mission of the Quality Committee is: <for example>

- The review of the Quality Manual and of the Procedures of the system.
- Making revisions of the System by the Directorate.
- The constant analysis and measurement of the effectiveness and efficiency of the system implemented in the AIS.
- <Insert other missions as appropriate>

The periodicity established for holding meetings of the Quality Committee will be on a quarterly basis <insert the time as deemed appropriate by the organisation, but not longer than six months>. Nevertheless, the Chairperson of the Committee may convene extraordinary meetings when deemed appropriate.

5.5.2 Representative of the Directorate

As described in part 3 “Organisation”, a Manager Representative of the Directorate has been designated, who assumes the functions of Chief of AIS Documents <insert position as defined by each AIS organisation> and is also Secretary of the AIS Quality Committee.

This Quality Representative has the authority and responsibility delegated by the Chief AIS <or the Chief of the Directorate of the Authority under which AIS is located> for implementing the Quality Management System, having to verify its proper implementation.

> *Note: It is recommended that in case the AIS are located under a Civil Aviation Directorate, that the Chief AIS be assigned the responsibility of Representative of the Directorate.*

The Representative of the Directorate will inform the AIS Quality Committee on the status of operation of the Quality Management System so that he/she may perform the review of the System.

The functions regarding quality assigned to the Representative of the Directorate are the following:

- Perform or coordinate the development of the documentation of the Quality Management System, as well as to ensure its implementation and management, in its first edition as well as in the successive updates;
- Propose the Annual Internal Audits Plan and monitor it;
- Monitor the implementation of the corrective and preventive actions, as well as the improvement needs, and
- Make sure that the awareness of the customer's requirements is fostered throughout the organisation and inform the Directorate of the AIS on the results of the Quality Management System.

5.5.3 Internal Communications

The Directorate of the AIS ensures the communication of all the activities related with the Quality Management System at all the levels of the organisation through the Manual itself, meetings and seminars with the personnel, implementation of agreements, assessments and verification of the proficiency, through exposure at self-informative boards, quality workshops and other available means.

5.6 Review by the Directorate

5.6.1 Generalities

The Directorate in conjunction with the AIS Quality Committee is responsible of reviewing, in a semester basis <insert the time as deemed appropriate by the organisation, but not exceeding one year>, the Quality Management System implemented in the AIS. The aforementioned review will have the objective of ensuring of the continual advisability, adaptation and efficiency of the system. The review includes the identification of the opportunities of improvement and the need of making changes to the Quality Management System.

Records should be kept of the results of the reviews, done by the Representative of the Directorate. The Report of the Review should count with the approval of the Chief AIS <or higher authority to which AIS belongs>.

The Representative of the Directorate will be responsible for the control and archive of the Reports of the Review. These documents will be considered as Quality Records.

Note: Although it is not a requirement of the Standard, it is recommended to establish a General Procedure describing the Review of the System by the Directorate and to apply it throughout the organisation.

5.6.2 Information for the Review

To start with, the information for the Review by the Directorate of the AIS should include:

- Results of audits,
- Back feeding from the customer,

- Analysis of the performance of the processes and compliance of the AIS products,
- Status of the corrective and preventive actions,
- Actions of previous monitoring Reviews by the Directorate,
- Changes that may affect the Quality Management System, and
- Recommendations for improvement.

5.6.3 Results of the Review

The results of the Review by the Directorate in the AIS should include all the decisions and actions concerning:

- The improvement of the effectiveness of the Quality Management System of the AIS and its processes.
- The improvement of the AIS products with regard to the requirements of the customer and other rules.
- The determination of the resources needs to increase customer's satisfaction.

The results of these reviews will be made available to all AIS personnel.

6. Resources Management

6.1 Provision of Resources

Each Chief within the AIS is responsible for identifying the needs concerning means and staff for the execution, management and checking of the activities in charge of his/her area regarding Quality. This will allow to improve the effectiveness of the quality Management System and to increase the customer's satisfaction.

6.2 Human Resources

6.2.1 Generalities

The staff working in the AIS and who is involved in quality activities is duly trained in technical-professional education through Basic Course AIS/021, which prepares them and provides them skills to work in any area of the AIS, in which, through other more specialized training programmers, they acquire the necessary experience to ensure the permanence in their work post.

6.2.2 Proficiency, awareness and training

In accordance with ICAO Annex 15, "Aeronautical information services", the AIS in the context of a quality system, will identify the qualifications and the knowledge required for each function, and will train in an appropriate manner the personnel assigned to perform those functions. The Chief AIS will ensure that the corresponding records are kept, so that the qualifications of the personnel may be confirmed, once the necessary initial and periodic appraisals are carried out.

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The training and preparation based on the Procedures of the Quality Management System prior and subsequent to its implementation are part of the measures taken by the AIS to ensure that its personnel is aware of the relevance and importance of his/her activities and of how they contribute to the attainment of the Quality Objectives.

6.3 Facilities and work environment

The Chief of the AIS <or Directorate of the Authority under which the AIS is located> is responsible for ensuring the necessary infrastructure and work environment for the AIS.

The AIS should count with the necessary facilities and buildings to perform its functions, the spaces and associated services influence directly the quality of the service and products of the AIS. The equipment, both hardware and software for processing the aeronautical information/data is appropriate with regard to configuration and quantity, the communication means necessary for the exchange, provision and distribution are available in each area of the AIS.

The work environment in the AIS is key to attain the fulfillment of the requirements of the service or product, and therefore the organisation should pay special attention to it.

7. Product Execution

7.1 Planning of the execution of the Product

The planning of the execution of the product in the AIS is basically based on the Quality Objectives established in this Manual.

The requirements to be taken into account for the AIS product developed are defined in the Specific Procedures developed by the AIS area with their respective activities of reviewing, checking, validating and monitoring, as well as the Acceptance Criteria of it.

During the planning of the execution of the AIS product, the necessary records are kept to provide evidence that established requirements are complied with.

7.2 Customer-related Processes

In the AIS, in order to determine product-related requirements, apart from the requirements specified by the Customer, special consideration has been paid to those rules/regulations requirements of ICAO Annex 15 - Aeronautical information services, as well as of national regulatory documents applicable to AIS, in view of the implications that they may have in air navigation safety.

Other additional requirements for AIS products may be considered and previously coordinated, as long as they do not affect the Safety factor.

The conformity with the requirements of each AIS product will be reviewed prior to the distribution or provision of any element of the AIS integrated documentation to the customers.

The AIS keeps constant communication with its customers, the annual subscriptions, the consultations, the requests and the back feeding with the customers, including complaints, they all are elements that have been taken into account in the quality Management System in the AIS, and its processing and treatment are described in the procedures of the system.

7.3 Design and Development

This part of the Standard is not applied to AIS, it is therefore considered an EXCLUSION. The products of the AIS are done based on rules and regulations, and standard formats exist.

The standards specified in the following ICAO Annexes and Documents are applied by the AIS area:

(a) Annex 15 – Aeronautical Information Services
(b) Doc. 8126 – Aeronautical Information Services Manual
(c) Annex 4 – Aeronautical Charts
(d) <Insert other Annexes and Documents used as reference>

Note: This part would not be an EXCLUSION, if the activity of ATS design and construction of procedures is carried out within the AIS organisation, in accordance with the PANS-OPS Doc 8168 – Aircraft Operation.

7.4 Acquisitions

7.4.1 Acquisition Process

This part of the Manual applies to products acquisitions and services hiring which have an influence on the quality of the final product, understanding as such the products developed and distributed or marketed by the AIS.

The AIS require, in order to develop the service or product, a series of means and inputs, Chief AIS < or insert the name of the incumbent in case the organisation counts with an entity or independent Buyer> is the responsible for ensuring that all the products bought fulfill the specified requirements.

The AIS evaluates and selects the providers according to their capacity to provide products in accordance with the requirements established by the AIS.

The organisation must evaluate and select the providers based on their capacity to provide products in accordance with the requirements of the organisation. Criteria should be established for the selection, evaluation re-evaluation. Records must be kept of the results of the evaluations and of any necessary action derived.

7.4.2 Information for the acquisitions

The information for the acquisitions to be made must describe:

- Requirements concerning the approval of the product by the AIS;
- Requirements concerning the procedures and equipments used in the process of execution of the product or service;
- Requirements concerning the quality Management System, and
- Requirements concerning the personnel qualifications if necessary.

7.4.3 Checking the acquired products

The AIS has implemented the inspection to ensure that the acquired product complies with the specified acquisition requirements.

All the acquisitions are subjected to a receipt process that includes some of the following verification:

- Receipt and supervision of the delivery documents;
- Checking the quantity sent, and
- Visual checking of the cargo, to verify the absence of damage.

Note: If the AIS area is not directly responsible for acquisition, it shall also establish and implant controls on the providers and acquired products, further clarifying the requirements and information for acquisitions.

It is recommended, depending on the kind and structure of the organisation, to establish a Procedure for the acquisition process.

7.5 Production and Provision of the Service

7.5.1 Control of the production and of the provision of the service

The provision of the service in the AIS is carried out in a controlled manner in all the areas that compose it, and it is therefore based on:

- The General and Specific Procedures describing the activities to be carried out;
- The equipments, means, and resources at its disposal;
- The training of the personnel involved in each one of the processes;
- The availability and use of the records;
- The implementation of controls and methods to measure the effectiveness and the efficiency of the system, and
- The record and analysis of the results obtained.

The Procedures describing the provision of the service are developed by the different areas of the AIS based on their own criteria and on the regulations developed by the national and international organisations.

7.5.2 Validation of the processes of production and provision of the service

This part is mainly applied to the NOTAMs that cannot be verified by the office through subsequent monitoring or measurement activities, in view of their immediateness and fast distribution. The errors in the NOTAMs are essentially detected once they have been distributed; their deficiencies are apparent only after they are being used and the service has been provided.

The AIS has established provisions for this case through the NOTAM issuance process, which includes:

- Use of NOTAM Databank with possibility of validation of the message prior to its distribution;
- Templates for the introduction of data based on the ICAO-established NOTAM format;
- Application of Selection Criteria and abbreviated phraseology;
- Visualization facilities of NOTAMs in databases;
- The qualification of the personnel, and
- The use of Procedures and Manuals on the NOTAM format.

7.5.3 Identification and Traceability

This part establishes the system used to identify documentation and the initial data in the different stages of the process of developing the AIS integrated documentation, up to its origin.

All the products generated by the AIS are identified during their development process in order to ensure that work is being done with the current data and to avoid the possible accidental use of obsolete editions.

The Traceabilty or data tracking is an essential requirement in the control of the process, in order to be able to detect and correct any anomaly or error in data that might have been detected during the stages of information processing and publication.

The Records established in the Specific Procedures developed by the AIS ensure the traceability of all the information and activities of the processes.

7.5.4 Customer Property

This part is not considered applicable to the AIS Quality Management System, in view that for the development of the integrated documentation and the rest of the services provided, products delivered by the customers are not used.

7.5.5 Preservation of the product

Each one of the areas of the AIS ensures that the products destined for the customer arrive in accordance with the established requirements for each kind of product or service, thus ensuring the preservation and conformity of it.

The AIS products are easily identified and their delivery method to the customer depends on the type of element of the integrated documentation furnished in the corresponding format. the envelopes used for the distribution of Amendments, Supplements, Aeronautical Information Circulars and monthly list of valid NOTAMs are identified in accordance with the requirements of ICAO Doc 8126 – Manual for Aeronautical information services.

The manipulation of aeronautical data and other information is done by using electronic means and databases, by duly trained and skilled personnel.

The printing activities of the products are done externally by a printer of the aeronautical authority. The work hired to an external printer will be done with a prior appraisal and under the specification of the AIS requirements.

AIS products are adequately packed in such a way that its conformity is preserved, the packing are always identified in accordance with ICAO Doc 8126, and the method depends on the volume of products to be sent.

Stocking and protection will depend on the type of publication and on the distribution systems used, data are stocked in databases for their subsequent processing or consulting and diffusion in due time.

Printed matters are kept in places that ensure their status of preservation, avoiding their deterioration and they shall be easily accessed and manipulated.

Specific procedures regarding the Development and Distribution of the Integrated Documentation, as well as the Maintenance of databases describe the Records through which control is kept on stocking and protection of the documents and data.

7.6 Control of monitoring and measuring devices

This part will be applicable when software used for the execution of monitoring and measurement activities of the specified requirements is available. The capacity of these programmes to fulfill their foreseen application should be evaluated prior to use and should be confirmed as required.

8. Measurement, Analysis and Improvement

8.1 Generalities

The AIS is based on the measurement of the Quality Objectives, the Acceptance Criteria described in the Procedures and the measurement of the customer's perception level with regard to AIS products and service in order to prove the conformity of the products and the quality Management System in general.

The revision of the System by the Directorate and the Internal Audits are methods also used by the AIS in order to prove its conformity.

8.2 Monitoring and Measurement

8.2.1 Customer satisfaction

At least once a year, the AIS will monitor the information concerning the customer's perception with regard to the compliance of his/her requirements by the organisation.

The methods to obtain the necessary information for the analysis are the following:

- Surveys to the customers, and
- Level of claims and/or complaints received.

The collected information will be analysed by the Representative of the Directorate, who will present the results to the Quality Committee and subsequently will diffuse it to the customers and to all the organisation. The information will be used in improvement plans of the organisation and to increase the satisfaction level.

8.2.2 Internal Audit

Annually the AIS will carry out a series of Internal Audits in order to determine if the implemented quality Management System complies with the planned provisions, the requirements of the ISO International Standard and with the requirements of the own system implemented in the AIS.

The audits shall demonstrate if the implemented system is kept in an efficient manner by the organisation.

Each upcoming year, the Representative of the Directorate will develop and submit to the approval of the Chief AIS <or Authority within which AIS is set> the Annual Audits Plan, taking into consideration the status and importance of the processes and the areas to be audited, defining the frequency of them.

Before each audit the audit, criteria are to be defined, which must include, among others, the following:

- Results of previous audits;
- Scope;
- ISO International Standards;
- Quality Manual;
- Procedures and Records;
- Improvement Plans;
- Domestic Regulations and Guidelines;
- <insert other as appropriate>

When selecting the Auditors the impartiality principle must be applied as well as the objectivity of the auditing process. The auditors must not audit their own work, which is to say, they must not have direct responsibility over the audited field.

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The Representative of the Directorate is responsible for the conduction of Internal Audits, to that end, he/she will designate the Auditor or Auditors in charge, who will have the necessary qualification to perform their duties.

The result of the Audit will be expressed in an Audit Report, including clearly the deviations found. The Representative of the Directorate will keep a file with all the documents generated by the Audits.

The detected non-conformities will be dealt with as described in the PG-04 Control of Non-conformities, Corrective and Preventive actions.

In the PG-03, Internal Audit, the process to develop the Audits as well as the requirements of the Auditors' qualifications are described.

8.2.3 Monitoring and measurement of the processes

Through the Acceptance Criteria described in the Specific Procedures and through the same Quality Objectives stated in this Quality Manual, the monitoring and measurement of the processes and activities of the AIS are kept, which allow to demonstrate if the planned results are obtained or not. The revisions of the system by the Directorate and the same Internal Audits are methods applied for measurement and monitoring.

The results are taken into account for the corrections to the system and the application of corrective actions, as appropriate.

8.2.4 Monitoring and measurement of the product

In the Specific Procedures developed by the AIS the Acceptance Criteria of the product or service are established, to be taken into account in each appropriate stage of its execution.

In the records established in the Procedures and in the Revisions by the Directorate, the AIS must keep the evidence of the conformity with the Acceptance Criteria.

Each record used to this end will indicate the person(s) authorizing the release of the product and the provision of the service once the compliance with the established requirements is verified.

8.3 Control of the non-conformity product

In the AIS, due to the processing given to aeronautical information/data during all the publication process, and the verification and validation processes made, it is infrequent to find non/compliant products as a result of the process. Notwithstanding, controls must be established to identify these products and prevent their use or unintentional delivery.

In case of detecting non-compliant products, whether it is the case of erroneous data publication or other reasons, the product will be withdrawn and actions will be taken to eliminate the non-conformity and to immediately prevent its use.

Records of the nature of the non-conformities and of subsequent actions take will be kept.

The AIS products corrected will go again under verification and validation so as to demonstrate their conformity, keeping evidence through a record of the results and actions.

The detected non-conformities will be treated as described in the PG-04 Control of Non-conformities, Corrective and Preventive actions.

8.4 Analysis of data

With regard to the data analysis and the appraisal of the execution of the continual improvement of the effectiveness of the quality Management System, the AIS is basically based on:

- Results of Audits;
- Revisions of the System by the Directorate, and
- Customer back feeding.

On this ground, it is inferred that analysis of the data will bring information on:

- The conformity with the requirements of the product and service;
- The trend of the processes and of the products, including the improvement opportunities, and
- The customer's satisfaction.

8.5 Improvement

8.5.1 Continual improvement

The commitment of all the organisation of the AIS is to continually improve the efficiency of the quality Management System.

The Quality Policy and the Quality Objectives established by the Senior Directorate through this Manual, the results of the Audits, the analysis of data, the corrective and preventive actions and the revision by the Directorate are elements and requirements of the quality Management System taken into account by the Administration to ensure the compliance with the principle of continual improvement.

Continual improvement is considered a permanent activity, it includes and is applied in all the areas of the AIS.

8.5.2 Corrective action

The corrective actions shall be in line with the non-conformities found, and are directed towards eliminating the cause of the non-conformity in order to prevent its re-occurrence.

In the General Procedure, PG-04 Control of Non-conformities, Corrective and preventive actions, the following requirements are defined:

- Revision of the non-conformities found in order to control the timely application of the corrective actions. In these revisions customer complaints are included, in case they are attributable to AIS, they are treated as non-conformity;
- Analysing and determining the causes of non-conformity;
- Determining the need for adopting actions to ensure that non-conformities do not reoccur;
- Determining, implementing and monitoring actions taken, and
- Recording results of action taken in order to facilitate the review of corrective actions.

The procedure to follow for the treatment of the non-conformities and the determination of the corrective actions is described in the PG-04 Control of Non-conformities, Corrective and preventive actions.

8.5.3 Preventive action

Preventive actions taken shall be appropriate to the impact of the potential problems, and are directed towards eliminating the causes of potential non-conformities in order to prevent that they reoccur.

In the General Procedure, PG-04 Control of Non-conformities, Corrective and Preventive actions, the following requirements are defined:

- Facilitating the identification of potential non-conformities and their causes;
- Evaluating the need for actions to ensure that non-conformities do not reoccur;
- Determining and implementing the necessary action, and
- Recording results of actions taken and therefore facilitate the revision of preventive actions.

The procedure to follow to determine and apply preventive actions is described in the PG-04 Control of Non-conformities, Corrective and Preventive actions.

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Appendix 1 –Position Description Sample

Job Title: NOTAM Officer
Level: : Aeronautical Information Officer
Location:
Reports to: Aeronautical information Service
Subordinates: NIL

Primary Job Purpose

The primary purpose of this position is to receive the information and to verify it for its subsequent issuance through a NOTAM.

Key Responsibilities or Duties:

(a) Collecting, coordinating and verifying proposals or NOTAMs issuance requests. Preparing and making changes to the database..
(b) Detailed checking of the tables of the NOTAM database.
(c) Checking the published information.
(d) Keeping related quality records.
(e) Keeping and complying with Standards of Specific Procedures.
(f) <insert other responsibilities as applicable>

Key Relationships and Interactions

The occupant of this position is required to develop and maintain working and business relationships with originators of information, data managers and other staff in the AIS offices.

Qualifications and Experience

(a) Basic Course AIS/021 or counting with other relevant experience in aviation such as Pilot or ATS Controller;

(b) Possess and demonstrate a good working knowledge of the AIP, Civil Aviation Regulations, Civil Aviation Orders and Civil Aviation Publications;

(c) Demonstrate a good working knowledge of ICAO documentation, particularly Standards and Recommended Practices relating with the provision of cartography products;

(d) Possess English proficiency, and

(e) Master computer techniques.

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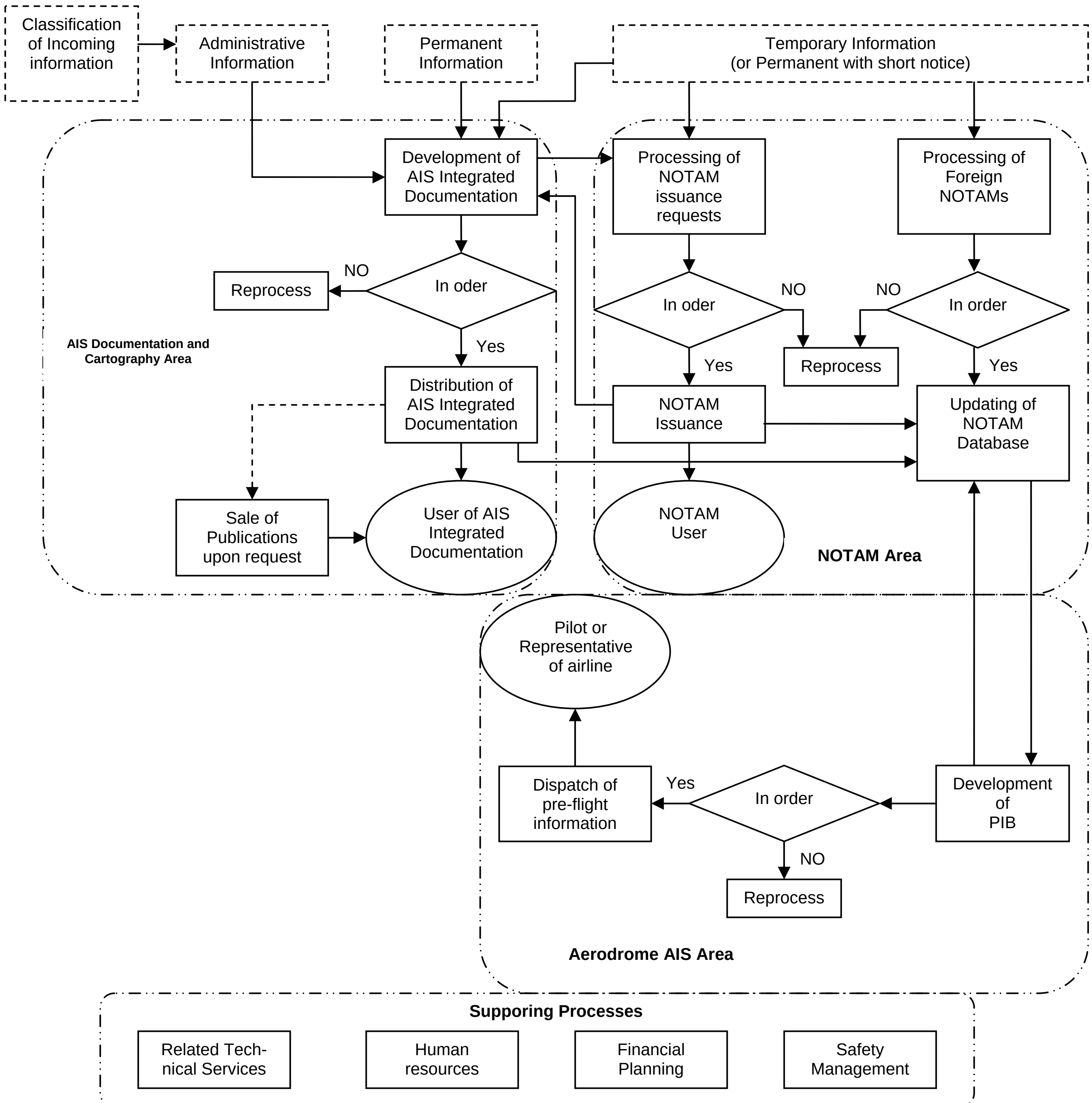
Appendix 2 – Example of Processes Map



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APPENDIX U

CERTIFICATION AND VALIDATION OF AERONAUTICAL DATA

Made by: Position:	Reviewed by: Position:	Approved by: Position:
Signed:	Signed:	Signed:
Date:	Date:	Date:

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1. OBJECTIVE

Describe the procedure to follow for the certification and validation of the aeronautical information/data to be published by the Aeronautical information service, and thus ensure that their quality requirements are fulfilled.

2. SCOPE

This document applies to the AIS Documents and Charts area in charge of producing and distributing the AIS integrated documentation, and it will also apply to the Aeronautical authorities in charge of validating and certifying the aeronautical information/data published by the AIS.

3. REFERENCE DOCUMENTATION

- ICAO Annex 15, Aeronautical Information Services.
- ICAO Annex 4, Aeronautical Charts.
- Doc 9674, World Geodetic System-1984 (WGS-84) Manual.
- Aeronautical information Publication of (insert name of the State).

4. DEFINITIONS

Certification: Process through which those aeronautical data to be published classified as evaluated aeronautical data are validated by a third party. The certification implies the responsibility of a Manager of the Aeronautical authority.

Integrated documentation of Aeronautical information: consists in a set of documents containing the following elements:

- AIP/(State) and its amendments;
- Supplements to the AIP (SUP AIP);
- NOTAM and PIB;
- Aeronautical information Circulars (AIC);
- Verification Lists of pages of the AIP, Supplements and AIC, and
- List of valid NOTAMs.

Accuracy: Degree of conformance between the estimated or measured value and the real value.

Integrity (aeronautical data): Degree of guarantee that no aeronautical reference or its value has been lost nor altered after originally obtaining the reference or an authorized amendment.

Precision: the minimum difference that may be distinguished confidently through a measurement process.

Resolution: Number of units or digits serving to express and to use a measured or calculated value.

Traceability: Possibility of accessing to the background, application or location of the information/data published from their origins.

Validation: Process through which aeronautical data to be published classified as reference aeronautical data are validated by a third-party. The validation implies the responsibility of a Specialist of the Aeronautical authority.

Verification: Confirmation through objective evidence that all the specified requirements for a determined kind of aeronautical information/data have been complied with. The verification is done in order to detect possible errors during the reception, publication and distribution of the piece of information in question.

5. RESPONSIBILITIES

5.1 The Aeronautical authority has the following responsibilities:

a) Supervising and complying with what is established in this procedure.
b) Obtaining within the established period the signature of the legal persons authorized to certify and validate the aeronautical data at the Civil Aviation Directorate of <insert State>.
c) Keeping up-to-date the records established by this procedure as described in item 7.3.

5.2 The Chief of the AIS Documents and Charts area is responsible for:

a) Controlling and supervising in a permanent basis the fulfillment of all the activities described in this procedure.
b) Controlling the quality of the aeronautical information/data received in the area taking into account the defined quality requirements.
c) Ensuring that it is possible to obtain in all the cases the traceability of all the aeronautical information/data processed and distributed by the AIS Documentation office.
d) Controlling the updating of the records established by this procedure and the compliance with the indicators and the acceptance criteria of the product or service.
e) Ensuring that an objective analysis is done as soon as possible of each complaint or claim deriving from the incompliance with the quality requirements of the aeronautical data, as well as taking the relevant actions deriving of it.
f) Taking the necessary actions, in case that a deviation from what is described in this Procedure occurs, affecting the quality requirements of the elements of the Integrated AIS documentation.

5.3 The AIS Technicians and Aeronautical Cartographer are responsible for:

a) Strictly complying with all what is established in this procedure.
b) Verifying the quality of the aeronautical information/data to be published that are received in the area taking into account the defined quality requirements.
c) Obtaining in all the cases the traceability of all the aeronautical information/data processed and distributed by the AIS Documentation office.

d) Keeping up-to-date the records established by this procedure and complying with the indicators and the acceptance criteria of the product or service.

e) Making an objective and fast analysis of each complaint or claim of the service provided by the AIS Documentation office.

f) Notifying the Chief of the Documentation area and taking the necessary actions in case that irregularities that may affect the service provided to the customers are detected.

6. ACCEPTANCE CRITERIA

In order to evaluate the quality of this activity, the following indicators and objectives are established:

6.1 **Level of Precision:** this indicator should provide evidence that all the data published by the Aeronautical information service are duly certified and validated by the corresponding Aeronautical authority and will be a non-conformity each time some piece of information that does not comply with this requirement is detected.

In order to calculate this indicator, the certification and validation records will be taken as reference (Refer to annexes 3 and 4 of this procedure).

6.2 **Level of Resolution:** this indicator is the warrantee that all the data published by the Aeronautical information service comply with the *Resolution,* established in the Table of requirements with regard to quality of the aeronautical data, (Refer to table 2.1, World Geodetic System-1984 (WGS-84) Manual).

The detection of a piece of information published in any element of the integrated documentation that does not comply with the established resolution will constitute a non-conformity.

6.3 **Complaints and claims rate:** those complaints and claims from the customers and referred to incompliance with regard to the quality requirements of the aeronautical data published in any element of the integrated AIS documentation and that it is proved through analysis that they are attributable to the AIS Documentation area. This indicator shall not exceed the number of <insert each State according to previous data analysis> by Publication.

The complaints and claims will be given proper treatment, making an analysis until arriving at accurate and precise conclusions in as little time as possible and they will be registered in the Registration of Complaints and claims (Refer to Annex 5 of the AIRAC Publications procedure).

7. DESCRIPTION OF THE ACTIVITY

7.1 Classification of the information/data according to their precision:

Once received in the AIS Documents and Charts Office, the aeronautical information/data to be published go through a classification process according to their precision as:

- **Evaluated data**: All data regarding position (latitude, longitude), elevation, height, altitude, longitude, distance, dimension, bearing, declination and magnetic variation features.

- **Reference data**: All data concerning navaids identifiers, frequencies, name of points, airports, rescue and fire fighting facilities, working hours, telephones and addresses among others.

Likewise, for each piece of information the corresponding resolution will be specified as established in the Table of requirements concerning the quality of the aeronautical data (Refer to table 2.1, World Geodetic System-1984 (WGS-84) Manual).

7.2 Request of certification and/or validation of the aeronautical data to be published:

Once the aeronautical information/data are classified, whether they are new data or changes to what was already published, the AIS technician of the Documents Office will create *requests packages* independently addressed to each one of the responsible aeronautical authorities for their approval. In all the cases, a printed copy of the original request received at the AIS Documents office will be attached.

In case that the information to be certified and/or validated refers to topographic surveys works. The backing or report of the firm that makes the topographic survey in question will be attached to this request of certification and/or validation, this information will be developed as explained in Attachment C to Chapter 5, Manual of the world geodetic system -1984 (WGS-84). Before performing the surveys, the AIS will submit the requirements of the aforementioned attachment to the firm in charge of the works.

Once the necessary information for the request of certification and/or validation is gathered, it will be sent to the relevant aeronautical authority in charge of certifying or validating it.

The AIS technicians in charge the publication will verify the resolution of each piece of information received according to table 2.1 of the Manual of the world geodetic system 1984 (WGS-84), keeping track of the checking in the Registration of Resolution of the aeronautical data (Refer to Annex 2 to this procedure).

7.3 Certification and/or validation of the information/data by the Aeronautical authority:

Once the information to be certified and/or validated is received from the Documents Office, it will be checked and the records established in Annexes 3 and 4 will be completed.

In the case of certifications supporting aeronautical data topographically surveyed, special attention will be paid to the mandatory presentation of the required evidence and backings in items 13, 14 and 15 of the record contained in Annex 3.

Once these records are completed, they have to go through each one of the responsible aeronautical authorities for their approval with authorized signatures; this process shall not take longer than <insert by each State according to analysis of previous data>.

Once the information is certified and/or validated, as appropriate, these records will be submitted to the AIS Documentation office with the corresponding attached information in order to proceed with their publication, as per the established procedures.

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7.4 Receipt of certification and/or validation of the aeronautical information/data:

Once the certification and/or validation from the Aeronautical authority certifying and/or validating the publication of the aeronautical information/data is received, the process of producing of the elements of the integrated documentation has to be done by the AIS Documentation office, filing all this documentation regarding the certification and/or validation and registration of resolution in the publication records (Refer to the procedure of AIRAC Publications, Item 9.1),

In case that the publication of the aeronautical information and/or data is not approved by the relevant Aeronautical authority, because view that it does not comply with the requested requirements or of any other cause, a communication will be sent to the originator, whether it is the case of the related technical services or a hired body; explaining in detail the reasons of the rejection, requesting to resend it with the corrected information, reinitiating again this process. A copy of this communication will be kept in the file of the publication.

8. CHANGES

This Procedure will be modified when a change occurs in the methods of operation of the automated systems, or in ICAO standards.

It may also be changed due to the results of audits or improvements applied to the implemented Quality Management System.

The changes to this document will be duly supported, documented and will be reviewed and approved by the corresponding Authority.

9. RECORDS

The Records generated by this Procedure are the following:

9.1 **Registration of the Resolution of the aeronautical data:** This Record will include the information regarding the resolution of the data to be published, checking if the established resolution of each piece of information coincides with the one provided by the originator according to the requirements with regard to the quality of the aeronautical data, (Refer to Annex 2 of this procedure).

9.2 **Registration of Certification of evaluated data:** this Record will be applied to certify the authenticity of the evaluated information/ data (latitude, longitude, elevation, altitude, height, bearing, magnetic variation, bearing, longitude, distance and dimension) by the relevant Aeronautical authority prior to its publication in some element of the AIS integrated documentation (Refer to Annex 3 of this procedure).

9.3 **Registration of Validation of the reference data:** this Record will be applied to validate the authenticity of the information/reference data (navaids identifiers, frequencies, points name, airports, rescue and fire-fighting facilities, working hours, telephones, addresses, etc) by the relevant Aeronautical authority, prior to its publication in some element of the AIS integrated documentation, (Refer to Annex 4 of this procedure).

10. DISTRIBUCION AND FILING

10.1 These Records will be filed in the Registration of publication of the corresponding Amendment, Supplement or Circular, (Refer to Annex 3, of the AIRAC Publications procedure) and will be filed by date in an accumulative manner.

11. ANNEXES

Annex 1: Flow chart.
Annex 2: Registration of Resolution of the aeronautical data.
Annex 3: Registration of Certification of evaluated data.
Annex 4: Registration of Validation of reference data.

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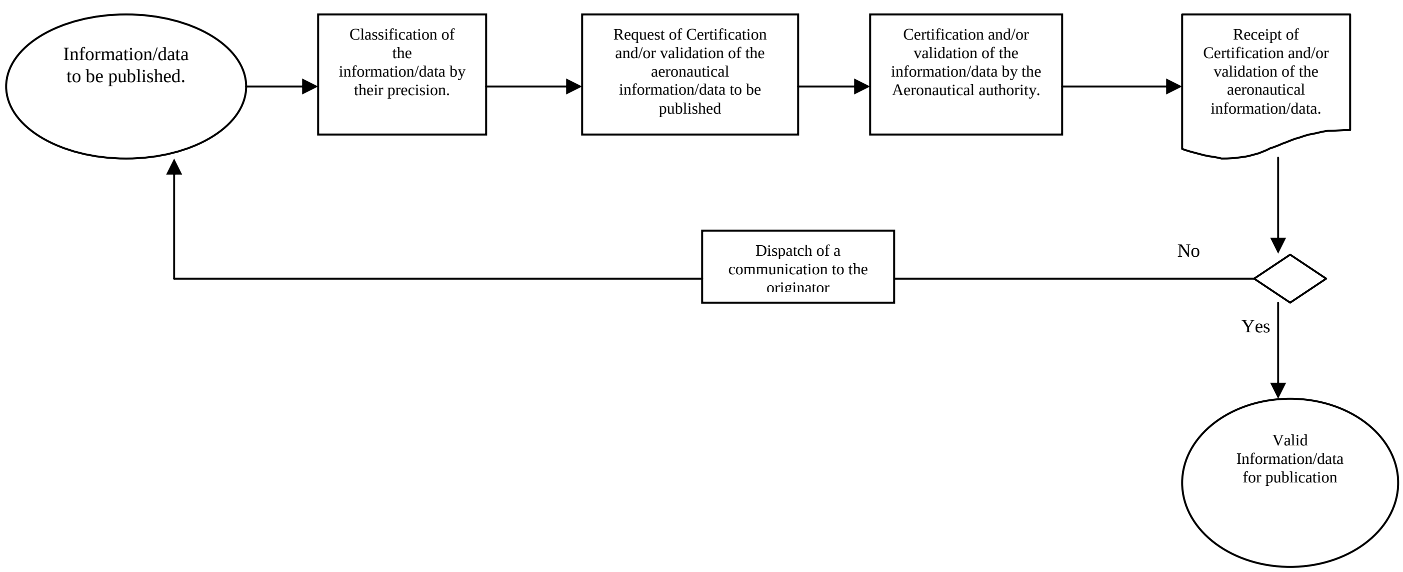
ANNEX 1: FLOW CHART OF THE PROCEDURE OF CERTIFICATION AND VALIDATION OF AERONAUTICAL DATA.



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ANNEX 2: REGISTRATION OF RESOLUTION OF AERONAUTICAL DATA.

REGISTRATION OF RESOLUTION OF AERONAUTICAL DATA				**R- XXXX**	
Information/data received	**Required resolution**	**Presented resolution**	**Compliance**	**Origin of the piece of information**	**AIS Technician**
Date:	Reviewed by:			Signature of the Chief of the Office:	

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ANNEX 3: REGISTRATION OF CERTIFICATION OF EVALUATED DATA.

CERTIFICACION OF THE EVALUATED DATA
(latitude/longitude, elevation/altitude/height, magnetic declination/variation, bearing, longitude/distance/dimension/)
Complete in print.

1	Civil Aviation Authority:		
2	Organization/Firm within the aviation system that delivers the aeronautical information/data:		
3	Specialty:		
4	Name/Signature of the person providing the aeronautical information/data:		
	Position:		
	Telephone:		
	Fax:		
	E-mail:		
5	Backing of the corresponding Manager:		
6	Type of aeronautical Data evaluated:	Latitude/longitude	
		Elevation/altitude/height	
		Magnetic declination/variation	
		Bearing	
		Longitude/distance/dimension	

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7	Description of the information:	

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8	The information provided is:	New			
		Changes			
		Replaced by previous error			
9	Firm outside the system that processed the aeronautical information/data:				
10	Type of coordinate (as appropriate):	Topographically surveyed			
		Calculated			
		Declared			
11	Method of obtaining the coordinates:	GPS Topographic survey			
		Graphic method			
12	Geodetic reference with which the coordinates are related:	Clarke 1866			
		WGS-84			
		Unknown			
13	Evidence of the survey is attached:	Yes		No	
14	Qualification of the personnel that performed the topographic survey of the aeronautical information/data:				
15	Backing of the relevant authority on the qualification is attached:	Yes		No	
16	Precision with which the evaluated data are determined:	Latitude/longitude			
		Elevation/altitude/height			
		Magnetic declination/ variation			
		Bearing			
		Longitude/distance/ dimension			
17	Backing of the technical status of the equipment used is attached.	Yes		No	
18	Date of the last calibration of the equipment.				
19	Is it covered by the quality management system ISO 9001/2000	Yes		No	
20	In case of ATS procedures, has it gone through tests prior to the publication:	Yes		No	

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ANNEX 4: REGISTRATION OF VALIDATION OF REFERENCE DATA.

VALIDATION OF THE REFERENCE DATA

Complete in print.

1	Civil Aviation Authority of:		
2	Organization / Firm within the aviation system that delivers aeronautical information/data:		
3	Specialty:		
4	Name/Signature of the person that provides the aeronautical information/data:		
	Position:		
	Telephone:		
	Fax:		
	E-mail:		
5	Description of the information:		
6	The information provided is:	New	
		Changes	
		Replaced by previous error	

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APPENDIX U

AIRAC PUBLICATIONS

Made by: Position:	Reviewed by: Position:	Approved by: Position:
Signature:	Signature:	Signature:
Date:	Date:	Date:

(Insert Logo of the organization)	(Insert name of the responsible authority) AIRAC PUBLICATIONS (Draft Procedure)	Code: PE-XXXX Revision: 0.0 Date: 25-03-04 Pages: 116 of 16 Copy Num.: _____

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	AIRAC PUBLICATIONS (Draft Procedure)	

1. OBJETIVE

To describe the procedure to follow for the development and distribution of Amendments and Supplements to be published through the Regulation and Control System of the Aeronautical information (AIRAC).

2. SCOPE

This document applies to the AIS Documents and Charts area, in charge of producing and distributing the AIRAC Amendments and Supplements, and will apply to the Chief of the area and the technicians of the Aeronautical information service (AIS) who perform those duties, as described in Annex 15, Appendix 4, Parts 1 and 2.

3. REFERENCE DOCUMENTATION

- ICAO Annex 15, Aeronautical Information Services.
- ICAO Annex 4, Aeronautical Charts.
- ICAO Doc 8126, Aeronautical information Services Manual.
- Aeronautical Information Publication of (insert name of the State).

4. DEFINITIONS

Storage: Depending on the distribution systems used, data will be stored for their subsequent processing, consultation and diffusion in a timely manner.

Collating or assembling: analysis, search and inter-relationship process of all the elements composing the contents of the aeronautical information/data to be published. Verification of the compatibility with what is already published, or likewise, the changes to what has been already published and/or stored in the databases.

Aeronautical information Integrated Documentation: consists of a set of documents containing the following elements:

- AIP/(State) and its amendments;
- Supplements to the AIP (SUP AIP);
- NOTAMs and PIBs;
- Aeronautical Information Circulars (AIC);
- Checking Lists of pages of the AIP, Supplements and AIC, and
- List of valid NOTAMs.

Edition: Transfer of the information to the adequate systems for its formatting.

Formatting: Process through which format is given to the information that is being edited.

Production Process: It refers to all the process including the activities or stages of verification, collating or assembling, edition, formatting, validation, publication and storage of information.

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Publication: Printing and/or reproduction of the documentation to be published, with the corresponding historical filing of it.

Regulation and Control System of the Aeronautical information (AIRAC): It is the system used for the anticipated notification, based on common applicable dates, of the circumstances requiring important changes in the operating methods.

Validation: Confirmation that the requirements of the information/data to be published, through objective proof and evidence, are completely fulfilled.

Verification: Confirmation through objective evidence that the specified requirements for a determined kind of aeronautical information/data have been fulfilled. The verification is done in order to detect possible errors during the transmission of the ´piece of information in question and it allows to verify the information from the point of vista of its veracity.

5. RESPONSIBILITIES

5.1 The Chief of the AIS Documents and Charts area is responsible for:

a) Controlling and supervising in a permanent basis the fulfillment of all the activities described in this procedure.
b) Verifying and controlling the quality of the aeronautical data to be published through the AIRAC system received in the area taking into account the defined quality requirements.
c) Ensuring the compliance with AIRAC dates established for each publication.
d) Coordinating with the originators of the information/data to be published of the respective publication and applicable dates as appropriate.
e) Controlling the constant updating of the AIS/MAP database and AIS website, as well as the active and passive records of the integrated documentation.
f) Planning, guiding and controlling the production and distribution process of the AIRAC Amendments and Supplements.
g) Keeping the control and updating of the established records for this procedure and controlling the compliance with the indicators and the acceptance criteria of the product or service.
h) Managing and controlling the necessary input in order to ensure the production process of the AIRAC Amendments and Supplements.
i) Taking the necessary actions in case a deviation from what is described in this Procedure affecting the quality of the production and distribution of the AIRAC Amendments and Supplements occurs.

5.2 The AIS Technicians and Aeronautical Cartographers are responsible for:

a) Strictly complying with what is established in this procedure.
b) Verifying the quality of the aeronautical data received for their publication, taking into account the defined quality requirements and notifying the Chief of the area of the doubts, inconsistencies or errors detected during the process.
c) Ensuring the compliance with established AIRAC dates for each publication.

d) Executing the production process, distribution and maintenance of the AIRAC Amendments and Supplements.
e) Updating the AIS/MAP database and the AIS website, as well as the active and passive electronic Records of the integrated documentation.
f) Keeping updated the records established by this procedure and complying with the indicators and the acceptance criteria of the product or service.
g) Notifying the Chief of the Documents area and taking the necessary actions in case that during the production of the AIRAC Amendments and Supplements, irregularities that may affect the service and the customers are detected.

6. ACCEPTANCE CRITERIA

In order to evaluate the quality of this activity the following indicators and objectives are established:

6.1 Time of distribution of the document:
The AIRAC Amendments and Supplements to the AIP should be totally ready for distribution 42 days prior to the applicable date.
For the publication of information by the Regulatory and Control System of Aeronautical information (AIRAC), all what is stated and recommended in Chapter VI of Annex 15, in its items 6.2 and 6.3 must be complied with.

6.2 Complaints and claims:

6.2.1 Rate of complaints and claims by referred deficiencies caused by errors or omissions in the production process of the AIRAC Amendment or Supplement. This indicator shall not exceed the figure of <as defined by the State > errors by Amendment and <as defined by the State> errors by Supplement, considering an error those that the customers provide through complaints and that are imputable to the AIS Documents Office.

6.2.2 Rate of complaints and claims by determined deficiencies caused by deterioration, delays lacks and returns of documents in the distribution process and/or provision of the AIRAC publications and non-compliance of the sending or delivery delays of the latter to the customers. This indicator shall not exceed <as defined by the State > cases by delivery done that are considered imputable to the AIS Documents Office.

The complaints and claims will be given the appropriate treatment as soon as possible and they will be registered in the Record of Complaints and claims (Refer to Annex 5 to this procedure).

6.3 Opinion of the Customer: Allows to know the opinion of the customer on the AIS Integrated documentation published through the AIRAC system that is developed and distributed by the AIS Documentation area.

Obtained through the performance of surveys to the customers, once a year at least, that shall be sent to 100% of the customers of the AIS integrated documentation and the results shall be published to all the customers and filed in the opinion of the customer record (Refer to record 9.6 of this procedure). In order to obtain the assessment of compliance, the level of satisfaction of the customers surveyed shall be equal or greater than 90%.

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7. ACTIVITY DESCRIPTION

7.1 Receipt, classification and coordination of the aeronautical information/data:

Once the aeronautical information/data to be published is received at the AIS Documents and Charts Office, it is firstly determined if the application of the AIRAC system proceeds, as described in Annex 15, Appendix 4, Parts 1 and 2.

The main means to receive the aeronautical information/data of a durable or permanent nature, as well as the long-date temporary changes are the following:

- aeronautical-related Technical services.
- bodies alien to aviation.
- relevant Aviation authority.

Once the need of applying the AIRAC system is defined, the production process of the elements of the integrated documentation to be published continues with the coordination and determination of the publication and applicable dates of the information/data, by the originators and the Chief of AIS Documents, using to that end aeronautical publication, where the AIRAC dates appear for the current year.

The deadline for receipt of the aeronautical information/data from the originators will be XX days < as defined by the State> prior to the selected date of publication, although the Chief of AIS Documents will be entitled to diminish this receipt deadline, if deemed convenient.

7.2 Verification, certification and/or validation of the aeronautical information/data:

The aeronautical information/data received from the originator will be carefully reviewed by the designated technicians in order to develop the process of the AIRAC publication with a view to detecting any origin error that they may contain.

All the aeronautical information/data received from the originator shall go through a quality assurance process of the information/data provided, as described in the Procedure for the Certification and Validation of Aeronautical data.

7.3 Classification of the information by Scope and Series:

Subsequent to the verification of the information, the Chief of AIS Documents shall classify the information according to its scope so that the type of element of the integrated documentation to be published may be determined.

Then, the information will be classified according to the Series of distribution, taking into account if it is of interest for international air navigation or not.

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7.4 Collating and assembling of the aeronautical information/data:

The technicians that will take part in the production process will verify if the aeronautical information/data have not been already published and then they will be assembled as appropriate, classifying the relevant pages in all the cases; otherwise, the pages and points in which the new information to be published shall be inserted will be selected.

7.5 Edition and formatting of the aeronautical information/data:

The AIS technicians shall take into account that the edition of the aeronautical information/data shall be done in a clear and concise manner, using aeronautical terms and paying special attention to the texts in English in case it is an internationally distributed publication.

Each one of the defined formats for each element of the integrated documentation shall be respected, as well as its specifications.

The staff responsible for the production process of the publication will submit a printed original of the edited information, formatted and carefully checked by cross-reference by all the work team at the corresponding Aviation authority for the validation of the amendment service, which, as a minimum, shall be done 14 days prior to the publication date.

7.6 Validation of the developed documentation:

The relevant Aviation authority will perform in a period not longer than 7 days the validation of the developed documentation, in case that errors are detected and they are re-sent to the AIS Documents Office for their correction; a second validation will follow within the 7 days prior to the date of publication. Evidence of this fact will be left through signature by the valuator of the originals presented and the Record of Validation of Amendments (Refer to Annex 4 to this procedure).

7.7 Publication of the developed documentation:

With all the necessary inputs and means, previously planned, and according to the Acceptance criteria described in this procedure, the reproduction of originals already validated will be carried out. This activity shall end the day chosen as Date of Publication, which is to say 56 days prior to the Applicable Date, as recommended in Annex 15, item 6.2.

In parallel, the necessary conditions to post in the AIS website the published documentation will be created; it will be available for all the users 28 days before the Applicable Date. Likewise, the technician in charge of it will ensure the updating of the AIS/MAP database.

7.8 Preparation and packing for shipping:

The envelopes in which the documentation is to be sent to the customers will be prepared, with their personal data duly updated in order to prevent returns by errors u omissions. All this process shall be done not longer than 7 days subsequent to the selected Publication Date.

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It is a requirement that the envelopes used for the distribution of the information are in line with the format established by the International Civil Aviation Organization (ICAO), as described in ICAO Document 8126, Aeronautical information Services Manual, in Chapter 7, paragraph 7.4.

7.9 Distribution and/or provision:

Once that the documentation is duly enveloped, the distribution will follow. This process shall not exceed 7 days subsequent to the preparation and packing of the shipping, in such a way that 42 days before the Application Date all the documents are sent to the customers and posted, which is to say, totally distributed.

The provision of the documentation in electronic format will be done 28 days prior to the applicable date, uploading to the pages of the electronic AIP precisely the day of the Applicable Date (according to Annex 15, standard 6.3.2).

8. MODIFICATIONS

This Procedure will be modified when a change in the method of operation of the automated systems, or in ICAO standards occurs.

It may also be modified on account of the results of audits or improvements applied to the implemented Quality Management System.

The modifications to this document shall be duly supported, documented and will be reviewed and approved by the corresponding authority.

9. RECORDS

The Records generated by this Procedure are the following:

9.1 **Record of the publication of Amendment or AIRAC Supplement:**

- Covering (Refer to Annex 3)
- Record of the origin of the information. (Refer to Annex 4)
- Origin of the information: compilation of all the information, document or notification received that causes changes to the publication, jointly with the model of Certification and/or Validation of aeronautical data, (Refer to Annexes 3 and 4 of the procedure of Certification and Validation of aeronautical data)
- Record of the quantity of pages by section and their processing. (Refer to Annex 5)
- Originals for the validation: on original copy for its validation by the aeronautical authority,
- Decanting of errors: the copies already reviewed with bookmarks and error indications to be processed again will be filed in an upward manner. They are to be identified by date and name of the valuator, for their correction and processing by the AIS Documents Office.
- Validated publication copy: an original copy of all the publication, jointly with the Record of validation of the amendment service, issued by the valuator (Refer to Annex 4). This copy may be used as original copy during the reproduction phase.

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- Originals of pages to be printed: only if it is necessary. If the validated original copy cannot be used, then the pages that will be used for reproduction will be printed again.

9.2 **Historical record of published AIRAC amendments:** Binder containing the originals of each one of the AIRAC amendments that are published including the Guidelines of Amendments.

9.3 **Historical record of Supplements:** Binder containing the originals of all the Supplements published, it is recommended that they be registered jointly with the AIP Supplements and to keep a consecutive number order. They will be filed in independent binders per Series of distribution.

9.4 **Record of Validation of the process of Validation of Amendment:** Record issued by the relevant Valuator, where proof is kept that the publication is free of errors and therefore it is ready to continue with the phases of reproduction, packing and distribution. (Refer to Annex 5 of this procedure).

9.5 **Electronic Record of aeronautical data:** Consists of a basis of aeronautical data that shall be kept strictly updated, the access will be through the AIS website. the database contains information regarding aerodromes, reporting points, navaids, ATS routes, prohibited, restricted and danger areas; and ATS airspace.

9.6 **Record of Complaints and claims of the customers:** this record allows to quantify and detail all the complaints and claims of the customers by the causes or motives described in item 6.2 of this Procedure, presenting data that permit to calculate the criteria, the claims will be reflected in a consecutive manner as they are received (Refer to Annex 6 of this procedure).

9.7 **Record of Opinion of the Customer:** Record that will be kept with the results of the surveys made, such as the communication of the results that shall be distributed to the customers by the AIS Documents Service that shall be done at least once a year.

10. DISTRIBUTION AND FILING

10.1 **Record of the publication of an Amendment or AIRAC Supplement:** All the records of this kind (publication of Amendments, Supplements, Circulars and Summaries) will be kept in print in separate files and by the type of element of the integrated documentation. They will be kept in the Documents Office for <time as defined by the State >.

10.2 **Historical record of published AIRAC amendments:** They will be filed each time an AIRAC Amendment is published. The originals will be filed in binders in a cumulative manner throughout time.

10.3 **Historical record of Supplements:** They will be filed each time a Supplement is published. The originals of the Supplements with all their contents will be filed in binders and is kept in a cumulative manner throughout time.

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10.4 **Record of Validation of the process of Validation of Amendment:** this Record is developed by the valuator and will be filed jointly with the Record of publication of the Amendment or AIRAC Supplement, it will be kept in a cumulative manner throughout time.

10.5 **Electronic Record of aeronautical data:** this record is kept and updated from the designated computer, and all the customers may have access to it through the AIS website. This record will be updated with each AIRAC publication.

10.6 **Record of Complaints and claims of the customers:** this record will be kept in the Documents Office in a consecutive manner, whenever a complaint or claim is received from a national or international customer, jointly with the evidence and all the information exchanged that may arise during the investigations as well as the final response of the case to the customer, once the case has been solved and the causes and responsible persons determined, the complaint will be closed through signature of the Chief of the Office. this record will be kept in the Office in a cumulative manner throughout the time.

10.7 **Record of Opinion of the Customer:** This record will be filed in the Documents Office for <as defined by the State >.

11. ANNEXES

Annex 1: Flow chart.
Annex 2: Schedule of the AIRAC system.
Annex 3: Publication (Covering).
Annex 4: Origin of the information.
Annex 5: Validation of the process of validation of amendment.
Annex 6: Complaints and claims.

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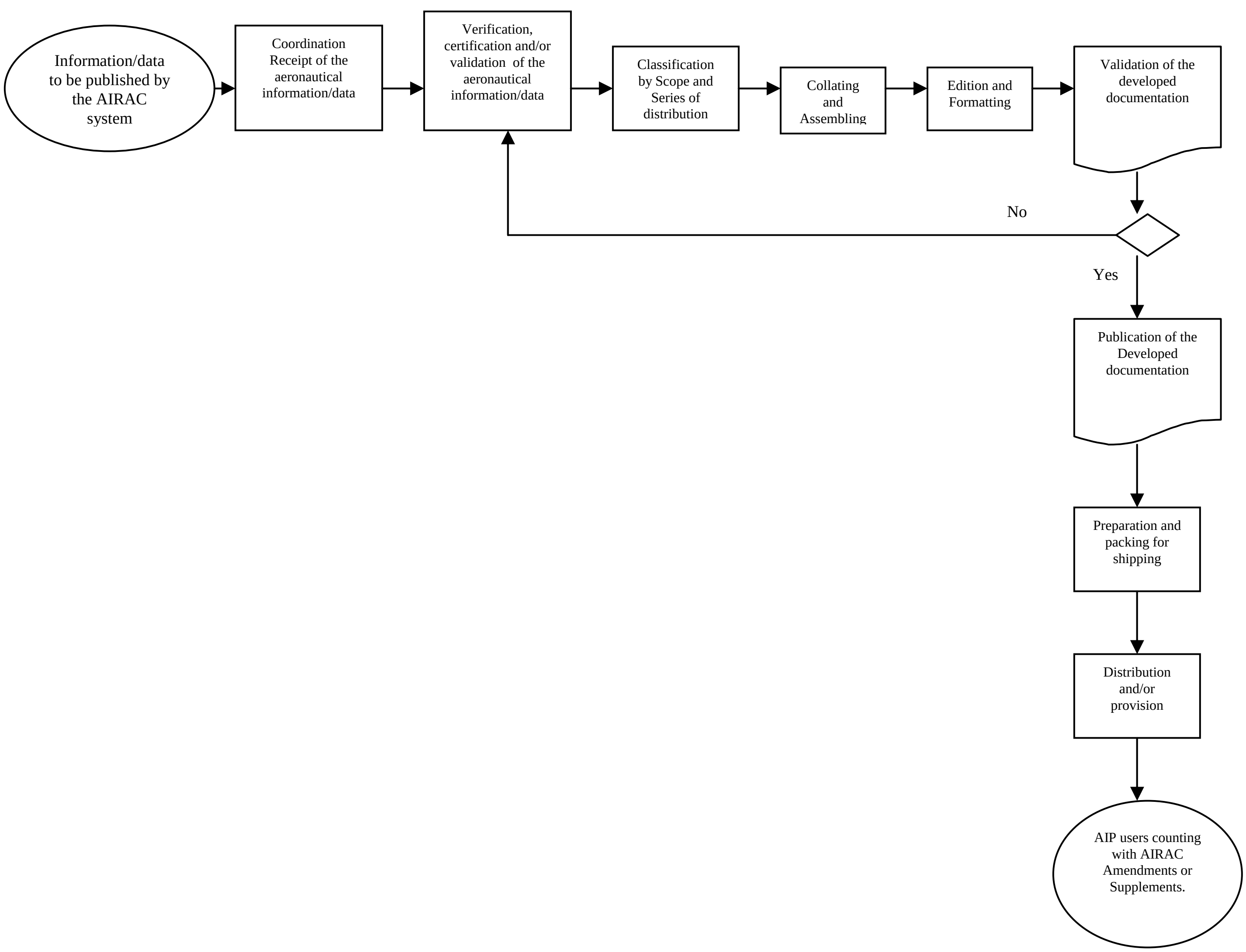
ANNEX 1: FLOW CHART OF THE PROCEDURE FOR AIRAC PUBLICATIONS



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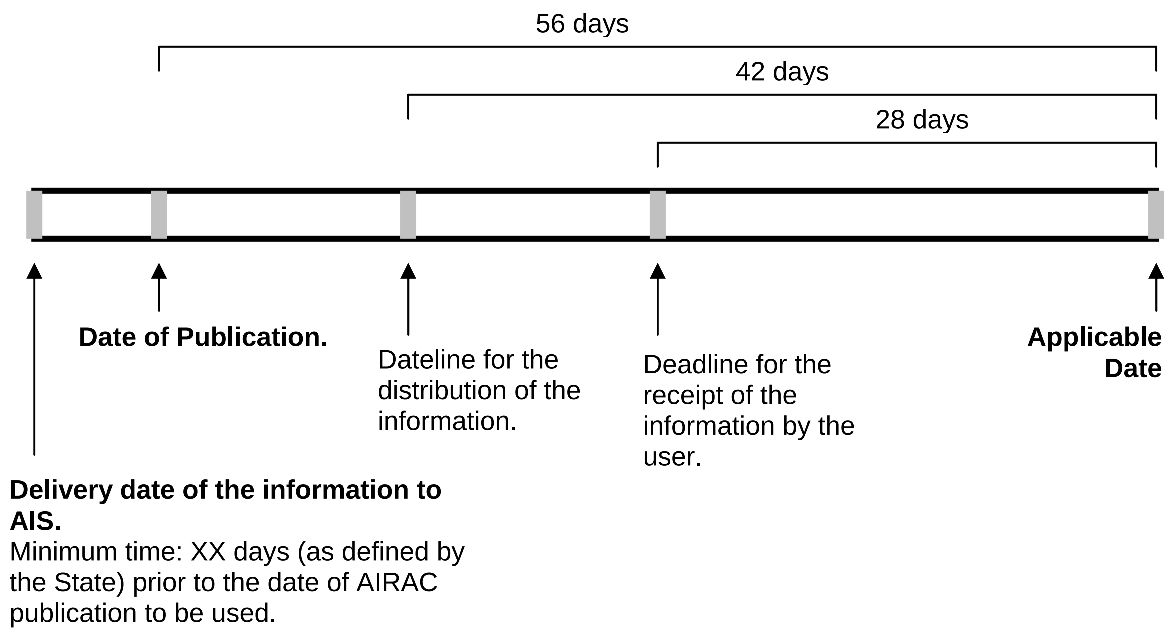
ANNEX 2: SCHEDULE OF THE AIRAC SYSTEM



Guidance graphic

Note: In the AIRAC regulated system the days are considered as calendar days.

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ANNEX 3: RECORD OF THE PUBLICATION

RECORD OF THE PUBLICATION (COVERING)				**R-XXXX**
Type of Publication		Series and No.	Publication Date	Applicable Date
AMDT AIRAC				
AIRAC SUP				
Subject (SUP):				
Contents (AMDT):				
Date of entry of the Record:	Made by:		Signature of the Chief of the Office:	

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ANNEX 4: RECORD OF ORIGIN OF THE INFORMATION

RECORD OF ORIGIN OF THE INFORMATION				**R-XXXX**
				Sheet num.:
Type of Publication	Series and No.	Date Publication	Applicable Date	
AMDT AIRAC				
AIRAC SUP				
Origin of the information	Information	References to the AIP		Hand corrections to be made
		Section	Pages	
Date of this record:	Made by:			Signature of the Chief of the Office:

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ANNEX 5: VALIDATION OF THE SERVICE

Date:

FORM FOR THE VALIDATION OF THE SERVICE

Complete in print.

Type of Publication		Series and No.	Date Publication	Applicable Date
AMDT AIRAC				
AIRAC SUP				

Subject (SUP):	
Contents (AMDT):	
Quantity of decantation of errors:	
Made by:	Signature of the Aviation authority:

(Insert Logo of the organization)	(Insert name of the responsible authority)	Code: PE-XXXX Revision: 0.0 Date: 25-03-04 Pages: 130 of 16 Copy Num.: _____
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ANNEX 6: RECORD OF COMPLAINTS AND CLAIMS

RECORD OF COMPLAINTS AND CLAIMS						**R-XXXX**	
						Year:	
Nº rec	Publication	Data of the Customer	Causes of the complaint or claim (specify errors, omissions or lacks)	Date of receipt	Impu-table	Closing Date of the complaint and filing	Closed by:

APPENDIX V

STATUS OF IMPLEMENTATION OF THE AIS/MAP QUALITY MANAGEMENT SYSTEM IN THE CAR/SAM STATES

1 States that have implemented a Quality Management System in their AIS/MAP

- Costa Rica;
- Cuba; *ISO 9001-2000 Certified*
- France (Martinique, Guadeloupe and French Guiana), *ISO 9001-2000 Certified.*
- Spain; *ISO 9001-2000 Certified*

2 States that haver not implemented a Quality Management System

- Netherlands Antilles
- Argentina
- Belize
- Bolivia
- Chile
- Dominican Republic
- Ecuador
- Guatemala
- Guyana
- Nicaragua
- Paraguay
- Uruguay
- COCESNA

3 States that are currently under the process of implementing AIS/MAP Quality management system

- Argentina
- Belize
- Chile
- Ecuador
- Nicaragua
- Paraguay
- Uruguay
- COCESNA

4 States that would need help or consultancy from third parties:

12 States that have not yet implemented, excepting Chile, inform on the need for help or consultancy from third parties.

5 States that have used as a reference for the implementation the Guidance Manual for the Implementation reviewed at the AIS/MAP-QM/TF/1 Meeting

- Costa Rica
- Cuba
- France (Martiniue, Guadeloupe and French Guiana)
- Nicaragua.

6 States that reflect progress in the implementation as compared with the review of the AIS/MAP-QM/TF/1 Meeting

- Argentina
- Belize
- Costa Rica *(implemented in April 2005)*
- Cuba *(Certified in August 2004)*
- Ecuador
- Guatemala
- Nicaragua
- Paraguay
- Dominican Republic
- Uruguay
- COCESNA

APPENDIX W

ESTABLISHMENT OF NOTAM DATA BANKS IN THE CAR/SAM REGIONS

CAR/SAM States that have implemented NOTAM data banks

State	Facility	Degree of operation
Brazil	**NOTAM bank**	Linked to national AIS/AD units//International availability of NOTAM information. According to information received from some AIS units of the Region, some NOFs find it difficult to retrieve information from the bank// **CAR/SAM COPM standard query protocol**//Y2K-certified//Already has AIP information built in, for national use only. Does not indicate whether the bank has been certified to the corresponding ISO standards.
Chile	**NOTAM bank**	Linked to national AIS/AD units//International availability, but does not indicate if it allows retrieval of international information from other FIRs// **Non-standard query protocol** // Does not indicate whether the bank has been certified to the corresponding ISO standards.
COCESNA	**NOTAM bank**	AIS Master System database developed by COCESNA, with standards consistent with LINUX, WINDOWS y MACINTOSH operating system platforms, and with database platforms that use SQL. It has five modules: AIS Transportation Module, AIS Operational Module, AIS Viewer Module, AIS Console Module and AIS Administrative Module. The system is linked to all national AIS/AD units//International availability of NOTAMs from the Central American FIR and other FIRs available in the system. //**CAR/SAM COPM standard query protocol**//Automatically enters international information through the AFTN//National NOTAMs are automatically distributed through the AFTN//Has the possibility of automatically generating international route and area bulletins and, especially, all Central American NOTAMs. Has a *website* at http//www.cocesna.hn. The information on the *web* is automatically updated. The COCESNA AIS is trying to provide an AIS/MAP Quality System (ISO 9000) to be applied to the whole Central American Region.
Colombia	**NOTAM bank**	Linked to national AIS/AD units//According to the latest information, this bank does not permit international access for retrieval of information, since it has some operational access problems//**Non-standard query protocol**//Y2K-certified//Does not indicate whether the bank has been certified to the corresponding ISO standards.

State	Facility	Degree of operation
Cuba	**NOTAM bank**	Linked to all domestic AIS/AD units//International availability of NOTAMs of the Havana FIR and of other FIRs available in the system. CAR/SAM COPM standard query protocol//Automatically enters international information through the AFTN//National NOTAMs are automatically distributed through the AFTN//Has the possibility of automatically generating international route and area bulletins//Y2K-certified//Migrating to SQL Server, and already generates *web* pages (useful in pre-ATN environments) on all NOTAMs contained in the bank, and 5 different types of national PIBs//*Web* pages are updated in real time// **Standard query protocol/**/ Does not indicate whether the bank has been certified to the corresponding ISO standards.
Ecuador	**NOTAM bank**	Linked to national AIS/AD units//No international availability, since the States find it difficult to retrieve information//**Non-standard query protocol.** Y2K-certified. According to the latest information, international information can be automatically entered to the bank. Does not indicate whether the bank has been certified to the corresponding ISO standards.
French Guyana	**NOTAM bank**	There is no information about the international availability of this bank or whether or not it is a terminal-type bank with respect to the Paris bank, or whether the States can query and retrieve information from the bank//**Non-standard query protocol.** Does not indicate whether the bank has been certified to the corresponding ISO standards.
Mexico	**NOTAM ban**	Linked to all national units//Availability for national and international use; however, there is no precise information about the level of international availability or whether it permits the retrieval of information from other FIRs//**CAR/SAM COPM standards query protocols.** The bank is being upgraded to Windows NT Server//Does not indicate whether the bank has been certified to the corresponding ISO standards.
Peru	**NOTAM bank**	Linked to national AIS/AD units//International availability, but there is no precise information about the level of international availability or whether it permits the retrieval of information from other FIRs. **CAR/SAM COPM standard protocols.** Y2K-certified. Does not indicate whether the bank has been certified to the corresponding ISO standard.
Suriname	**NOTAM bank**	According to available information, this facility has serious technical difficulties and, because of its setup, should already be replaced by a new bank in order to guarantee a reliable operation of the system.
Trinidad and Tobago	**NOTAM bank**	This facility serves the East Caribbean//The East Caribbean States offered the budget for its update// **Does not indicate whether it is compatible with CAR/SAM COPM**

State	Facility	Degree of operation
		protocols //Y2K-certified. There is no precise information about the degree of international availability of this facility or whether it permits the retrieval of information from other FIRs. Does not indicate whether the bank has been certified to the corresponding ISO standards.

CAR/SAM States that have not yet implemented NOTAM data banks

State	Facility	Degree of operation
Argentina	**Does not have NOTAM DB**	The NOF has an intelligent AFTN terminal, which permits storage of national NOTAMs and their listing based on local needs. According to the available information, there are no plans to purchase a NOTAM data bank.
Bolivia	**Does not have NOTAM DB**	The NOF has an intelligent AFTN terminal, which permits storage of national NOTAMs and their listing based on local needs. According to the available information, there are no plans to purchase a NOTAM data bank.
Panama	**Does not have NOTAM DB**	There are plans to modernize the AIS systems, which include the purchase of a NOTAM data bank.
Paraguay	**Does not have NOTAM DB**	It has some AIS/MAP applications at the AIS central office. Likewise, aerodrome AIS units are being interconnected through the Internet for pre-flight information service purposes. According to the available information, they are calling for bids for the purchase of a NOTAM Data Bank.
Dominican Republic	**Does not have NOTAM DB**	According to the available information, they are calling for bids for the purchase of a NOTAM Data Bank.
Uruguay	**Does not have NOTAM DB**	The NOF has an intelligent AFTN terminal, which permits storage of national NOTAMs and their listing based on local needs; they also have an application software for storing pre-flight bulletins (PIB), which are supplied to the users of the Carrasco Airport through the Internet. They are calling for bids for the purchase of a NOTAM Data Bank, with AIS/MAP database modules.
Venezuela	**Does not have NOTAM DB**	The NOF has a software for processing pre-flight bulletins (PIB). According to the available information, they are testing a NOTAM data bank application, soon scheduled for connection to the AFTN network.

APPENDIX X/APÉNDICE X

AGREEMENT TO ENSURE THE AVAILABILITY OF NOTAM INFORMATION IN THE CAR/SAM REGIONS

ACUERDOS PARA GARANTIZAR LA DISPONIBILIDAD DE INFORMACIÓN NOTAM EN LAS REGIONES CAR/SAM .

ESTADOS QUE PODRIAN PROVEER SISTEMAS **STATES WHICH COULD PROVIDE SYSTEMS**	**NOF QUE REQUIEREN DE APOYO DE NASC** **NOF REQUIRING SUPPORT OF NASC**	**ACUERDOS OPERACIONALES ENTRE ESTADOS** **OPERATIONAL AGREEMENTS BETWEEN STATES**	**PERIODO PARA ACUERDOS** **PERIOD FOR AGREEMENTS**
BRASIL / *BRAZIL*	**NOF GUAYAQUIL**	**BRASIL**: SOFTWARE/ ENTRENAMIENTO *(SOFTWARE/TRAINING)* **ECUADOR**: HARDWARE /PERSONAL *(HARDWARE/PERSONNEL)*	2005 - JUNIO 2006 / *(2005 - JUNE 2006)*
BRASIL / *BRAZIL*	**NOF LA PAZ**	**BRASIL**: SOFTWARE/ ENTRENAMIENTO *(SOFTWARE/TRAINING)* **BOLIVIA**: HARDWARE/ PERSONAL *(HARDWARE/PERSONNEL)*	2005 - JUNIO 2006 / *(2005 - JUNE 2006*)
CHILE	**NOF ASUNCIÓN**	**CHILE:** NASC/ ENTRENAMIENTO *(NASC/TRAINING)* **PARAGUAY** HARDWARE PERSONAL *(HARDWARE/PERSONNEL)*	2005 - JUNIO 2006 / *(2005 - JUNE 2006)*
COCESNA	**NOF TOCUMEN**	**COCESNA**: NASC/ ENTRENAMIENTO *(NASC/TRAINING)* **PANAMA**: HARDWARE/ PERSONAL *(HARDWARE/PERSONEL)*	2005 - JUNIO 2006 / *(2005 - JUNE 2006)*
CUBA	**NOF SANTO DOMINGO**	**CUBA**: SOFTWARE/ ENTRENAMIENTO *(SOFTWARE/TRAINING)* **REPUBLICA DOMINICANA**: HARDWARE/PERSONAL ***DOMINICAN REPUBLIC**:* *(HARDWARE/PERSONNEL)*	2005 .- JUNIO 2006 / *(2005 - JUNE 2006)*

ESTADOS QUE PODRIAN PROVEER SISTEMAS **STATES WHICH COULD PROVIDE SYSTEMS**	**NOF QUE REQUIEREN DE APOYO DE NASC** **NOF REQUIRING SUPPORT OF NASC**	**ACUERDOS OPERACIONALES ENTRE ESTADOS** **OPERATIONAL AGREEMENTS BETWEEN STATES**	**PERIODO PARA ACUERDOS** **PERIOD FOR AGREEMENTS**
CUBA	**NOF MAIQUETIA**	<u>**CUBA**</u>: SOFTWARE/ ENTRENAMIENTO *(SOFTWARE/TRAINING)* <u>**VENEZUELA**</u>**:** HARDWARE /PERSONAL *(HARDWARE/PERSONEL)*	2005 - JUNIO 2006 / *(2005 - JUNE 2006)*
URUGUAY	**NOF EZEIZA**	<u>**URUGUAY**</u>: SOFTWARE/ ENTRENAMIENTO *(SOFTWARE/TRAINING)* <u>**ARGENTINA**</u>**:** HARDWARE /PERSONAL *(HARDWARE/PERSONNEL)*	2005 - JUNIO 2006 / *(2005 - JUNE 2006)*
TRINIDAD Y TOBAGO / ***TRINIDAD & TABAGO***	**NOF GEORGETOWN** **NOF KINGSTON**	<u>**TRINIDAD Y TOBAGO**</u>: NASC/ENTRENAMIENTO *(NASC/TRAINING)* <u>**GUYANA-JAMAICA**</u>: HARDWARE / PERSONAL *(HARDWARE/PERSONNEL)*	2005 - JUNIO 2006 / *(2005 - JUNE 2006)*
TRINIDAD Y TOBAGO / ***TRINIDAD & TABAGO***	**(*)NOF CURACAO** **(*)NOF PARAMARIBO** **(*)NOF PORT-AU-PRINCE**	<u>**TRINIDAD Y TOBAGO**</u> NASC/ENTRENAMIENTO *(NASC/TRAINING)* <u>**CURACAO-SURINAME-HAITI**</u>: HARDWARE/PERSONAL *(HARDWARE/PERSONNEL)*	2005 - JUNIO 2006 / *(2005 - JUNE 2006)* **(*)** SE REQUIERE USO DEL INGLES / ***(*) (****ENGLISH LANGUAGE REQUIRED)*

<u>Note</u>: Those States indicated on the Table above, having International NOTAM Offices (NOF), which as part of the regional operational agreements should be assisted by the national data bank (NASC) of other State to guarantee the availability of NOTAM information in the CAR/SAM Regions, which could have implemented their own NASC system previous to the date established as for the effectiveness of the referred operational agreements, should inform of this fact, as soon as possible, to the concerning ICAO Regional Office (NACC or SAM), in order to be automatically exempted of any responsibility with respect to the agreements indicated in the above Table. Such State which for any operational convenience, and/or for interconnection facility, would like to establish NOTAM operational agreements with another State different to such indicated in the above Table, could be free to take such decision, providing that the NOTAM information with respect to its area of responsibility is made available in any time.

Nota: Aquellos Estados que se indican en la Tabla de arriba, con Oficinas NOTAM Internacionales (NOF) asistidas por un NASC de otro Estado, como parte del acuerdo operacional regional, para garantizar la disponibilidad de información NOTAM en las Regiones CAR/SAM, que pudieran haber establecido su propio Banco de Datos NOTAM Nacional (NASC), previo a la fecha que se indica como límite para hacer efectivo los respectivos acuerdos operacionales, deberán informar lo antes posible sobre este hecho a la oficina Regional OACI que corresponda por ubicación geográfica, para lo cual quedaría automáticamente exento del acuerdo operacional que se indica en la Tabla de arriba. Aquel Estado que por conveniencia operacional y/o por facilidad de interconexión deseara establecer acuerdo operacional con un Estado distinto al que se le esta asignado en la referida tabla, quedará a su libre criterio, siempre y cuando se garantice en todo momento la disponibilidad de información NOTAM sobre su área de responsabilidad.

APPENDIX Y

Brazilian NOTAM Database offer

- The need for NOTAM database implementation in the CAR/SAM Regions is presented in many documents and reports on the Regional Offices, GREPECAS and this Subgroup.

- Brazil, since 2002, has a database developed by the Brazilian Air Force personnel, and using Delphi programming language and Oracle Database.

- The Brazilian software was implemented successfully at Uruguay, during 2003 – 2004 timeframe.

- Brazil may provide any CAR/SAM State the NOTAM Database software and code, except the Oracle database license.

- Brazil may provide any CAR/SAM State NOTAM Database software training, in Portuguese and in Spanish, at ICEA facility, São José do Campos, SP, free of charge, not including the personnel travel and accommodations expenses.

- Brazil shall receive the NOTAM Database requests via formal letter to:

  DECEA – DEPARTAMENTO DE CONTROLE DO ESPAÇO AÉREO
  Att: TEN BRIG DO AR JOSÉ AMÉRICO DOS SANTOS
  Av. General Justo n° 160 – Castelo
  Rio de Janeiro – RJ – Brazil
  Cep. 20021-130

- Brazil shall receive special requests via formal State letter to the same office. After the formal approval letter a point-of-contact will be established in order to create a schedule and milestones.

- The requesting State shall at least be prepared to create a NOTAM database expert group, acquire computers and servers in order to fulfill NOTAM database requirements.

DRAF PROJECT FOR THE OFFER OF A NOTAM DATABANK OF THE REPUBLIC OF CUBA

(FOR SPANISH SPEAKING STATES - AVAILABLE IN SPANISH ONLY)

CONVENIO DE COOPERACION IACC – _________
EN MATERIA DE AUTOMATIZACION AIS

CONVENIO

Objeto del Convenio:

1 El presente Convenio de Cooperación (en lo adelante Convenio) respalda la cooperación que en materia de automatización AIS sostendrán el IACC (Instituto de Aviación Civil de Cuba) y el _____ (______________________________) de ________________, lo cual permitirá la transferencia de tecnología desde el IACC al ________, para la automatización del Banco de Datos AIS y la automatización de las funciones AIS de aeródromos de _______________.

Alcance del Convenio:

2 El Convenio para la automatización AIS contempla el siguiente alcance:

2.1 Automatización de las funciones del Banco de Datos de la NOF de _______________, según descripción contenida en el Adjunto A de este Convenio;

2.2 Automatización de las funciones AIS de aeródromos en los aeropuertos de _________________, según descripción contenida en el Adjunto A de este Convenio;

2.3 Entrenamiento técnico – operacional, previo y/o durante la instalación del sistema, según términos y duración descritos en Adjunto B de este Convenio;

2.4 Instalación del sistema y puesta en explotación.

2.5 Mantenimiento del software instalado posterior a la instalación, según términos y duración descritos en Adjunto C de este Convenio.

Responsabilidades de las partes:

Responsabilidad del _____________.

a) El _______ es responsable de adquirir los medios de computación necesarios y en general todo el hardware que se requiera para la instalación y funcionamiento del sistema automatizado, así como las licencias de los sistemas operativos y los software básicos que se precisen. Los requerimientos básicos de hardware y software serán precisados por las partes previo a la instalación. Las licencias y actualizaciones de estos software básicos correrán igualmente por el _________, el IACC no será responsable por la adquisición y utilización de las licencias y actualizaciones de los software básicos.

b) El _______ es responsable de cumplir con los requerimientos técnicos de la AFTN para la distribución/recepción de información NOTAM.

c) El _______ es responsable de contar con el personal técnico – operacional requerido, con los conocimientos mínimos que le permitan la asimilación del funcionamiento del sistema automatizado durante la etapa de instalación y entrenamiento en los plazos que se acuerden. El _______ designará un representante que participará durante todos los trabajos con los Especialistas del IACC y será responsable de la aceptación del sistema acorde a los requerimientos exigidos en cada etapa del trabajo.

d) El _______ es responsable por la utilización de las aplicaciones del software adquirido para el sistema automatizado AIS, según el alcance y extensión contenido en el presente Convenio y en ningún momento podrá reproducirlo, instalarlo en otro sitio, introducirle cambios, divulgar la información de la tecnología adquirida o comercializarlo a terceros sin la autorización expresa de su propietario, el IACC.

e) El _______ es responsable de costear los gastos de transportación aérea, hospedaje y alimentación de los Especialistas del IACC que participen durante la instalación del sistema y el entrenamiento técnico – operacional.

f) El _______ es responsable de costear los gastos de transportación aérea, hospedaje y alimentación de los Especialistas del IACC que participen en el mantenimiento del software del sistema posterior a su instalación, los cuales serán siempre inferiores a 15 días/hombre en cada año.

<u>Responsabilidad del IACC.</u>

a) El IACC es responsable de instalar el sistema cumpliendo con los plazos que para tales efectos se establezcan entre las partes.

b) El IACC es responsable de entregar el sistema automatizado AIS al ________ funcionando y cumpliendo cada uno de los aspectos descritos en el Adjunto A del presente Convenio.

c) El IACC es responsable de realizar las adecuaciones del programa a los requerimientos del _______, de acuerdo a sus características particulares, teniendo en cuenta la forma de comunicación AFTN como otras formas de comunicación.

d) El IACC es responsable de entrenar técnica y operacionalmente al personal que trabajará con el sistema instalado, para lo cual preparará los programas de estudio pertinentes de acuerdo a los términos y duración descritos en Adjunto B de este Convenio.

e) El IACC es responsable de entregar la documentación necesaria sobre el sistema para su explotación, al concluir la instalación y el entrenamiento.

f) El IACC es responsable del mantenimiento posterior a la instalación del sistema e instrucción sobre cualquier mejora al mismo, así como de mantener actualizada la documentación entregada. Las particularidades del mantenimiento responsabilidad del IACC se harán según términos y duración descritos en Adjunto C a este Convenio.

Duración del Convenio:

El presente Convenio tendrá vigencia a partir de su firma hasta la aceptación del ________ de las pruebas funcionales del sistema. A partir de ese momento tendrá dos años de vigencia, prorrogable por acuerdo entre las partes.

Garantías:

El IACC garantizará sin costo adicional para el _______ un año de funcionamiento del sistema a partir de la aceptación del mismo.

Esta garantía no cubre la asistencia técnica que se requiera debido a mal funcionamiento del sistema por problemas en el hardware adquirido a terceros o por virus que por cualquier causa afecten el funcionamiento del sistema.

Y como constancia de lo acordado, se firma el presente documento en dos ejemplares y un solo tenor a los efectos legales.

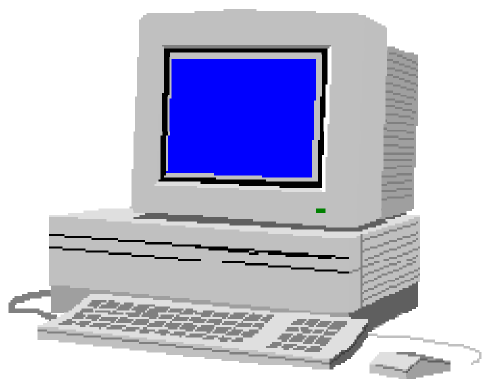
Dado en Ciudad _______________, a los ____ días del mes de ___________ del 200__ .

_________________ _________________

Por el IACC Por el _______

ADJUNTO A

Automatización de las funciones del Banco de Datos de una Oficina NOTAM y automatización de las funciones AIS de aeródromos.



<u>Sistema Automatizado AIS</u>

1. Banco de Datos NOTAM

Este sistema está desarrollado según el "Manual de Procedimientos AIS, Parte I: "Procedimientos Nacionales para la Aplicación del Formato NOTAM-OACI", reglamentación elaborada por Especialistas de Información Aeronáutica del Instituto de Aeronáutica Civil de Cuba y aprobada por el Vicepresidente del IACC bajo Instrucción 03/99.

Manual de Procedimientos AIS, Parte I: "Procedimientos Nacionales para la Aplicación del Formato NOTAM-OACI" (PNA-NOTAM).

En el desarrollo de este Manual se utilizó el Anexo 15 de la OACI, el Reglamento del Servicio de Información Aeronáutica (Resolución DJ-36/98 del Presidente del IACC), el Documento OACI 8126 "Manual de los Servicios de Información Aeronáutica" y el Manual de Procedimientos Operacionales Comunes para el Sistema AIS Automatizado Integrado en las Regiones CAR/SAM (COPM CAR/SAM), aprobado bajo la Conclusión 7/10 del GREPECAS.

En este documento se integra además el "Concepto de Sistema AIS Automatizado Integrado para las Regiones Caribe y Sudamérica (CAR/SAM)" desarrollado por el Subgrupo AIS del Grupo Regional para la Planificación y Ejecución de la Navegación Aérea CARIBE/SUDAMERICA (GREPECAS) y aprobado por el Consejo de la OACI para su inclusión en el Plan de Navegación Aérea CAR/SAM.

Objetivos Banco de Datos NOTAM

El objetivo de este sistema es mantener la información NOTAM vigente de todos los Estados con quienes se tiene intercambio de información para automatizar la confección del Boletín de Información Previo al Vuelo (PIB), facilitar la confección de mensajes NOTAM por parte de la oficina NOF internacional y poder brindar información acerca de los NOTAM vigentes sin que tenga que intervenir el personal de la NOF.

Funciones Generales

- Organizar en bases de datos toda la información.
- Garantizar a los aeropuertos la información necesaria para la confección de la documentación de vuelo.
- Brindar el servicio a todos los miembros de la red aeronáutica.
- Generar nuevos servicios y aplicaciones que garanticen una mayor calidad, confiabilidad y seguridad aeronáutica.

Servicios que conforman el Banco de Datos NOTAM

- Servicio de recepción, clasificación y almacenamiento de mensajes (NOTAM).
  Este servicio procesa toda la mensajería que recibe la Oficina NOTAM Internacional a través de la red AFTN y clasifica esta información en tres categorías para su posterior procesamiento:
    - Mensajes NOTAM
    - Mensajes de solicitud de NOTAM
    - Mensajes comunes

- Servicio de interrogación a otros Bancos de Datos NOTAM.
  Este servicio se ocupa de buscar NOTAM faltantes en la base de datos y elaborar los mensajes de solicitudes de estos NOTAM y enviarlos a los bancos de datos NOTAM internacionales.

- Servicio de respuesta a solicitudes de NOTAM.
  Este servicio se encarga de responder las solicitudes de NOTAM que llegan a la Oficina NOTAM internacional a través de la red AFTN.

- Software OPERADOR de mensajes NOTAM.
  Es el programa principal del Banco de Datos NOTAM y solo debe operarse por el personal calificado de la Oficina NOTAM Internacional.

- Chequea y garantiza la integridad de la información en la base de datos.

- Posee asistentes para:
  - Emisión de NOTAM
  - Procesamiento de NOTAM Vigentes
  - Procesamiento de NOTAM cancelados, expirados y reemplazados.
  - Procesamiento de NOTAM que se reciben con errores.
  - Procesamiento de NOTAM faltantes.
  - Mensajes procesados y estadísticas.

- Servicio de información NOTAM (vía WEB y AFTN)
  A través de este servicio se puede acceder, a través del servicio WEB y/o la red AFTN, a la información NOTAM vigente de todos los Estados con los cuales se tiene intercambio de NOTAM.

- Servicio de Boletines (NOTAM) de Información previo al vuelo (via WEB y AFTN).
  Con este servicio los usuarios autorizados podrán elaborar, a través del servicio WEB y/o la red AFTN, los boletines de Información (NOTAM) previo al vuelo. Estos boletines se clasifican en:
  - Boletín de Ruta /Avisos para la navegación.
  - Boletín de Ruta.
  - Boletín General.
  - Boletín de Avisos para la navegación.
  - Boletín de Misceláneas.

- Servicio para confeccionar la Lista de NOTAM Válidos (Sumario mensual de NOTAM).

- Servicio de Mantenimiento de datos.
  Este servicio se ocupa de eliminar los datos viejos y de actualizar el estatus de los NOTAM Vigentes cuando estos expiran.

- Servicio de Respaldo o Back Up
  Este servicio se encarga de realizar las copias de seguridad de la base de datos y las restaura en caso que estas sean necesarias.

Este sistema está basado en una Base de Datos donde se almacena información estática (de configuración del sistema) e información dinámica (NOTAM).

2. Gateway AFTN

Permite la tramitación de la Mensajería Aeronáutica en sus formatos AFTN y SITA así como la validación exhaustiva de la misma. Garantiza la recepción, transmisión y almacenamiento de mensajes, haciendo confiable de esta manera toda la actividad aeronáutica que necesita de este servicio para su realización. Permite la configuración de múltiples usuarios AFTN y/o SITA.

3. Estructura del Sistema

El sistema esta compuesto por un núcleo de servidores formado como mínimo por el servidor gateway aftn, dos servidores banco de datos, uno principal y otro de respaldo, un servidor WWW, una o varias PCs con las funciones de Operadores de Banco de Datos y Terminal de mensajería en la NOF, y tantas PC como estaciones de trabajo en los aeródromos o instalaciones aeronáuticas que lo requieran.

Es necesario contar con una estructura de red que garantice la conectividad de la oficina NOF, el núcleo de servidores y las estaciones de trabajo.

ADJUNTO B

Términos y duración de instalación del sistema y del entrenamiento técnico – operacional.

Instalación del Sistema

Fases necesarias para la instalación del Sistema en su totalidad:

1. Coordinaciones e intercambio de información con el responsable del proyecto por el ________.

2. Revisión de las PCs, Servidores, Sistemas Operativos, accesorios y equipos de conectividad adquiridos por el _______, así como las instalaciones donde se realizará el montaje. Aceptación por el IACC de las mismas.
3. Establecimiento de la conectividad entre las partes que conforman el sistema.
4. Acoplamiento a la AFTN existente.
5. Instalación y configuración de los Servidores del sistema.
6. Creación de las Bases de Datos propias de los servicios que se van a brindar.
7. Instalación de la Aplicaciones y Servicios Propios de Banco de Datos NOTAM.
8. Adecuaciones de los Servicios y Aplicaciones instaladas según los requerimientos del cliente.
9. Prueba y puesta a punto de los sistemas.

Duración: 3 semanas

Observaciones: La instalación se realizara de forma escalonada según las tareas a ejecutar, por dos especialistas en Hardware y dos especialistas en los Sistemas a instalar.

Requisitos de conocimientos mínimos para el personal técnico:

- Conocimientos elementales de redes de computadoras;
- Conocimientos de Windows, y
- Conocimientos elementales de Windows 2000 Server.

Temáticas generales a incluir en el entrenamiento teórico – práctico:

1. Windows 2000 Server:
- Instalación
- Administración
- Internet Information Service (IIS)
- Servicios utilizados

2. SQL Server 2000:
- Instalación
- Administración

3. Sistema AIS Automatizado:
   - Principio de funcionamiento
   - Instalación
   - Administración

Duración del entrenamiento para el personal técnico:

2 semanas

Observaciones: El entrenamiento teórico – práctico para el personal técnico se realizará conjuntamente con la instalación del sistema. Los detalles acerca de las temáticas establecidas y su desglose en tiempo, es responsabilidad del IACC de prepararlos e incluirlos en el programa de estudio a presentar al ____.

Requisitos de conocimientos mínimos para el personal operacional:

- Tener aprobado el Curso Básico AIS/021 CAR/SAM u otros relacionados con la materia NOTAM;
- Tener una experiencia mínima de trabajo de 2 años en funciones NOTAM y/o AIS de aeródromos, y
- Conocimientos elementales de computación en ambiente Windows.

Temáticas detalladas a incluir en el entrenamiento:

Procedimientos comunes de operación para el Sistema AIS Automatizado:

- Introducción
- Procesamiento de NOTAM
  - Reglas básicas para la recepción y verificación de NOTAM
  - Procedimientos generales relacionados con la producción y procesamiento de NOTAM
  - Reglas básicas para la corrección de los NOTAM recibidos en formato incorrecto desde otras NOF
- Procedimientos comunes de interrogación a bases de datos AIS
  - Generalidades
  - Acceso a Bases de Datos NOTAM
  - Procedimientos de Interrogación

Sistema AIS Automatizado:

2.1 Banco de Datos NOTAM:

- Introducción
- Programa del operador del Banco de Datos NOTAM
  - Archivo y recuperación de mensajes NOTAM con error
  - Archivo de NOTAM vigentes y cancelados
  - Estado del Consecutivo
  - Mensajes procesados por el sistema
- Configuración del Sistema
  - Tablas de Bases de Datos estáticos
  - Registro de sucesos
- Opciones de mensajería
- Sistema automatizado para la emisión de NOTAM
- Asistente para la emisión de NOTAM
  - Producción de NOTAM N, R y C
  - Archivo de NOTAM vigentes y cancelados
  - Consulta de Códigos NOTAM y Calificativos

- Opciones de mensajería
- Criterios para la confección de Boletines de información previa al vuelo
- Generalidades de Boletines de información previa al vuelo
  - Boletines Generales
  - Boletines de Ruta
  - Boletines de Área

  - Boletines de Avisos para la navegación
  - Boletín de NOTAM misceláneos

Fase práctica.

Duración del entrenamiento para el personal operacional:

1 mes

Observaciones: El entrenamiento teórico – práctico para el personal operacional se realizará antes o durante la instalación del sistema. Los detalles acerca del desglose en tiempo de las temáticas establecidas, es responsabilidad del IACC prepararlos e incluirlos en el programa de estudio a presentar a ________. Preferiblemente el entrenamiento del personal operacional pudiera valorarse la factibilidad de realizarse en _____________ radicada en ______________, a fin de preparar al mismo tiempo a la mayor cantidad posible de personal perteneciente a ___________________, involucrados en el proceso de automatización de sus funciones.

ADJUNTO C

Acuerdo de mantenimiento del software del Sistema AIS Automatizado.

Condiciones para el mantenimiento del software del Sistema AIS Automatizado:

El presente Acuerdo de mantenimiento de software comprende los siguientes aspectos:

1. Ayuda telefónica, por fax o por e-mail ilimitada desde las instalaciones del IACC, para atender a las consultas del personal técnico – operacional del _________.
2. Ayuda “in situ”, provista por uno/dos expertos calificados en las instalaciones del _______ durante dos semanas como mínimo (5 días laborables) en el año y hasta dos semanas a solicitud del _______.
3. Actualización del software del sistema con una frecuencia anual, de acuerdo al desarrollo que del mismo realice el IACC.
4. Recapacitación del personal técnico – operacional en cada actualización del sistema, a solicitud del _______, en forma y plazos aceptados por el IACC.
5. Actualización de la documentación del sistema.
6. Cualquier otro punto que se considere de común acuerdo.

- - - - - - - -

APPENDIX Z

BASIC PRINCIPLES OF THE AERONAUCAL CHARTS

Functions of the chart

- Capacity of continuously plotting and displaying the aircraft's position in a true motion mode, where generation of the surrounding chart would take place automatically;
- ability to select various chart orientations and scales;
- capacity to display basic information permanently and consisting of the minimum information essential for the safe conduct of the flight; and
- capacity to display other information which could be removed from the display or displayed individually on demand, and consisting of information not considered essential for the safe conduct of the flight.

Sources of information that would be integrated

- Appropriate aeronautical, terrain as well as obstacles data, up-to date and with the required quality, derived from a State authorized data base;
- flight crew manual data input; and
- input from navigation sensors providing continuous position-fixing, heading, speed and altitude information of airplanes.

Requirements to count with:

a) Need to define and develop basic operational requirements, planning criteria, proceeding and required specifications for the availability of electronic data on terrain and obstacles, as well as electronic aeronautical charts display, for its due inclusion in the CAR/SAM Air Navigation Plan.

b) a VFR aeronautical chart (1:1,000,000/1:500,000), in digital format;

a detailed study on terrain and obstacles for each State, in digital format;

electronic availability of all aeronautical, geographical and geodesic information/data, of high quality and integrity for civil aviation use, in direct support to GNSS, and

specialized databases for each State, regionally integrated, in order to assure the electronic availability of all required aeronautical information/data, as well as the electronic aeronautical charts display in the Region.

APPENDIX AB

GENERAL GUIDE FOR AIS/MAP PERSONNEL LICENSING

1 INTRODUCTION

1.1 Aimed at satisfying the users need on aeronautical information quality, Amendment 29 to ICAO Annex 15 – Aeronautical Information Services, a Quality System was introduced. In agreement with these regulations, since the application date, each Contracting State is obliged to take the necessary measures to introduce a duly organized quality system.

1.2 A quality system consisting of a whole structure formed by a series of policies, goals or objectives, resources, strategies, standards, practices and defined processes. A main component of this structure is Human Resources, which should be trained in accordance with quality requirements, since the provision of basic aeronautical information to carry out safe and efficient air operations depend on them; therefore, aeronautical information/data should be verified and authorized by the AIS/MAP personnel before its distribution to users.

1.3 To ensure a quality provision of aeronautical information/data, States of the CAR/SAM Regions consider the need to require AIS/MAP personnel licensing, in accordance with action being carried out by ICAO to introduce in Annex 1, AIS/MAP License with an application date of 2005.

1.4 In relation to AIS/MAP personnel licenses, it is recognized that the following positions have main functions regarding flight safety:

a) The AIS/MAP Specialist of the International NOTAM Office (NOF) providing the international NOTAM service.
b) The AIS/MAP Specialist responsible for the preparation and updating of the Integrated Aeronautical Information Documentation (PUB).
c) The Aerodrome AIS/MAP Specialist providing pre-flight information (AIS-AD).
d) The AIS/MAP Specialist responsible for the production of aeronautical cartography.

1.5 At the request of the ICAO Air Navigation Commission, the Personnel Licensing and Training Panel defined personnel licensing as follows:

> ***"The means by which a State authorize the holder of a License to develop certain activities that, unless carried out properly, could jeopardize international civil aviation safety. License is the proof that the State of issuance made certain that the holder has an international recognized training degree".***

1.6 Specific AIS/MAP duties, mentioned in 1.4, are recognized as critical activities for international aviation safety, due that the provision of erroneous, incomplete or outdated information can have direct consequences in safety matters.

1.7 States of the CAR/SAM Regions that have not considered AIS/MAP Personnel Licensing, must take into account that even without its compulsory condition, the issuance of a License to AIS/MAP Specialists nation and region wide, besides the implication that could have in developing their own activity, will contribute to the implementation of quality controls allowing fulfillment of users needs on aeronautical information, and thus, the effective implementation of an AIS Quality System for the Caribbean and South America

2 REQUIREMENTS FOR PERSONNEL LICENSING

2.1 AIS/MAP Specialist License

Requirements for the issue of the license

Age

2.1 The applicant shall not be less than 21 years of age.

Knowledge

2.2 The applicant shall have demonstrated a level of knowledge relevant of an AIS/MAP Specialist license holder, in at least the following subjects:

Air Law

a) Aeronautical legislation, applicable to his/her working area;
b) International Civil Aviation Organization Convention on International Civil Aviation, Annexes and technical documentation applicable in his/her area.

General Knowledge

a) Integrated Aeronautical Information Documentation
b) Pre-flight Information Bulletins
c) Post-flight Information
d) Flight instruction
e) Aeronautical Charts

Aeronautical Meteorology

a) Knowledge and Interpretation of METAR, SPECIAL, TAF, VOLMET, ASHTAM

Air Navigation

a) General principles of air navigation, air navigation systems, navigation aids, visual aids, landing aids.

Aircraft

a) Nationality and registration, classification and types, aircraft performance

Languages

a) Speak without problem the official language of the State, have appropriate knowledge of technical English in respect to his/her license attributions.

Aerodromes

General knowledge of: runways, taxiways, aprons or aircraft parking stand, lights, markings
Air traffic services, general knowledge of terrain control, aerodrome control, radar control, ATIS, flight information, CNS/ATM.

Operational Procedures: interpretation and production of:

a) Aeronautical Information Publication (AIP)
b) Aeronautical Information Circulars (AIC)
c) AIP Supplements
d) ASHTAM NOTAM
e) Pre NOTAM
f) Pre-flight Information Bulletin
g) Post-flight information (IMPI)
h) Summaries and Checklists
i) Flight Plan
j) Repetitive flight plans (RPL)
k) AFTN use (AFS)
l) Structure and use of NOF (International NOTAM Office)
m) Flights plan messages and service messages.

Aeronautical Cartography

Knowledge and use of:

a) Terminal Procedures (SID, STAR, TERMINALS)
b) En-route navigation chart
c) Flight plan charts (scales: 1:1.000.000, 1:500.000, 1:250.000)
d) Aerodrome charts
e) Obstacle Chart

Experience

2.3 The applicant to an aeronautical information technical specialist license shall have completed a basic course of Aeronautical Information in a training center being recognized by the Civil Aviation Authority.

Skills

2.4 The applicant to an Aeronautical Information Technical Specialist License in addition to the basic course of Aeronautical Information shall have:

a) Communications and expression skills
b) Ability to work under pressure

b) Recognize and prevent human error

Psychophysics Aptitude

3. AIS/MAP Specialists ratings

Aeronautical Information Specialists ratings shall have the following categories:

a) AIS NOTAM Specialist
b) Aerodrome AIS Specialist
c) Publications AIS Specialist
d) Aeronautical Cartography AIS Specialist (AIS/ MAP)
e) Aeronautical Information Services Supervisor

3.1 Requirements for granting an Aeronautical Information Specialist rating. The applicant shall have completed and approved an AIS-021 Course for all ratings and demonstrated a level of good knowledge and appropriate skills of attributions conferred in the following subjects:

AIS-NOTAM Specialist.

a) Management of Integrated Aeronautical Information Documentation (NOTAM, AIP, AIC, Supplements) from Panama and from those States conforming the area of responsibility;
b) NOTAM interpretation and decoding;
c) NOTAM Preparation;
d) Coordination procedures between the AIS unit and related technical services;
e) Selection and Process of aeronautical information/data relevant for the preparation of flight information bulletins, in accordance with the area of responsibility;
f) Coordinate calculations, configuration and delineation of restricted and special use airspaces;
g) Designated ATS routes and special routes used by established operating agencies in his/her State;
h) Use of the NOTAM Programme and sending of information through the AFTN;
i) Must have satisfactorily completed a recognized training course.

Aerodrome AIS Specialist

a) Production of pre-flight information bulletins (PIB);
b) Reception and control of post-flight information (Pilot Report – INPI);
c) Pre-flight verbal reading;
d) Knowledge and control of auto-information by the pilot;
f) Physical characteristics of international airports in the country, NAVAIDS, visual aids for landings, lights;
e) National airspace structure;
f) National air traffic services and aeronautical meteorology structure;
g) Use of en-route air navigation charts of the area of responsibility;
h) Use of SID and STAR charts;
i) Use of national aerodrome obstacle charts;
j) Preparation and review of flight plans presented;
k) AFTN operation (AFS);

l) National AIS structure and functioning;
m) Use of Annexes 15 and 4 to the Convention on International Civil Aviation and Doc. 8126 (AIS Manual) and 8967 (MAP Manual);
n) Use of integrated aeronautical information documentation;
o) Knowledge of the national aeronautical structure;
p) Knowledge of the national aeronautical legislation;
s) Knowledge of national and regional flight protection services;
t) Use of the Aerodrome AIS office working equipment.

AIS/Publications Specialist (AIS/PUB)

The applicant shall have completed and approved an AIS-021 course, AIS publications course, a minimum of one year of service in AIS Aerodrome (certified by AIS Headquarters) and demonstrate good knowledge and appropriate skills for attributions conferred, in the following subjects:

a) Command of the knowledge and skills of an AIS Aerodrome specialist (AIS/AGA)
b) Preparation, updating and dissemination of Aeronautical Information Publications (AIP)
c) Preparation, updating and publication of Aeronautical Information Circulars (AIC)
d) Preparation, dissemination and updating of AIP Supplements;
e) Implementation and manage of communication channels with originators of the basic aeronautical information, use of PRE-NOTAM
f) Structure and manage of the integrated aeronautical information documentation
g) Establish and keep aeronautical information exchange with other national AIS, other States and users in general:
h) Establish and keep aeronautical information exchange with other international and national organizations working on those activities.

AIS /Aeronautical Cartography Specialist

The applicant must have completed and approved an AIS-021 course, an AIS publications course, an aeronautical cartography course, a PANS-OPS course, have a minimum of one year of service in AIS Aerodrome and one year carrying out aeronautical publications duties (certified by AIS Headquarters) and demonstrate good knowledge and appropriate skills for attributions conferred, in the following subjects:

a) Command of knowledge and skills required for an AIS Aerodrome Specialist (AIS/AGA) and for a Publications Specialist (AIS/PUB);
b) Drawing skills;
c) Preparation of aerodrome charts and obstacle charts and interpretation of information therein;
d) Preparation of terminal procedures (SID and STAR charts) and interpretation of information therein;
e) Preparation of en-route and regional navigation charts and interpretation of information contained therein;
f) Preparation of aeronautical charts at scales 1:1:500,000; 1:250,000, 1:100,000, 1: 50,000; 1: 25,000, and interpretation of information therein;

g) Knowledge and application of standards and practices contained in Annex 4 to the Convention on International Civil Aviation and in ICAO Doc. 7101 and 8967;
h) Knowledge of aeronautical cartography material produced by other agencies or international organizations. Consider all necessary measures for an effective exchange of national publications with the ones of those institutions;
i) Knowledge and application of the WGS – 84 Geodetic System.

Aeronautical Information Supervisor (AIS/SUP)

The applicant shall have completed and approved an AIS-021 course, an AIS publications course, an aeronautical cartography course, a PANS-OPS course and an AIS supervisor course. Have a minimum of one year of service in AIS aerodrome, one year carrying out duties in aeronautical publications, one year in aeronautical cartography, (certified by AIS Headquarters) and demonstrate good knowledge and appropriate skills for attributions conferred, in the following subjects:

a) Command of the knowledge and skills required by an AIS Aerodrome Specialist (AIS/AGA), a publications Specialist (AIS/PUB), an Aeronautical Cartography Specialist (AIS/MAP) and a NOTAM Specialist (AIS/NOTAM);
b) Establish and keep good human and labor relations;
c) Knowledge of aeronautical administration;
d) Skills in working group management;
e) Skill to work under pressure;
f) Skill for on-the-job-training.

4. Validation ratings

4.1 The rating will loose validity when the AIS/MAP Specialist has stopped performing duties conferred, for a period of more than one year. In this case, the applicant of the renewal must satisfy a theoretical evaluation with a minimum grade of seven (7.0) and practice of at least 30 days evaluated by an AIS Aerodrome.

APPENDIX AC- APÉNDICE AC
FASID TABLE AIS 4 – TABLA FASID AIS 4
(Model/Modelo)

INTERCAMBIO DE INFORMACION AERONAUTICA
EXCHANGE OF AERONAUTICAL INFORMATION

EXPLANATION OF THE TABLE

FASID TABLE AIS-4, sets out the requirement for the integrated aeronautical information package from foreign Aeronautical Information Services (AIS) to be available at aerodrome/heliport AIS Units in the CAR/SAM Region for pre-flight briefing.

The table consists of two parts: Table AIS-4A covers the requirements for the integrated aeronautical information package from States and Territories in the SAM Region, whereas Table AIS-4B includes the requirements from the AFI, ASIA, EUR, NAM, NAT and PAC Regions.

For each aerodrome/heliport in the SAM Region, the requirement is shown by an "X" against the State or Territory from which the integrated aeronautical information package is required.

For each aerodrome/heliport the location indicator and designator of aerodrome/heliport use are listed.

Aerodrome/Heliport use Designation:

RS - international scheduled air transport, regular use;
RNS - international non-scheduled air transport, regular use;
RG - international general aviation, regular use;
AS - international scheduled air transport, alternate use.

EXPLICACION DE LA TABLA

TABLA FASID AIS 4, presenta los requerimientos de la documentación integrada de información aeronáutica de los Servicios de Información Aeronáutica extranjeros, para estar disponible en las unidades AIS de los aeródromos/helipuertos en las Regiones CAR/SAM, para el servicio de información previo al vuelo.

La tabla consiste en dos partes: Tabla AIS-4A cubre los requerimientos de la documentación integrada de información aeronáutica de los Estados y Territorios de las Regiones CAR y SAM, mientras que la Tabla AIS-4B incluye los requerimientos de las regiones AFI, ASIA, EUR, NAM, NAT y PAC.

Para cada aeródromo/helipuerto en la Region SAM de la OACI, los requerimientos son mostrados con una "X" respecto a los Estados y Territorios sobre los cuales se requiera la documentación integrada de información aeronáutica.

Para cada aeródromo/helipuerto utilizado, se muestra el indicador de lugar y la designación correspondiente:

RS - utilizado como aeródromo regular por el transporte aéreo internacional regular;
RNS - utilizado como aeródromo regular por el transporte aéreo internacional no regular;
RG - utilizado como aeródromo regular por la aviación general internacional;
AS - utilizado como aeródromo de alternativa por el transporte aéreo internacional regular.

AIS-4A			FROM/DE																																											
(Model/Modelo)			**CAR**																														**SAM**													
Integrated Aeronautical Information Package TO BE AVAILABLE IN/ Paquete Integrado de Información Aeronáutica ESTARÁ DISPONIBLE EN			Anguilla (UK)	Antigua & Barbuda	Aruba (Neth.)	Bahamas	Barbados	Belize	Cayman Is. (UK)	Costa Rica	Cuba	Dominica	Dominican Rep.	El Salvador	French Antilles (France)	Grenada	Guatemala	Haiti	Honduras	Jamaica	Mexico	Montserrat Is. (UK)	Netherlands Antilles	Nicaragua	Puerto Rico (USA)	Saint Kitts & Nevis (UK)	Saint Lucia	St. Vincent & The Grenadines	Trinidad & Tobago	Turks & Caicos Is. (UK)	Virgin Is. (UK)	Virgin Is. (USA)	Argentina	Bolivia	Brazil	Chile	Colombia	Ecuador	French Guyana (France)	Guyana	Panama	Paraguay	Peru	Suriname	Uruguay	Venezuela
City/Aerodrome Ciudad/Aeródromo	Use Uso	ICAO Local Indic.																																											
ACHICORIA																																														
BERNA/Puerto Birman	RS	SSSS																																											

AIS-4B			FROM/DE																																												
(Model/Modelo)			AFI																			ASIA		EUR																			PAC		NAM		NAT
Integrated Aeronautical Information Package TO BE AVAILABLE IN/ Paquete Integrado de Información Aeronáutica ESTARÁ DISPONIBLE EN			Angola	Cape Verde	Canary Islands (Spain)	Congo	Cote D'Ivoire	Gambia	Ghana	Guinea Rep. of	Guinea-Bissau	Liberia	Mauritania	Morocco	Namibia	Nigeria	Senegal	Sierra Leone	South Africa	Togo	Zaire	Australia	New Zealand	Austria	Belgium	Czech Republik	Denmark	Finland	France	Germany	Hungary	Ireland	Italy	Luxembourg	Netherlands	Poland	Portugal	Russian Federation	Slovakia	Spain	Switzerland	United Kingdom	Cook Islands	French Polynesia	Canada	United States	Bermuda (UK)
City/ Aerodrome Ciudad/ Aeródromo	Use/ Uso	ICAO Local Indic.																																													
ACHICORIA																																															
BERNA/Puerto Birman	RS	SSSS																																													

APPENDIX AD

RECOMMENDATIONS OF THE 11th AIR NAVIGATION CONFERENCE

Recommendation 1/8 — Global aeronautical information management and data exchange model

That ICAO:

a) when developing ATM requirements, define corresponding requirements for safe and efficient global aeronautical information management that would support a digital, real-time, accredited and secure aeronautical information environment;

b) urgently adopt a common aeronautical information exchange model, taking into account operational systems or concepts of data interchange, including specifically, AICM/AIXM, and their mutual interoperabilities; and

c) develop, as a matter of urgency, new specifications for Annexes 4 and 15 that would govern provision, electronic storage, on-line access to and maintenance of aeronautical information and charts.

Recommendation 1/14 — Development of an ICAO air navigation plan database and associated Web-based information and charting service

That ICAO develop and maintain a databas*e containing all tabular material from all the regional air navigation plans, both Basic Operational Requirements and Planning Criteria (BORPC) and the Facilities and Services Implementation Document (FASID), together with the major traffic flows and other regional data from Part II of the Global Air Navigation Plan for CNS/ATM Systems (Doc 9750), and make this database and associated charts available through the Web.*

Recommendation 6/16 — Completion of guidance material on application of data quality SARPs in Annex 15

That ICAO give high priority to the completion of guidance material for the data quality assurance including the data processing from origination to end-use.

Some effects, terms and AIM Characteristcs

a) relevant information when and where required.

b) ATM community will depend on the Information management, shared by all the system, to adopt decisions based on collaboration leading to obtaining best commercial and operational results.

c) information management will provide the basis for improved decision-making by all ATM community members.

d) key to the concept will be the management of an information-rich environment which integrity must be ensured by the quality systems.

e) to ensure the cohesion and linkages between different components of the operational concept and to accomplish the role of AIS, consideration must also be given by AIS to the interchange and management of aeronautical information to be used by different services and users, while taking into account interoperability of existing and future systems.

f) to be efficient, aeronautical information management (AIM) shall incorporate the structure, delivery and critical nature of all the information pertaining to ATM such as aeronautical and meteorological information, flight planning, planned and real time ATM status and CNS systems and airspace configurations.

g) specifically, the decisions taken by the controllers, pilots, dispatchers, flight planners, meteorologist, etc. represent information used by others as data for their own planning and decision-making process.

Terms and characteristics of AIM:

a) aeronautical information shall be subject to an efficient management and shall be shared throughout the system, making it available so that every participant in the ATM environment has access to it when and where needed.
b) aeronautical information shall be produced from it origin under quality processes ensuring its availability, relevance, precision, integrity, timeliness, security, confidentiality given its repercussion in flight safety.
c) aeronautical information, quality-controlled and within a digital environment, shall be available in real time in an interoperable, flexible, adaptable and scalable manner between parties.
d) The aeronautical information conceptual model/aeronautical information exchange model (AICM/AIXM), and their mutual interoperabilities; are the models suggested by the Conference to develop AIM.

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NOTAM CONTINGENCY PLAN HAVANA NASC

NOTAM Contingency Plan
Havana NASC
2005

Air Navigation Directorate
Institute of Civil Aeronautics of Cuba
Aeronautical Services Directorate
Cuban Company of Airports and Aeronautical Services

Introduction

This NOTAM Contingency Plan has been elaborated in execution and application of the **CONCLUSION 12/99** "Agreement on NOTAM Contingency Plans for the CAR/SAM Regions" in the Havana FIR.

The objective of this NOTAM Contingency Plan is to specify the arrangements and coordinations carried out as backup procedures to maintain the NOTAM Service in a Contingency situation which impedes the normal operation of the NASC Havana and to guarantee with it the flow of aeronautical information necessary and indispensable for air navigation security in the Havana FIR.

The Plan considers all possible ways for backup, including agreements with COCESNAS' NOTAM Service and, in each case; the steps to be followed are explained by applying the acting procedures implemented with this Plan.

Contingency Plan - NOTAM

Backup Procedures for Contingency Situations for the NASC Havana

1. General Principles.

1.1 This document is settled down with the objective of defining procedures and backup measures to take in case that a situation of Contingency is generated in the NASC Havana that impedes the execution of some or all its functions.

2. Definitions.

2.1 It is considered an "Eventuality" that when is caused by an event of an accidental or planned situation, result in a contingency situation in the NASC Havana.

2.2 It is considered a "Contingency Situation in the NASC Havana" that when caused by an eventuality, disable the NASC Havana to fulfill some or all the functions for which was created, and therefore has to be necessary to apply the procedures described at the Contingency Plan to guarantee the publication, reception and maintenance of the NOTAM information in the Havana FIR.

3. Classification of eventualities and contingencies.

3.1 Among the eventualities contemplated in this Contingency Plan, as well as the possible consequences that can generate different types of contingencies in the NASC Havana are:

Eventuality	Situation	Contingency
1- Minor fail in NOTAM´s DB hardware or software.	1- Impossibility of NOTAM DB working because is out of service, but AFTN messaging system is working properly.	Type A
2- Communications failure in all the net or AFTN message server failure.	2- The NOTAM DB may be operable or not, but it is disabled the transmission and reception by AFTN.	Type B
3- MEVA failure.	3- Transmission and reception by AFTN is impossible.	Type B

3.2 Contingency situations in NASC Havana are classified as:

Type A: NOTAM DB is out of service, but the functions that it carries out will be assumed *manually* by the own NOTAM technician, and retransmitted by the AFTN messaging system.

Type B: NOTAM DB may be operational or not, but the messaging system is out of service and the Havana NOTAM Office is helpless to disclose and to receive national and international NOTAM information, so, is urged to use another NASC backup in the area in order to maintain the NOTAM information service. In this classification it is also included the situations of natural disasters or of another nature.

3.3 Warning Plan.

3.3.1 When the technician of the NOTAM Office detects some failure that could generate a contingency state for the event of an applicable eventuality and described in 3.1, and if that classifies as Type A or B, he informs immediately to the Network Department. When is being confirmed the NOTAM contingency situation the Network technician will provide information on the contingency, as:

- Contingency Type, as table under paragraph 3.1 of this Contingency Plan.
- Expected time of duration of the contingency.

3.3.2 The NOTAM technician will inform the Chief of the NOTAM Office immediately, who will decree the NOTAM contingency state officially, for that which will activate the present Warning Plan, in the assigned order of priority and informing in all the cases the contingency type that is decreeing.

- AIS Specialist, Operational Control Dept., or the Chief of Operational Control Dept.
- Director of Aeronautical Services ECASA.
- AIS Specialist, Air Navigation Services Directorate, Institute of Civil Aeronautics of Cuba (IACC), or Air Navigation Director IACC.
- Vicechairman IACC (In Type B contingency).

3.4 Contingency Infrastructure.

3.4.1 In the NOTAM Office must had been created, or they will be created immediately, the indispensable minimum conditions so that all the functions that usually, and in an automated way, the NOTAM DB carries out, and are indispensable to guarantee the security and regularity of the air navigation in the Havana FIR. These conditions will be:

a) Internet access in the NOTAM Office and an international e-mail account.

b) Enable 2 PC besides those existent to guarantee the continuous work of 3 technicians elaborating and distributing the NOTAM information and PIB, which will be previously defined.

c) Enable a fax phone with direct line that guarantees the permanent and fast national and international communication which will be previously defined

d) 2 AIS technician of Havana ARO/AIS/MET Office will be designated to reinforce the work of making the PIB in the NOTAM Office, while the contingency lasts.

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e) It will be defined appropriately which national users must have e-mail accounts and to enable them in advance, so they may be informed while the NOTAM contingency lasts.

3.5 Communication ways.

3.5.1 The communication during the contingency will be carried out, as it is specified in each case, by means of via phone, e-mail or AFTN.

3.5.2 The data for the communication will be previously contained and upgraded in enclosed to the Letter of Operational Agreement among the international NOTAM Offices Havana and Tegucigalpa. In this letter the will be included both NOF data, as well as the AFTN addresses of all the international users of the NOTAM of the Havana FIR.

3.5.3 Attached to this Plan will be picked up and maintained up-to-date the telephones, e-mail and AFTN data of all the national units involved in the contingency.

3.6 Organization of the contingency.

3.6.1 The Chief of the NOTAM Office undertakes the management of the NOTAM contingency in ECASA, giving all the pertinent indications to manage any type of contingency, such as:

a) To duplicate or to triplicate the personnel on duty to manage the contingency, elaborating “contingency working schedule” until one week as minimum after the estimated of end of the contingency.

b) To maintain close contact with the specialty in the Air Navigation Direction and the Operational Control Department in ECASA, taking whenever it is possible, the decisions after consultation.

c) To maintain close contact with the Network Department and the whole technical area, staying properly informed on the technical state, during the contingency.

3.7 Applications for NOTAM publication.

3.7.1 The ARO/AIS/MET Units, the Air Navigation Directorate, the National Center Group of Flight Planning, the AIS Publications Office, as well as other authorized aeronautical users to request the publication of a NOTAM, according to the Appendix 6 of the AIS National Regulation, will send to the NOTAM Office the NOTAM applications to publish fulfilling all the requirements described in the PE-2084-04, via AFTN (Contingency Type A) or by e-mail or phone (Contingency Type B).

3.8 Applications for making of PIB.

3.8.1 Once decreed any NOTAM contingency type, the ARO/AIS/MET Units will be helpless of elaborating its own PIB as is habitually carried out, for what they will request its making to the NOTAM Office:

- In Type A Contingency: sending the FPL by AFTN as soon as they are received at ARO/AIS/MET Unit.
- In Type B Contingency: sending the FPL by AFTN as soon as they are received in the Office by e-mail or by telephone, in which case all the contained data will be included in the FPL.

4. Applicable procedures in the event of Contingency Type A.

4.1 Publication of a warning NOTAM.

4.1.1 Once decreed the Contingency Type A, the Chief of the NOTAM Office will indicate the technician when and how he must publish the first NOTAM that announces the contingency state to all NOTAM users of the Havana FIR, as follows:

(AXXXX/YY* NOTAMN
Q)MUFH/QXXCA/IV/NBO/AE/000/999/COORD RDO FIR HABANA
A)MUFH B)*data/time of contingency starting* C)*data/time of EST contingency ending.*
E)NOTAM CONTINGENCY ACT DUE TECHNICAL REASONS. THE INFORMATION NOTAM OF NASC HAVANA BY THE INTERROGATION SERVICE WILL BE INTERRUPTED)

** (XXXX corresponding serial numeration, YY year)*

4.2 Publication of NOTAM.

4.2.1 The NOTAM Office will receive the applications of publication of NOTAM for anyone of the specified ways in the technical documentation and of established quality, applying in all the cases in a habitual way the Appendixes 6 and 7 of the AIS National Regulation and proceeding later on to verify and to elaborate in a manual way the requested NOTAM and finally to transmit them by AFTN to all the corresponding national and international NOTAM users.

4.3 Elaboration of PIB.

4.3.1 The NOTAM Office will elaborate the requested PIB from the ARO/AIS/MET Units while the contingency lasts and it will forward them by e-mail in a time not less than 2 hours before the estimated departure of each flight.

5. Applicable procedures in the event of Contingency Type B.

5.1 About the coordination's between Havana NASC and COCESNA.

5.1.1 The Chief of the NOTAM Office once decreed the Contingency Type B will contact immediately with the AIS Specialty in Air Navigation Directorate with the specialist designated as the NOTAM Contingency Chief for the Directorate.

5.1.2 The Air Navigation Director of Institute of Civil Aeronautics of Cuba will request in writing way to the Aeronautical Authority of COCESNA to activate the procedures described in Letter of Agreement signed by both entities and it will pass copy from this communication to the NOTAM Office. Once received the copy of the letter, the Chief of the NOTAM Office will communicate telephonically with the International NOTAM Office at Tegucigalpa and they will coordinate all the necessary topics to carry out the backup procedures for Havana NASC by the Tegucigalpa International NOTAM Office, according to Letter of operational Agreement.

5.2 Publication of NOTAM.

5.2.1 In state of Contingency Type B all the NOTAM that are needed to publish in the Havana FIR will be emitted and distributed from the Tegucigalpa International NOTAM Office.

5.2.2 All the NOTAM that are requested to publish will be elaborated completely in the International NOTAM Office of Havana, of beginning to closing of the parenthesis, maintaining the serial number of the NOTAM and they will be sent by fax or e-mail to the Tegucigalpa International NOTAM Office, leaving written evidence of that requested.

5.2.3 After the NOTAM in question is published it will be verified if it coincides exactly with what was requested and otherwise it will be requested substitution or cancellation, as it proceeds.

5.2.4 Before beginning to publish some NOTAM, it will be sent a first fax or e-mail to the Tegucigalpa International NOTAM Office with the up-to-date listing of international AFTN addresses, to whom will be correspondents all the NOTAM that the NOF Havana requests to publish. The listing of AFTN addresses of international users of the NOTAM information of the Havana FIR will be contained in enclosed to the Letter of Operational Agreement among both NOF.

5.2.5 The Chief of the NOTAM Office will indicate the technician when and how he should publish the first NOTAM that announces the state of contingency Type B to the users, as follows:

(AXXXX/YY* NOTAMN
Q)MUFH/QXXCA/IV/NBO/AE/000/999/COORD RDO FIR HABANA
A)MUFH B)*data/time of contingency starting* C)*data/time of EST contingency ending.*
E)NOTAM CONTINGENCY ACT. THE INFORMATION NOTAM OF NASC HAVANA BY THE INTERROGATION SERVICE WILL BE INTERRUPTED. INFO NOTAM OF HAVANA FIR WILL BE PROVIDED BY COCESNA NASC).

** (XXXX corresponding serial numeration, YY year)*

5.3 Distribution of NOTAM to national users.

5.3.1 The NOTAM of the Havana FIR published by the Tegucigalpa International NOTAM Office will be distributed to international users from this NOF. The NOTAM technician will take charge of distributing to national users by e-mail the NOTAM of the Havana FIR after received at the Tegucigalpa International NOTAM Office and properly revised.

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5.4 Elaboration of PIB.

5.4.1 The NOTAM Office will elaborate the requested PIB from the ARO/AIS/MET Units while the contingency lasts and it will forward them by e-mail in a time not less than 2 hours before the estimated departure of each flight.

6. End of the Contingency and reestablishment of functions.

6.1 End of the Contingency.

6.1.1 Once confirmed by the Network technician the end of the contingency, the NOTAM technician will proceed to carry out a meticulous verification of all and each of the functions that carries out the NOTAM Data Bank in order to check the perfect operation state, as well as the AFTN messaging system, only then he proceeds to decree the official ending of the NOTAM Contingency.

6.1.2 The Chief of the NOTAM Office will be the in charge of emitting the indications to publish a NOTAM of ceasing of the state of NOTAM Contingency and with it to decree the end of the same one.

6.1.3 In Type A Contingency:

6.1.3.1 When the Chief of the NOTAM Office indicates it, it will already be published from the NASC Havana the NOTAM of closing of the same one as it continues:

(AXXXX/YY* NOTAMC AXXXX/YY*
Q)MUFH/QXXAK//////
A)MUFH B)*data/time of Contingency ceasing*
E)REF NOTAM AXXXX/YY NASC HAVANA OKAY)

** (XXXX corresponding serial numeration, YY year)*

6.1.4 In Type B Contingency:

6.1.4.1 The Chief of NOTAM Office will communicate with the Specialist Chief of the NOTAM Contingency immediately in the Air Navigation Directorate the ceasing of the NOTAM contingency state and this it will manage as soon as possible the pertinent communication to the Aeronautical Authority of COCESNA, informing on the ceasing of the Contingency. The message should specify that the official closing of the Contingency will be in date and hour of the NOTAM cancellation that it will be emitted for this case.

6.1.4.2 The Air Navigation Directorate will inform by any possible way to the Chief of NOTAM of the communication sent to the Aeronautical Authority of COCESNA about the closing of the contingency, and only then the Chief of NOTAM will give the pertinent indications so that it is published in the Havana NASC the cancellation NOTAM as follows:

(AXXXX/YY* NOTAMC AXXXX/YY*
Q)MUFH/QXXXX//////
A)MUFH B)*data/time of Contingency ceasing*
E)REF NOTAM AXXXX/YY CNL. INFO NOTAM OF HAVANA FIR WILL BE PROVIDED BY HAVANA NASC)

6.2 Reestablishment of functions.

6.2.1 Once issued this NOTAM the Chief of the NOTAM Office will take charge of taking all the pertinent measures to reestablish the normal conditions and working régime in the office, as well as the return of the reinforcement personnel to its offices in a gradual way.

6.2.2 The Network Department will take charge of reestablishing the equipment and means that habitually are in the Office, moving away in a gradual and previously convened with the Chief of the NOTAM Office. The reinforcement PC and the fax phone will stay at the office since then.

RNAV/RNP Implementation Task List for Enroute Operations / Lista de Tareas para la Implantación RNAV/RNP paraOperaciones en Ruta

ID		Start/Inicio	Finish/Termina	Resource Names/Nombres Recursos
1	**Identify Operational Need / Identificar necesidades operacionales**			
2	Develop operational concept for CAR/SAM RNAV/RNP /Desarrollar el concepto operacional RNAV/RNP CAR/SAM			
3	**Conduct Cost Benefits Analysis / Conducir un análisis costo/Beneficio**			
4	Conduct preliminary cost benefit analysis/ Conducir un análisis costo/beneficio			
5	Finalize cost benefit analysis / Finalizar análisis costo/beneficio			
6	**Safety Assessment/Evaluación de Seguridad**			
7	Review available summary data (non-compliant aircraft, aberrant aircraft etc) / Revisar resumen de datos disponible (aeronaves que no cumplen, aeronaves anómalas, etc)			
8	Examine history of errors related to ATC clearances and assess possible RNAV/RNP impact /Examinar la historia de los errores relacionados con autorizaciones ATC y valorar el impacto posible en la RNAV/RNP			
9	Confirm RNAV/RNP risk model assumptions/parameters are consistent with airspace where RNAV/RNP is to be applied/Confirmar que modelos de supuestos parámetros de riesgo RNAV/RNP sean consistentes con el espacio aéreo en donde se aplicará RNAV/RNP			
10	Carried out the analysis to predict occupancy after RNAV/RNP implementation/ Efectuar el análisis para predecir la ocupación después de la implantación RNAV/RNP			
11	Report large lateral deviations to monitoring agency (including route assignment errors)/Reportar las grandes desviaciones a la agencia de monitoreo (incluyendo los errores de asignación de ruta)			
12	Determinar los mínimos de separación aplicables, basandose en Modelo de Riesgo de Colisión y considerando la infraestructura existente y planificada.			
13	**Feasibility Analysis/Análisis de Factibilidad**			
14	Examine the general operational factors associated with implementation/Examinar los factores operacionales asociada con la implantación			
15	**Determination of Requirements (airborne & ground systems)/Determinación de los Requerimientos (de a bordo y sistemas de tierra)**			
17	States assess the impact of RNAV/RNP implementation on ATC automation systems (e.g. equipment suffixes) and plan for upgrades/modifications, including ground facilities/Valoración por parte de los Estados del impacto de la implantación RNAV/RNP en los sistemas de automatización ATC (por ejemplo, sufijos de equipo) y los planes para mejoras/modificaciones inclusive facilidades terrestres			
	Evaluate ground facilities/Evaluar ayudas terrestres			
18	**Aircraft & Operator Approval Requirements/Requerimientos de aprobación de aeronave y operadores**			
	To develop and armonize the RNAV/RNP implementations including the minimum aircraft system performance specifications (MASPS) considering the available and planned CNS infraestructure/ Desarrollar y armonizar la orientación relacionada con la implantación RNAV/RNP, ~~-~~incluyendo las especificaciones mínimas de la capacidad de los sistemas de aeronave (MASPS), considerando la infraestructura CNS existente y planificada			
19	Promulgate translation of sections of BRNAV//TGL-2 or FAA AC 90-100 into Spanish/Promulgar la traducción de la BRNAV//TGL-2 or FAA AC 90-100			
20	Promulgate the operational approval process/Promulgar el proceso de aprobación operacional			
21	Provide examples of Operations Specifications and Letters of Authority/Proporcionar a los Estados ejemplos de Especificaciones de Operaciones y Cartas de Autorización			
22	Notify States when significant changes occur to RNAV/RNP documentation/Notificar a los Estados cuando haya cambios significativos en la documentación RNAV/RNP			
23	**Perform Rulemaking (if required) / Llevar a cabo reglamentaciones (en caso de ser requerido)**			
24	Recommend State airspace regulatory documentation/Recomendar al Estado la documentación de reglamentación del espacio aéreo			

RNAV/RNP Implementation Task List for Enroute Operations / Lista de Tareas para la Implantación RNAV/RNP paraOperaciones en Ruta				
ID		**Start/Inicio**	**Finish/Termina**	**Resource Names/Nombres Recursos**
25	**Perform Necessary Industry & International Co-ordination/Llevar a cabo las coordinaciones con industria e Internacionales necesarias**			
26	Establish target implementation date/Establecer una fecha de implantación			
27	Report to ATM/CNS/SG/Reportar al ATM/CNS/SG			
28	Establish format of CAR/SAM RNAV/RNP documentation webpage/Establecer el formato de documentación de la página web RNAV/RNP CAR/SAM			
29	Develop regional documentation and its harmonization/Desarrollar documentación regional y su armonización			
30	Publish advance AIC / NOTAM/ Publicar un AIC / NOTAM adelantado			
31	Publish AIP Supplement containing RNAV/RNP policy/procedures/Publicar el Suplemento del AIP que contenga las políticas/procedimientos RNAV/RNP			
32	Review inter-facility coordination procedures/Revisar los procedimientos internos para la coordinación de la instalación			
33	Finalize airspace changes, if applicable/Finalizar los cambios en el espacio aéreo, cuando sea aplicable			
34	Finalize changes to Letters of Agreement/Finalizar los cambios a las Cartas de Acuerdo			
35	**Approval of Aircraft & Operators / Aprobación de la aeronave y los operadores**			
36	Identify readiness status of the regional fleet/Identificar estado de preparación de la flota de la región			
37	Assess actual readiness of operators/Evaluar el estado de preparación actual de los operadores			
38	**Develop Pilot & ATC Procedures /Desarrollar procedimientos para pilotos y ATC**			
39	Review application of tactical offset procedures/Revisar aplicación de los procedimientos tácticos de desplazamiento lateral			
40	Periodically review developments regarding actions for ACAS/TCAS Resolution Advisories that affect RNAV/RNP operations/Revisar periódicamente los desarrollos con respecto a las acciones para las Avisos ACAS/TCAS para operaciones RNAV/RNP			
41	Process Doc 7030 amendment including ATC and pilot procedures/Procesar la Enmienda al Doc. 7030 para los procedimientos meteorológicos y de contingencia			
42	Publish appropriate ATC policy & procedures on RNAV/RNP website/Publicar las políticas y procedimientos ATC en la página Internet del RNAV/RNP			
43	Report procedures to accommodate non-RNAV/RNP domestic aircraft, if applicable/Informar los procedimientos para acomodar las aeronaves domésticas sin aprobación RNAV/RNP, cuando sea aplicable			
44	Identify transition areas and procedures/Identificar las áreas y los procedimientos de transición			
45	States conduct ATC simulations to identify workload/operational factors, if necessary, and report results to ICAO regional offices/Que los Estados conduzcan simulaciones ATC para identificar la carga de trabajo/factores operacionales, si es necesario e informen los resultados a las Oficina Regionales de la OACI			
46	Publish report on ATC simulation activity/Reportar las actividades de las simulaciones			
47	Provide procedures for handling non-compliant aircraft (inc ferry & mntce) in ATS documentation/Proporcionar procedimientos para manejar aeronaves que no cumplen (incluyendo ferry y mantenimiento) con la documentación ATS			
48	Provide mutually acceptable ATC procedures for non-approved State/humanitarian/ferry/maintainance acft to transit RNAV/RNP airspace/Proporcionar los procedimientos ATC de aceptación mutua para las aeronaves de Estado/humanitario/ferry/mantenimiento no aprobadas para transitar en el espacio aéreo RNAV/RNP			
50	Liaise with State defense authorities regarding military operations/Mantener una relación con las autoridades de defensa de los Estados en relación con las operaciones militares			
51	**Pilot, Maintanance, dispachers & ATC Training/Entrenamiento de Pilotos; Mantenimiento, Despachantes y ATC**			

RNAV/RNP Implementation Task List for Enroute Operations / Lista de Tareas para la Implantación RNAV/RNP paraOperaciones en Ruta				
ID		**Start/Inicio**	**Finish/Termina**	**Resource Names/Nombres Recursos**
52	Provide ATC training documentation to States/Proporcionar la documentación de capacitación ATC a los Estados.			
53	Conduct local RNAV/RNP training for air traffic controllers/Conducir capacitación RNAV/RNP local para los controladores de tránsito aéreo			
	Provide trainning guidance material for dispachers and maintanance personnel/suministrar guías de orientación para entrenamiento de despachantes y personal de mantenimiento			
54	**Perform System Verificiation/Llevar a cabo una verificación del sistema**			
55	Lateral keeping performance monitoring needed to undertake initial safety analysis/Monitoreo del performance de navigación lateral necesario para llevar a cabo el análisis inicial de la seguridad.			
56	Provide representative traffic movement data to monitoring agency *(30 day sample, repeated annually)/Proporcionar la información representativa del movimiento de tránsito a la Agencia de Monitoreo (muestra de 30 días, repetida anualmente)*			
58	Undertake initial safety analysis/Llevar a cabo un análisis inicial de seguridad			
59	Prepare/maintain regional status report detailing RNAV/RNP implementation plans/Preparar/mantener un reporte regional de status detallando los planes de implantación RNAV/RNP			
60	**Final Implementation Decision /Decisión para la implantación final**			
61	Report status of implemtation to GREPECAS /Reportar el estado de implantación al GREPECAS			
62	Review aircraft lateral performance and operational errors/Revisar el estado de la performance lateral de las aeronaves y errores operacionales			
63	ATS State documentation complete/Documentación del ATS del Estado terminada			
64	Publish trigger NOTAM/Publicación de "trigger" NOTAM			
65	Complete operational readiness assessment/Completar la evaluación de disponibilidad operacional			
66	Complete safety analysis/Completar el análisis de seguridad			
67	**Declare Initial Operational Capability/ Declarar la capacidad operacional inicial**			
68	**Monitor System Performance/Monitorear la performance del sistema**			
69	Perform follow-on monitoring/Llevar a cabo el monitoreo de seguimiento			
70	**Declare Full Operational Capability/Declarar la capacidad operacional completa**			

APPENDIX AF

ACTION PLAN MODEL FOR IMPLEMENTATION OF RNAV-RNP IN TMA

Activities	Responsible Area	Initiation Date	Finalization Date	Application Status	Remarks
1. Approval of the Action Plan for implementation of RNAV-RNP in TMA	GREPECAS				
2. Identification of operational need.	States				
3. Study of impact in the airspace.	States				
4. Establishment of RNAV-RNP approval procedures.	States				
5. Analysis of cost-benefit considering: -ATS Service Providers; and -Users.	States / Users				
6. AIC for information dissemination.	States				
7. Develop Regional Documentation.	GREPECAS States				
8. Coordination with ATS service providers and users.	States				
9. Establishment and maintenance of an approved aircraft registry.	CARSAMMA States				

Activities	**Responsible Area**	**Initiation Date**	**Finalization Date**	**Application Status**	**Remarks**
10. Establishment of a minimum amount of RNAV/RNP approved aircraft before trial initiation.	States				
11. Programme for airspace safety evaluation.	States				
12. Programme for collecting information for safety evaluation and operational availability.	States and Users				
13. Publication of an AIC informing the aeronautical community of the introduction of procedures and requirements.	States				
14. Publication of an AIP Supplement with applicable procedures and requirements.	States				
15. Notification to CARSAMMA of RNAV/RNP approved Aircraft.	States				
18. Conduct local RNAV/RNP training for air traffic controllers.	States				

Activities	**Responsible Area**	**Initiation Date**	**Finalization Date**	**Application Status**	**Remarks**
19. Evaluation of applicable minimum separation, using Collision Risk Models, considering available and planned CNS infrastructure.	States				
19. Evaluation of the Preliminary Operational Safety.	States				
21 Evaluation of the Final Operational Safety.	States				
22 Evaluation of Operational Availability.	States				
23. Decision to continue or postpone pre-operational trials.	States				
24 Date for RNAV/RNP in TMA implementation	States				

APPENDIX AG

RNAV AND/OR RNP QUESTIONNAIRE

The objective of this survey is to:

i) Collect information of the available CNS infrastructure in each State of the CAR/SAM Regions, with the corresponding coverage;

ii) Collect information related with the aircraft fleet operating the ATS Route Network of the CAR/SAM Regions and their RNAV and/or RNP capacity;

iii) Find out administrations' plans on RNP Implementation and their airworthiness and operations approval capacity;

iv) Find out airports that could obtain operational benefits by using RNAV and/or RNP for approach and instrument exit procedures and those airports that already have these procedures;

v) Find out the WGS-84 implementation status in each States of the CAR/SAM Regions;

vi) Collect existing SID and STARs information in each State of the CAR/SAM Regions, connecting the International Airports to the ATS Routes.

This information would allow the RNAV/RNP Task Force (RNAV/RNP/TF) of the ATM Committee of the GREPECAS ATM/CNS Subgroup to develop the road map.

Mark with a cross the corresponding answer. If required or if you consider pertinent, you could include comments. If necessary, use additional sheets.

1. **Report the VHF and VOR antennas, DME equipment and radars (primary and secondary) location to FL 250 with each equipment coverage, hours of service, as well as applied monitoring systems. Attach the coverage chart of this equipment. Use the following table as an example:**

Equipment	Location	Geographical Coordinates	Coverage	Monitoring Hours
DME XXX	Brasilia Airport	220 10' 20''N/0450 10' 20''W	120 NM	
Primary and Secondary Radar XXXXX	xxxxxxx (City)	220 10' 20''N/0450 10' 20''W	Primary Radar – 120 NM Secondary Radar – 200 NM	
VHF Antenna	xxxxxxx (City)	220 10' 20''N/0450 10' 20''W	80 NM	

Table 1

2. Report the location of new planned equipment, scheduled implementation dates, with the corresponding coverage of each. Attach the coverage chart of this equipment. Use the following table as an example:

Equipment	Planned Location	Planned Geographical Coordinates	Planned Coverage
DME XXX	Brasilia Airport	220 10' 20''N/0450 10' 20''W	120 NM
Primary and Secondary Radar XXXXX	xxxxxxx (City)	220 10' 20''N/0450 10' 20''W	Primary Radar – 120 NM Secondary Radar – 200 NM
VHF Antenna	xxxxxxx (City)	220 10' 20''N/0450 10' 20''W	80 NM

Table 2

3. Does your administration have the capacity and/or experience in RNAV and/or RNP airworthiness and operational approvals? If yes, please indicate the experience obtained and the reference documentation which has been used.

☐ YES ☐ NO

Comments

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4. Is any airport or airspace under your State management that can benefit with the RNAV and/or RNP implementation, taking into account the need of applying reduced horizontal separations between aircraft and/or between aircraft and obstacles? If affirmative, indicate the airspace(s) and its (their) foreseen RNAV criteria and/or RNP value(s). Has your Administration planned the application of RNAV/RNP concepts in those airspaces?

☐ YES ☐ NO

Comments

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5. Has your Administration data on aircraft operating in the airspace under its jurisdiction that have RNAV and/or RNP capacity? If affirmative indicate the aircraft fleet and the approved RNAV criteria and/or RNP value(s). Use the following table as an example:

Operator	Type of Aircraft	Registration	RNAV/AFM Capacity		Primary GPS TSO C129		On board confinement alarm capacity	FMS	
			5	2	Single	Dual		Single	Dual

Instructions to fill the table.

1. In the first row of the column entitled “Operator” write the name of the operator, for example: CONDOR.
2. In the column entitled “type of aircraft” indicate the type of aircraft, as per ICAO’s designation (B732, B733, B763, etc).
3. In the column entitled “Registration”, enter the registration of each aircraft.
4. In the column entitled “RNAV/AFM capacity”, mark with a Yes or No whether the aircraft has RNAV capacities with 5 and/or 2 NM confinement values, as indicated in the Airplane Flight Manual (AFM) (FAA) or in the Flight Manual (FM) (JAA) or in the Pilot Operating Handbook (POH) (General Aviation). This column should reflect only the capacity demonstrated in manufacturing and not necessarily the one that has operational clearance of his administration.
   If the AFM indicates capacity for RNAV 1 or PRNAV, it should be considered valid in the option RNAV 2.
   If the AFM indicates capacity for BRNAV, it should be considered valid in option RNAV 5.
5. In the column entitled “Primary GPS TSO C129”, mark with a Yes or No whether the aircraft has single o dual GPS equipment, certificates such as primary navigation equipment that comply TSO C129 ( ) requirements or other TSO/JTSO equivalent.
6. In the column entitled “On board confinement alarm capacity” enter a Yes in case the aircraft has such capacity or a o in case the same is not available.
7. In the column entitled “FMS” mark a Yes in the columns single or dual, as required, in case the aircraft has FMS or with a No, in case there is no FMS.

Note: Following is an example on how to fill in the table:

Operator	**Type of Aircraft**	**Registration**	**RNAV/AFM Capacity**		**Primary GPS TSO C129**		**On board confinement alarm capacity**	**FMS**	
			5	**2**	**Single**	**Dual**		**Single**	**Dual**
CONDOR	A320	CC-MEL N-325LA	Yes Yes	No Yes		Yes Yes	Yes Yes		Yes Yes
	B737	BB-2345 BB-0987	Yes Yes	Yes No		Yes Yes	Yes Yes		Yes Yes
	B732	AA-OCC AA-UNE	Yes No	 No	Yes 	 Yes	No No	Yes No	 No

☐ YES ☐ NO

Comments

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☐ YES ☐ NO

6. Has your Administration implemented the World Geodetic System 1984 – WGS 84 in the airspace and aerodromes under its jurisdiction, in accordance with ICAO Annex 11, Appendix 5? If negative, indicate the date foreseen for the implementation. If partially implemented, indicate the status of implementation.

☐ YES ☐ NO ☐ PARTIALLY

Comments

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7. Are SID and STAR RNAV and/or RNAV conventional implemented to link ATS routes to International and/or Domestic Aerodromes? If affirmative, which were the criteria (documentation) applied in the SID and STAR development (ICAO – Doc 8168, FAA, EUROCONTROL). If no, which are your administration's plans in this regard?

☐ YES ☐ NO ☐ PARTIALLY

Comments

8. Do you deem necessary the holding of seminars, workshops, and courses on:
   a) airspace planning?
   b) approach procedures constructions, based in Doc 8168, Vol. II (PANS/OPS)?
   c) aircraft approval and aircraft certification?
   d) safety assessment and airspace monitoring?

Comments

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APPENDIX AH

CARIBBEAN AND SOUTH AMERICAN RVSM MINIMUM MONITORING REQUIREMENTS

EFFECTIVE APRIL 27, 2005

Changes from the April 21, 2003 edition: E170 and AVRO group [RJ70, RJ85, RJ1H] are added to Monitoring Category 2 on the chart. See yellow highlight.

1. UPDATE OF MONITORING REQUIREMENTS CHART AND WEBSITE. The Minimum Monitoring Requirements Chart is a living document. As significant performance data is obtained on specific aircraft groups or types, the CARSAMMA will update the minimum monitoring requirements for those types or groups. Experience has shown that performance data will normally justify reducing the requirements. Updates to the Minimum Monitoring Requirements chart, will be posted on the CARSAMMA RVSM Documentation webpage. The RVSM Documentation page can be accessed from the CARSAMMA RVSM Homepage:

http://www.cgna.gov.br/carsamma

2. INITIAL MONITORING. All operators that operate or intend to operate in airspace where RVSM is applied are required to participate in the RVSM monitoring programme. The attached chart of monitoring requirements establishes requirements for initial monitoring associated with the RVSM approval process. In their application to the appropriate civil aviation authority for RVSM approval, operators must show a plan for meeting the applicable initial monitoring requirements.

3. AIRCRAFT STATUS FOR MONITORING. Aircraft engineering work that is required to bring aircraft into compliance with RVSM standards must be completed prior to the aircraft being monitored. Any exception to this rule will be coordinated with the responsible civil aviation authority.

4. APPLICABILITY OF MONITORING FROM OTHER REGIONS. Monitoring data obtained in conjunction with RVSM monitoring programmes from other regions can be used to meet Caribbean and South American RVSM monitoring requirements. The Caribbean and South American Monitoring Agency (CARSAMMA), which is responsible for administering the Caribbean and South American RVSM monitoring programme, has access to monitoring data from other regions and will inform other civil aviation authorities and operators concerning satisfaction of Caribbean and South American monitoring requirements.

5. **MONITORING PRIOR TO THE ISSUE OF RVSM OPERATIONAL APPROVAL IS NOT A REQUIREMENT.** Operators should submit monitoring plans to the responsible civil aviation authority that show how they intend to meet the requirements specified in the table below. Monitoring will be carried out in accordance with this table.

6. AIRCRAFT GROUPS NOT LISTED ON THE CHART. Contact the CARSAMMA for clarification if an aircraft group is not listed on the Minimum Monitoring Requirements chart or for clarification of other monitoring related issues. An aircraft group not listed in the table below will probably be subject to Category 2 monitoring requirements.

7. TABLE OF MONITORING GROUPS. A table of monitoring groups is provided in the pages following the Minimum Monitoring Requirements Chart. The table shows the aircraft types and series that are grouped together for operator monitoring purposes.

8. TRAILING CONE DATA. Altimetry System Error estimations developed using Trailing Cone data collected during RVSM certification flights can be used to fulfill monitoring requirements. It must be documented, however, that aircraft RVSM systems were in the approved RVSM configuration for the flight.

9. MONITORING OF AIRFRAMES THAT ARE RVSM COMPLIANT ON DELIVERY. If an operator adds new RVSM compliant airframes of a type for which it already has RVSM operational approval and has completed monitoring requirements for the type in accordance with the attached chart, the new airframes are not required to be monitored. If an operator adds new RVSM compliant airframes of an aircraft type for which it has NOT previously received RVSM operational approval, then the operator should complete monitoring in accordance with the attached chart.

10. **FOLLOW-ON MONITORING.** Monitoring is an on-going programme that will continue after RVSM implementation. **The CARSAMMA will coordinate a follow-on monitoring programme with industry after implementation.**

CARIBBEAN AND SOUTH AMERICAN RVSM MINIMUM MONITORING REQUIREMENTS CHART

EFFECTIVE APRIL 27, 2005

MONITORING IS REQUIRED IN ACCORDANCE WITH THIS CHART, HOWEVER, IT IS NOT REQUIRED TO BE COMPLETED PRIOR TO OPERATIONAL APPROVAL			
MONITORING CATEGORY		**AIRCRAFT TYPE**	**MINIMUM OPERATOR MONITORING FOR EACH AIRCRAFT GROUP**
1	Group approved <u>and</u> monitoring data indicates performance in accordance with RVSM standards. **<u>Group Definition:</u>** aircraft have been manufactured to a nominally identical design and build and for RVSM airworthiness approval fall into a group established in an RVSM certification document (e.g., Service Bulletin, Supplemental Type Certificate, Type Certificate Data Sheet).	A30B, A306, [A312 (GE), A313 (GE)], [A312 (PW), A313 (PW)], A318, [A319, A320, A321], [A332, A333], [A342, A343], A345, A346 B712, [B721, B722], [B733, B734, B735], B737 (Cargo) [B736, B737/BBJ, B738/BBJ, B739], [B741, B742, B743], B74S, B744 (5” Probe), B744 (10” Probe), B752, B753, [B762, B763], B764, B772, B773 CL60 (600/601), CL60 (604), C560, [CRJ1, CRJ2], CRJ7, DC10, [E135, E145], F100, GLF4, GLF5, LJ60, L101, MD10, MD11, MD80 (All series), MD90	Two airframes from each fleet* of an operator to be monitored as soon as possible but **not later than 6 months after the issue of RVSM operational approval <u>or</u> not later than 6 months after the start of Caribbean and South American RVSM operations, <u>whichever occurs later.</u>** * *Note. For the purposes of monitoring, aircraft within parenthesis* [ ] *may be considered as belonging to the same monitoring group. For example, an operator with six A332 and four A333 aircraft may monitor one A332 and one A333* ***or*** *two A332 aircraft* ***or*** *two A333 aircraft.*
2	Group approved but insufficient monitoring data collected to move aircraft to Monitoring Category 1. Group definition applies.	Other group aircraft other than those listed above including: A124, ASTR, B703, B731, B732, BE20, BE40, C500, [C25A, C25B], C525, C550**, C56X, C650, C750, CRJ9, D328, [DC86, DC87], DC93, DC94, DC95, E170, F2TH, [FA50 FA50EX], F70, [F900, F900EX], FA20, GLF2(II), GLF2(IIB), GLF3, GALX, GLEX, H25B(700), H25B(800), H25C, IL62, IL76, IL86, IL96, J328, L29B(2), L29B(731), LJ31, [LJ35, LJ36], LJ45, LJ55, [RJ70, RJ85, RJ1H], SBR1, T134, T154, T204, TBM7, P180, PRM1, WW24, YK42	60% of airframes from each fleet of an operator (round up if fractional), as soon as possible but **not later than 6 months after the issue of RVSM operational approval <u>or</u> not later than 6 months after the start of Caribbean and South American RVSM operations, <u>whichever occurs later.</u>** ** Refer to aircraft group table for detail on C550 monitoring

<table>
<tr><th colspan="4">MONITORING IS REQUIRED IN ACCORDANCE WITH THIS CHART, HOWEVER, IT IS NOT REQUIRED TO BE COMPLETED PRIOR TO OPERATIONAL APPROVAL</th></tr>
<tr><th colspan="2">MONITORING CATEGORY</th><th>AIRCRAFT TYPE</th><th>MINIMUM OPERATOR MONITORING FOR EACH AIRCRAFT GROUP</th></tr>
<tr><td>3</td><td>Non-Group

<u>Non-group Definition:</u>
aircraft that do not fall under the group definition <u>and</u> for RVSM airworthiness approval are presented as an individual airframe.</td><td>Non-group approved aircraft</td><td>100% of aircraft shall be monitored as soon as possible but not later than
6 months after the issue of RVSM operational approval <u>or</u> not later than 6 months after the start of Caribbean and South American RVSM operations, <u>whichever occurs later.</u></td></tr>
</table>

Monitoring Groups for Aircraft Certified under Group Approval Requirements

Monitoring Group	ICAO Desig-nator	A/C Type	A/C Series
A124	A124	AN-124 RUSLAN	ALL SERIES
A300	A306 A30B	A300 A300	600, 600F, 600R, 620, 620R, 620RF B2-100, B2-200, B4-100, B4-100F, B4-120, B4-200, B4-200F, B4-220, C4-200
A310-GE	A310	A310	200, 200F,300, 300F
A310-PW	A310	A310	220, 220F,320
A318	A318	A318	ALL SERIES
A320	A319 A320 A321	A319 A320 A321	CJ , 110, 130 110, 210, 230 110, 130, 210, 230
A330	A332, A333	A330	200, 220, 240, 300, 320, 340
A340	A342, A343,	A340	210, 310
A345	A345	A340	540
A346	A346	A340	640
A3ST	A3ST	A300	600R ST BELUGA
AN72	AN72	AN-74, AN-72	ALL SERIES
ASTR	ASTR	1125 ASTRA	ALL SERIES
ASTR-SPX	ASTR	ASTR SPX	ALL SERIES
AVRO	RJ70, RJ85, RJ1H	AVRO	RJ70, RJ85, RJ100
B712	B712	B717	200
B727	B721 B722	B727	100, 100C, 100F,100QF, 200, 200F
B732	B732	B737	200, 200C
B737 (Classic)	B733 B734 B735	B737	300, 400, 500
B737 New Generation (NG)	B736 B737 B738 B739	B737 B737 B737 B737	600 700, 700BBJ 800 900

Monitoring Group	ICAO Desig-nator	A/C Type	A/C Series
B737 (Cargo)	B737	B737	700C
B747Classic (CL)	B741 B742 B743	B747	100, 100B, 100F, 200B, 200C, 200F, 200SF, 300
B74S	B74S	B747	SR, SP
B744-5	B744	B747	400, 400D, 400F (With 5 inch Probes)
B744-10	B744	B747	400, 400D, 400F (With 10 inch Probes)
B752	B752	B757	200, 200PF
B753	B753	B757	300
B767	B762 B763	B767	200, 200EM, 200ER, 200ERM, 300, 300ER, 300ERF
B764	B764	B767	400ER
B772	B772	B777	200, 200ER, 300, 300ER
B773	B773	B777	300, 300ER
BE40	BE40	BEECHJET 400A	ALL SERIES
BE20	BE20	BEECH 200 -KINGAIR	ALL SERIES
C500	C500	500 CITATION, 500 CITATION I, 501 CITATION I SINGLE PILOT	ALL SERIES
C525	C525	525 CITATIONJET, 525 CITATIONJET I	ALL SERIES
C525-II	C25A	525A CITATIONJET II	ALL SERIES
C525 CJ3	C25B	CITATIONJET III	ALL SERIES
C550-552	C550	552 CITATION II	ALL SERIES
C550-B	C550	550 CITATION BRAVO	ALL SERIES
C550-II	C550	550 CITATION II, 551 CITATION II SINGLE PILOT	ALL SERIES
C550-SII	C550	S550 CITATION SUPER II	ALL SERIES
C560	C560	560 CITATION V, 560 CITATION V ULTRA, 560 CITATION V ULTRA ENCORE	ALL SERIES
C56X	C56X	560 CITATION EXCEL	ALL SERIES
C650	C650	650 CITATION III , 650 CITATION VI , 650 CITATION VII	ALL SERIES
C750	C750	750 CITATION X	ALL SERIES
CARJ	CRJ1, CRJ2	REGIONALJET	100, 200, 200ER, 200LR

Monitoring Group	ICAO Desig-nator	A/C Type	A/C Series
CRJ-700	CRJ7	REGIONALJET	700
CRJ-900	CRJ9	REGIONALJET	900
CL600	CL60	CL-600 CL-601	CL-600-1A11 CL-600-2A12, CL-600-2B16
CL604	CL60	CL-604	CL-600-2B16
BD100	CL30	CHALLENGER 300	ALL SERIES
BD700	GL5T	GLOBAL 5000	ALL SERIES
CONC	CONC	CONCORDE	ALL SERIES
DC10	DC10	DC-10	10, 10F, 15, 30, 30F, 40, 40F
DC86-7	DC86, DC87	DC-8	62, 62F, 72, 72F
DC93	DC93	DC-9	30, 30F
DC94	DC94	DC-9	
DC95	DC95	DC-9	SERIES 51
E135-145	E135, E145	EMB-135, EMB-145	ALL SERIES
E170	E170	EMB-170	
F100	F100	FOKKER 100	ALL SERIES
F2TH	F2TH	FALCON 2000	ALL SERIES
F70	F70	FOKKER 70	ALL SERIES
F900	F900	FALCON 900, FALCON 900EX	ALL SERIES
FA10	FA10	FALCON 10	ALL SERIES
FA20	FA20	FALCON 20 FALCON 200	ALL SERIES
FA50	FA50	FALCON 50, FALCON 50EX	ALL SERIES
GALX	GALX	1126 GALAXY	ALL SERIES
GLEX	GLEX	BD-700 GLOBAL EXPRESS	ALL SERIES
GLF2	GLF2	GULFSTREAM II (G-1159),	ALL SERIES
GLF2B	GLF2	GULFSTREAM IIB (G-1159B)	ALL SERIES
GLF3	GLF3	GULFSTREAM III (G-1159A)	ALL SERIES
GLF4	GLF4	GULFSTREAM IV (G-1159C)	ALL SERIES
GLF5	GLF5	GULFSTREAM V (G-1159D)	ALL SERIES
H25B-700	H25B	BAE 125 / HS125	700B
H25B-800	H25B	BAE 125 / HAWKER 800XP, BAE 125 /	ALL SERIES/A, B/800

Monitoring Group	ICAO Desig-nator	A/C Type	A/C Series
		HAWKER 800, BAE 125 / HS125	
H25C	H25C	BAE 125 / HAWKER 1000	A , B
IL86	IL86	IL-86	NO SERIES
IL96	IL96	IL-96	M , T, 300
J328	J328	328JET	ALL SERIES
L101	L101	L-1011 TRISTAR	1 (385-1), 40 (385-1), 50 (385-1), 100, 150 (385-1-14), 200, 250 (385-1-15), 500 (385-3)
L29B-2	L29B	L-1329 JETSTAR 2	ALL SERIES
L29B-731	L29B	L-1329 JETSTAR 731	ALL SERIES
LJ31	LJ31	LEARJET 31	NO SERIES, A
LJ35/6	LJ35 LJ36	LEARJET 35 LEARJET 36	NO SERIES, A
LJ40	LJ40	LEARJET 40	ALL SERIES
LJ45	LJ45	LEARJET 45	ALL SERIES
LJ55	LJ55	LEARJET 55	NO SERIES B, C
LJ60	LJ60	LEARJET 60	ALL SERIES
MD10	MD10	MD-10	ALL SERIES
MD11	MD11	MD-11	COMBI, ER, FREIGHTER, PASSENGER
MD80	MD81, MD82, MD83, MD87, MD88	MD-80	81, 82, 83, 87, 88
MD90	MD90	MD-90	30, 30ER
P180	P180	P-180 AVANTI	ALL SERIES
PRM1	PRM1	PREMIER 1	ALL SERIES
T134	T134	TU-134	A, B
T154	T154	TU-154	A , B, M, S
T204	T204, T224, T234	TU-204, TU-224, TU-234	100, 100C, 120RR, 200, C
TBM7	TBM7		
WW24	WW24		
YK42	YK42	YAK-42	ALL SERIES

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APPENDIX AI

ERROR PREVENTION PROGRAMME IN THE COMMUNICATIONS BETWEEN ADJACENT ACCs

There are many initiatives that can be pursued to prevent operational errors from occurring. However, there are five primary areas, which can directly contribute to its prevention: **communications, phraseology, supervision, teamwork, and ATC proficiency**. In an effort to accomplish the goal of reducing communication errors between adjacent Area Control Centres and thus reduce or minimize the occurrence of large-height deviations, the following objectives should be included in the prevention programme:

The authority shall:

a) identify individual, procedural, and/or equipment deficiencies used in air traffic services;

b) promptly correct individual, procedural, and/or equipment deficiencies which affect coordinations with adjacent and ATS units. This can be achieved through:

- guidance on procedures to be followed;
- implementation of read-back/hear-back programmes;
- training in the filling of LHD forms;
- increase and/or closer monitoring of ATCOs performance;
- immediate coordination programme after a re-authorization or change in flight level;
- changes in procedures and/or corrections/amendments of equipment.

c) communicate performance expectations to ATS supervisors and controllers;

d) ensure the ATS unit maintains a summary of and have information letters on operational errors, causal factors and trends, and incorporate them into training;

e) monitor and evaluate voice recordings (all ATS operational personnel);

f) take initiatives to improve communications among all ATS personnel to create an atmosphere conducive to sharing information;

g) exercise strict monitoring in ATC units;

h) ATS supervisors should:

- communicate performance expectations to controllers, stressing the importance of operational control position discipline, awareness, teamwork, the use of proper phraseology, proper coordination procedures, control position relief briefings and utilization of a position relief checklist;

- take prompt follow-up actions when controller performance does not meet with expectations;
- inform on individual and team accountability, and the consequences for not meeting expectations;
- provide efficient and consistent oversight of the ATS unit operation, and use effective resource management to ensure proper and timely assignment of personnel to promote the safe, orderly, and expeditious handling of air traffic;
- ensure that distractions and noise levels in the ATS unit are kept at a minimum;
- require all personnel to maintain a high degree of professionalism, teamwork, control position discipline, and awareness at all times in the ATS unit environment; and require that each controller knows, applies, and adheres to the appropriate requirements in the performance of his/her operational duties and responsibilities;
- promote an open flow of communications with all ATS personnel, allowing them to provide input to programme;
- place emphasis on hear-back/read-back errors during team meetings.

i) ATC personnel should:

- apply read-back/hear-back procedures when carrying out ATC coordinations;
- keep ATS supervisors advised of traffic problems and equipment limitations;
- make suggestions for ATS unit improvements and/or prevention of operational errors;
- maintain situational awareness;
- extend the extra effort to assist busier control position(s);
- continuously review their own operating techniques and ATS unit procedures to effect the highest quality of performance;
- promptly report all ATS incidents to the operational supervisor or other appropriate ATS authority for proper follow-up investigation;
- utilize memory aids.

VOICE RECORDING EVALUATIONS

Voice recording reviews should be conducted to ensure proper phraseology, good operating practices, and adherence to the standards set forth in ICAO provisions, and national/local directives and practices. Voice recording reviews should be conducted as follows:

a) the ATS unit should ensure that voice recording reviews are conducted at least semi-annually on all ATS operational personnel;

b) the ATS supervisor should review the voice recording, document comments and develop an action plan for documenting performance deficiencies; and

c) the ATS supervisor and the controller should review and discuss the voice recording.

APPENDIX AJ

CARSAMMA
Caribbean and South American Monitoring Agency

The information contained in this form is confidential and will be used for statistical safety analysis purposes only.

ALTITUDE DEVIATION FORM

Report to the CARSAMMA of an altitude deviation of 300ft or more, including those due to TCAS, Turbulence and Contingency Events

1. Today's date:	2. Reporting Unit:		
DEVIATION DETAILS			
3. Operator Name:	4. Call Sign:	5. Aircraft Type:	6. Mode C Displayed:
7. Date of Occurrence:	8. Time UTC:	9. Occurrence Position (lat/long or Fix):	
10. Cleared Route of Flight:			
11. Cleared Flight Level:	12. Estimated Duration at Incorrect Flight Level (seconds):	13. Observed Deviation (+/- ft):	
14. Other Traffic Involved:			
15. Cause of Deviation (*brief title*): (Examples: ATC Loop Error, Turbulence, Weather, Equipment Failure)			

AFTER DEVIATION IS RESTORED		
16. Observed/Reported Final Flight Level*: *Please indicate the source of information – ModeC/Pilot	Mark the appropriate box 17. Is the FL above the cleared level: ❑ 18. Is the FL below the cleared level: ❑	19. Did this FL comply with the ICAO Annex 2 Tables of Cruising Levels? ❑ Yes ❑ No

NARRATIVE

20. Detailed Description of Deviation
(*Please give your assessment of the actual track flown by the aircraft and the cause of the deviation.*)

CREW COMMENTS (IF ANY)

When complete please forward the report(s) to:

Management Center Of Air Navigation Caribbean and South American Monitoring Agency (CARSAMMA)
Av. Brig. Faria Lima, 1941
São José dos Campos, SP
Cep: 12227-000 Brazil
Telephone: (55-12) 3904-5004 or 3904-5010
Fax: (55-12) 3941-7055
E-Mail: carsamma@cgna.gov.br

APÉNDICE AK / APPENDIX AK

12.3 FRASEOLOGÍA BILINGÜE ATC
12.3 ATC BILINGUAL PHRASEOLOGY (Available only in Spanish)

12.3.1 Generalidades

Circunstancias	*Fraseología*	*Phraseologies*
12.3.1.1 DESCRIPCIÓN DE LOS NIVELES [DESIGNADOS EN ADELANTE COMO "*(NIVEL)*"]	a) NIVEL DE VUELO *(número); o* b) *(número)* METROS; *o* c) *(número)* PIES.	a) FLIGHT LEVEL *(number)*; *or* b) *(number)* METRES; *or* c) *(number)* FEET.
12.3.1.2 CAMBIOS DE NIVEL, NOTIFICACIONES Y RÉGIMEN DE VARIACIÓN DE ALTITUD	a) ASCIENDA (*o* DESCIENDA); *seguido, si es necesario, de:* i) PARA ~~A~~ *(nivel);*	a) CLIMB (*or* DESCEND); *followed as necessary by:* i) TO *(level)*;
... instrucciones de que comience el ascenso (o descenso) hasta un determinado nivel dentro de la gama vertical especificada de niveles	ii) Y MANTENGA BLO QUE DE NIVELES ENTRE ~~A BLOQUE ENTRE~~ (*nivel*) y (*nivel);* Y MANTENGA; iii) PARA ~~HASTA~~ ALCANZAR *(nivel)* A (*o* ANTES DE) LAS *(hora)* *(o* EN *punto significativo);* iv) NOTIFIQUE ABANDONANDO (o ALCANZANDO o PASANDO POR) ~~AVISE AL DEJAR (*o* AL ALCANZAR *o* AL PASAR POR)~~ *(nivel);* v) A *(número)* METROS POR SEGUNDO (*o* PIES POR MINUTO) [O MAYOR (*o* MENOR)];	i) TO AND MAINTAIN BLOCK (*level*) TO (*level);* iii) TO REACH *(level)* AT (*or* BY) *(time or significant point)*; iv) REPORT LEAVING (*or* REACHING, *or* PASSING) *(level)*; v) AT *(number)* METRES PER SECOND (*or* FEET PER MINUTE) [OR GREATER (*or* OR LESS)];
... sólo para aeronaves SST	vi) NOTIFIQUE COMIENZO DE ACELE-RACIÓN (*o* ~~DECELERACIÓN~~ DESACELERACION); b) MANTENGA POR LO MENOS *(número)* METROS (*o* PIES) POR ENCIMA (*o* POR DEBAJO) DEL (*distintivo de llamada de la aeronave);*	vi) REPORT STARTING ACCELERATION (*or* DECELERATION). b) MAINTAIN AT LEAST *(number)* METRES (*or* FEET) ABOVE (*or* BELLOW) (*aircraft call sign)*;

Circunstancias	*Fraseología*	*Phraseologies*
	c) SOLICITE CAMBIO DE NIVEL (*o* NIVEL DE VUELO *o* ALTITUD) A *(nombre de la dependencia)* [A LAS *(hora) (o* EN *punto significativo)*];	c) REQUEST LEVEL (*or* FLIGHT LEVEL *or* ALTITUDE) CHANGE FROM *(name of unit)* [AT *(time or significant point)*];
	d) INTERRUMPA ASCENSO (*o* DESCENSO) A *(nivel);*	d) STOP CLIMB (*or* DESCENT) AT *(level)*;
	e) CONTINUE ~~SIGA~~ ASCENSO (*o* DESCENSO) HASTA *(nivel);*	e) CONTINUE CLIMB (*or* DESCENT) TO *(level)*;
	f) EXPEDITAR ~~ACELERE~~ ASCENSO (*o* DESCENSO) [HASTA PASAR POR *(nivel)*];	f) EXPEDITE CLIMB (*or* DESCENT) [UNTIL PASSING *(level)*];
	g) CUANDO ~~ESTÉ~~ LISTO ASCIENDA (*o* DESCIENDA) PARA ~~HASTA~~ *(nivel);*	g) WHEN READY CLIMB (*or* DESCEND) TO *(level)*;
	h) PREVEA ASCENSO (*o* DESCENSO) A LAS *(hora) (o* EN *punto significativo);* *i) SOLICITO DESCENSO A LAS *(hora);*	h) EXPECT CLIMB (*or* DESCENT) AT *(time or significant point)*; *i) REQUEST DESCENT AT *(time)*;
... para indicar una instrucción que ha de cumplirse a una hora o en un lugar determinados	j) INMEDIATAMENTE*;*	j) IMMEDIATELY;
	k) POSTERIOR ~~DESPUÉS DE PASAR POR~~ *(punto significativo);*	k) AFTER PASSING *(significant point)*;
	l) A LAS *(hora) (o* EN *punto significativo);*	l) AT *(time or significant point)*;
... para indicar una instrucción que ha de cumplirse cuando corresponda	m) CUANDO ~~ESTÉ~~ LISTO *(instrucciones);*	m) WHEN READY *(instruction)*;
... para indicar que la aeronave debe ascender o descender manteniendo su propia separación y VMC	n) MANTENGA PROPIA SEPARACIÓN Y VMC [DESDE *(nivel)*] [HASTA *(nivel)*];	n) MAINTAIN OWN SEPARATION AND VMC [FROM *(level)*] [TO *(level)*];
	o) MANTENGA PROPIA SEPARACIÓN Y VMC POR ENCIMA DE (*o* POR DEBAJO DE *o* HASTA EL) *(nivel);*	o) MAINTAIN OWN SEPARATION AND VMC ABOVE (*or* BELOW, *or* TO) *(level)*;

Circunstancias	*Fraseología*	*Phraseologies*
... cuando exista la duda de que una aeronave pueda cumplir con una autorización o instrucción	p) SI NO ES POSIBLE *(otras instrucciones)* Y NOTIFIQUE;	p) IF UNABLE *(alternative instructions)* AND ADVISE;
... cuando un piloto no pueda cumplir con una autorización o instrucción	*q) NO POSIBLE ~~IMPOSIBLE~~;	*q) UNABLE;
... después de modificada la velocidad vertical para cumplir un aviso de resolución ACAS (intercambio entre el piloto y el controlador)	*r) ASCENSO (o DESCENSO) TCAS; ~~ASCENSO TCAS (*o* DESCENSO~~); s) *(confirmación);*	*r) TCAS CLIMB (*or* DESCENT); s) (*acknowledgement*);
... después de anunciar “conflicto terminado” ACAS (intercambio entre el piloto y el controlador)	*t) REGRESO A *(autorización asignada);* u) *(confirmación) (o cambio de instrucciones);*	*t) RETURNING TO (*assigned clearance*); u) (*acknowledgement*) (*or alternative instructions*);
... después de cumplido el aviso de resolución ACAS (intercambio entre el piloto y el controlador)	*v) ASCENSO TCAS (*o* DESCENSO), REGRESO A *(autorización asignada);* w) *(confirmación) (o cambio de instrucciones);*	*v) TCAS CLIMB (*or* DESCENT), RETURNING TO (*assigned clearance*); w) (*acknowledgement*) (*or alternative instructions*);
... después de reanudar la autorización anterior tras responder al aviso de resolución ACAS (intercambio entre el piloto y el controlador)	*x) ASCENSO ~~TCAS~~ (*o* DESCENSO), TCAS COMPLETADO, REANUDADO *(autorización asignada);* y) *(confirmación) (o cambio de instrucciones);*	*x) TCAS CLIMB (*or* DESCENT), COMPLETED (*assigned clearance*) RESUMED; y) (*acknowledgement*) (*or alternative instructions*);
... cuando sea imposible cumplir una autorización debido a un aviso de resolución ACAS (intercambio entre el piloto y el controlador)	*z) NO POSIBLE POR ~~IMPOSIBLE, AVISO DE~~ RESOLUCIÓN TCAS; aa) *(confirmación).* * Indica una transmisión del piloto.	*z) UNABLE, TCAS RESOLUTION ADVISORY; aa) (*acknowledgement*). * Denotes pilot transmission.
12.3.1.3 TRANSFERENCIA DE CONTROL O CAMBIO DE FRECUENCIA	a) CONTACTO ~~COMUNIQUE A~~ *(distintivo de llamada de la dependencia) (frecuencia)* [AHORA];	a) CONTACT *(unit call sign) (frequency)* [NOW];

Circunstancias	*Fraseología*	*Phraseologies*
	b) A LAS (*o* SOBRE) *(hora o lugar)* [*o* CUANDO] [PASANDO/ABANDONANDO/ ALCANZANDO] *(nivel)* CONTACTO ~~LLAME A~~ *(distintivo de llamada de la dependencia) (frecuencia);*	b) AT (*or* OVER) *(time or place)* [*or* WHEN] [PASSING/LEAVING/REACHING] (*level*) CONTACT *(unit call sign) (frequency)*;
	c) SI NO ESTABLECE CONTACTO *(instrucciones);*	c) IF NO CONTACT *(instructions)*;
Nota.— Puede pedirse a una aeronave que "VIGILE" una frecuencia dada, cuando exista el propósito de que la dependencia ATS inicie pronto las comunicaciones y "ESCUCHE" la frecuencia cuando la información se radiodifunda en ella.	d) MANTENGA ESCUCHA ~~VIGILE~~ *(frecuencia)* PARA *(distintivo de llamada de la dependencia);*	d) STAND BY *(frequency)* FOR *(unit call sign)*;
	*e) SOLICITO CAMBIO A *(frecuencia);*	*e) REQUEST CHANGE TO *(frequency)*;
	f) CAMBIO DE FRECUENCIA APROBADO;	f) FREQUENCY CHANGE APPROVED;
	g) MANTENGA ESCUCHA ~~ESCUCHE~~ *(distintivo de llamada de la dependencia) (frecuencia);*	g) MONITOR *(unit call sign) (frequency)*;
	*h) MANTENIENDO ESCUCHA ~~ESCUCHANDO~~ *(frecuencia);*	*h) MONITORING *(frequency)*;
	i) CUANDO ~~ESTÉ~~ LISTO CONTACTO ~~COMUNIQUE~~ *(distintivo de llamada de la dependencia) (frecuencia);*	i) WHEN READY CONTACT *(unit call sign) (frequency)*;
	j) MANTENGA ESTA FRECUENCIA.	j) REMAIN THIS FREQUENCY.
	* Indica una transmisión del piloto.	* Denotes pilot transmission.
12.3.1.4 CAMBIO DE DISTINTIVO DE LLAMADA		
... para dar instrucciones a una aeronave de que modifique su tipo de distintivo de llamada	a) CAMBIE ~~MODIFIQUE~~ DISTINTIVO DE LLAMADA A *(nuevo distintivo de llamada)* [HASTA NUEVO AVISO];	a) CHANGE YOUR CALL SIGN TO *(new call sign)* [UNTIL FURTHER ADVISED];
... para avisar a una aeronave que vuelva al distintivo de llamada indicado en el plan de vuelo	b) VUELVA AL DISTINTIVO DE LLAMADA DEL PLAN DE VUELO *(distintivo de llamada)* [EN *(punto significativo)*].	b) REVERT TO FLIGHT PLAN CALL SIGN *(call sign)* [AT *(significant point)*].
12.3.1.5 INFORMACIÓN SOBRE EL TRÁNSITO	a) TRÁNSITO *(información);*	a) TRAFFIC *(information)*;
... para proporcionar información sobre el tránsito	b) NINGÚN TRÁNSITO NOTIFICADO;	b) NO REPORTED TRAFFIC;

Circunstancias	*Fraseología*	*Phraseologies*
... para acusar recibo de información sobre el tránsito	*c) BUSCANDO ~~ESTOY OBSERVANDO~~; (*tránsito*)	*c) LOOKING OUT;
	*d) TRÁNSITO A LA VISTA;	*d) TRAFFIC IN SIGHT;
	*e) CONTACTO NEGATIVO [*motivos*];	*e) NEGATIVE CONTACT [*reasons*];
	f) TRÁNSITO [ADICIONAL] RUMBO *(dirección) (tipo de aeronave) (nivel*) ESTIMADO ~~PREVISTO~~ EN (*o* SOBRE) *(punto significativo)* A LAS *(hora);*	f) [ADDITIONAL] TRAFFIC *(direction)* BOUND *(type of aircraft) (level)* ESTIMATED (*or* OVER) *(significant point)* AT *(time)*;
	g) EL TRÁNSITO ES *(clasificación)* GLOBOS LIBRES NO TRIPULADOS ESTABAN [*o* ESTIMADOS] SOBRE *(lugar)* A LAS *(hora) (niveles)* NOTIFICADOS [*o* NIVEL DESCONOCIDO] MOVIÉNDOSE *(dirección) (otra información pertinente, si la hubiera).*	g) TRAFFIC IS *(classification)* UNMANNED FREE BALLOON(S) WAS [*or* ESTIMATED] OVER *(place)* AT *(time)* REPORTED *(level(s))* [*or* LEVEL UNKNOWN] MOVING *(direction) (other pertinent information, if any).*
	* Indica una transmisión del piloto.	* Denotes pilot transmission.

12.3.1.6 CONDICIONES METEOROLÓGICAS	a) VIENTO [EN ~~LA~~ SUPERFICIE] *(número)* GRADOS *(velocidad) (unidades);*	a) [SURFACE] WIND *(number)* DEGREES *(speed) (units)*;
	b) VIENTO A *(nivel) (número)* GRADOS *(número)* KILÓMETROS POR HORA (o NUDOS);	b) WIND AT *(level) (number)* DEGREES *(number)* KILOMETERS PER HOUR (or KNOTS);
	Nota.— El viento se expresa siempre indicando la dirección y velocidad medias y cualesquier variaciones significativas respecto a ellas.	*Note.— Wind is always expressed by giving the mean direction and speed and any significant variations thereof.*
	c) VISIBILIDAD *(distancia) (unidades)* [*dirección*];	c) VISIBILITY *(distance) (units)* [*direction*];
	d) ALCANCE VISUAL EN ~~LA~~ PISTA (*o* RVR) [PISTA (número)] *(distancia) (unidades);*	d) RUNWAY VISUAL RANGE (*or* RVR) [RUNWAY *(number)*] *(distance) (unit)*;
	e) ALCANCE VISUAL EN ~~LA~~ PISTA (*o* RVR) PISTA (*número*) NO DISPONIBLE (*o* NO SE HA NOTIFICADO);	e) RUNAWAY VISUAL RANGE (*or* RVR) RUNAWAY (*number*) NOT AVAILABLE (*or* NOT REPORTED);

... para observaciones múltiples del RVR	f) ALCANCE VISUAL EN ~~LA~~ PISTA (*o* RVR) [PISTA *(número)*] *(primera posición) (distancia) (unidades), (segunda posición) (distancia) (unidades), (tercera posición) (distancia) (unidades);* *Nota 1.— Las observaciones múltiples del RVR representan siempre la zona de toma de contacto, la zona del punto central y la zona de recorrido de deceleración en tierra/extremo de parada, respectivamente.* *Nota 2.— Cuando se notifican tres posi-ciones puede omitirse la indicación de las mismas, siempre que los informes se comuni-quen en el siguiente orden: zona de toma de contacto, zona del punto central y zona de recorrido de deceleración en tierra/extremo de parada.*	f) RUNWAY VISUAL RANGE (*o* RVR) [RUNWAY *(number)*] *(first position) (distance), (units), (second position) (distance), (units), (third position) (distance), (units);* *Note 1.— Multiple RVR observations are always representative of the touchdown zone, midpoint zone and the roll-out/stop end zone respectively.* *Note 2.— Where reports for three locations are given, the indication of these locations may be omitted, provided that the reports are passed in the order of touchdown zone, followed by the midpoint zone and ending with the roll-out/stop end zone report.*
... en caso de que no se disponga de información sobre el RVR en alguna de estas posiciones, este hecho se indicará en el lugar que corresponda	g) ALCANCE VISUAL EN ~~LA~~ PISTA (*o* RVR) [PISTA *(número)*] *(primera posición) (distancia), (unidades) (segunda posición)* NO DISPONIBLE, *(tercera posición) (distancia), (unidades);*	g) RUNWAY VISUAL RANGE (*o* RVR) [RUNWAY *(number)*] *(first position) (distance), (units) (second position)* NOT AVAILABLE, *(third position) (distance), (units);*
	h) TIEMPO PRESENTE *(detalles);*	h) PRESENT WEATHER *(details)*;
	i) NUBES ~~(~~*cantidad*, [*(tipo)*] *y altura de la base*, *(unidades)* (*o* CIELO DESPEJADO); *Nota.— En el Capítulo 11, 11.4.3.2.3.5 se indican los detalles sobre el modo de describir la cantidad y el tipo de nubes.*	i) CLOUD *(amount*, [*(type)*] *and height of base) (units)* (*or* SKY CLEAR); *Note.— Details of the means to describe the amount and type of cloud are in Chapter 11, 11.4.3.2.3.5.*
	j) CAVOK; *Nota.— Pronúnciese CAV-O-KE.*	j) CAVOK; *Note.— CAVOK pronounced CAV-O-KAY.*

	k) TEMPERATURA [MENOS] *(número)* +*o* PUNTO DE ROCÍO [MENOS] *(número)*,;	k) TEMPERATURE [MINUS] *(number)* (*and/or* DEW-POINT [MINUS] *(number)*);
	l) QNH *(número)* [*unidades*];	l) QNH *(number)* [*units*];
	m) QFE (*número*) [*(unidades)*];	m) QFE (*number*) [*(units)*];
	n) (*tipo de aeronave*) NOTIFICÓ (*descripción*) ENGELAMIENTO (*o* TURBULENCIA) [DENTRO DE NUBES] *(área) (hora);*	n) *(aircraft type)* REPORTED (*description*) ICING (*or* TURBULENCE) [IN CLOUD] *(area) (time);*
	o) NOTIFIQUE CONDICIONES DE VUELO.	o) REPORT FLIGHT CONDITIONS.
12.3.1.7 NOTIFICACIÓN DE POSICIÓN	a) NOTIFIQUE ~~PRÓXIMO INFORME~~ EN *(punto significativo);*	a) NEXT REPORT AT *(significant point)*;
... para omitir los informes de posición hasta una posición determinada	b) OMITA NOTIFICACIÓN ~~INFORMES~~ DE POSICIÓN [HASTA *(especificar)*];	b) OMIT POSITION REPORTS [UNTIL *(specify)*];
	c) REANUDE NOTIFICACIÓN DE POSICIÓN.	c) RESUME POSITION REPORTING.
12.3.1.8 OTROS INFORMES	a) NOTIFIQUE PASANDO POR *(punto significativo);*	a) REPORT PASSING *(significant point)*;
... para solicitar un informe en un lugar o a una distancia determinados	b) NOTIFIQUE *(distancia)* DME DE ~~DESDE~~ *(nombre de la estación DME)* ~~DME;~~	b) REPORT *(distance)* FROM *(name of DME station)* DME;
	c) NOTIFIQUE PASANDO RADIAL*(tres cifras)* ~~RADIAL~~ DEL VOR *(nombre del VOR)* ~~VOR;~~	c) REPORT PASSING *(three digits)* RADIAL *(name of VOR)* VOR;
... para solicitar un informe de la posición actual	d) NOTIFIQUE DISTANCIA DE ~~DESDE~~ *(punto significativo);*	d) REPORT DISTANCE FROM *(significant point)*;
	e) NOTIFIQUE DISTANCIA DME DE ~~DESDE~~ *(nombre de la estación DME)* ~~DME.~~	e) REPORT DISTANCE FROM *(name of DME station)* DME.
12.3.1.9 INFORMACIÓN RELATIVA AL AERÓDROMO	a) [*(lugar)*]CONDICION DE ~~ESTADO DE LA SUPERFICIE DE LA PISTA,~~ PISTA *(número) (condición);*	a) [*(location)*] RUNWAY SURFACE CONDITION, RUNWAY *(number) (condition)*;
	b) [*(lugar)*] CONDICION DE ~~ESTADO DE LA SUPERFICIE DE LA PISTA,~~ PISTA *(número)* NO ACTUALIZADA;	b) [*(location)*] RUNWAY SURFACE CONDITION RUNWAY *(number)* NOT CURRENT;
	c) SUPERFICIE DE ATERRIZAJE *(condición);*	c) LANDING SURFACE *(condition)*;

	d) PRECAUCIÓN OBRAS DE CONSTRUCCIÓN *(lugar);*	d) CAUTION CONSTRUCTION WORK *(location)*;
	e) PRECAUCIÓN *(especifíquense las razones)* A DERECHA (*o* a IZQUIERDA), (*o* A AMBOS LADOS) DE LA PISTA [*número*];	e) CAUTION *(specify reasons)* RIGHT (*or* LEFT), (*or* BOTH SIDES) OF RUNWAY [*number*];
	f) PRECAUCIÓN OBRAS (*u* OBSTRUCCIÓN) *(posición y cualquier aviso necesario);*	f) CAUTION WORK IN PROGRESS (*or* OBSTRUCTION) *(position and any necessary advice)*;
	g) INFORME DE PISTA A LAS *(hora de observación)* PISTA *(número) (tipo de precipitación)* HASTA *(profundidad del depósito)* MILÍMETROS. EFICACIA DE FRENADO BUENA (*o* MEDIANA A BUENA, *o* MEDIANA, *o* MEDIANA A ESCASA *o* ESCASA *o* INSEGURA) [*o* COEFICIENTE DE FRENADO *(equipo y número)*];	g) RUNWAY REPORT AT *(observation time)* RUNWAY *(number) (type of precipitant)* UP TO *(depth of deposit)* MILLIMETRES. BRAKING ACTION GOOD (*or* MEDIUM TO GOOD, *or* MEDIUM, *or* MEDIUM TO POOR, *or* POOR *or* UNRELIABLE) [*and/or* BRAKING COEFFICIENT *(equipment and number)*];
	h) EFICACIA DE FRENADO NOTIFICADA POR *(tipo de aeronave)* A LAS *(hora)* BUENA (*o* MEDIANA, *o* ESCASA);	h) BRAKING ACTION REPORTED BY *(aircraft type)* AT *(time)* GOOD (*or* MEDIUM, *or* POOR);
	i) EFICACIA DE FRENADO [*(lugar)*] *(equipo de medición utilizado)*, PISTA *(número)*, TEMPERATURA [MENOS] *(número)* FUE *(lectura)* A LAS *(hora);*	i) BRAKING ACTION [*(location)*] *(measuring equipment used)*, RUNWAY *(number)*, TEMPERATURE [MINUS] *(number)* WAS *(reading)* AT *(time);*
	j) PISTA (*o* CALLE DE RODAJE) *(número)* HÚMEDA [*o* MOJADA, ENCHARCADA, INUNDADA *(profundidad)*, *o* LIMPIA DE NIEVE *(longitud y anchura que corresponda)*, *o* TRATADA, *o* CUBIERTA CON PARCHES DE NIEVE SECA (*o* NIEVE HÚMEDA, *o* NIEVE COMPACTADA, *o* NIEVE FUNDENTE, *o* NIEVE FUNDENTE ENGELADA, *o* HIELO, *o* HIELO CUBIERTO, *o* HIELO Y NIEVE, *o* NIEVE ACUMULADA, *o* SURCOS Y ESTRÍAS ENGELADOS)];	j) RUNWAY (*or* TAXIWAY) *(number)* WET [*or* DAMP, WATER PATCHES, FLOODED *(depth)*, *or* SNOW REMOVED *(length and width as applicable)*, *or* TREATED, *or* COVERED WITH PATCHES OF DRY SNOW *(or* WET SNOW, *or* COMPACTED SNOW, *or* SLUSH, *or* FROZEN SLUSH, *or* ICE, *or* ICE UNDERNEATH, *or* ICE AND SNOW, *or* SNOWDRIFTS, *or* FROZEN RUTS AND RIDGES)];
	k) TORRE OBSERVA *(información meteorológica);*	k) TOWER OBSERVES *(weather information)*;

	l) PILOTO INFORMA *(información meteorológica).*	l) PILOT REPORTS *(weather information).*
12.3.1.10 ESTADO DE FUNCIONAMIENTO DE LAS AYUDAS VISUALES Y NO VISUALES	a) *(especifíquese ayuda visual o no visual)* PISTA *(número) (descripción del defecto);* b) *(tipo de)* ILUMINACIÓN *(clase de avería);* c) CATEGORÍA MLS/ILS *(categoría) (condiciones del servicio);* d) ILUMINACIÓN DE CALLES DE RODAJE *(descripción del defecto);* e) *(tipo de indicador visual de pendiente de aproximación)* PISTA *(número) (descripción del defecto).*	a) *(specify visual or non-visual aid)* RUNWAY *(number) (description of deficiency)*; b) *(type)* LIGHTING *(unserviceability)*; c) MLS/ILS CATEGORY *(category) (serviceability state)*; d) TAXIWAY LIGHTING *(description of deficiency)*; e) *(type of visual approach slope indicator)* RUNWAY *(number) (description of deficiency).*

12.3.2 Servicio de control de área

Circunstancias	*Fraseología*	*Phraseologies*
12.3.2.1 CONCESIÓN DE UNA AUTORIZACIÓN	a) *(nombre de la dependencia)* AUTORIZA *distintivo de llamada de la aeronave);* b) *(distintivo de llamada de la aeronave)* AUTORIZADO ~~AUTORIZADA~~ A; c) NUEVA AUTORIZACIÓN *(detalles de la autorización corregida)* [RESTO DE LA AUTORIZACIÓN SIN CAMBIOS]; d) NUEVA AUTORIZACIÓN *(parte de la ruta corregida)* A *(punto significativo de la ruta original)* [RESTO DE LA AUTORIZACIÓN SIN CAMBIOS]; e) ENTRE A ESPACIO AÉREO CONTROLADO (o ZONA DE CONTROL) [VÍA *(punto significativo o ruta)*] A *(nivel)* [A LAS *(hora)*]; f) ABANDONE EL ESPACIO AÉREO CONTROLADO (*o* ZONA DE CONTROL) [VIA (*punto significativo o ruta)*] A *(nivel)* (*o* ASCENDIENDO, *o* DESCENDIENDO); g) ENTRE A *(determinar)* EN *(punto significativo)* A *(nivel)* [A LAS *(hora)*].	a) *(name of unit)* CLEARS *(aircraft call sign)*; b) *(aircraft call sign)* CLEARED TO; c) RECLEARED *(amended clearance details)* [REST OF CLEARANCE UNCHANGED]; d) RECLEARED *(amended route portion)* TO *(significant point of original route)* [REST OF CLEARANCE UNCHANGED]; e) ENTER CONTROLLED AIRSPACE (*or* CONTROL ZONE) [VIA *(significant point or route)*] AT *(level)* [AT *(time)*]; f) LEAVE CONTROLLED AIRSPACE (*or* CONTROL ZONE) [VIA *(significant pont or route)*] AT *(level)* (*or* CLIMBING, *or* DESCENDING); g) JOIN *(specify)* AT *(significant point)* AT *(level)* [AT *(time)*].

12.3.2.2 INDICACIÓN DE LA RUTA Y DEL LÍMITE DE LA AUTORIZACIÓN	a) DE *(lugar)* A *(lugar);* b) HASTA *(lugar);* *seguido, si es necesario, de:* i) DIRECTO ~~DIRECTAMENTE;~~ ii) VÍA *(ruta o puntos significativos, o ambas cosas);* i) VÍA ~~RUTA~~ PLAN DE VUELO; *Nota.— En el Capítulo 4, 4.5.7.2, figuran las condiciones relacionadas con el uso de esta frase.* iv) VÍA *(distancia)* ARCO DME *(dirección)* DE *(nombre de la estación DME);* c) *(ruta)* NO DISPONIBLE ~~UTILIZABLE~~ DEBIDO A *(motivo)* COMO ALTERNATIVAS HAY *(rutas)* NOTIFIQUE ~~AVISE.~~	a) FROM *(location)* TO *(location)*; b) TO *(location)*; *followed as necessary by:* i) DIRECT; ii) VIA *(route and/or significant points)*; i) VIA FLIGHT PLANNED ROUTE; *Note.— Conditions associated with the use of this phrase are in Chapter 4, 4.5.7.2.* iv) VIA *(distance)* DME ARC *(direction)* OF *(name of DME station)*; c) *(route)* NOT AVAILABLE DUE *(reason)* ALTERNATIVE[S] IS/ARE *(routes)* ADVISE.
12.3.2.3 MANTENIMIENTO DE NIVELES ESPECIFICADOS	a) MANTENGA *(nivel)* [HASTA *(punto significativo)*]; b) MANTENGA *(nivel)* HASTA PASAR ~~HABER PASADO~~ *(punto significativo);* c) MANTENGA *(nivel)* DURANTE *(minutos)* DESPUÉS DE PASAR POR *(punto significativo);* d) MANTENGA *(nivel)* HASTA LAS *(hora);* e) MANTENGA *(nivel)* HASTA QUE LE NOTIFIQUE ~~AVISE~~ *(nombre de la dependencia);* f) MANTENGA *(nivel)* HASTA NUEVO AVISO;	a) MAINTAIN *(level)* [TO *(significant point)*]; b) MAINTAIN *(level)* UNTIL PASSING *(significant point)*; c) MAINTAIN *(level)* DURING *(minutes)* AFTER PASSING *(significant point)*; d) MAINTAIN *(level)* UNTIL *(time)*; e) MAINTAIN *(level)* UNTIL ADVISED BY *(name of unit)*; f) MAINTAIN *(level)* UNTIL FURTHER ADVISED;

	g) MANTENGA *(nivel)* MIENTRAS ~~ESTÉ~~ EN ESPACIO AÉREO CONTROLADO; h) MANTENGA BLOQUE ENTRE NIVELES*(nivel)* Y *(nivel).* *Nota.— La expresión “MANTENGA” no debe utilizarse en lugar de “DESCIENDA” o “ASCIENDA” cuando se den instrucciones a una aeronave de que cambie de nivel.*	g) MAINTAIN *(level)* WHILE IN CONTROLLED AIRSPACE; h) MAINTAIN BLOCK *(level)* TO *(level).* *Note.— The term “MAINTAIN” is not to be used in lieu of “DESCEND” or “CLIMB” when instructing an aircraft to change level.*
12.3.2.4 ESPECIFICACIÓN DE NIVELES DE CRUCERO	a) CRUCE *(punto significativo)* A (*o* POR ARRIBA ~~ENCIMA~~ DE, *o* POR DEBAJO DE) *(nivel);* b) CRUCE *(punto significativo)* A LAS *(hora)* O POSTERIOR ~~DESPUÉS~~ (*o* ANTES) A *(nivel);* c) ASCIENDA EN CRUCERO ENTRE *(niveles)* [*o* POR ARRIBA DE ~~ENCIMA DEL~~ *(nivel)*]; d) CRUCE *(distancia)* DME [*(dirección)*] DE *(nombre de estación DME)* A (*o* POR ARRIBA ~~ENCIMA~~ DE *o* POR DEBAJO DE) *(nivel).*	a) CROSS *(significant point)* AT (*or* ABOVE, *or* BELOW) *(level)*; b) CROSS *(significant point)* AT *(time)* OR LATER (*or* BEFORE) AT *(level)*; c) CRUISE CLIMB BETWEEN *(levels)* (*or* ABOVE *(level)*); d) CROSS *(distance)* DME [*(direction)*] OF *(name of DME station)* AT (*or* ABOVE, *or* BELOW) *(level).*
12.3.2.5 DESCENSO DE EMERGENCIA	*a) DESCENSO DE EMERGENCIA *(intenciones);* b) ATENCIÓN TODAS LAS AERONAVES CERCA DE [*o* EN] *(punto significativo o lugar)* DESCENSO DE EMERGENCIA EN PROGRESO DESDE *(nivel)* (seguido, si es necesario, de instrucciones concretas, autorizaciones, información sobre el tránsito, etc.). * Indica una transmisión del piloto.	*a) EMERGENCY DESCENT *(intentions)*; b) ATTENTION ALL AIRCRAFT IN THE VICINITY OF [*or* AT] *(significant point or location)* EMERGENCY DESCENT IN PROGRESS FROM *(level)* (followed as necessary by specific instructions, clearances, traffic information, etc.). * Denotes pilot transmission.

12.3.2.6 SI NO SE PUEDE CONCEDER LA AUTORIZACIÓN INMEDIATAMENTE DESPUÉS DE HABERLA SOLICITADO	ESPERE AUTORIZACIÓN *(o tipo de autorización)* A LAS *(hora).*	EXPECT CLEARANCE *(or type of clearance)* AT *(time).*
12.3.2.7 INSTRUCCIONES SOBRE SEPARACIÓN	a) CRUCE *(punto significativo)* A LAS *(hora)* [O POSTERIOR ~~DESPUÉS~~ (*o* ANTES)]; b) NOTIFIQUE SI PUEDE CRUZAR *(punto significativo)* A LAS *(hora o nivel);* c) MANTENGA MACH *(número)* [O MAYOR (*o* O MENOR)] [HASTA *(punto significativo)*]; d) NO EXCEDA ~~SUPERE~~ MACH *(número).*	a) CROSS *(significant point)* AT *(time)* [OR LATER (*or* OR BEFORE)]; b) ADVISE IF ABLE TO CROSS *(significant point)* AT *(time or level)*; c) MAINTAIN MACH *(number)* [OR GREATER (*or* OR LESS)] [UNTIL *(significant point)*]; d) DO NOT EXCEED MACH *(number).*
12.3.2.8 INSTRUCCIONES RELATIVAS AL VUELO POR UNA DERROTA (DESPLAZADA) PARALELA A LA RUTA AUTORIZADA	a) NOTIFIQUE SI PUEDE SEGUIR DERROTA PARALELA DESPLAZADA; b) PROSIGA POR DERROTA PARALELA DESPLAZADA *(distancia)* A LA DERECHA/IZQUIERDA DE *(ruta) (derrota)* [EJE] [EN O A LAS *(punto significativo o la hora)*] [HASTA *(punto significativo o la hora)*]; c) CANCELE DERROTA PARALELA DESPLAZADA *(instrucciones para reanudar la ruta de vuelo autorizada o cualquier otra información).*	a) ADVISE IF ABLE TO PROCEED PARALLEL OFFSET; b) PROCEED OFFSET *(distance)* RIGHT/LEFT OF *(route) (track)* [CENTRE LINE] [AT *(significant point or time)*] [UNTIL *(significant point or time)*]; c) CANCEL OFFSET *(instructions to rejoin cleared flight route or other information).*

12.3.3 Servicios de control de aproximación

Circunstancias	*Fraseología*	*Phraseologies*
12.3.3.1 INSTRUCCIONES PARA LA SALIDA	a) [DESPUÉS DEL DESPEGUE ~~DE LA SALIDA~~] VIRE A LA DERECHA (*o* A LA IZQUIERDA) RUMBO *(tres cifras)* (*o* CONTINÚE RUMBO DE PISTA) (*o* DERROTA PROLONGACIÓN DE EJE) HASTA *(nivel o punto significativo)* [*(otras instrucciones si se requieren)*]; b) DESPUÉS DE ALCANZAR (*o* PASAR) *(nivel o punto significativo) (instrucciones);*	a) [AFTER DEPARTURE] TURN RIGHT (or LEFT) HEADING *(three digits)* (*or* CONTINUE RUNWAY HEADING) (*or* TRACK EXTENDED CENTRE LINE) TO *(level or significant point)* [*(other instructions as required)*]; b) AFTER REACHING (*or* PASSING) *(level or significant point) (instructions)*;

	c) VIRE A LA DERECHA (*o* A LA IZQUIERDA) RUMBO *(tres cifras)* HASTA *(nivel)* [HASTA INTERCEPTAR *(derrota, ruta, aerovía, etc.)*];	c) TURN RIGHT (*or* LEFT) HEADING *(three digits)* TO *(level)* [TO INTERCEPT *(track, route, airway, etc.)*];
	d) SALIDA *(salida normalizada, nombre y número)* ~~SALIDA~~;	d) (*standard departure name and number*) DEPARTURE;
	e) DERROTA *(tres cifras)* GRADOS [MAGNÉTICOS (*o* GEOGRÁFICOS)] HACIA (*o* DESDE) *(punto significativo)* HASTA [*hora*, o ALCANZAR *(punto de referencia o punto significativo o nivel)*] [ANTES DE SEGUIR EN RUTA ~~EL RUMBO~~];	e) TRACK *(three digits)* DEGREES [MAGNÉTIC (*or* TRUE)] TO (*or* FROM) (*significant point*) UNTIL [*time*, or REACHING *(fix or significant point or level)*] [BEFORE PROCEEDING ON COURSE];
	f) AUTORIZADO VÍA *(designación).*	f) CLEARED VIA *(designation).*
	Nota.— En el Capítulo 4, 4.5.7.2, figuran las condiciones relacionadas con el uso de esta frase.	*Note.— Conditions associated with the use of this phrase are in Chapter 4, 4.5.7.2.*
12.3.3.2 INSTRUCCIONES PARA LA APROXIMACIÓN	a) AUTORIZADO (*o* PROSIGA) VÍA *(designación);*	a) CLEARED (*or* PROCEED) VIA *(designation)*;
	b) AUTORIZADO HASTA *(límite de la autorización)* VÍA *(designación);*	b) CLEARED TO *(clearance limit)* VIA *(designation)*;
	c) AUTORIZADO (*o* PROSIGA) VÍA *(detalles de la ruta que se ha de seguir);*	c) CLEARED (*or* PROCEED) VIA *(details of route to be followed)*;
	d) AUTORIZADO APROXIMACIÓN *(tipo de aproximación)* [PISTA *(número)*];	d) CLEARED *(type of approach)* APPROACH [RUNWAY *(number)*];
Circunstancias	*Fraseología*	*Phraseologies*
	e) AUTORIZADO *(tipo de aproximación)* PISTA *(número)* CIRCULANDO ~~SEGUIDO DE CIRCUITO~~ A PISTA *(número);*	e) CLEARED *(type of approach)* RUNWAY *(number)* FOLLOWED BY CIRCLING TO RUNWAY *(number)*;
	f) AUTORIZADO APROXIMACIÓN [PISTA *(número)*];	f) CLEARED APPROACH [RUNWAY *(number)*];
	g) INICIE APROXIMACIÓN A LAS *(hora);*	g) COMMENCE APPROACH AT *(time)*;
	*h) SOLICITO APROXIMACIÓN DIRECTA [(*tipo de aproximación*)] [PISTA (*número*)];	*h) REQUEST STRAIGHT-IN [(*type of approach*)] APPROACH [RUNWAY (*number*)];

	i) AUTORIZADO APROXIMACIÓN DIRECTA [(*tipo de aproximación*)] [PISTA *(número)*];	i) CLEARED STRAIGHT-IN [(*type of approach*)] APPROACH [RUNWAY *(number)*];
	j) NOTIFIQUE CONTACTO VISUAL;	j) REPORT VISUAL;
	k) NOTIFIQUE [LUCES DE] PISTA A LA VISTA;	k) REPORT RUNWAY [LIGHTS] IN SIGHT;
	*l) SOLICITO APROXIMACIÓN VISUAL;	*l) REQUEST VISUAL APPROACH;
	m) AUTORIZADO APROXIMACIÓN VISUAL PISTA *(número);*	m) CLEARED VISUAL APPROACH RUNWAY *(number)*;
	n) NOTIFIQUE *(punto significativo);* [EN ALEJAMIENTO *o* EN ACERCAMIENTO];	n) REPORT *(significant point)*; [OUTBOUND, *or* INBOUND];
	o) NOTIFIQUE INICIANDO ~~INICIO~~ VIRAJE REGLAMENTARIO;	o) REPORT COMMENCING PROCEDURE TURN;
	*p) SOLICITO DESCENSO VMC;	*p) REQUEST VMC DESCENT;
	q) MANTENGA ~~SU~~ PROPIA SEPARACIÓN;	q) MAINTAIN OWN SEPARATION;
	r) MANTENGA VMC;	r) MAINTAIN VMC;
	s) ¿CONOCE PROCEDIMIENTO APROXIMACIÓN *(nombre)*?;	s) ARE YOU FAMILIAR WITH *(name)* APPROACH PROCEDURE;
	t) SOLICITO APROXIMACIÓN *(tipo* de *aproximación)* [PISTA *(número)*];	t) REQUEST *(type of approach)* APPROACH [RUNWAY *(number)*];
	*u) SOLICITO *(designador MLS/RNAV en lenguaje claro);*	*u) REQUEST (*MLS/RNAV plain language designator*);
	v) AUTORIZADO *(designador MLS/RNAV en lenguaje claro)*.	v) CLEARED (*MLS/RNAV plain language designator*).
	* Indica una transmisión del piloto.	* Denotes pilot transmission.
12.3.3.3 AUTORIZACIONES PARA LA ESPERA		
... visual	a) MANTENGA ~~ESPERA~~ VISUAL [SOBRE] *(posición)* [*o* ENTRE *(dos referencias topográficas destacadas)*];	a) HOLD VISUAL [OVER] *(position)*, (*or* BETWEEN *(two prominent landmarks)*);

... procedimiento de espera publicado sobre una instalación o punto de referencia	b) AUTORIZADO (*o* PROSIGA) HASTA *(punto significativo, nombre de la instalación o punto de referencia)* [MANTENGA (*o* ASCIENDA *o* DESCIENDA HASTA) *(nivel)*] MANTENGA PATRON DE ESPERA PUBLICADO ~~ESPERA PUBLICADA~~ [*(dirección)*] PREVEA AUTORIZACIÓN PARA APROXIMACIÓN (*o* NUEVA AUTORIZACIÓN) A LAS *(hora);*	b) CLEARED (*or* PROCEED) TO *(significant point, name of facility or fix)* [MAINTAIN (*or* CLIMB *or* DESCEND TO) *(level)*] HOLD [*(direction)*] AS PUBLISHED EXPECT APPROACH CLEARANCE (*or* FURTHER CLEARANCE) AT *(time)*;
	*c) SOLICITO INSTRUCCIONES DE ESPERA;	*c) REQUEST HOLDING INSTRUCTIONS;
... cuando se requiere una autoirzación detallada para la espera	d) AUTORIZADO (*o* PROSIGA) HASTA (*punto significativo, nombre de la instalación o punto de referencia)* [MANTENGA (*o* ASCIENDA *o* DESCIENDA HASTA) *(nivel)*] MANTENGA [*(dirección)*] [*(especificada)* RADIAL, RUMBO, DERROTA DE ACERCAMIENTO *(tres cifras)* GRADOS] [VIRAJES ~~VIRAJE~~ A LA DERECHA (*o* A LA IZQUIERDA)] [TIEMPO DE ALEJAMIENTO *(número)* MINUTOS] PREVEA AUTORIZACIÓN ~~POSTERIOR~~ PARA APROXIMACIÓN (*o* NUEVA AUTORIZACIÓN) A LAS *(hora) (otras instrucciones que se requieran);*	d) CLEARED (*or* PROCEED) TO *(significant point, name of facility or fix)* [MAINTAIN (*or* CLIMB *or* DESCEND TO *(level)*] HOLD [*(direction)*] [*(specified)* RADIAL, COURSE, INBOUND TRACK *(three digits)* DEGREES] [RIGHT (*or* LEFT) HAND PATTERN] [OUTBOUND TIME *(number)* MINUTES] EXPECT APPROACH CLEARANCE (*or* FURTHER CLEARANCE) AT *(time) (additional instructions, if necessary)*;
	e) AUTORIZADO HASTA RADIAL *(tres cifras)* DEL VOR *(nombre)* A *(distancia)* PUNTO DE REFERENCIA DME [MANTENGA (*o* ASCIENDA *o* DESCIENDA HASTA) (*nivel*)] MANTENGA[*(dirección)*] [VIRAJES ~~VIRAJE~~ A LA DERECHA (*o* A LA IZQUIERDA)] [TIEMPO DE ALEJAMIENTO *(número)* MINUTOS] PREVEA AUTORIZACIÓN ~~POSTERIOR~~ PARA APROXIMACIÓN (*o* NUEVA AUTORIZACIÓN) A LAS *(hora) (otras instrucciones que se requieran);*	e) CLEARED TO THE *(three digits)* RADIAL OF THE *(name)* VOR AT *(distance)* DME FIX [MAINTAIN *or* CLIMB *or* DESCEND TO) *(level)* HOLD [*(direction)*] [RIGHT (*or* LEFT) HAND PATTERN] [OUTBOUND TIME *(number)* MINUTES] EXPECT APPROACH CLEARANCE (*or* FURTHER CLEARANCE) AT *(time) (additional instructions, if necessary)*;

	f) AUTORIZADO HASTA RADIAL *(tres cifras)* DEL VOR *(nombre)* A *(distancia)* PUNTO DE REFERENCIA DME [MANTENGA (*o* ASCIENDA *o* DESCIENDA HASTA) *(nivel)*] MANTENGA ESPERA ENTRE *(distancia)* Y *(distancia)* DME [VIRAJES ~~VIRAJE~~ A LA DERECHA (*o* A LA IZQUIERDA)] PREVEA AUTORIZACIÓN ~~POSTERIOR~~ PARA APROXIMACIÓN (*o* NUEVA AUTORIZACIÓN) A LAS *(hora) (otras instrucciones que se requieran);* * Indica una transmisión del piloto.	f) CLEARED TO THE *(three digits)* RADIAL OF THE *(name)* VOR AT *(distance)* DME FIX [MAINTAIN (*or* CLIMB *or* DESCEND TO) *(level)*] HOLD BETWEEN *(distance)* AND *(distance)* DME [RIGHT (*or* LEFT) HAND PATTERN] EXPECT APPROACH CLEARANCE (*or* FURTHER CLEARANCE) AT *(time)* *(additional instructions, if necessary)*; * Denotes pilot transmission.
12.3.3.4 HORA PREVISTA DE APROXIMACIÓN	a) NO SE PREVÉ DEMORA; b) HORA PREVISTA DE APROXIMACIÓN *(hora);* c) REVISE ~~REVISIÓN DE~~ HORA PREVISTA DE APROXIMACIÓN *(hora);* d) DEMORA NO DETERMINADA *(motivos).*	a) NO DELAY EXPECTED; b) EXPECTED APPROACH TIME *(time)*; c) REVISED EXPECTED APPROACH TIME *(time)*; d) DELAY NOT DETERMINED *(reasons)*.

12.3.4 Fraseología que ha de utilizarse en el aeródromo y en su proximidad

Circunstancias	*Fraseología*	*Phraseologies*
12.3.4.1 IDENTIFICACIÓN DE LA AERONAVE	ENCIENDA LUCES ~~FAROS~~ DE ATERRIZAJE.	SHOW LANDING LIGHTS.
12.3.4.2 CONFIRMACIÓN POR MEDIOS VISUALES	a) CONFIRME MOVIENDO ALERONES (*o* TIMÓN DE DIRECCIÓN); b) CONFIRME CON ALABEOS ~~BALANCEANDO ALAS~~; c) CONFIRME ENCENDIENDO Y APAGANDO LUCES ~~FAROS~~ DE ATERRIZAJE.	a) ACKNOWLEDGE BY MOVING AILERONS (*or* RUDDER); b) ACKNOWLEDGE BY ROCKING WINGS; c) ACKNOWLEDGE BY FLASHING LANDING LIGHTS.

Circunstancias	Fraseología	Phraseologies
12.3.4.3 PROCEDIMIENTO DE PUESTA EN MARCHA		
... solicitud de autorización para poner en marcha los motores	*a) [*emplazamiento de la aeronave*] SOLICITO ENCENDIDO DE MOTORES ~~PUESTA EN MARCHA~~; *b) [*emplazamiento de la aeronave*] SOLICITO ENCENDIDO DE MOTORES ~~PUESTA EN MARCHA~~, e INFORMACIÓN *(identificación ATIS);*	*a) [*aircraft location*] REQUEST START UP; *b) [*aircraft location*] REQUEST START UP, INFORMATION *(ATIS identification)*;
... respuestas del ATC	c) ENCENDIDO DE MOTORES APROBADO ~~PUESTA EN MARCHA APROBADA~~; d) ENCIENDA MOTORES ~~PONGA EN MARCHA~~ A LAS *(hora);* e) PREVEA ENCENDIDO DE MOTORES ~~PUESTA EN MARCHA~~ A LAS *(hora);* f) ENCENDIDO DE MOTORES A DISCRECIÓN ~~PUESTA EN MARCHA A SU DISCRECIÓN;~~ g) PREVEA SU SALIDA A LAS *(hora)* ENCENDIDO DE MOTORES ~~PUESTA EN MARCHA~~ A ~~SU~~ DISCRECIÓN. * Indica una transmisión del piloto.	c) START UP APPROVED; d) START UP AT *(time)*; e) EXPECT START UP AT *(time)*; f) START UP AT OWN DISCRETION; g) EXPECT DEPARTURE *(time)* START UP AT OWN DISCRETION. * Denotes pilot transmission.
12.3.4.4 PROCEDIMIENTOS DE RETROCESO REMOLCADO *Nota.— Cuando lo prescriban los procedimientos locales, la autorización para el retroceso remolcado debe obtenerse de la torre de control.*		

... aeronave/ATC	*a) [*emplazamiento de la aeronave*] SOLICITO REMOLQUE ~~RETROCESO REMOLCADO~~; b) REMOLQUE ~~RETROCESO REMOLCADO~~ APROBADO; c) MANTENGA ESCUCHA ~~ESPERE;~~ d) REMOLQUE ~~RETROCESO REMOLCADO~~ A ~~SU~~ DISCRECIÓN; e) PREVEA *(número)* MINUTOS DE DEMORA DEBIDO A *(razón).* * Indica una transmisión del piloto.	*a) [*aircraft location*] REQUEST PUSHBACK; b) PUSHBACK APPROVED; c) STAND BY; d) PUSHBACK AT OWN DISCRETION; e) EXPECT *(number)* MINUTES DELAY DUE *(reason).* * Denotes pilot transmission.
12.3.4.5 PROCEDIMIENTOS DE REMOLQUE	†a) SOLICITO REMOLQUE [*nombre de la compañía*] *(tipo de aeronave)* DE ~~DESDE~~ *(emplazamiento)* A ~~HASTA~~ *(emplazamiento);*	†a) REQUEST TOW [*company name*] *(aircraft type)* FROM *(location)* TO *(location)*;
... respuesta del ATC	b) REMOLQUE APROBADO VÍA *(trayecto concreto que ha de seguirse);* c) MANTENGA POSICIÓN; d) MANTENGA ESCUCHA ~~ESPERE~~. † Indica transmisión efectuada por aeronave/vehículo remolcador.	b) TOW APPROVED VIA *(specific routing to be followed)*; c) HOLD POSITION; d) STAND BY. † Denotes transmission from aircraft/tow vehicle combination.
12.3.4.6 PARA SOLICITAR VERIFICACIÓN DE LA HORA O DATOS DEL AERÓDROMO PARA LA SALIDA ... cuando no se dispone de radiodifusión ATIS	*a) SOLICITO HORA CORECTA ~~VERIFICACIÓN DE HORA;~~ b) HORA *(hora y minutos);* *c) SOLICITO INFORMACIÓN DE SALIDA;	*a) REQUEST TIME CHECK; b) TIME *(time)*; *c) REQUEST DEPARTURE INFORMATION;

	d) PISTA *(número)*, VIENTO *(dirección y velocidad) (unidades)* QHN (*o* QFE) *(número)* [*(unidades)*] TEMPERATURA [MENOS] *(número)* [VISIBILIDAD *(distancia) (unidades)*] [(*o* ALCANCE VISUAL EN LA PISTA) (*o* RVR) *(distancia) (unidades)*] [HORA *(hora y minutos)*].	d) RUNWAY *(number)*, WIND *(direction and speed) (units)* QNH (*or* QFE) *(number)* [*(units)*] TEMPERATURE [MINUS] *(number)*, [VISIBILITY *(distance) (units)* (*or* RUNWAY VISUAL RANGE (*or* RVR) *(distance) (units)*)] [TIME *(time)*].
	Nota.— Si se dispone de múltiples obser-vaciones de la visibilidad y del RVR, deberían utilizarse para el despegue aquellas que sean representativas de la zona de deceleración o extremo de parada.	*Note.— If multiple visibility and RVR observations are available, those that represent the roll-out/stop end zone should be used for take-off.*
	* Indica una transmisión del piloto.	* Denotes pilot transmission.
12.3.4.7 PROCEDIMIENTOS DE RODAJE		
... para la salida	*a) [*tipo de aeronave*] [*categoría de estela turbulenta si es “pesada”*] [*emplazamiento de la aeronave*] SOLICITO RODAJE [*intenciones*];	*a) [*aircraft type*] [*wake turbulence category if “heavy”*] [*aircraft location*] REQUEST TAXI [*intentions*];
	*b) [*tipo de aeronave*] [*categoría de estela turbulenta si es “pesada”*] [*emplazamiento de la aeronave*] *(reglas de vuelo)* A *(aeródromo de destino)* SOLICITO RODAJE [*intenciones*];	*b) [*aircraft type*] [*wake turbulence category if “heavy”*] [*aircraft location*] *(flight rules)* TO *(aerodrome of destination)* REQUEST TAXI [*intentions*];
	c) RUEDE A PUNTO DE ESPERA [*número*] [PISTA *(número)*] [HORA *(hora y minutos)*];	c) TAXI TO HOLDING POSITION [*number*] [RUNWAY *(number)*] [TIME *(time)*];
... cuando se necesitan instrucciones detalladas para el rodaje	*d) [*tipo de aeronave*] [*categoría de estela turbulenta si es “pesada”*] SOLICITO INSTRUCCIONES DE RODAJE DETALLADAS;	*d) [*aircraft type*] [*wake turbulence category if “heavy”*] REQUEST DETAILED TAXI INSTRUCTIONS;
	e) RUEDE A PUNTO DE ESPERA [*(número)*] [PISTA *(número)*] VÍA *(trayecto concreto que ha de seguirse)* [HORA *(hora)*] [MANTENGA ANTES ~~MANTENGASE A DISTANCIA~~ DE PISTA *(número)*];	e) TAXI TO HOLDING POSITION [*(number)*] [RUNWAY *(number)*] VIA *(specific route to be followed)* [TIME *(time)*] [HOLD SHORT OF RUNWAY *(number)*];
... cuando no se dispone de información de aeródromo proveniente de otra fuente, por ejemplo ATIS	f) RUEDE A PUNTO DE ESPERA [*(número)*] *(seguido de información de aeródromo cuando corresponda)* [HORA *(hora y minutos)*];	f) TAXI TO HOLDING POSITION [*(number)*] *(followed by aerodrome information as applicable)* [TIME *(time)*];
	g) TOME (*o* VIRE) PRIMERA (*o* SEGUNDA) INTERSECCIÓN IZQUIERDA (*o* DERECHA);	g) TAKE (*or* TURN) FIRST (*or* SECOND) LEFT (*or* RIGHT);

	h) RUEDE VÍA *(identificación de calle de rodaje);*	h) TAXI VIA *(identification of taxiway)*;
	i) RUEDE VÍA PISTA *(número);*	i) TAXI VIA RUNWAY *(number)*;
	j) RUEDE A TERMINAL (*u otro emplazamiento, p. ej.*, ZONA DE AVIACIÓN GENERAL) [PUESTO ESTACIONAMIENTO *(número)*];	j) TAXI TO TERMINAL (*or other location, e.g.* GENERAL AVIATION AREA) [STAND *(number)*];
... para operaciones de helicópteros	*k) SOLICITO RODAJE AÉREO DE (*o* VÍA) A *(emplazamiento o encaminamiento, según corresponda);*	*k) REQUEST AIR-TAXIING FROM (*or* VIA) TO *(location or routing as appropriate)*;
	l) ~~EFECTÚE~~ RODAJE AÉREO A (*o* VÍA) *(emplazamiento o encaminamiento, según corresponda)* [PRECAUCIÓN *(polvo, ventisca alta, detritos libres, aeronaves ligeras en rodaje, personal, etc.)*];	l) AIR-TAXI TO (*or* VIA) *(location or routing as appropriate)* [CAUTION *(dust, blowing snow, loose debris, taxiing light aircraft, personnel, etc.)*];
	m) ~~EFECTÚE~~ RODAJE AÉREO VÍA *(ruta directa, solicitada o especificada)* A *(emplazamiento, helipuerto, área de operaciones o movimiento, pista activa o inactiva)*. EVITE *(aeronave o vehículos o personal);*	m) AIR TAXI VIA *(direct, as requested, or specified route)* TO *(location, heliport, operating or movement area, active or inactive runway)*. AVOID *(aircraft or vehicles or personnel)*;
... después del aterrizaje	*n) SOLICITO REGRESAR POR ~~LA~~ PISTA;	*n) REQUEST BACKTRACK;
	o) REGRESO POR ~~LA~~ PISTA APROBADO;	o) BACKTRACK APPROVED;
	p) REGRESO POR PISTA ~~DE REGRESO~~ *(número);*	p) BACKTRACK RUNWAY *(number)*;
... en general	*q) [*(emplazamiento de la aeronave)*] SOLICITO RODAJE A ~~HASTA~~ *(destino en el aeródromo);*	*q) [*(aircraft location)*] REQUEST TAXI TO *(destination on aerodrome)*;
	r) RUEDE DE FRENTE ~~EN LÍNEA RECTA~~;	r) TAXI STRAIGHT AHEAD;
	s) RUEDE CON PRECAUCIÓN;	s) TAXI WITH CAUTION;
	t) CEDA PASO A *(descripción y posición de otras aeronaves);*	t) GIVE WAY TO *(description and position of other aircraft)*;
	*u) CEDO PASO A *(tránsito);*	*u) GIVING WAY TO *(traffic)*;
	*v) TRÁNSITO *(o tipo de aeronave)* A LA VISTA;	*v) TRAFFIC *(or type of aircraft)* IN SIGHT;

	w) RUEDE A ZONA ~~APARTADERO~~ DE ESPERA;	v) TAXI INTO HOLDING BAY;
	x) SIGA *(descripción de otra aeronave o vehículo);*	x) FOLLOW *(description of other aircraft or vehicle)*;
	y) ABANDONE ~~DEJE~~ PISTA ~~LIBRE~~;	y) VACATE RUNWAY;
	*z) PISTA LIBRE;	*z) RUNWAY VACATED;
	aa) EXPEDITE ~~APRESURE~~ ~~EL~~ RODAJE [*(motivo)*];	aa) EXPEDITE TAXI [*(reason)*];
	*bb) EXPEDITANDO ~~APRESURANDO~~ RODAJE;	*bb) EXPEDITING;
	cc) [PRECAUCIÓN] RUEDE MÁS LENTO ~~DESPACIO~~ [*motivo*];	cc) [CAUTION] TAXI SLOWER [*reason*];
	*dd) RODANDO MÁS LENTO ~~DESPACIO~~.	*dd) SLOWING DOWN.
	* Indica una transmisión del piloto.	* Denotes pilot transmission.
12.3.4.8 ESPERA	‡a) MANTENGA ~~ESPERE~~ *(dirección)* DE *(posición, número de la pista, etc.);*	‡a) HOLD *(direction)* OF *(position, runway number, etc.)*;
	‡b) MANTENGA POSICIÓN;	‡b) HOLD POSITION;
... para esperar no más cerca de una pista de lo indicado en el Capítulo 7, 7.5.3.1.3.1	‡c) MANTENGA ~~ESPERE~~ A *(distancia)* DE *(posición);*	‡c) HOLD *(distance)* FROM *(position)*;
	‡d) MANTENGA ~~ESPERE~~ FUERA DE *(posición);*	‡d) HOLD SHORT OF *(position)*;
	*e) MANTENIENDO ~~ESPERO~~;	*e) HOLDING;
	*f) MANTENGO ~~ESPERO~~ FUERA.	*f) HOLDING SHORT.
	‡ Requiere acuse de recibo concreto por parte del piloto. * Indica transmisión del piloto. Las palabras de procedimiento RECIBIDO Y COMPRENDIDO representan un acuse de recibo insuficiente a las instrucciones MANTENGA ~~ESPERE~~, MANTENGA POSICIÓN y MANTENGA ~~ESPERE~~ CERCA DE (posición). En cada caso, el acuse de recibo consistirá en las frases, MANTENGO ~~ESPERO~~ o MANTENGO ~~ESPERO~~ CERCA, según corresponda.	‡ Requires specific acknowledgement from the pilot. * Denotes pilot transmission. The procedure words ROGER and WILCO are insufficient acknowledgement of the instructions HOLD, HOLD POSITION and HOLD SHORT OF (position). In each case the acknowledgement shall be by the phraseology HOLDING or HOLDING SHORT, as appropriate.

12.3.4.9 PARA CRUZAR UNA PISTA	*a) SOLICITO CRUZAR PISTA *(número);* *Nota.— Si la torre de control no pudiera ver la aeronave que cruza (por ser de noche, por la escasa visibilidad, etc.), la instrucción debe ir acompañada en todos los casos de una petición de notificación cuando la aeronave haya dejado la pista libre.* b) CRUCE PISTA *(número)* [NOTIFIQUE PISTA LIBRE]; c) EXPEDITE ~~APRESURE~~ CRUCE PISTA *(número)* TRÁNSITO *(tipo de aeronave) (distancia)* KILÓMETROS (*o* MILLAS) FINAL; d) RUEDE A PUNTO ~~POSICIÓN~~ DE ESPERA [*número*] [PISTA *(número)*] VÍA *(ruta específica a seguir)*, [MANTENGA ~~ESPERE~~ FUERA DE PISTA *(número)*] o [CRUCE PISTA *(número)*];	*a) REQUEST CROSS RUNWAY *(number)*; *Note.— If the control tower is unable to see the crossing aircraft (e.g. night, low visibility, etc.), the instruction should always be accompanied by a request to report when the aircraft has vacated and is clear of the runway.* b) CROSS RUNWAY *(number)* [REPORT VACATED]; c) EXPEDITE CROSSING RUNWAY *(number)* TRAFFIC *(aircraft type) (distance)* KILOMETRES (*or* MILES) FINAL; d) TAXI TO HOLDING POSITION [*number*] [RUNWAY *(número)*] VIA *(specific route to be followed)*, [HOLD SHORT OF RUNWAY *(number)*] o [CROSS RUNWAY *(number)*];
Nota.— Cuando se le pida, el piloto notificará "PISTA LIBRE" cuando la aeronave haya despejado por completo la pista.	*e) PISTA LIBRE. * Indica una transmisión del piloto.	*e) RUNWAY VACATED. * Denotes pilot transmission.
12.3.4.10 PREPARACIÓN PARA EL DESPEGUE	a) NO POSIBLE APROBAR ~~IMPOSIBLE CONCEDER~~ ~~RUTA~~ SALIDA *(designador)* DEBIDO *(razones);* b) NOTIFIQUE LISTO [PARA SALIDA]; c) ¿LISTO [PARA SALIDA ~~SALIR~~]?; d) ¿LISTO PARA SALIDA INMEDIATA? ~~SALIR INMEDIATAMENTE~~? *e) LISTO;	a) UNABLE TO ISSUE *(designator)* DEPARTURE *(reasons)*; b) REPORT WHEN READY [FOR DEPARTURE]; c) ARE YOU READY [FOR DEPARTURE]?; d) ARE YOU READY FOR IMMEDIATE DEPARTURE?; *e) READY;
... si no puede autorizar el despegue	f) MANTENGA ~~ESPERE~~ [*motivo*];	f) WAIT [*reason*];
... autorización para entrar a la pista y esperar la autorización de despegue	g) RUEDE A POSICIÓN [Y MANTENGA ~~ESPERE~~]; †h) RUEDE A POSICIÓN EN PISTA *(número);*{Y MANTENGA}	g) LINE UP [AND WAIT]; †h) LINE UP RUNWAY *(number)*;

	i) RUEDE A POSICIÓN [Y MANTENGA] ;. PREPARE SALIDA INMEDIATA ~~LISTO PARA SALIDA INMEDIATA;~~	i) LINE UP. BE READY FOR IMMEDIATE DEPARTURE;
... autorizaciones condicionales	‡j) *(condición)* RUEDE A POSICIÓN;	‡j) *(condition)* LINE UP;
... acuse de recibo de una autorización condicional	*k) *(condición)* RODANDO ~~RUEDO~~ A POSICIÓN;	*k) *(condition)* LINING UP;
... confirmación, o no confirmación de la colación de autorización condicional	l) CORRECTO [*o* REPITO ... *(según corresponda)*].	l) [THAT IS] CORRECT (*or* I SAY AGAIN ... *(as appropriate)*).
	* Indica una transmisión del piloto. † Cuando exista posibilidad de confusión durante operaciones en varias pistas a la vez. ‡ Las disposiciones relativas al uso de las autorizaciones condicionales figuran en 12.2.4.	* Denotes pilot transmission. † When there is the possibility of confusion during multiple runway operations. ‡ Provisions concerning the use of conditional clearances are contained in 12.2.4.

12.3.4.11 AUTORIZACIÓN DE DESPEGUE	a) AUTORIZADO A DESPEGAR [NOTIFIQUE EN EL AIRE];	a) CLEARED FOR TAKE-OFF [REPORT AIRBORNE];
... cuando haya en servicio más de una pista	b) PISTA (*número*) AUTORIZADO A DESPEGAR;	b) RUNWAY *(number)* CLEARED FOR TAKE-OFF;
... cuando no se ha cumplido con la autorización de despegue	c) DESPEGUE INMEDIATO ~~INMEDIATAMENTE~~ O ABANDONE ~~DEJE~~ PISTA ~~LIBRE~~ [*(instrucciones)*];	c) TAKE OFF IMMEDIATELY OR VACATE RUNWAY [*(instructions)*];
	d) DESPEGUE INMEDIATO ~~INMEDIATAMENTE~~ O MANTENGA ~~ESPERE~~ FUERA DE PISTA;	d) TAKE OFF IMMEDIATELY OR HOLD SHORT OF RUNWAY;
... para cancelar autorización de despegue	e) MANTENGA POSICIÓN, CANCELE DESPEGUE REPITO CANCELE DESPEGUE *(motivo);*	e) HOLD POSITION, CANCEL TAKE-OFF I SAY AGAIN CANCEL TAKE-OFF *(reasons)*;
	*f) MANTENGO POSICIÓN;	*f) HOLDING;
... para detener un despegue después que la aeronave ha iniciado el recorrido de despegue	g) ABORTE DESPEGUE ~~PARE INMEDIATAMENTE~~ [*(se repite el distintivo de llamada de le aeronave)* ABORTE DESPEGUE ~~PARE INMEDIATAMENTE~~];	g) STOP IMMEDIATELY [*(repeat aircraft call sign)* STOP IMMEDIATELY];
	*h) ABORTANDO ~~PARO;~~	*h) STOPPING;

... para operaciones de helicópteros	i) AUTORIZADO A DESPEGAR [DE ~~DESDE~~ *(emplazamiento)*] *(posición actual, calle de rodaje, área de aproximación final y de despegue, pista, número);*	i) CLEARED FOR TAKE-OFF [FROM *(location)*] *(present position, taxiway, final approach and take-off area, runway and number)*;
	*j) SOLICITO INSTRUCCIONES DE SALIDA;	*j) REQUEST DEPARTURE INSTRUCTIONS;
	k) DESPUÉS DEL DESPEGUE ~~DE LA SALIDA~~, VIRE DERECHA (*o* IZQUIERDA, *o* ASCIENDA) *(instrucciones según corresponda).*	k) AFTER DEPARTURE TURN RIGHT (*or* LEFT, *or* CLIMB) *(instructions as appropriate).*
	* Indica transmisión del piloto. MANTENGO POSICIÓN y PARO son las respuestas reglamentarias a e) y g), respectivamente.	* Denotes pilot transmission. HOLDING and STOPPING are the procedural responses to e) and g) respectively.
12.3.4.12 INSTRUCCIONES PARA VIRAJE O ASCENSO DESPUÉS DEL DESPEGUE	*a) SOLICITO VIRAJE DERECHA (*o* IZQUIERDA);	*a) REQUEST RIGHT (*or* LEFT) TURN;
	b) APROBADO VIRAJE DERECHA (*o* IZQUIERDA);	b) RIGHT (*or* LEFT) TURN APPROVED;
	c) ESPERE AUTORIZACIÓN DE ~~NOTIFICARÁ MÁS TARDE~~ VIRAJE DERECHA (*o* IZQUIERDA);	c) WILL ADVISE LATER FOR RIGHT (*or* LEFT) TURN;
... para pedir hora de despegue	d) NOTIFIQUE EN EL AIRE;	d) REPORT AIRBONE;
	e) EN EL AIRE *(hora);*	e) AIRBORNE *(time)*;
	f) CRUZANDO ~~DESPUÉS DE PASAR~~ *(nivel) (instrucciones);*	f) AFTER PASSING *(level) (instructions)*;
... rumbo que ha de seguirse	g) MANTENGA ~~CONTINÚE~~ RUMBO DE PISTA *(instrucciones);*	g) CONTINUE RUNWAY HEADING *(instructions)*;
... cuando ha de seguirse una derrota determinada	h) MANTENGA TRAYECTORIA ~~DERROTA DE PROLONGACIÓN DEL EJE~~ DE PISTA *(instrucciones);*	h) TRACK EXTENDED CENTRE LINE *(instructions)*;
	i) ASCIENDA DE FRENTE ~~DIRECTAMENTE~~ *(instrucciones).*	i) CLIMB STRAIGHT AHEAD *(instructions).*
	* Indica una transmisión del piloto.	* Denotes pilot transmission.

12.3.4.13 ENTRADA EN EL CIRCUITO DE TRÁNSITO DE UN AERÓDROMO	*a) [*tipo de aeronave*] *(posición) (nivel)* INSTRUCCIONES PARA ATERRIZAR; b) INGRESE ~~ENTRE~~ EN *(posición en el circuito) (sentido del circuito) (número de pista)* VIENTO [EN LA SUPERFICIE] *(dirección y velocidad)* (*unidades*) ~~[~~TEMPERATURA [MENOS] *(número)*, QNH (*o* QFE) *(número)* [*(unidades)*] [TRÁNSITO *(detalles)*]; c) EFECTÚE APROXIMACIÓN DIRECTA, PISTA *(número)* VIENTO [EN LA SUPERFICIE] *(dirección y velocidad) (unidades)* ~~[~~TEMPERATURA [MENOS] *(número)*, QNH (*o* QFE) *(número)* [*(unidades)*] [TRÁNSITO *(detalles)*];	*a) [*aircraft type*] *(position) (level)* FOR LANDING; b) JOIN *(position in circuit) (direction of circuit) (runway number)* [SURFACE] WIND *(direction and speed) (units)* [TEMPERATURE [MINUS] [(*number*)] QNH (*or* QFE) *(number)* [*(units)*] [TRAFFIC *(detail)*]; c) MAKE STRAIGHT-IN APPROACH, RUNWAY *(number)* [SURFACE] WIND *(direction and speed) (units)* [TEMPERATURE [MINUS] *(number)*] QNH (*or* QFE) *(number)* [*(units)*] [TRAFFIC *(detail)*];
... cuando se usa el circuito de tránsito por la derecha	d) INGRESE CIRCUITO DERECHO ~~ENTRE POR LA DERECHA~~ *(posición en circuito) (número de pista)* VIENTO [EN LA SUPERFICIE] (dirección y velocidad) (unidades) ~~[~~[TEMPERATURA [MENOS] *(número)*, QNH (*o* QFE) *(número)* [*(unidades)*] [TRÁNSITO *(detalles)*];	d) JOIN RIGHT HAND *(position in circuit) (runway number)* [SURFACE] WIND *(direction and speed) (units)* [TEMPERATURE [MINUS] *(number)*] QNH (*or* QFE) *(number)* [*(units)*] [TRAFFIC *(detail)*];
... cuando se dispone de información ATIS	*e) *(tipo de aeronave) (posición) (nivel)* INFORMACIÓN *(identificación ATIS)* PARA ATERRIZAR; f) INGRESE ~~ENTRE~~ EN *(posición en circuito)* [PISTA *(número)*] QNH *(o* QFE) (*número*) [*(unidades*)] [TRÁNSITO *(detalles)*]. * Indica una transmisión del piloto.	*e) *(aircraft type) (position) (level)* INFORMATION *(ATIS identification)* FOR LANDING; f) JOIN *(position in circuit)* [RUNWAY *(number)*] QNH (*or* QFE) *(number)* [*(units)*] [TRAFFIC *(detail)*]. * Denotes pilot transmission.
12.3.4.14 EN EL CIRCUITO	*a) (*posición en circuito, p. ej.*,TRAMO A FAVOR DEL VIENTO, BASICO o ~~/~~FINAL); b) NÚMERO ... SIGA *(tipo de aeronave y posición)* [*otras instrucciones si fuera necesario*]. * Indica una transmisión del piloto.	*a) (*position in circuit, e.g.* DOWNWIND/FINAL); b) NUMBER ... FOLLOW *(aircraft type and position)* [*additional instructions if required*]. * Denotes pilot transmission.

12.3.4.15 INSTRUCCIONES PARA LA APROXIMACIÓN	a) EFECTÚE APROXIMACIÓN CORTA;	a) MAKE SHORT APPROACH;
Nota.— Se efectúa la notificación "FINAL LARGA" cuando la aeronave se dirige a la aproximación final a una distancia mayor de 7 km (4 NM) desde el punto de toma de contacto, o cuando la aeronave, en una aproximación directa, se halla a 15 km (8 NM) del punto de toma de contacto. En ambos casos se requiere la notificación "FINAL" a 7 km (4 NM) del punto de toma de contacto.	b) EFECTÚE APROXIMACIÓN LARGA (*o* PROLONGUE A FAVOR DEL VIENTO);	b) MAKE LONG APPROACH (*or* EXTEND DOWNWIND);
	c) NOTIFIQUE EN BASICO ~~BASE~~ (*o* FINAL, *o* FINAL LARGO ~~LARGA FINAL~~);	c) REPORT BASE (*or* FINAL, *or* LONG FINAL);
	d) CONTINÚE ~~LA~~ APROXIMACIÓN [PREPARE POSIBLE IDA AL AIRE ~~MOTOR Y AL AIRE].~~	d) CONTINUE APPROACH [PREPARE FOR POSSIBLE GO AROUND].
12.3.4.16 ATERRIZAJE	a) AUTORIZADO PARA ~~A~~ ATERRIZAR;	a) CLEARED TO LAND;
... operaciones en varias pistas	b) PISTA (*número*) AUTORIZADO PARA ~~A~~ ATERRIZAR;	b) RUNWAY *(number)* CLEARED TO LAND;
... operaciones especiales	c) AUTORIZADO PARA TOQUE ~~TOMA~~ Y DESPEGUE;	c) CLEARED TOUCH AND GO;
	d) EFECTUE ATERRIZAJE COMPLETO;	d) MAKE FULL STOP;
... para hacer una aproximación a lo largo de una pista, o paralelamente a ella, descendiendo a un nivel mínimo convenido	*e) SOLICITO APROXIMACIÓN BAJA *(razones);*	*e) REQUEST LOW APPROACH *(reasons)*;
	f) AUTORIZADO PARA ~~A~~ APROXIMACIÓN BAJA [PISTA *(número)*] [*(restricción de altitud si fuera necesario) (instrucciones para dar otra vuelta al circuito)*];	f) CLEARED LOW APPROACH [RUNWAY *(number)*] [*(altitude restriction if required) (go around instructions)*];
... para sobrevolar la torre de control u otro punto de observación para inspección visual por personas en tierra	*g) SOLICITO PASADA BAJA *(razones);*	*g) REQUEST LOW PASS *(reasons)*;
	h) AUTORIZADO A PASADA BAJA [*como en f)*];	h) CLEARED LOW PASS [*as in f)*];
... para operaciones de helicópteros	*i) SOLICITO APROXIMACIÓN DIRECTA [*o* INGRESAR CIRCUITO IZQUIERDO ~~EN CIRCUITO, VIRAJE A LA IZQUIERDA~~ (*o* DERECHO ~~DERECHA~~)A ~~HASTA~~ *(emplazamiento)*];	*i) REQUEST STRAIGHT-IN (*or* CIRCLING APPROACH, LEFT (*or* RIGHT) TURN TO *(location)*);

	j) EFECTÚE APROXIMACIÓN DIRECTA [*o* INGRESE CIRCUITO IZQUIERDO (o DERECHO) ~~EN CIRCUITO, VIRE A LA IZQUIERDA (*o* DERECHA)~~ A ~~HACIA~~ *(emplazamiento, pista, calle de rodaje, área de aproximación final y de despegue)*] [LLEGADA (*o* RUTA DE LLEGADA) *(número, nombre o código)*]. [MANTENGA FUERA DE *(pista activa, prolongación del eje de la pista, otros lugares)*]. [PERMANEZCA *(orientación o distancia respecto a)* DE *(la pista, el eje de la pista, otro helicóptero o aeronave)*]. [PRECAUCIÓN *(líneas de conducción de energía eléctrica, obstrucciones sin iluminar, estela turbulenta, etc.)*]. AUTORIZADO PARA ~~A~~ ATERRIZAR. * Indica una transmisión del piloto.	j) MAKE STRAIGHT-IN (*or* CIRCLING APPROACH, LEFT (*or* RIGHT) TURN TO *(location, runway, taxiway, final approach and take-off area)*) [ARRIVAL (*or* ARRIVAL ROUTE) *(number, name, or code)*]. [HOLD SHORT OF *(active runway, extended runway centre line, other)*]. [REMAIN *(direction or distance)* FROM *(runway, runway centre line, other helicopter or aircraft)*]. [CAUTION *(power lines, unlighted obstructions, wake turbulence, etc.)*]. CLEARED TO LAND. * Denotes pilot transmission.
12.3.4.17 PARA DEMORAR AERONAVES	a) CIRCULE EL CAMPO ~~ENTRE EN CIRCUITO DE AERÓDROMO;~~ b) VUELE EN CÍRCULOS (~~A LA~~ DERECHA, *o* ~~A LA~~ IZQUIERDA) [DESDE SU POSICIÓN ACTUAL]; c) EFECTUE OTRO CIRCUITO ~~DÉ OTRA VUELTA.~~	a) CIRCLE THE AERODROME; b) ORBIT (RIGHT, *or* LEFT) [FROM PRESENT POSITION]; c) MAKE ANOTHER CIRCUIT.
12.3.4.18 APROXIMACIÓN FRUSTRADA	a) IDA AL AIRE ~~MOTOR Y AL AIRE;~~ *b) IDA AL AIRE ~~MOTOR Y AL AIRE;~~ * Indica una transmisión del piloto.	a) GO AROUND; *b) GOING AROUND. * Denotes pilot transmission.
12.3.4.19 INFORMACIÓN A LAS AERONAVES ... cuando el piloto haya solicitado la inspección visual del tren de aterrizaje	a) TREN DE ATERRIZAJE APARENTEMENTE ABAJO ~~PARECE DESPLEGADO;~~ b) LA RUEDA DERECHA (*o* IZQUIERDA, *o* DE NARIZ ~~PROA~~) APARENTEMENTE ARRIBA (o ABAJO) ~~PARECE REPLEGADA (*o* DESPLEGADA);~~	a) LANDING GEAR APPEARS DOWN; b) RIGHT (*or* LEFT, *or* NOSE) WHEEL APPEARS UP (*or* DOWN);

	c) LAS RUEDAS APARENTEMENTE ARRIBA ~~PARECEN REPLEGADAS~~;	c) WHEELS APPEAR UP;
	d) LA RUEDA DERECHA (*o* IZQUIERDA, *o* DE NARIZ ~~PROA~~) APARENTEMENTE ARRIBA (o ABAJO) ~~NO PARECE REPLEGADA (*o* DESPLEGADA);~~	d) RIGHT (*or* LEFT, *or* NOSE) WHEEL DOES NOT APPEAR UP (*or* DOWN);
... estela turbulenta	e) PRECAUCIÓN ESTELA TURBULENTA [DE AERONAVE *(tipo)* QUE LLEGA (*o* SALE)] [*otras informaciones que se requieran*];	e) CAUTION WAKE TURBULENCE [FROM ARRIVING (*or* DEPARTING) *(type of aircraft)*] [*additional information as required*];
... chorro de reactor en la plataforma o en la calle de rodaje	f) PRECAUCIÓN CHORRO DE REACTOR;	f) CAUTION JET BLAST;
... estela de aeronave de hélice	g) PRECAUCIÓN ESTELA.	g) CAUTION SLIPSTREAM.
12.3.4.20 PISTA LIBRE Y COMUNICACIONES DESPUÉS DEL ATERRIZAJE	a) CONTACTO CONTROL TERRESTRE ~~COMUNIQUE CON TIERRA~~ *(frecuencia);*	a) CONTACT GROUND *(frequency)*;
	b) ABANDONANDO PISTA CONTACTO CONTROL TERRESTRE ~~CUANDO~~ ~~PISTA LIBRE COMUNIQUE CON TIERRA~~ *(frecuencia);*	b) WHEN VACATED CONTACT GROUND *(frequency)*;
	c) EXPEDITE ABANDONO DE PISTA ~~ACELERE PISTA LIBRE;~~	c) EXPEDITE VACATING;
	d) PUESTO (*o* PUERTA) *(designación);*	d) YOUR STAND (*or* GATE) *(designation)*;
	e) TOME (*o* VIRE EN) LA PRIMERA (*o* LA SEGUNDA, *o* LA CONVENIENTE) INTERSECCIÓN A LA IZQUIERDA (*o* A LA DERECHA) Y CONTACTO CONTROL TERRESTRE ~~COMUNIQUE CON TIERRA~~ *(frecuencia);*	e) TAKE (*or* TURN) FIRST (*or* SECOND, *or* CONVENIENT) LEFT (*or* RIGHT) AND CONTACT GROUND *(frequency)*;
... para operaciones de helicópteros	f) ~~EFECTÚE~~ RODAJE AÉREO A PUESTO DE HELICÓPTEROS *(o)* PUESTO DE ESTACIONAMIENTO DE HELICÓPTEROS *(área);*	f) AIR-TAXI TO HELICOPTER STAND *(or)* HELICOPTER PARKING POSITION *(area)*;

	g) ~~EFECTÚE~~ RODAJE AÉREO A (*o* VÍA) *(emplazamiento o encaminamiento, según corresponda)* [PRECAUCIÓN *(polvo, ventisca alta , detritos libres, aeronaves ligeras en rodaje, personal, etc.)*];	g) AIR-TAXI TO (*or* VIA) *(location or routing as appropriate)* [CAUTION *(dust, blowing snow, loose debris, taxiing light aircraft, personnel, etc.)*];
	h) ~~EFECTÚE~~ RODAJE AÉREO VÍA *(ruta directa, solicitada o especificada)* A *(emplazamiento, helipuerto, área de operaciones o movimiento, pista activa o inactiva)*. EVITE *(aeronave o vehículos o personal)*.	h) AIR-TAXI VIA *(direct, as requested, or specified route)* TO *(location, heliport, operating or movement area, active or inactive runway)*. AVOID *(aircraft or vehicles or personnel)*.

12.3.5 Coordinación entre dependencias ATS

Circunstancias	*Fraseología*	*Phraseologies*
12.3.5.1 PREVISIONES Y REVISIONES	a) ESTIMADA [*dirección del vuelo*] *(distintivo de llamada de la aeronave)* [USANDO TRANSPONDER ~~RESPONDEDOR~~ *(código SSR)*] *(tipo)* ESTIMADO *(punto significativo) (hora) (nivel)* [*o* DESCENDIENDO DE *(nivel)* A *(nivel)*] *o* [VELOCIDAD *(TAS presentada)*] *(ruta)* [OBSERVACIONES];	a) ESTIMATE [*direction of flight*] *(aircraft call sign)* [SQUAWKING *(SSR Code)*] *(type)* ESTIMATED *(significant point) (time) (level)* (*or* DESCENDING FROM *(level)* TO *(level)*) [SPEED *(filed TAS)*] *(route)* [REMARKS];
... equipo transmisor	b) ESTIMADO *(punto significativo)* ~~PARA~~ *(distintivo de llamada de la aeronave);*	b) ESTIMATE *(significant point)* ON *(aircraft call sign)*;
... respuesta del equipo receptor (si no se cuenta con detalles del plan de vuelo)	c) SIN DETALLES;	c) NO DETAILS;
... respuesta del equipo receptor (si se cuenta con detalles del plan de vuelo)	*(tipo de aeronave) (destino);*	*(aircraft type) (destination)*;
... respuesta del equipo transmisor	[TRANSPONDER ~~USANDO RESPONDEDOR~~ *(código SSR)*] [ESTIMADO] *(punto significativo) (hora)* A *(nivel);*	[SQUAWKING *(SSR Code)*] [ESTIMATED] *(significant point) (time)* AT *(level)*;

	Nota.— En caso de no disponerse de los detalles del plan de vuelo, la estación receptora responderá a b) NO HAY DETALLES y la estación transmisora dará la previsión completa como se indica en a). d) ~~ESTIMADO~~ GLOBO(S) LIBRE(S) NO TRIPULADO(S) *(identificación y clasificación)* ESTIMADO(S) SOBRE *(lugar)* A LAS *(hora)* (NIVEL(ES) DE VUELO NOTIFICADO(S) *(cifra o cifras)* (*o* NIVEL(ES) DE VUELO DESCONOCIDO(S)] DESPLAZÁNDOSE HACIA *(dirección)* VELOCIDAD ESTIMADA RESPECTO AL SUELO *(cifra) (otra información pertinente, si la hubiera);* e) REVISIÓN *(distintivo de llamada de la aeronave) (detalles que sean necesarios).*	*Note.— In the event that flight plan details are not available the receiving station shall reply to b) NO DETAILS and transmitting station shall pass full estimate as in a).* d) ESTIMATE UNMANNED FREE BALLOON(S) *(identification and classification)* ESTIMATED OVER *(place)* AT *(time)* REPORTED FLIGHT LEVEL(S) *(figure or figures)* [*or* FLIGHT LEVEL UNKNOWN] MOVING *(direction)* ESTIMATED GROUND SPEED *(figure) (other pertinent information, if any)*; e) REVISION *(aircraft call sign) (details as necessary).*
12.3.5.2 TRANSFERENCIA DE CONTROL	a) SOLICITO TRANSFERENCIA CONTROL DE *(distintivo de llamada de la aeronave);* b) *(distintivo de llamada de la aeronave)* CONTROL TRANSFERIDO [A LAS *(hora)*] [*condiciones/restricciones*]; c) ¿HA TRANSFERIDO *(distintivo de llamada de la aeronave)* [PARA QUE ASCIENDA (*o* DESCIENDA)]; d) *(distintivo de llamada de la aeronave*~~) BAJO~~ MI ~~NUESTRO~~ CONTROL [HASTA *(hora o punto significativo)*]; e) NO POSIBLE ~~IMPOSIBLE~~ *(distintivo de llamada de la aeronave*) [EL TRÁNSITO ES *(detalles)*].	a) REQUEST RELEASE OF *(aircraft call sign)*; b) *(aircraft call sign)* RELEASED [AT *(time)*] [*conditions/restrictions*]; c) IS *(aircraft call sign)* RELEASED [FOR CLIMB (*or* DESCENT)]; d) *(aircraft call sign)* NOT RELEASED [UNTIL *(time or significant point)*]; e) UNABLE *(aircraft call sign)* [TRAFFIC IS *(details)*].
12.3.5.3 CAMBIO DE AUTORIZACIÓN	a) ¿PODEMOS CAMBIAR LA AUTORIZACIÓN DE *(distintivo de llamada de la aeronave)* A *(detalles del cambio propuesto)?*;	a) MAY WE CHANGE CLEARANCE OF *(aircraft call sign)* TO *(details of alteration proposed)*;

	b) DE ACUERDO CON *(cambio de autorización)* DE *(distintivo de llamada de la aeronave);*	b) AGREED TO *(alteration of clearance)* OF *(aircraft call sign)*;
	c) NO POSIBLE ~~IMPOSIBLE~~ *(distintivo de llamada de la aeronave);*	c) UNABLE *(aircraft call sign)*;
	d) NO POSIBLE ~~IMPOSIBLE~~ *(ruta, nivel, etc., deseados)* [PARA *(distintivo de llamada de la aeronave)*] [DEBIDO A *(motivos)*] *(otra autorización propuesta).*	d) UNABLE *(desired route, level, etc.)* [FOR *(aircraft call sign)*] [DUE *(reason)*] *(alternative clearance proposed).*
12.3.5.4 SOLICITUD DE APROBACIÓN	a) SOLICITO ~~SOLICITUD DE~~ APROBACIÓN *(distintivo de llamada de la aeronave)* SALIDA ESTIMADA ~~PREVISTA~~ DE *(punto significativo)* A LAS *(hora);* b) *(distintivo de llamada de la aeronave)* SOLICITUD APROBADA [*(restricciones, si existen)*]; c) *(distintivo de llamada de la aeronave)* NO POSIBLE ~~IMPOSIBLE~~ *(instrucciones de alternativa).*	a) APPROVAL REQUEST *(aircraft call sign)* ESTIMATED DEPARTURE FROM *(significant point)* AT *(time)*; b) *(aircraft call sign)* REQUEST APPROVED [*(restriction if any)*]; c) *(aircraft call sign)* UNABLE *(alternative instructions).*
12.3.5.5 TRANSFERENCIA DE LLEGADA	[TRANSFIERO LLEGADA] *(distintivo de llamada de la aeronave)* [TRANSPONDER ~~RESPONDEDOR~~ *(código SSR)*] *(tipo)* DE *(punto de salida)* TRANSFERENCIA EN *(punto significativo) o* A LAS (hora) *o* A *(nivel)* AUTORIZADA Y ESTIMADA *(límite de la autorización) (hora)* A *(nivel)* [HORA PREVISTA DE APROXIMACIÓN *o* NO HAY DEMORA PREVISTA] LLAME A LAS *(hora)*.	[INBOUND RELEASE] *(aircraft call sign)* [SQUAWKING *(SSR Code)*] *(type)* FROM *(departure point)* RELEASED AT *(significant point, or time, or level)* CLEARED TO AND ESTIMATING *(clearance limit) (time)* AT *(level)* [EXPECTED APPROACH TIME *or* NO DELAY EXPECTED] CONTACT AT *(time).*
12.3.5.6 RELEVO DE RADAR	TRANSFERENCIA RADAR *(distintivo de llamada de la aeronave)* [TRANSPONDER ~~RESPONDEDOR~~ *(código SSR)*] POSICIÓN *(posición de la aeronave) (nivel).*	RADAR HANDOVER *(aircraft call sign)* [SQUAWKING *(SSR Code)*] POSITION *(aircraft position) (level).*

12.3.5.7 CONCESIÓN DE AUTORIZACIÓN	a) AGILICE ~~ACTIVE~~ AUTORIZACIÓN *(distintivo de llamada de la aeronave)* SALIDA ESTIMADA ~~PREVISTA~~ DE *(lugar)* A LAS *(hora);* b) AGILICE ~~ACTIVE~~ AUTORIZACIÓN *(distintivo de llamada de la aeronave)* [ESTIMADA ~~PREVISTA~~] SOBRE *(lugar)* A LAS *(hora)* SOLICITA *(nivel o ruta, etc.).*	a) EXPEDITE CLEARANCE *(aircraft call sign)* EXPECTED DEPARTURE FROM *(place)* AT *(time)*; b) EXPEDITE CLEARANCE *(aircraft call sign)* [ESTIMATED] OVER *(place)* AT *(time)* REQUESTS *(level or route, etc.).*

12.3.6 Fraseología para usar en CPDLC

Circunstancias	*Fraseología*	*Phraseologies*
12.3.6.1 FALTA DE CPDLC	[TODAS LAS ESTACIONES] FALLA CPDLC *(instrucciones)*	[ALL STATIONS] CPDLC FAILURE *(instructions)*

12.4 FRASEOLOGÍA RADAR

Nota.— A continuación se incluye la fraseología específicamente aplicable cuando se utiliza el radar en el suministro de servicios de tránsito aéreo. La fraseología detallada de las secciones anteriores para utilizarla en el suministro de los servicios de tránsito aéreo es también aplicable, según sea apropiado, cuando se utiliza el radar.

2.4.1 Fraseología general de radar

Circunstancias	*Fraseología*	*Phraseologies*
12.4.1.1 IDENTIFICACIÓN DE AERONAVE	a) NOTIFIQUE RUMBO [Y NIVEL DE VUELO (*o* ALTITUD)]; b) PARA IDENTIFICACIÓN VIRE IZQUIERDA (*o* DERECHA) RUMBO *(tres cifras);* c) TRANSMITA IDENTIFICACIÓN Y NOTIFIQUE RUMBO; d) CONTACTO RADAR [*posición*]; e) IDENTIFICADO [*posición*]; f) NO IDENTIFICADO [*motivo*], [REANUDE (*o* CONTINÚE) PROPIA ~~SU~~ NAVEGACIÓN].	a) REPORT HEADING [AND FLIGHT LEVEL (*or* ALTITUDE)]; b) FOR IDENTIFICATION TURN LEFT (*or* RIGHT) HEADING *(three digits)*; c) TRANSMIT FOR IDENTIFICATION AND REPORT HEADING; d) RADAR CONTACT [*position*]; e) IDENTIFIED [*position*]; f) NOT IDENTIFIED [*reason*], [RESUME (*or* CONTINUE) OWN NAVIGATION].

12.4.1.2	INFORMACIÓN DE POSICIÓN	POSICIÓN *(distancia)* AL *(dirección)* DE *(punto significativo)* [*o* SOBRE *o* ~~POR EL~~ A TRAVÉS DE *(punto significativo)*].	POSITION *(distance) (direction)* OF *(significant point)* (*or* OVER *or* ABEAM *(significant point)*).
12.4.1.3	INSTRUCCIONES PARA GUÍA VECTORIAL	a) ABANDONE *(punto significativo)* RUMBO *(tres cifras);* b) MANTENGA ~~CONTINÚE~~ RUMBO *(tres cifras);* c) MANTENGA PRESENTE ~~CONTINÚE~~ RUMBO ~~ACTUAL;~~ d) VUELE RUMBO *(tres cifras);* e) VIRE IZQUIERDA (*o* DERECHA) RUMBO *(tres cifras)* [*motivo*]; f) VIRE IZQUIERDA (*o* DERECHA) *(número de grados)* GRADOS [*motivo*]; g) INTERRUMPA ~~EL~~ VIRAJE RUMBO *(tres cifras);* h) VUELE RUMBO *(tres cifras)*, CUANDO SEA POSIBLE ~~PUEDA~~ DIRÍJASE DIRECTO ~~DIRECTAMENTE~~ A *(nombre) (punto significativo);* i) RUMBO CORRECTO.	a) LEAVE *(significant point)* HEADING *(three digits)*; b) CONTINUE HEADING *(three digits)*; c) CONTINUE PRESENT HEADING; d) FLY HEADING *(three digits)*; e) TURN LEFT (*or* RIGHT) HEADING *(three digits)* [*reason*]; f) TURN LEFT (*or* RIGHT) *(number of degrees)* DEGREES [*reason*]; g) STOP TURN HEADING *(three digits)*; h) FLY HEADING *(three digits)*, WHEN ABLE PROCEED DIRECT *(name) (significant point)*; i) HEADING IS GOOD.
12.4.1.4	TERMINACIÓN DE GUÍA VECTORIAL RADAR	a) REANUDE PROPIA ~~SU~~ NAVEGACIÓN *(posición de la aeronave) (instrucciones específicas);* b) REANUDE PROPIA ~~SU~~ NAVEGACIÓN [DIRECTO A] *(punto significativo)* [DERROTA MAGNÉTICA *(tres cifras)* DISTANCIA *(número)* KILÓMETROS (*o* MILLAS)].	a) RESUME OWN NAVIGATION *(position of aircraft) (specific instructions);* b) RESUME OWN NAVIGATION [DIRECT] *(significant point)* [MAGNETIC TRACK *(three digits)* DISTANCE *(number)* KILOMETRES (*or* MILES)].
12.4.1.5	MANIOBRAS	a) EFECTUE ~~VIRE~~ TRES SESENTA ~~SEIS, CERO GRADOS~~ POR IZQUIERDA (*o* DERECHA) [*motivo*]; b) VIRE EN CÍRCULO IZQUIERDA (*o* DERECHA) [*motivo*];	a) MAKE A THREE SIXTY TURN LEFT (*or* RIGHT) [*reason*]; b) ORBIT LEFT (*or* RIGHT) [*reason*];

... (en el caso de que no se pueda confiar en los instrumentos direccionales de a bordo)	c) TODOS LOS VIRAJES A RÉGIMEN UNO [*o* MITAD *o (número)* GRADOS POR SEGUNDO] INICIE Y TERMINE TODOS LOS VIRAJES CUANDO SE LO INDIQUE CON LA PALABRA "AHORA";	c) MAKE ALL TURNS RATE ONE (*or* RATE HALF, *or (number)* DEGREES PER SECOND) START AND STOP ALL TURNS ON THE COMMAND "NOW";
Nota.— Cuando sea necesario especificar un motivo para la guía vectorial radar o para las maniobras mencionadas debería utilizarse la fraseología siguiente: *a) TRÁNSITO PREVISTO;* *b) PARA SEPARACIÓN;* *c) PARA SECUENCIA CON TRÁNSITO (POSICIÓN);* *d) PARA TRAMO A FAVOR DEL VIENTO (o BÁSICO o FINAL).*	d) VIRE IZQUIERDA (*o* DERECHA) AHORA; e) INTERRUMPA VIRAJE AHORA.	d) TURN LEFT (*or* RIGHT) NOW; e) STOP TURN NOW.
12.4.1.6 CONTROL DE VELOCIDAD	a) NOTIFIQUE VELOCIDAD; *b) VELOCIDAD *(número)* KILÓMETROS POR HORA (*o* NUDOS); c) MANTENGA *(número)* KILÓMETROS POR HORA (*o* NUDOS) [O MÁS (*o* MENOS)] [HASTA *(punto signifiativo)*]; d) NO EXCEDA *(número)* KILÓMETROS POR HORA (*o* NUDOS); e) MANTENGA VELOCIDAD ACTUAL; f) AUMENTE (*o* REDUZCA) VELOCIDAD A *(número)* KILÓMETROS POR HORA (*o* NUDOS) [O MÁS (*o* MENOS)]; g) AUMENTE (*o* REDUZCA) VELOCIDAD EN *(número)* KILÓMETROS POR HORA (*o* NUDOS); h) REANUDE VELOCIDAD NORMAL; i) REDUZCA A VELOCIDAD MÍNIMA DE APROXIMACIÓN;	a) REPORT SPEED; *b) SPEED *(number)* KILOMETRES PER HOUR (*or* KNOTS); c) MAINTAIN *(number)* KILOMETRES PER HOUR (*or* KNOTS) [OR GREATER (*or* OR LESS)] [UNTIL *(significant point)*]; d) DO NOT EXCEED *(number)* KILOMETRES PER HOUR (*or* KNOTS); e) MAINTAIN PRESENT SPEED; f) INCREASE (*or* REDUCE) SPEED TO *(number)* KILOMETRES PER HOUR (*or* KNOTS) [OR GREATER (*or* OR LESS)]; g) INCREASE (*or* REDUCE) SPEED BY *(number)* KILOMETRES PER HOUR (*or* KNOTS); h) RESUME NORMAL SPEED; i) REDUCE TO MINIMUM APPROACH SPEED;

	j) REDUZCA A VELOCIDAD MÍNIMA LIMPIA;	j) REDUCE TO MINIMUM CLEAN SPEED;
	k) SIN LIMITACIONES DE VELOCIDAD POR [ATC].	k) NO [ATC] SPEED RESTRICTIONS.
	* Indica una transmisión del piloto.	* Denotes pilot transmission.
12.4.1.7 NOTIFICACIÓN DE POSICIÓN		
... para omitir los informes de posición durante el vuelo bajo control radar	a) OMITA REPORTES ~~INFORMES~~ DE POSICIÓN [HASTA *(especificar)*];	a) OMIT POSITION REPORTS [UNTIL *(specify)*];
	b) PRÓXIMO REPORTE ~~INFORME~~ EN *(punto significativo);*	b) NEXT REPORT AT *(significant point)*;
	c) REPORTES ~~INFORMES~~ REQUERIDOS SÓLO EN [*puntos significativos*];	c) REPORTS REQUIRED ONLY AT *(significant point(s))*;
	d) REANUDE REPORTES ~~INFORMES~~ DE POSICIÓN.	d) RESUME POSITION REPORTING.
12.4.1.8 INFORMACIÓN RESPECTO AL TRÁNSITO Y MEDIDAS EVASIVAS	a) TRÁNSITO A LAS *(número) (distancia) (dirección del vuelo)* [*toda otra información pertinente*];	a) TRAFFIC *(number)* O'CLOCK *(distance) (direction of flight)* [*any other pertinent information*]:
	1) DESCONOCIDO;	1) UNKNOWN;
	2) LENTO;	2) SLOW MOVING;
	3) RÁPIDO;	3) FAST MOVING;
	4) ACERCÁNDOSE;	4) CLOSING;
	5) SENTIDO OPUESTO (*o* MISMO) SENTIDO;	5) OPPOSITE (*or* SAME) DIRECTION;
	6) SOBREPASANDO;	6) OVERTAKING;
	7) CRUZANDO DE IZQUIERDA A DERECHA (*o* DE DERECHA A IZQUIERDA);	7) CROSSING LEFT TO RIGHT (*or* RIGHT TO LEFT);
... (si se conoce)	8) *(tipo de aeronave);*	8) *(aircraft type)*;
	9) *(nivel);*	9) *(level)*;

	10) ASCENDIENDO (*o* DESCENDIENDO);	10) CLIMBING (*or* DESCENDING);
.. para pedir una acción evasiva	*b) SOLICITO VECTORES;	*b) REQUEST VECTORS;
	c) ¿QUIERE VECTORES?;	c) DO YOU WANT VECTORS?;
... cuando se pasa a tránsito desconocido	d) LIBRE DE TRÁNSITO [*instrucciones apropiadas*];	d) CLEAR OF TRAFFIC [*appropriate instructions*];
... para acción evasiva	e) VIRE IZQUIERDA (*o* DERECHA) INMEDIATAMENTE RUMBO *(tres cifras)* PARA EVITAR TRÁNSITO [NO IDENTIFICADO] *(marcación por reloj y distancia);* f) VIRE IZQUIERDA (*o* DERECHA) *(número de grados)* GRADOS INMEDIATAMENTE PARA EVITAR TRÁNSITO [NO IDENTIFICADO] EN *(marcación por referencia del reloj y distancia).* * Indica una transmisión del piloto.	e) TURN LEFT (*or* RIGHT) IMMEDIATELY HEADING *(three digits)* TO AVOID [UNIDENTIFIED] TRAFFIC *(bearing by clock-reference and distance)*; f) TURN LEFT (*or* RIGHT) *(number of degrees)* DEGREES IMMEDIATELY TO AVOID [UNIDENTIFIED] TRAFFIC AT *(bearing by clock-reference and distance).* * Denotes pilot transmission.
12.4.1.9 COMUNICACIONES Y PÉRDIDA DE COMUNICACIONES	a) EN CASO DE FALLA DE COMUNICACIONES ~~RADIO~~ *(instrucciones);*	a) [IF] RADIO CONTACT LOST *(instructions)*;
	b) SI NO RECIBE COMUNICACIÓN DURANTE *(número)* MINUTOS (*o* SEGUNDOS) *(instrucciones);*	b) IF NO TRANSMISSIONS RECEIVED FOR *(number)* MINUTES (*or* SECONDS) *(instructions)*;
	c) RESPUESTA NO RECIBIDA *(instrucciones);*	c) REPLY NOT RECEIVED *(instructions)*;
... si se sospecha que se han interrumpido las comunicaciones	d) SI ME RECIBE [*instrucciones de maniobras o* TRANSPONDER ~~*TRANSPONDEDOR*~~ *(código o IDENT)*]; e) *(maniobra o TRANSPONDER* ~~*TRANSPONDEDOR*~~*)* OBSERVADO ~~OBSERVADA~~. POSICIÓN *(posición de la aeronave)*. ~~CONTINUARÉ~~ CONTROL RADAR CONTINÚA.	d) IF YOU READ [*manoeuvre instructions or SQUAWK (code or IDENT)*]; e) *(manoeuvre or SQUAWK)* OBSERVED. POSITION *(position of aircraft)*. WILL CONTINUE RADAR CONTROL.
12.4.1.10 TERMINACIÓN DE SERVICIO RADAR	a) CONTROL RADAR TERMINADO [DEBIDO A *(motivos)*];	a) RADAR CONTROL TERMINATED [DUE *(reason)*];
	b) SERVICIO RADAR TERMINADO *(instrucciones);*	b) RADAR SERVICE TERMINATED *(instructions)*;

	c) LA IDENTIFICACIÓN SE PERDERÁ PRONTO *(instrucciones o información apropiadas);* d) IDENTIFICACIÓN PERDIDA [*motivos*] *(instrucciones).*	c) WILL SHORTLY LOSE IDENTIFICATION *(appropriate instructions or information)*; d) IDENTIFICATION LOST [*reasons*] *(instructions).*
12.4.1.11 DEGRADACIÓN DEL EQUIPO RADAR	a) RADAR SECUNDARIO FUERA DE SERVICIO *(información apropiada necesaria);* b) RADAR PRIMARIO FUERA DE SERVICIO *(información apropiada necesaria).*	a) SECONDARY RADAR OUT OF SERVICE *(appropriate information as necessary)*; b) PRIMARY RADAR OUT OF SERVICE *(appropriate information as necessary).*

12.4.2 Radar para servicio de control de aproximación

Circunstancias	*Fraseología*	*Phraseologies*
12.4.2.1 GUÍA VECTORIAL PARA LA APROXIMACIÓN	a) VECTORES ~~GUÍA VECTORIAL~~ PARA APROXIMACIÓN *(tipo de ayuda interpretada por el piloto)* PISTA *(número);* b) VECTORES ~~GUÍA VECTORIAL~~ PARA APROXIMACIÓN VISUAL PISTA *(número)* NOTIFIQUE CAMPO (*o* PISTA) A LA VISTA; c) VECTORES ~~GUÍA VECTORIAL~~ PARA *(ubicación en el circuito);* d) VECTORES ~~GUÍA VECTORIAL~~ PARA APROXIMACIÓN CON RADAR DE VIGILANCIA PISTA *(número);* e) VECTORES ~~GUÍA VECTORIAL~~ PARA APROXIMACIÓN DE PRECISIÓN PISTA *(número);* f) APROXIMACIÓN *(tipo)* NO DISPONIBLE DEBIDO A *(motivo) (instrucciones de alternativa).*	a) VECTORING FOR *(type of pilot-interpreted aid)* APPROACH RUNWAY *(number)*; b) VECTORING FOR VISUAL APPROACH RUNWAY *(number)* REPORT FIELD (*or* RUNWAY) IN SIGHT; c) VECTORING FOR *(positioning in the circuit)*; d) VECTORING FOR SURVEILLANCE RADAR APPROACH RUNWAY *(number)*; e) VECTORING FOR PRECISION APPROACH RUNWAY *(number)*; f) *(type)* APPROACH NOT AVAILABLE DUE *(reason) (alternative instructions).*

12.4.2.2 GUÍA VECTORIAL PARA ILS Y OTRAS AYUDAS INTERPRETADAS POR EL PILOTO	a) POSICIÓN *(número de)* KILÓMETROS (*o* MILLAS) de ~~desde~~ *(punto de referencia)*. VIRE IZQUIERDA (*o* DERECHA) RUMBO *(tres dígitos);*	a) POSITION *(number)* KILOMETRES (*or* MILES) from *(fix)*. TURN LEFT (*or* RIGHT) HEADING *(three digits)*;
	b) INTERCEPTARÁ *(radioayuda o derrota)* A *(distancia)* DE (*punto significativo o* PUNTO DE TOMA DE CONTACTO);	b) YOU WILL INTERCEPT *(radio aid or track)* *(distance)* FROM (*significant point or* TOUCHDOWN);
.. cuando el piloto desea que se le ubique a determinada distancia del punto de toma de contacto	*c) SOLICITO *(distancia)* FINAL;	*c) REQUEST *(distance)* FINAL;
...instrucciones e información	d) AUTORIZADO ~~A~~ APROXIMACIÓN *(tipo)* PISTA *(número);*	d) CLEARED FOR *(type)* APPROACH RUNWAY *(number)*;
	e) NOTIFIQUE ESTABLECIDO [SOBRE DERROTA DE APROXIMACIÓN MLS] *o* [SOBRE ILS (LOCALIZADOR) *o* (TRAYECTORIA DE PLANEO)];	e) REPORT ESTABLISHED [ON MLS APPROACH TRACK] *or* [ON ILS (LOCALIZER) *or* (GLIDE PATH)];
	f) APROXIMANDO DE ~~SE ACERCA DESDE~~ IZQUIERDA (*o* DERECHA) [NOTIFIQUE ESTABLECIDO];	f) CLOSING FROM LEFT (*or* RIGHT) [REPORT ESTABLISHED];
	g) VIRE IZQUIERDA (*o* DERECHA) RUMBO *(tres cifras)* [HASTA INTERCEPTAR] *o* [NOTIFIQUE ESTABLECIDO];	g) TURN LEFT (*or* RIGHT) HEADING *(three digits)* [TO INTERCEPT] *or* [REPORT ESTABLISHED];
	h) PREVEA VECTORES ~~GUÍA VECTORIAL~~ PARA CRUZAR *(rumbo del localizador o radioayuda)* *(motivo);*	h) EXPECT VECTOR ACROSS *(localizer course or radio aid) (reason)*;
	i) ESTE VIRAJE LE HARÁ CRUZAR ~~PASAR~~ POR *(rumbo del localizador o radioayuda)* [*motivo*];	i) THIS TURN WILL TAKE YOU THROUGH *(localizer course or radio aid)* [*reason*];
	j) LE LLEVAMOS A CRUZAR ~~PASAR~~ POR *(rumbo del localizador o radioayuda)* [*motivo*];	j) TAKING YOU THROUGH *(localizer course or radio aid)* [*reason*];
	k) MANTENGA *(altitud)* HASTA INTERCEPTAR TRAYECTORIA DE PLANEO;	k) MAINTAIN *(altitude)* UNTIL GLIDE PATH INTERCEPTION;

	l) NOTIFIQUE ESTABLECIDO EN TRAYECTORIA DE PLANEO; m) INTERCEPTE *(rumbo del localizador o radioayuda)* [NOTIFIQUE ESTABLECIDO]. * Indica una transmisión del piloto.	l) REPORT ESTABLISHED ON GLIDE PATH; m) INTERCEPT *(localizer course or radio aid)* [REPORT ESTABLISHED]. * Denotes pilot transmission.
12.4.2.3 MANIOBRA DURANTE APROXIMACIONES PARALELAS INDEPENDIENTES Y DEPENDIENTES	a) AUTORIZADO ~~A~~ APROXIMACIÓN ILS (*o* MLS) PISTA *(número)* IZQUIERDA (*o* DERECHA); b) HA CRUZADO EL LOCALIZADOR (*o* DERROTA DE APROXIMACIÓN FINAL MLS). VIRE IZQUIERDA (*o* DERECHA) INMEDIATAMENTE Y VUELVA A LOCALIZADOR (*o* DERROTA DE APROXIMACIÓN FINAL MLS); c) ILS (*o* MLS) PISTA *(número)* IZQUIERDA (*o* DERECHA) LA FRECUENCIA DEL LOCALIZADOR (*o* MLS) ES *(frecuencia);*	a) CLEARED FOR ILS (*or* MLS) APPROACH RUNWAY *(number)* LEFT (*or* RIGHT); b) YOU HAVE CROSSED THE LOCALIZER (*or* MLS FINAL APPROACH TRACK). TURN LEFT (*or* RIGHT) IMMEDIATELY AND RETURN TO THE LOCALIZER (*or* MLS FINAL APPROACH TRACK); c) ILS (*or* MLS) RUNWAY *(number)* LEFT (*or* RIGHT) LOCALIZER (*or* MLS) FREQUENCY IS *(frequency)*;
... para medidas de evasión si se observa que la aeronave penetra en la NTZ	d) VIRE IZQUIERDA (*o* DERECHA) *(número)* GRADOS (o RUMBO) *(tres dígitos)* INMEDIATAMENTE PARA EVADIR TRÁNSITO [DESVIARSE DE APROXI-MACIÓN ADYACENTE], ASCIENDA A *(altitud).*	d) TURN LEFT (*or* RIGHT) *(number)* DEGREES (*or* HEADING) *(three digits)* IMMEDIATELY TO AVOID TRAFFIC [DEVIATING FROM ADJACENT APPROACH], CLIMB TO *(altitude).*
... para medidas de evasión por debajo de 120 m (400 ft) sobre la elevación del umbral de la pista, cuando se están aplicando las superficies de evaluación de obstáculos para aproximaciones paralelas (PAOAS)	e) ASCIENDA A *(altitud)* INMEDIATAMENTE PARA EVADIR TRÁNSITO [DESVIÁNDOSE DE LA APROXIMACIÓN ADYACENTE] *(nuevas instrucciones).*	e) CLIMB TO *(altitude)* IMMEDIATELY TO AVOID TRAFFIC [DEVIATING FROM ADJACENT APPROACH] *(further instructions).*
12.4.2.4 APROXIMACIÓN CON RADAR DE VIGILANCIA		

12.4.2.4.1 *SUMINISTRO DE SERVICIO*	a) ESTA SERÁ UNA APROXIMACIÓN CON RADAR DE VIGILANCIA PISTA *(número)* QUE TERMINARÁ A *(distancia)* ~~DEL PUNTO DE TOMA~~ DE LA ZONA DE CONTACTO, ALTITUD (*o* ALTURA) DE FRANQUEAMIENTO DE OBSTÁCULOS *(número)* METROS (*o* PIES) VERIFIQUE SUS MÍNIMOS [EN CASO DE IDA ~~MOTOR Y~~ AL AIRE *(instrucciones)*]; b) INSTRUCCIONES PARA APROXIMACIÓN TERMINARÁN A *(distancia)* ~~DEL PUNTO~~ DE LA ZONA DE ~~TOMA DE~~ CONTACTO.	a) THIS WILL BE A SURVEILLANCE RADAR APPROACH RUNWAY *(number)* TERMINATING AT *(distance)* FROM TOUCHDOWN, OBSTACLE CLEARANCE ALTITUDE (*or* HEIGHT) *(number)* METRES (*or* FEET) CHECK YOUR MINIMA [IN CASE OF GO AROUND *(instructions)*]; b) APPROACH INSTRUCTIONS WILL BE TERMINATED AT *(distance)* FROM TOUCHDOWN.
12.4.2.4.2 *ELEVACIÓN*	a) INICIE ~~COMIENCE~~ DESCENSO AHORA ~~YA~~ [PARA MANTENER UNA TRAYECTORIA DE PLANEO DE *(número)* GRADOS]; b) A *(distancia)* ~~DEL PUNTO DE TOMA~~ DE LA ZONA DE CONTACTO, SU ALTITUD (*o* ALTURA) DEBERÍA SER *(números y unidades).*	a) COMMENCE DESCENT NOW [TO MAINTAIN A *(number)* DEGREE GLIDE PATH]; b) *(distance)* FROM TOUCHDOWN ALTITUDE (*or* HEIGHT) SHOULD BE *(numbers and units).*
12.4.2.4.3 *POSICIÓN*	A *(distancia)* ~~DEL PUNTO DE TOMA~~ DE LA ZONA DE CONTACTO.	*(distance)* FROM TOUCHDOWN.
12.4.2.4.4 *VERIFICACIONES*	a) VERIFIQUE TREN ABAJO ~~DESPLEGADO~~ [Y ASEGURADO ~~AFIANZADO~~]; b) SOBRE EL UMBRAL.	a) CHECK GEAR DOWN [AND LOCKED]; b) OVER THRESHOLD.
12.4.2.4.5 *TERMINACIÓN DE LA APROXIMACIÓN*	a) NOTIFIQUE CONTACTO VISUAL; b) NOTIFIQUE [LUCES] PISTA A LA VISTA; c) APROXIMACIÓN TERMINADA [CONTACTO ~~LLAME A~~ *(dependencia)*].	a) REPORT VISUAL; b) REPORT RUNWAY [LIGHTS] IN SIGHT; c) APPROACH COMPLETED [CONTACT *(unit)*].
12.4.2.5 APROXIMACIÓN PAR		
12.4.2.5.1 *PROVISIÓN DE SERVICIO*	a) ESTA SERÁ APROXIMACIÓN CON RADAR DE PRECISIÓN A PISTA *(número);*	a) THIS WILL BE A PRECISION RADAR APPROACH RUNWAY *(number)*;

	b) APROXIMACIÓN DE PRECISIÓN NO DISPONIBLE DEBIDO A *(motivo) (otras instrucciones);* c) EN CASO DE IDA ~~MOTOR Y~~ AL AIRE *(instrucciones)*.	b) PRECISION APPROACH NOT AVAILABLE DUE *(reason) (alternative instructions)*; c) IN CASE OF GO AROUND *(instructions)*.
12.4.2.5.2 *COMUNICACIONES*	a) NO ACUSE RECIBO DE INSTRUCCIONES POSTERIORES; b) RESPUESTA NO RECIBIDA. CONTINUARÉ INSTRUCCIONES.	a) DO NOT ACKNOWLEDGE FURTHER TRANSMISSIONS; b) REPLY NOT RECEIVED. WILL CONTINUE INSTRUCTIONS.
12.4.2.5.3 *AZIMUT*	a) SE APROXIMA ~~ACERCA~~ [LENTAMENTE (*o* RÁPIDAMENTE)] [DESDE LA IZQUIERDA (*o* DESDE LA DERECHA)]; b) RUMBO CORRECTO; c) EN TRAYECTORIA ~~LA DERROTA~~; d) LIGERAMENTE (*o* MUY, *o* SE VA) A LA IZQUIERDA (*o* A LA DERECHA) DE LA TRAYECTORIA ~~DERROTA~~; e) *(número)* METROS A LA IZQUIERDA (*o* A LA DERECHA) DE LA TRAYECTORIA ~~DERROTA.~~	a) CLOSING [SLOWLY (*or* QUICKLY)] [FROM THE LEFT (*or* FROM THE RIGHT)]; b) HEADING IS GOOD; c) ON TRACK; d) SLIGHTLY (*or* WELL, *or* GOING) LEFT (*or* RIGHT) OF TRACK; e) *(number)* METRES LEFT (*or* RIGHT) OF TRACK.
12.4.2.5.4 *ELEVACIÓN*	a) APROXIMÁNDOSE A LA TRAYECTORIA DE PLANEO; b) INICIE ~~COMIENCE~~ DESCENSO AHORA ~~YA~~ [A *(número)* METROS POR SEGUNDO O *(número)* PIES POR MINUTO (*o* ESTABLEZCA UNA TRAYECTORIA DE PLANEO DE *(número)* GRADOS)]; c) REGIMEN ~~VELOCIDAD VERTICAL~~ DE DESCENSO CORRECTA; d) EN TRAYECTORIA DE PLANEO; e) LIGERAMENTE (*o* MUY, *o* VA A ESTAR) POR ARRIBA ~~ENCIMA~~ (*o* POR DEBAJO) DE LA TRAYECTORIA DE PLANEO;	a) APPROACHING GLIDE PATH; b) COMMENCE DESCENT NOW [AT *(number)* METRES PER SECOND OR *(number)* FEET PER MINUTE (*or* ESTABLISH A *(number)* DEGREE GLIDE PATH)]; c) RATE OF DESCENT IS GOOD; d) ON GLIDE PATH; e) SLIGHTLY (*or* WELL, *or* GOING) ABOVE (*or* BELOW) GLIDE PATH;

	f) [TODAVÍA] *(número)* METROS (*o* PIES) DEMASIADO ALTO (*o* DEMASIADO BAJO);	f) [STILL] *(number)* METRES (*or* FEET) TOO HIGH (*or* TOO LOW);
	g) AJUSTE REGIMEN ~~VELOCIDAD VERTICAL~~ DE DESCENSO;	g) ADJUST RATE OF DESCENT;
	h) VOLVIENDO [LENTAMENTE (*o* RÁPIDAMENTE)] A LA TRAYECTORIA DE PLANEO;	h) COMING BACK [SLOWLY (*or* QUICKLY)] TO THE GLIDE PATH;
	i) REANUDE REGIMEN ~~VELOCIDAD VERTICAL~~ NORMAL DE DESCENSO;	i) RESUME NORMAL RATE OF DESCENT;
	j) ELEMENTO ELEVACIÓN FUERA DE SERVICIO *(seguido de las oportunas instrucciones);*	j) ELEVATION ELEMENT UNSERVICEABLE *(to be followed by appropriate instructions)*;
	k) A *(distancia)* DE LA ZONA ~~DEL PUNTO DE TOMA~~ DE CONTACTO. SU ALTITUD (*o* ALTURA) DEBERÍA SER *(números y unidades)*.	k) *(distance)* FROM TOUCHDOWN. ALTITUDE (*or* HEIGHT) SHOULD BE *(numbers and units)*.
12.4.2.5.5 *POSICIÓN*	a) A *(distancia)* ~~DEL PUNTO DE TOMA~~ DE LA ZONA DE CONTACTO;	a) *(distance)* FROM TOUCHDOWN;
	b) SOBRE LUCES DE APROXIMACIÓN;	b) OVER APPROACH LIGHTS;
	c) SOBRE EL UMBRAL.	c) OVER THRESHOLD.
12.4.2.5.6 *VERIFICACIONES A BORDO*	a) COMPRUEBE TREN ~~DESPLEGADO Y AFIANZADO;~~ ABAJO Y ASEGURADO;	a) CHECK GEAR DOWN AND LOCKED;
	b) COMPRUEBE ALTITUD (*o* ALTURA) DE DECISIÓN.	b) CHECK DECISION ALTITUDE (*or* HEIGHT).
12.4.2.5.7 *TERMINACIÓN DE LA APROXIMACIÓN*	a) NOTIFIQUE CONTACTO VISUAL;	a) REPORT VISUAL;
	b) NOTIFIQUE [LUCES] PISTA A LA VISTA;	b) REPORT RUNWAY [LIGHTS] IN SIGHT;
	c) APROXIMACIÓN TERMINADA [CONTACTO ~~LLAME A~~ *(dependencia)*].	c) APPROACH COMPLETED [CONTACT *(unit)*].

12.4.2.5.8 *APROXIMACIÓN FRUSTRADA*	a) CONTINÚE VISUAL O ~~MOTOR Y~~ IDA AL AIRE [*instrucciones para la aproximación frustrada*]; b) IDA ~~MOTOR Y~~ AL AIRE INMEDIATAMENTE [*instrucciones para la aproximación frustrada*] (*motivo*); c) ~~¿MOTOR Y AL AIRE?;~~ ¿ESTA EFECTUANDO IDA AL AIRE? d) EN CASO DE IDA ~~SI MOTOR Y~~ AL AIRE *(instrucciones apropiadas);* *e) IDA ~~MOTOR Y~~ AL AIRE. * Indica una transmisión del piloto.	a) CONTINUE VISUALLY OR GO AROUND [*missed approach instructions*]; b) GO AROUND IMMEDIATELY [*missed approach instructions*] *(reason)*; c) ARE YOU GOING AROUND?; d) IF GOING AROUND *(appropriate instructions)*; *e) GOING AROUND. * Denotes pilot transmission.

12.4.3 Fraseología de radar secundario de vigilancia (SSR)

Circunstancias	*Fraseología*	*Phraseologies*
12.4.3.1 PARA PREGUNTAR SOBRE CAPACIDAD DEL EQUIPO SSR DE A BORDO	a) NOTIFIQUE CAPACIDAD DEL TRANSPONDER ~~TRANSPONDEDOR~~; *b) TRANSPONDER ~~TRANSPONDEDOR~~ *(como se haya indicado en el plan de vuelo);* *c) TRANSPONDER ~~TRANSPONDEDOR~~ NEGATIVO. * Indica una transmisión del piloto.	a) ADVISE TRANSPONDER CAPABILITY; *b) TRANSPONDER *(as shown in the flight plan)*; *c) NEGATIVE TRANSPONDER. * Denotes pilot transmission.
12.4.3.2 PARA DAR INSTRUCCIONES RELATIVAS AL REGLAJE DEL TRANSPONDEDOR	a) PARA SALIDA ACTIVE CODIGO ~~TRANSPONDEDOR *(código);*~~ *(número)* b) TRANSPONDER ~~TRANSPONDEDOR~~ *(código).*	a) FOR DEPARTURE SQUAWK *(code)*; b) SQUAWK *(code).*
12.4.3.3 PARA PEDIR AL PILOTO QUE VUELVA A SELECCIONAR EL MODO Y CÓDIGO ASIGNADOS	a) REACTIVE TRANSPONDER ~~TRANSPONDEDOR~~ [*(modo)*] *(código);*	a) RESET SQUAWK [*(mode)*] *(code)*;

	*b) REACTIVANDO *(modo) (código).* * Indica una transmisión del piloto.	*b) RESETTING *(mode) (code).* * Denotes pilot transmission.
12.4.3.4 PARA PEDIR NUEVA SELECCIÓN DE IDENTIFICACIÓN DE AERONAVE	ACTIVE ~~CAMBIE A IDENTIFICACIÓN EN~~ MODO S.	RESET MODE S IDENTIFICATION.
12.4.3.5 PARA PEDIR AL PILOTO QUE CONFIRME EL CÓDIGO SELECCIONADO EN EL TRANSPONDEDOR DE LA AERONAVE	a) CONFIRME TRANSPONDER ~~TRANSPONDEDOR~~ *(código);* *b) TRANSPONDER ~~TRANSPONDEDOR~~ *(código).* * Indica una transmisión del piloto.	a) CONFIRM SQUAWK *(code)*; *b) SQUAWKING *(code).* * Denotes pilot transmission.
12.4.3.6 PARA SOLICITAR QUE SE ACTIVE EL DISPOSITIVO IDENTIFICACIÓN	a) TRANSPONDER ~~TRANSPONDEDOR~~ [*(código)*] [E] IDENTIFIQUE; b) TRANSPONDER ~~TRANSPONDEDOR~~ BAJO; c) TRANSPONDER ~~TRANSPONDEDOR~~ NORMAL.	a) SQUAWK [*(code)*] [AND] IDENT; b) SQUAWK LOW; c) SQUAWK NORMAL.
12.4.3.7 PARA SOLICITAR LA SUSPENSIÓN TEMPORAL DE LA OPERACIÓN DEL TRANSPONDEDOR	TRANSPONDER ~~TRANSPONDEDOR A~~ EN ESPERA.	SQUAWK STANDBY.
12.4.3.8 PARA SOLICITAR CÓDIGO DE EMERGENCIA	TRANSPONDER ~~TRANSPONDEDOR~~ MAYDAY [CÓDIGO SIETE-SIETE-CERO-CERO].	SQUAWK MAYDAY [CODE SEVEN-SEVEN-ZERO-ZERO].
12.4.3.9 PARA SOLICITAR LA TERMINACIÓN DEL TRANSPONDEDOR	INTERRUMPA TRANSPONDER ~~TRANSPONDEDOR.~~	STOP SQUAWK.
12.4.3.10 PARA SOLICITAR LA TRANSMISIÓN DE LA ALTITUD DE PRESIÓN	~~TRANSPONDEDOR~~ TRANSPONDER MODO CHARLIE.	SQUAWK CHARLIE.
12.4.3.11 PARA SOLICITAR LA COMPROBACIÓN DEL REGLAJE DE PRESIÓN Y LA CONFIRMACIÓN DEL NIVEL	COMPRUEBE REGLAJE ~~ALTÍMETRO Y CONFIRME~~ ALTIMÉTRICO Y CONFIRME *(nivel).*	CHECK ALTIMETER SETTING AND CONFIRM *(level).*

12.4.3.12 PARA SOLICITAR QUE SE INTERRUMPA LA TRANSMISIÓN RELATIVA A LA ALTITUD DE PRESIÓN DEBIDO A FUNCIONAMIENTO DEFECTUOSO	INTERRUMPA TRANSPONDER ~~TRANSPONDEDOR~~ MODO CHARLIE INDICACIÓN ERRÓNEA.	STOP SQUAWK CHARLIE WRONG INDICATION.
12.4.3.13 PARA SOLICITAR VERIFICACIÓN DE NIVEL	CONFIRME *(nivel)*.	CONFIRM *(level)*.

Nota.— En la sección correspondiente a la fraseología del servicio radar de control de aproximación se proporcionan otras expresiones que han de usarse en el servicio radar de control de área.

12.5 FRASEOLOGÍA DE LA VIGILANCIA DEPENDIENTE AUTOMÁTICA (ADS)

12.5.1 Fraseología general ADS

Circunstancias	*Fraseología*	*Phraseologies*
12.5.1.1 DEGRADACIÓN ADS	ADS (*o* VIGILANCIA DEPENDIENTE AUTOMÁTICA) FUERA DE SERVICIO *(información apropiada necesaria)*.	ADS (*or* AUTOMATIC DEPENDENT SURVEILLANCE) OUT OF SERVICE *(appropriate information as necessary)*.

12.6 FRASEOLOGÍA DE ALERTA

12.6.1 Fraseología de alerta

Circunstancias	*Fraseología*	*Phraseologies*
12.6.1.1 AVISO DE BAJA ALTITUD	*(distintivo de llamada de la aeronave)* AVISO DE BAJA ALTITUD, COMPRUEBE SU ALTITUD INMEDIATAMENTE, QNH ES *(número)* [*(unidad)*]. [LA ALTITUD DE VUELO MÍNIMA ES *(altitud)*].	*(aircraft call sign)* LOW ALTITUDE WARNING, CHECK YOUR ALTITUDE IMMEDIATELY, QNH IS *(number)* [*(units)*]. [THE MINIMUM FLIGHT ALTITUDE IS *(altitude)*].
12.6.1.2 AVISO DE PROXIMIDAD DEL TERRENO	*(distintivo de llamada de la aeronave)* ALERTA DE PROXIMIDAD DEL TERRENO, *(maniobra sugerida al piloto, si es posible realizarla).*	*(aircraft call sign)* TERRAIN ALERT, *(suggested pilot action, if possible).*

12.7 FRASEOLOGÍA DEL PERSONAL DE TIERRA/TRIPULACIÓN DE VUELO

12.7.1 Fraseología del personal de tierra/tripulación de vuelo

Circunstancias	*Fraseología*	*Phraseologies*
12.7.1.1 PROCEDIMIENTOS DE PUESTA EN MARCHA (PERSONAL DE TIERRA Y DE A BORDO)	a) [ESTÁ] LISTO PARA ~~PUESTA EN MARCHA~~ ENCENDIDO DE MOTORES?; *b) ~~PONIENDO EN MARCHA~~ ENCENDIENDO MOTOR NÚMERO [*número (de motores)*]. *Nota 1.— Después de este diálogo el personal de tierra deberá responder mediante el intercomunicador, o bien mediante una señal visual clara, para indicar que está todo despejado y que la puesta en marcha puede tener lugar como se ha indicado.* *Nota 2.— La identificación inequívoca de las partes interesadas es indispensable en cualquier comunicación entre el personal de tierra y los pilotos.* • Indica una transmisión del piloto.	a) [ARE YOU] READY TO START UP; *b) STARTING NUMBER *(engine number(s))*. *Note 1.— The ground crew should follow this exchange by either a reply on the intercom or a distinct visual signal to indicate that all is clear and that the start-up as indicated may proceed.* *Note 2.— Unambiguous identification of the parties concerned is essential in any communications between ground crew and pilots.* * Denotes pilot transmission.

12.7.1.2 PROCEDIMIENTOS DE RETROCESO REMOLCADO ... (personal de tierra/y de a bordo)	a) ¿LISTO PARA REMOLQUE? ~~RETROCESO REMOLCADO?;~~	a) ARE YOU READY FOR PUSHBACK;
	*b) LISTO PARA REMOLQUE ~~RETROCESO REMOLCADO~~;	*b) READY FOR PUSHBACK;
	c) CONFIRME FRENOS FUERA ~~SUELTOS;~~	c) CONFIRM BRAKES RELEASED;
	*d) FRENOS ~~SUELTOS~~ FUERA;	*d) BRAKES RELEASED;
	e) INICIANDO REMOLQUE;	e) COMMENCING PUSHBACK;
	f) REMOLQUE COMPLETADO;	f) PUSHBACK COMPLETED;
	*g) DETENGA ~~INTERRUMPA~~ REMOLQUE;	*g) STOP PUSHBACK;
	h) CONFIRME FRENOS PUESTOS;	h) CONFIRM BRAKES SET;
	*i) FRENOS PUESTOS;	*i) BRAKES SET;
	*j) DESCONECTE;	*j) DISCONNECT;
	k) DESCONECTANDO, ESPERE SEÑALES ~~INDICACIÓN VISUAL~~ A SU IZQUIERDA (*o* DERECHA).	k) DISCONNECTING STAND BY FOR VISUAL AT YOUR LEFT (*or* RIGHT).
	Nota.— Después de este diálogo viene una señal visual al piloto para indicar que se ha terminado la desconexión y que todo está despejado para el rodaje.	*Note.— This exchange is followed by a visual signal to the pilot to indicate that disconnect is completed and all is clear for taxiing.*
	* Indica una transmisión del piloto.	* Denotes pilot transmission.

APPENDIX AL

OBJECTIVES, PRINCIPLES AND FUNCTIONS OF THE CENTRALIZED ATFM

The objective of the CATFM shall be to contribute to a safe, orderly and expeditious flow of air traffic by ensuring that the capacity is utilized to the maximum extent possible, and that the traffic volume is compatible with the available capacities

Principles in which ATFM will be based

The ATFM, to comply with its objectives, should be based on the following principles:

a) To be at disposal of CAR/SAM States/Territories and International Organizations, considering the requirements of operators, airports, ATC units and other pertinent ATFM units.

b) Use a common and permanently updated database.

c) Take pertinent measures well in advance to prevent and/or minimize overloads.

d) Keep close and continuous coordination with flow management units (FMUs) and/or flow management positions (FMPs), aircraft and airport operators, CAR/SAM ATC units and other pertinent ATFM units.

e) Take measures that ensure that existing delays are equitably distributed among operators.

f) Apply quality management to the services provided.

g) Base the implementation of ATFM measures in the collaborative decision making (CMD) process.

h) Favour, to the maximum possible, the use of the existing capacity without compromising safety.

i) Contribute in the achievement of the global ATM objectives.

j) Have the necessary flexibility to enable operators to change their arrival or departure schedules.

Functions of a regional centralized ATFM

To provide Air Traffic Flow Management (ATFM) service, the Centralized ATFM should comply with the following activities:

a) Establish and maintain a data base in the CAR/SAM Regions on:

- the air navigation infrastructure, ATS units and registered aerodromes;
- pertinent ATC and airport capacity; and
- flight data foreseen.

b) Establish a coherent chart of foreseen air traffic demand, a comparison with available capacity and determination of areas, and a time-frame of critical air traffic overloads foreseen;

c) Make the necessary coordination to make every possible attempt to increase the capacity available, when necessary.

d) When deficiencies in the capacity available matter may not be eliminated, determine and timely apply ATFM measures, as required, previously coordinated with aircraft operators and interested aerodromes.

e) Carry out a follow-up on the result of measures adopted.

f) Coordinate ATFM service with the other centralized ATFM units, when so required.

APPENDIX AM

GENERAL CONSIDERATIONS FOR THE IMPLEMENTATION PROCESS OF A CATFM

The implementation of the CATFM should consider the following requirements:

a) Access to the operational status of the air navigation infrastructure.

b) Access to aeronautical information and cartography.

c) Access to meteorological information.

d) Database of:

- aerodromes;
- airport capacity;
- ATC capacity
- Air traffic demand
- Airspace structure
- Radio navigation aids
- Aircraft performance; and
- Utilization of airports and control sectors.

e) Access to flight planning data (FPL, RPL, etc.).

f) Flight plans processing.

g) Access to surveillance data (SSR, ADS, etc.).

h) Automated resources:

- Processing and data visualization system for flow management, having, among other thing, the following sub-systems:
  - Flight data processing
  - Airspace and airports structure data;
  - Situation analysis (capacity and demand);
  - Presentation of air traffic situation;
  - Monitoring of the operational status of the infrastructure;
  - Support to collaborative decision making (ATC slots, alternate routes, etc.).

i) Database maintenance.

j) Communication to coordinate with:

- Other centralized ATFMs
- Operators (airlines, general aviation, State, etc.);
- Airport management;
- FMUs and/or FMPs and/or ATS units;
- Aeronautical meteorological units;
- AIS units.

k) Human resources

- qualified personnel;
- support personnel;
- recurrent training.

l) Use of adequate tools for statistics

m) Infrastructure

- buildings
- equipment
- electrical power
- air conditioning
- supplies
- software

n) Implementation of FMUs and/or FMPs, as required.

o) Redundancy of critical systems.

APÉNDICE AN/ APPENDIX AN

LISTA DE TAREAS PARA LA IMPLANTACIÓN DEL SISTEMA ATFM EN LAS REGIONES CAR/SAM / CAR/SAM ATFM SYSTEM IMPLEMENTATION TASKS LIST

ID	Descripción Tarea/ Task Description	Inicio/ Start	Termino/ Finish	Nombre de Recursos/ Resource names
1.0	**Asuntos Operacionales para la implantación del Sistema ATFM /Operational Issues for ATFM implementation system**			
1.1	Identificar necesidades operacionales / Identify Operational Needs			
	Desarrollar y actualizar el Concepto Operacional / Develop and update Operational Concept			
1.3	Definir espacio aéreo afectado/ Define airspace affected			
1.4	Definir planes de recolección de datos / Define data collection plan			
1.5	Recolección de datos para el análisis de ATFM / Data collection for ATFM analysis			
1.6	Definir y analizar escenarios para implantación del sistema ATFM / Define and analize of ATFM scenarios for implementation system			
1.7	Examinar factores operacionales entre demanda y capacidad de servicio asociada con la implantación/ Examine the operational factors between demand of service and capacity associated with implementation			
1.8	Determinar las herramientas requeridas / Determine required tools			
1.9	Desarrollar, la documentación internacional y regional necesaria (Manual de Procedimientos) / Develop, necessary international and regional documentation(Handbook procedures)			
1.10	Desarrollar las políticas y procedimientos ATFM / Develop ATFM policies and procedures			
1.11	Detallar los requerimientos necesarios incluyendo los parámetros de performance/Detail the necessary requirements, including the performance parameters			
1.12	Determinar los mensajes ATFM/ Determine the ATFM messages			
1.13	Proporcionar información para el análisis de Costo - Beneficio / Provide data to the Cost Benefit Analysis			
1.14	Preparar planes y material de capacitacion ATFM / Prepare plans and ATFM training material			
2.0	**Coordinación con Estados, Territorios, Organizaciones Internacionales e Industria involucrados / Coordination with adjoining States, Territories, International Organizations and Industry.**			
2.1	Publicar los Suplementos AIP/NOTAM necesarios / Publish necessary AIP Supplement/NOTAM			
2.2	Comunicarse con Estados, Proveedores ATS, Proveedores de comunicaciones y usuarios del espacio aéreo / Communicate with States, ATS Providers, Communications Service Providers and airspace users			
2.3	Diseminación de información para los Usuarios ATS / Information dissemination to ATS Users			
3.0	**Desarrollo de procedimientos para usuarios del espacio aéreo / Develop airspace users Procedures**			
3.1	Revisar planes de contingencia ATM / Review ATM contingency planning			
3.2	Revisión de practicas y procedimientos para la gestión de consumo de combustible y cuidado ambiental / Review of fuel and environmental management practices and procedures			

LISTA DE TAREAS PARA LA IMPLANTACIÓN DEL SISTEMA ATFM EN LAS REGIONES CAR/SAM / CAR/SAM ATFM SYSTEM IMPLEMENTATION TASKS LIST				
ID	**Descripción Tarea/ Task Description**	**Inicio/ Start**	**Termino/ Finish**	**Nombre de Recursos/ Resource names**
4.0	**Desarrollar procedimientos ATC / Develop ATC Procedures**			
4.1	Determinar necesidades para simulaciones / Determine need for simulations			
4.2	Armonizar requerimientos de los ANPs / Harmonise ANPs requirements			
5.0	**Realizar verificación del sistema / Perform system verification**			
5.1	Completar pruebas y evaluaciones de las herramientas ATFM y procedimientos de coordinación de la ATFM / Complete trials and evaluation of ATFM tool and coordination procedures with ATFM			
5.2	Realizar evaluación de la performance del sistema / Carry out measuring performance system			
5.3	Validacion del sistema / System validation			
6.0	**Decisión final de implantación / Final Implementation Decision**			
6.1	Revisar factores que afectan la decisión de implantación / Review all factors affecting implementation decision			
6.2	Declarar implantación operacional definitiva dentro de área definida / Declare full operational capability within defined area			
6.3	Desarrollar plan de seguimiento del Sistema ATFM posterior a la implantación / Develop Post-Implementation follow-up Plan for ATFM system			
7.0	**Monitorear performance del sistema / Monitor System Performance**			
7.1	Realizar monitoreo del sistema / Perform follow-on monitoring system			

APPENDIX AO

ACTION PLAN FOR THE DEVELOPMENT OF ATM CONTINGENCY PLANS

This plan is made of the following phases:

- Phase I Development of ATM contingency plans
- Phase II Harmonization of ATM contingency plans with and neighbouring States/Territories/International Organizations
- Phase III Submission of ATM contingency plans to the ICAO Regional Offices.

Phase I. Development of ATM contingency plans

In this phase, the States shall complete the respective ATM Contingency Plans using as a basis Appendix D to Annex 11.

Phase II. Harmonization of ATM contingency plans with neighbouring States

During this phase the necessary coordination will be carried out among the concerned parties, in order to harmonize the ATM contingency plans. The coordination may be made through electronic mail or through bilateral or multilateral meetings, depending on the case.

Phase III. Submission of national ATM contingency plans to the ICAO Regional Offices

The States will keep the corresponding ICAO Regional Office informed on the status of their ATM contingency plans.

ATM REGIONAL CONTINGENCY PLAN
FOR ….. CTA/UTA/FIR

OBJECTIVE: This contingency plan contains arrangements to ensure the continued safety of air navigation in the event of partially or total disruption of air traffic services (ATS) and is related to ICAO Annex 11- *Air Traffic Services* Chapter 2, paragraph 2.28. The contingency plan should be designed to provide alternative routes, using existing airways in most cases, which will allow aircraft operators to fly trough or avoid airspace within the (*XXX*) CTA/UTA/FIR.

AIR TRAFFIC MANAGEMENT

ATS Responsibilities

Tactical ATC considerations during periods of overloading may require re-assignment of routes or portions thereof.

Alternative routes should be designed to maximize the use of existing ATS route structures and communication, navigation and surveillance services.

In the event that ATS cannot be provided within the (*XXX*) CTA/UTA/FIR, the Civil Aviation Authority shall publish the corresponding NOTAM indicating the following:

a) Time and date of the beginning of the contingency measures;
b) Airspace available for landing and overflying traffic and airspace to be avoided;
c) Details of the facilities and services available or not available and any limits on ATS provision (e.g., ACC, APP, TWR and FIS), including an expected date of restoration of services if available;
d) Information on the provisions made for alternative services;
e) ATS contingency routes;
f) Procedures to be followed by adjacent ATS units;
g) Procedures to be followed by pilots; and
h) Any other details with respect to the disruption and actions being taken that aircraft operators may find useful.

In the event that the CAA is unable to issue the NOTAM, the (alternate) CTA/UTA/FIR will take action to issue the NOTAM of closure airspace upon notification by corresponding CAA or the ICAO Regional Office.

Separation

Separation criteria will be applied in accordance with the *Procedures for Air Navigation Services-Air Traffic Management* (PANS-ATM, Doc 4444) and the *Regional Supplementary Procedures* (Doc 7030).

Level Restrictions

Where possible, aircraft on long-haul international flights shall be given priority with respect to cruising levels.

Other measures

Other measures related to the closure of airspace and the implementation of the contingency scheme in the (*XXX*) CTA/UTA/FIR may be taken as follows:

a) Suspension of all VFR operations;
b) Delay or suspension of general aviation IFR operations; and
c) Delay or suspension of commercial IFR operations.

TRANSITION TO CONTINGENCY SCHEME

During times of uncertainty when airspace closures seem possible, aircraft operators should be prepared for a possible change in routing while en-route, familiarization of the alternative routes outlined in the contingency scheme as well as what may be promulgated by a State via NOTAM or AIP.

In the event of airspace closure that has not been promulgated, ATC should, if possible, broadcast to all aircraft in their airspace, what airspace is being closed and to stand by for further instructions.

ATS providers should recognize that when closures of airspace or airports are promulgated, individual airlines might have different company requirements as to their alternative routings. ATC should be alert to respond to any request by aircraft and react commensurate with safety.

TRANSFER OF CONTROL AND COORDINATION

The transfer of control and communication between ATS units should be at the common FIR boundary unless there is mutual agreement between adjacent ATS units. ATS providers should also review current coordination requirements in light of contingency operations or short notice of airspace closure.

PILOTS AND OPERATOR PROCEDURES

Pilots need to be aware that in light of current international circumstances, a contingency routing requiring aircraft to operate off of normal traffic flows, could result in an intercept by military aircraft. Aircraft operators must therefore be familiar with international intercept procedures contained in ICAO Annex 2 –*Rules of the Air*, paragraph 3.8 and Appendix 2, Sections 2 and 3.

Pilots need to continuously guard the VHF emergency frequency 121.5 MHz and should operate their transponder at all times during flight, regardless of whether the aircraft is within or outside airspace where secondary surveillance radar (SSR) is used for ATS purposes. Transponders should be set on a discrete code assigned by ATC or select code 2000 if ATC has not assigned a code.

If an aircraft is intercepted by another aircraft, the pilot shall immediately:

a) Follow the instructions given by the intercepting aircraft, interpreting and responding to visual signals in accordance with international procedures;
b) Notify, if possible, the appropriate ATS unit;
c) Attempt to establish radio communication with the intercepting aircraft by making a general call on the emergency frequency 121.5 MHz and 243 MHz if equipped; and
d) Set transponder to code 7700, unless otherwise instructed by the appropriate ATS unit.

If any instructions received by radio from any source conflict with those given by the intercepting aircraft, the intercepted aircraft shall request immediate clarification while continuing to comply with the instructions given by the intercepting aircraft.

OVERFLIGHT APPROVAL

Aircraft operators should obtain overflight approval from States/Territories/International Organizations for flights operating through their jurisdiction of airspace, where required. In a contingency situation, flights may be rerouted at short notice and it may not be possible for operators to give the required advanced notice in a timely manner to obtain approval. States/Territories/International Organizations responsible for the airspace in which contingency routes are established should consider making special arrangements to expedite flight approvals in these contingency situations.

CONTINGENCY UNIT

The ATM national contingency unit assigned the responsibility of monitoring developments that may dictate the enforcement of the contingency plan and coordination of contingency arrangements is:

Name of Agency:
Contact Person:
Telephone:
Fax:
Email:

During a contingency situation, the National Contingency Unit will liase with the adjacent ATS units through the ICAO Regional Office.

The ICAO Regional Office will:

a) closely oversight the situation and coordinate with all affected States/Territories/International Organizations and the IATA Regional Office, so as to ensure air navigation services are provided to international aircraft operations in the CAR Region;

b) take note of any incidents reported and take appropriate action;

c) provide assistance as required on any issue with the Civil Aviation Administrations involved in the contingency plan; and

d) keep the President of the Council of ICAO, the Secretary General, C/RAO, D/ANB and C/ATM continuously informed on developments, including activation of the contingency plan.

CONTINGENCY ROUTING SCHEME

Aircraft operators should file their flight plans using the alternative contingency routes listed in the scheme below in order to operate in the airspace under the jurisdiction of (XXX).

Present ATS ROUTE	**CONTINGENCY ROUTINGS**	**FIRs INVOLVED**
In lieu of:	**(ATS unit)** provides ATC on the following routings: ***CR1:*** ***CR2:*** ***CR3:***	**XXX**: In coordination with **XXX**
In lieu of:	**(ATS unit)** provides ATC on the following routing: ***CR4:***	**XXX**: In coordination with **XXX**

All aircraft should establish and maintain contact on published VHF or HF frequencies with the (*XXX*) ATS unit (APP/ACC/FIC) responsible for the airspace being traversed.

List of points of contact of all concerned States/Territories/International Organizations, IATA and ICAO Regional Office.

State /International Organization	***Point of contact***	**Telephone/Fax**	**E-mail**
		Tel. Fax.	
		Tel. Fax.	
		Tel. Fax.	
IATA		Tel. Fax:	
ICAO (Regional Office)		Tel.: Fax: AFTN:	

APPENDIX AP

SUMMARY ON THE IMPLEMENTATION STATUS OF THE MEVA II VSAT NETWORK IN THE CENTRAL CARIBBEAN

1. The MEVA VSAT network was developed and implemented since 1996 mainly in the Central Caribbean, providing voice and data communications of the Aeronautical Fixed Services (AFS) between fifteen VSAT-equipped nodes in the Central Caribbean and neighbouring zones. MEVA operates in the 4-6 GHz C-band on the PAS-1R satellite and uses SCPC/DAMA technology for bandwidth-on-demand communications and circuit management. This network has made possible to implement and improve the AFTN and ATS speech circuits required for this area in the Air Navigation Plan.

2. The States, Territories and International Organizations Members MEVA[1], considering the SARPs contained in Annex 10, Vol. III, Chapter 3, as well as the ICAO guidance related to the need, not only to satisfy the AFS communications requirements, but also aimed at supporting the communications, navigation, surveillance and air traffic management services; that is, to facilitate the introduction of aeronautical telecommunications network (ATN), recognized the need to update the MEVA Network, to facilitate the adoption of protocols and services with common interfaces equipment based on the reference model for the open systems interconnection (OSI) of the International Standardization Organization (ISO), and the MEVA Network interconnection/interoperability achievement with other regional and sub-regional digital networks, Such as the South American Digital Network (REDDIG). This initiative is called “MEVA II Network”.

3. The MEVA Technical Management Group (TMG), integrated by experts from States, Territories and an International Organization, studied in detail the MEVA update aspects toward the MEVA II Network implementation, such work represented the basis for the Request for Information (RFI) and subsequently the Request for Proposals (RFP) for the MEVA II and so the evaluation and selection of the best proposal. This stage process culminated with the MEVA/10 Meeting, held in Mexico City, 13 – 15 December 2004, in which the level of Civil Aviation Directors approved the Service Provider for the MEVA II Network, as well as the updated Document of Agreement (DOA) for the MEVA II Network, which has been approved through the signatures of Directors of Civil Aviation.

4. The MEVA II Network has been conceived with a satellite technology access VSAT/TDMA/Frame Relay type, through a “Full Mesh” network topology, the use of PAS 1R satellite with beam directed over United States / Latin America, operation frequencies in the C band, and vertical linear polarization. All of this contributes with the objectives to satisfy the AFS communications required at present contribute and ease the ATN subnetworks implementation and to achieve interoperability between the MEVA II network and the REDDIG and other CAR Region subregional networks, contributing with the implementation of the new CNS/ATM systems, including the new ATM integrated global system.

5. During the first months of 2005, the MEVA II TMG has finalized Annex I of the MEVA II Document of Agreement, which is a technical document describing the network. The transition plan of MEVA to MEVA II is being finalized, all of which will be followed by the agreement of the contracts with the service provider and to proceed with the implementation and operation of MEVA II.

[1] MEVA Members: Aruba, Bahamas, Cayman Islands, Cuba, Dominican Republic, Haiti, Jamaica, Netherlands Antilles, Panama, United States and COCESNA.

APPENDIX AQ

STATUS OF THE SOUTH AMERICAN DIGITAL NETWORK (REDDIG)

1. Aeronautical fixed services in REDDIG

1.1 The South American Digital Network, REDDIG, started operating in September 2003. All aeronautical fixed services (ATS speech circuits and AFTN circuits) specified in the air Navigation Plan – FASID, pertaining to the SAM Region, but with the exception of Panama, started to operate through REDDIG.

1.2 The analogue circuits leased to local communications service providers were progressively disconnected, as personnel in charge of REDDIG nodes' maintenance became familiar with the system. To date, almost all analogue circuits have been disconnected.

1.3 The availability of aeronautical fixed services through REDDIG is very high, coordinations for the operation of a circuit when a failure presents itself are made practically immediately, the REDDIG Administrator coordinates with personnel in charge of the nodes where problem is found and directly proceeds to solve the problem. In this manner, solution is made to prior problems when aeronautical fixed services were backed by analogue circuits leased to local communications service providers.

1.4 If a new circuit is required to support any ATS requirement, this is now done immediately. When it depended on communications service providers, the operation of new circuits could take years due to coordinations.

1.5 With the operation of REDDIG, new circuits have been added in support of AFTN and ATS speech circuits. The AFTN circuits in the SAM Region specified in FASID Table CNS 1A, with the exception of the AFTN circuits in Paraguay, due to limitations in its AFTN message switching centre, are operating at a transmission speed of 2400 bits/sec.

1.6 The new AFTN circuits implemented through REDDIG were Georgetown-Caracas, Georgetown-Brazil, Georgetown-Paramaribo, Bogotá-Brazil, La Paz-Brazil, Paramaribo-Brazil and Caracas-Guayaquil.

1.7 The introduction of these new circuits generated amendments to the SAM AFTN routing guide, which became effective as of 30 November 2004.

2. Additional REDDIG services and nodes bandwidth consumption

2.1 In addition to aeronautical fixed services, REDDIG is currently supporting the communications platform for the GNSS augmentation trial network, radar data Exchange and an administrative telephone network. In addition, a capacity expansion has been scheduled to include ATN applications (AMHS, AIDC). In the **Attachment** to this Appendix is a chart with the current and future bandwidth consumption per node.

3. REDDIG technical characteristics

Indoor equipment

3.1 The indoor equipment is composed by user interfaces connected to the rear of the racks. These services are provided over RJ11/12/45 and via V.24 and V.35 connectors. The users data through the afore-indicated connectors are connected to an Advent ABS 4000 switch. The switch is connected to two identical FRADs. This equipment digitalizes every analogue signal, compresses the data and gives priority to data over frame relay packages. The FRAD used are the MEMOTEC CX 950. All the data in the FRAD go to their destiny through permanent virtual circuits (PVC). The data go from the FRAD to the TDMA MODEMs over a V35 physical link. The TDMA MODEMs are VIASAT 2100.

Outdoor equipment

3.2 The outgoing TDMA MODEMs are signal in the L band, connect to the SSPA (Solid States Power Amplifier), which are Paradise datacom, Model HPAC 2040. This device is an amplifier and a converter from L to C band. The output of the SSPA is through a switcher, so that one of the outlets goes to the antenna and the other to a dummy load. The antenna has a 3.7 m. diameter, built by "Northwest China Research Institute of Electronic Equipment". (NWIEE).

3.3 For satellite (PAS-1R) reception, the C band signal from the station's (REDDIG node) antenna passes through a filter to reject the transmission signal, and then goes through a switcher connecting the reception signal with a low noise amplifier that converts the C band signal to L band (LNB) of Japan Radio Co., Model NJS8477EN; the other LNB is connected to a dummy load.

4. REDDIG Administration

4.1 REDDIG administration, has successfully achieved since its operation to carry out all maintenance tasks, such as all coordination necessary for the remittance and reception of damaged spare parts from State where node is failing to manufacturing companies, the technical support necessary to each of the nodes, the network's performance measuring with the satellite provider (Panamsat), coordination for the updating of software, and training of personnel in charge of the equipment maintenance.

4.2 The network's management system is composed by two SUN working stations, which controls the network's TDMA system (NCC Network Control Center), in addition, it has another work station having the whole system's management (NMS Network Management System). The status of the system's modem is monitored and controlled using COMSAT NCC software at the SUN station. Each PC terminal installed in each REDDIG node is monitored and controlled through the NMS (Network Management System) web browser.

5. Interconnection capacity

5.1 REDDIG's topology is fully meshed (totally interconnected). The transmission in each node which will be received at the remaining network's 14 nodes. The FRAD at each node will extract the packages addressed to it.

5.2 REDDIG uses 3.7 m diameter VSAT antennas in the C band, operating through PAS-1R satellite at 45º W. TDMA is the way to access it. Polarization is vertical, both for transmission as reception. The satellite transponder used is 3C/4C.

5.3 REDDIG uses three carriers for transmission, and three for reception. The frequencies used for transmission are 6014,496 kHz, 6016,248 kHz and 6017,562 kHz; for reception are 3789,496 kHz, 3791,248 kHz and 3792,562 kHz. The leased band width is 4,38 MHz.

6. REDDIG Coordination Meeting

6.1 The last RCC/8 REDDIG Coordination Meeting was held in Lima from 27 to 29 April 2005, with the participation of almost all States member of REDDIG, remaining only Guyana and Suriname.

6.2 This meeting dealt with aspects related with the activities carried out by REDDIG since the previous coordination Meeting (Lima, 5 to 7 May 2004). An analysis was made of the status of valid conclusions, the 2005 work schedule was presented, highlighting the transfer of the NCC from Lima to Manaus, the new training programme, the need to convene a second REDDIG technical-operational meeting, the administration and logistics of spare parts, the procedures for the establishment of new REDDIG nodes, CNS aspects in the REDDIG platform, and the future administration of REDDDIG.

ATTACHMENT TO APPENDIX AQ / ADJUNTO AL APÉNDICE AQ

TRANSMISSION BAND WIDTH IN KBITS/SEC FORECAST FOR CURRENT REDDIG NODES
ANCHO DE BANDA DE TRANSMISIÓN EN KBITS/SEG PREVISTA PARA LOS ACTUALES NODOS REDDIG

NODE / NODO	VOICE / VOZ			DATA / DATOS					CONSUMO EN KBITS/SEG / CONSUMPTION IN KBITS/SEC
	ATS D	ATS C	ADM C	AFTN	ATN	GNSS	RADAR	NETWORK MANAGEMENT / GESTIÓN DE RED	
SAEZ	46.80	46.00	18.40	0.21	0.57	10.05	30.15	26.70	**178.88**
SLLP	18.40	18.40	18.40	0.07	0.12	10.05	10.05	26.70	**102.19**
SBCT	18.40	27.60	27.60	0.14	0.31	10.05	20.10	26.70	**130.90**
SBRF	0.00	27.60	27.60	0.02	0.18	10.05	0.00	26.70	**92.15**
SBMN	46.00	27.60	27.60	0.17	0,21	10.05	20.10	26.70	**158.43**
SCEL	18.40	36.80	18.40	0.06	0.17	10.05	10.05	26.70	**120.63**
SKED	64.40	27.60	18.40	0.14	0.28	10.05	20.10	26.70	**166.67**
SEGU	18.40	9.20	18.40	0.06	0.11	10.05	20.10	26.70	**103.02**
SOCA	0.00	9.20	18.40	0.02	0.04	10.05	10.05	26.70	**74.46**
SYGC	0.00	9.20	18.40	0.03	0.04	10.05	10.05	26.70	**74.47**
SGAS	9.20	9.20	18.40	0.01	0.11	10.05	10.05	26.70	**83.72**
SPIM	36.80	9.20	27.60	0.23	0.47	10.05	40.20	26.70	**151.25**
SMPM	0.00	9.20	18.40	0.03	0.04	10.05	10.05	26.70	**74.47**
SUMU	46.00	18.40	18.40	0.03	0.22	10.05	20.10	26.70	**139.9**
SVMI	27.60	9.20	18.40	0.20	0.31	10.05	20.10	26.70	**112.56**
Total Kb/seg	**349.60**	**294.40**	**312.80**	**1.43**	**3.17**	**150.75**	**251.25**	**400.50**	

Total voice and Data / Total Voz y Datos 1763.90 Kbits/seg
30% Expansion / Expansión 30% 529.17 Kbits/seg
Total 2293.07 Kbits/seg

APPENDIX AR

MEVA II AND REDDIG NETWORKS INTERCONNECTION OJECTIVES AND PRINCIPLES OF TECHNICAL OPERATION PROPOSALS

Technical operational requirements

Network Operations Centres (NOCs)

a) Network Operations Centres (NOCs) would be established within the respective MEVA II and REDDIG networks. The NOCs would be in charge of managing the resources within their respective networks, such as the space satellite segment, its access and TDMA operation, the communications nodes in the VSAT terminals and the network equipment (frame relay platform).
b) Intra-network communications management (communications between nodes within the same network) would be responsibility of each network organizations.
c) Inter-network communications management (between MEVA II and REDDIG networks) would be the responsibility of their respective NOC.
d) Each network organization would assure the characteristics of the signals transmitted correspond to the technical conditions required to achieve the interconnection of the terminals and circuits between each network.
e) A voice and data communications circuit will be established between the MEVA II and REDDIG NOCs for coordination purposes. The circuit should be routed independently from the MEVA II and REDDIG network resources, with the aim of avoiding a common failure.
f) Operational procedures between MEVA II and REDDIG would be agreed upon and established between the organizations operating the network environments. An operational plan for this purpose will be developed jointly by the MEVA II and REDDIG organizations.
g) Users would keep contact with the respective NOC for the operation and maintenance of their respective nodes.

Satellite use, establishment of carriers and inter- / intra-network operation

a) Both networks would share the same satellite (PAS-1R), the same beam (US/LATIN AMERICA) and the same type of polarization (V/V).
b) An appropriate number of RF carriers or user groups could be established in MEVA II, with technical characteristics compatible with RF carriers or user groups used by REDDIG. REDDIG uses 03 RF carriers, and the number of MEVA II RF carriers or user groups is to be determined.
c) Each of the MEVA II/REDDIG carriers would establish one or more carriers, as necessary and in equal number, in order to support inter-network communications (communications between MEVA II and REDDIG). The remaining carriers will be used to provide intra-network communications.
d) Payment of each network’s satellite segment would be assumed by the respective network users, under a tariff scheme based on the criterion that “who transmits, pays”.

VSAT terminals NCC/TMS management system

a) MEVA II and REDDIG networks would operate their own NCC/NMS management systems.

b) MEVA II and REDDIG NCC/NMS systems would be operated alternately in the main/backup configuration. The main/backup change could be normally made before initiating the period of outage due to solar interference at the NCC/NMS site operating as main facility.

c) The MEVA II and REDDIG NCC/NMS systems would be interconnected through the coordination circuit mentioned in *Section 1 – Network Operations Centres (NOCs)* above, with the aim of:

1. synchronizing and updating the information in the NCC/NMS systems data base;
2. providing mutual support in the event of failure in the NCC/NMS systems;
3. working in cooperation so as the main NCC/NMS provide MEVA II and REDDIG networks the corresponding synchronization and burst timing; and
4. providing the management facilities that may be required by the backup NCC/NMS to attend its own network.

d) The MEVA II and REDDIG NCC/NMS management systems would permit the administration, monitoring and control of the VSAT terminals and of its own network resources.

Frame relay network equipment management system:

a) NMS systems network equipment would be established and managed by the MEVA II and REDDIG networks. Each NMS system would be in charge of the management of the network equipment of its nodes.
b) Intra-network systems are responsibility of each network.
c) Inter-network circuit common operational parameters would be coordinated between the MEVA II and REDDIG NOCs. Each NOC would be responsible for coordinating and establishing circuit interconnection and maintaining correct operation of its own network equipment.

APPENDIX AS

STATUS OF THE IMPLEMENTATION OF VHF AND HF VOICE COMMUNICATIONS OF THE AERONAUTICAL MOBILE SERVICE IN THE CAR REGION

CAR Region Areas where the VHF/AMS coverage is improving		
Item	**Area**	**Remarks**
1	Northeast Portion of CENAMER FIR	COCESNA has an action plan to improve the VHF/AMS coverage, part of which is being analyzed with Cayman Islands for the possibility to implement a VHF remote station.
2	Central part of the Gulf of Mexico, limit between the oceanic FIRs of Houston and Merida.	Mexico and the United States are executing an action plan to improve the VHF coverage, as well as its mitigation through the ADS-B implementation.

Status of the implementation of the HF voice communications in the CAR Region		
Item	**Centre**	**Remarks**
1	Havana ACC, Cuba	Cuba has executed a modernization plan of its station equipment in 6 HF frequencies in the CAR-A family.
2	CENAMER ACC, COCESNA	COCESNA has operating its HF station with 6 frequencies of the CAR-A family and 2 SAM-1 frequencies.
3	Merida ACC, Mexico	Mexico is executing a plan to improve the radio communications service of its station with 6 frequencies of the CAR-A family.
4	San Juan ACC, Puerto Rico	Puerto Rico has operating its station with 5 CAR-A frequencies, one CAR-B frequency and 5 NAT-A frequencies.
5	Piarco ACC, Trinidad and Tobago	Trinidad and Tobago is implementing new HF voice radio communication equipment in its station with 3 CAR-A frequencies, one CAR-B frequency and 2 SAM-2 frequencies. The execution is foreseen for September 2005.
6	New York, United States	United States has operating its New York station with the CAR-A and CAR-B family frequencies.

APPENDIX AT

ANALYSIS OF AMS VOICE COMMUNICATION REQUIREMENTS IN THE SAM REGION – FASID TABLE CNS 2A

1. Following is an analysis for each of the SAM States of voice communication requirements of the aeronautical mobile service, FASID Table CNS 2A.

Argentina

2. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

SAEU Buenos Aires	10 channels have been planned for the Upper Information Region (UIR), having implemented only four. For general purposes (GP), two channels have been planned, but none has yet been implemented.
SABE Buenos Aires/ Aeropuerto Jorge Newberry	One channel is planned for APP- SR-I (surveillance radar approach control service up to FL 250), but has not been implemented; and one channel for aerodrome control service (TWR) still to be implemented.
SAEZ Buenos Aires/Ezeiza	One channel is planned for APP-L (approach control service below FL 120) and one channel for CLRD, both pending implementation.
SADF Buenos Aires/San Fernando	One channel planned for APP, still not implemented.
SAVC Comodoro Rivadavia/ General Moscón	One channel planned for APP, still not implemented.
SACF Córdoba	One channel planned for GP, still not implemented.
SACO Córdoba/Ing A.Taravella	One channel planned for APP-SR-I, still not implemented.
SARF Formosa	One channel planned for APP-L, still not implemented.
SASJ Jujuy/Gob. Guzmán	One channel planned for APP-SR-I, still not implemented.
SAME Mendoza/El Plumerillo	One channel planned for APP-SR-I, still not implemented.
SAZN Neuquen/Presidente Perón	One channel planned for APP, still not implemented.
SARP Posadas/Libertador José de San Martín	One channel planned for APP-L, still not implemented.
SARE Resistencia	One channel planned for ATIS, still not implemented.
SAWE Río Grande	One channel planned for APP, still not implemented.
SAAR Rosario	One channel planned for APP-L and another for ATIS, still not implemented.

SASA Salta	One channel planned for APP-L, still not implemented.
SAZS San Carlos de Bariloche	One channel planned for APP-SR-I, still not implemented.
SANT Tucumán/Tte. Benjamín Matienzo	One channel planned for APP-L, still not implemented.
SAWH Ushuaia/Malvinas Argentinas	One channel planned for APP-L, still not implemented..

3. Satellite voice communications (Aeronautical Mobile Service (AMS)) are planned for mid 2008 at Buenos Aires and Comodoro Rivadavia ACCs.

Bolivia

4. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

SLCB Cochabamba/Jorge Wilsterman	Two channels planned for APP-I, but only one has been implemented.
SLLP La Paz	Pending implementation for ACC –U (area control service up to FL 450), as well as a channel for GP.
SLLP La Paz	Three channels planned for APP-I, as well as one for ATIS, but none implemented.
SLVR Santa Cruz	Three channels planned for APP-I, but only one implemented. In addition one channel for ATIS, not implemented.
SLTR Trinidad	Two channels planned for APP I, but only one has been implemented. In addition, one channel for SMC (surface movement control), still pending implementation.

5. No AMS satellite voice communication is planned.

Brazil

6. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

ACC Amazónico	Pending implementation of one voice channel for GP.
SBBV Boa Vista	Pending implementation of one voice channel for SMC.
SBCG Campo Grande	Pending implementation of one voice channel for ATIS
SBCT Curitiba	Pending implementation of one voice channel for ATIS
SBFL Florianópolis	Pending implementation of one voice channel for SMC.

SBMQ MACAPA	Pending implementation of one voice channel for APP and TWR.
SBNT NATAL	Pending implementation of one voice channel for CLRD
SBPA Porto Alegre	Pending implementation of one voice channel for CLRD and ATIS.
SBRE Recife	Pending implementation of one voice channel for GP
SBRF Recife/Guararapes	Pending implementation of one voice channel for ATIS and CLRD.
SBSV Salvador	Pending implementation of one voice channel for GP and ATIS.

7. Satellite voice communications (Aeronautical Mobile Service (AMS)) are planned for mid 2008 at Amazon ACC.

Chile

8. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

SCFA Antofagasta/Cerro Moreno	Has planned implementation of one ATIS, implementation pending.
SCTZ Puerto Montt	Two channels planned for ACC–U and two for APP SR-I; one channel has been implemented for each service.
SCTE Puerto Montt/El Tepual	Pending implementation of one ATIS.
SCCI Punta Arenas	Three channels planned for ACC-U; two have been implemented. Two channels planned for APP-SR-I, only one has been implemented.

9. Satellite voice communications (Aeronautical Mobile Service (AMS)) are planned for mid 2008 at Puerto Montt, Punta Arenas and Santiago.

Colombia

10. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

SKBQ Barranquilla/ Ernesto Cortissoz	Pending implementation of one channel for ATIS and one for CLRD.
SKCL Cali/ Alfonso Bonilla Aragón	Pending implementation of one channel for ATIS
SKSP San Andrés	Pending implementation of one channel for SMC.

11. Satellite voice communications (Aeronautical Mobile Service (AMS)) are planned for mid 2006.

Ecuador

13. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

SEGU Guayaquil	One wide range VHF channel planned for ACC-U, but not implemented.
SEGU Guayaquil	Pending implementation of one channel for ATIS.

13. Satellite voice communications (Aeronautical Mobile Service (AMS)) are planned for mid 2006 at Guayaquil ACC.

French Guiana

14. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

SOOO Cayenne	Two channels planned for ACC-U, but only one has been implemented. In addition, pending implementation of one VHF channel for GP.
SOCA Cayenne/ Rochambeau	Pending implementation of one VHF channel for SMC and ATIS.

15. The HF family of frequencies corresponding to French Guiana are CAR A, SAM 2 and SAT 2. Each of these stations has one HF frequency installed. To have 24-hour availability, the number of frequencies per family is needed to be increased, to a minimum of three.

16. No AMS satellite voice communication is planned.

Guyana

17. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

SYGC Georgetown	In accordance with FASID Table CNS 2A, pending is implementation of one channel for ACC–U, ACC-L and one channel for VHF–ER, as well as for ACC-U.
SYCJ Timehri/Jeddy Chagan	Pending implementation of one channel for APP-L

18. In accordance with the Plan, Guyana has the CAR-A and SAM-2 family of frequencies assigned, but it frequencies in these families have not been implemented. Guyana has installed four frequencies of the SAM-2 family and four of the CAR-A family, but only in receiving mode. Therefore, the installation of HF transmitters for the CAR-A family is recommended.

19. No AMS satellite voice communication is planned.

Panama

20. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

MPZL Panamá	For the ACC-U two VHF channels have been planned, but only one has been implemented.
MPTO Panamá/ Tocumen	Pending implementation of one channel for ATIS and for CLRD.

21. Panama has the operation of the CAR-A and SAM-1 HF family of frequencies assigned. It has three frequencies installed from the CAR-A, and two from the SAM–1. A third frequency is recommended to be installed for SAM-1.

22. Satellite voice communications (Aeronautical Mobile Service (AMS)) are planned for mid 2008.

Paraguay

23. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

SGAS Asunción/Silvio Pettirossi	Two channels have been planned for APP-I, but only one has been implemented.

24. No AMS satellite voice communication is planned.

Peru

25. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

SPZO Cuzco/Velazco Astete	Pending implementation of one channel for APP-SR-U and ATIS.
SPIM Lima/Jorge Chávez Int.	Pending implementation of two VHF channels for APP–SR-U and one for ATIS.
SPSO Pisco	Pending implementation of one channel for APP-I.
SPTN Tacna	Pending implementation of one channel for APP I.

26. Satellite voice communications (Aeronautical Mobile Service (AMS)) are planned for mid 2006.

27. For HF communications, SAM-1 family of frequencies has been assigned. In accordance with FASID Table CNS 2A, two frequencies have been implemented. To have 24-hour availability, the installation of a third frequency is recommended.

Suriname

28. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

SMNI New Nickerie/Maj. Fernandes	Pending implementation of one VHF channel for SMC.
SMPM Paramaribo	Pending implementation of one channel for GP.

29. There is no indication in Table CNS 2 as to the HF family of frequencies assigned, neither of that implemented. The family of frequencies for Suriname is SAM-2. It is recommended that three frequencies be implemented within this family as a minimum, with the aim of having 24-hour availability.

Uruguay

30. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

SULS Maldonado C/C	Pending implementation of one channel for SMC and ATIS.
SUEO Montevideo	There are plans for the implementation of three channels for ACC-U, two have been implemented.
SUMU Montevideo Carrasco Internacional/General Cesareo Berisso	Pending implementation of one channel for ATIS.

31. Satellite voice communications (Aeronautical Mobile Service (AMS)) are planned for mid 2008.

Venezuela

32. The VHF channels for voice communications planned and still pending implementation for the various sites indicated in the Plan, are the following:

SVMI Caracas/Maiquetía	Pending implementation of one channel for CLRD.

33. Satellite voice communications (Aeronautical Mobile Service (AMS) are planned for mid 2008.

APPENDIX AU

REVIEW OF THE IMPLEMENTATION PLAN OF VHF, HF DATA AND BY SATELLITE, BASED IN TABLE CNS 2A OF THE FASID – CAR REGION						
State/Territory/ Organization	Centre	Number of channels Required and date of implementation				Remarks
		VHF	HF	Satellite	Mode S	
CUBA	Havana ACC	2 (6 /2006)	X (6 /2006)			Cuba is coordinating the implementation of D-ATIS.
DOMINICAN REPUBLIC	Santo Domingo ACC	1 (6 /2008)				
HAITI	Port-au-Prince ACC	1 (6 /2008)				
JAMAICA	Kingston ACC	2 (6 /2006)	X (6 /2006)	X (6 /2006)		Jamaica is coordinating the implementation of D-ATIS.
MEXICO	Mazatlán ACC Mérida ACC México ACC Monterrey ACC	5 (6 /2008) 3 (6 /2008) 3 (6 /2008) 3 (6 /2008)	X (6 /2008) X (6 /2008) X (6 /2008) X (6 /2008)	X (6 /2008) X (6 /2008) X (6 /2008) X (6 /2008)		Mexico carried out tests in 2003 with the purpose to evaluate the data links development as ATC system elements. The following FANS messages were supported: AFN – ARINC 622; ADS – ARINC 622 y CPDLC – DO-219. Also, Mexico possesses D-ATIS prototype equipment.
NETHERLANDS ANTILLES	Curaçao ACC	2 (6 /2008)	X (6 /2008)	X (6 /2008)		
UNITED STATES	San Juan ACC, Puerto Rico New York	4 (6 /2008) 1 (6 /2008)	X (6 /2008) X (6 /2008)	X (6 /2008) X (6 /2008)		
TRINIDAD AND TOBAGO	Piarco ACC	2 (6 /2008)	X (6 /2008)	X (6 /2008)		
COCESNA	Cenamer ACC	3 (6 /2008)	X (6 /2008)	X (6 /2008)		COCESNA possesses the centre equipment with a capacity for data links use. During 2005 tests and demonstrations are being developed coordinated with the support of some airlines.

APPENDIX AV

REVIEW OF SAM REGION AIR/GROUND DATA LINK PLAN

1. Following is an analysis of aeronautical mobile service communications requirements, FASID Table CNS 2A, as regards ground/air data communications for each of the SAM States. Some States of this region have purchased VHF systems having the possibility of transmitting data in VDL 2 (Brazil, Ecuador, Peru and Venezuela), but operational services have yet to be implemented.

Argentina

2. As regards VDL communications systems implementation, two channels will be implemented in Buenos Aires ACC by mid-2005, plus one VDL channel for each of the Comodoro Rivadavia, Cordoba, Mendoza and Resistencia ACCs by mid-2006.

3. HF data transmission (HFDL) implementation for Resistencia ACC is planned for mid-2006, and mid-2008 for the Buenos Aires and Comodoro Rivadavia ACCs.

4. Satellite communications for Buenos Aires and Comodoro Rivadavia ACCs are planned for mid-2008.

Bolivia

5. La Paz ACC has one VDL and HFDL channel planned for mid-2006. There is no specification as to implementation date for satellite voice and data communications.

Brazil

6. Eight VDL channels for Brasilia ACC have been planned for mid-2005; two at Curitiba ACC, two VDL channels for Amazonico ACC and five for Recife ACC for mid-2008. As regards HFDL, there are plans for its installation at Amazon, Atlantic, Brasilia, Curitiba and Recife ACC by mid-2008. Satellite communications data for Atlantico ACC have been planned for mid-2008.

Chile

7. Two VDL channels have been planned to be implemented by mid-2008 at Antofagasta, Puerto Montt, Punta Arenas and Santiago. In addition, there are plans to implement HFDL and satellite voice and data communications systems at these sites by mid-2008. There are no Mode S data link implementation plans.

Colombia

8. By mid-2006, two VDL channels have been planned to be implemented in Barranquilla ACC, and four in Bogota ACC; also, HFDL has been planned for the Barranquilla, Bogota and Cali ACCs. There are no satellite aeronautical mobile service data communications plans.

Ecuador

9. One VDL channel has been planned to be implemented in Guayaquil ACC by mid-2008. In addition, HFDL and satellite voice and data communications have been planned at Guayaquil ACC for mid-2006.

French Guiana

10. There are no VDL or HFDL channel implementation plans for satellite data communications.

Guyana

11. There are plans for one VDL and HFDL channel for Guyana by mid-2008. There is no knowledge as to implementation plans for the establishment of satellite data communications.

Panama

12. It is foreseen by the middle of 2008 a VDL channel as well as an HFDL and a satellite data communication at the Panama ACC.

Paraguay

13. By mid-2008, there are plans to implement one VDL channel, as well as an HFDL, at Asunción ACC. There are no satellite data communications implementation plans.

Peru

14. Two VDL channels are planned for Lima ACC, as well as HF data link (HFDL) and satellite data communications, for mid-2006.

Suriname

15. There are no implementation plans at Paramaribo ACC for VHDL, HFDL or satellite data communications channels.

Uruguay

16. There are plans for one VDL channel for Montevideo ACC by mid-2005. For mid-2008, there are plans for HFDL and satellite data communications.

Venezuela

17. There are plans for three VDL channels for Maiquetia ACC, as well as HF data link and satellite data communications for mid-2008.

APPENDIX AW

CAR/SAM REGIONAL ACTIVITIES PLAN FOR A PLANNING AND IMPLEMENTATION OF AIR – GROUND DATA LINKS

1. Participate in seminars and workshops on air – ground data links.

2. Review and update the Regional Plan of air – ground data links (Table CNS 2A) to achieve benefit of data communications improving safety, efficiency and capacity through the reduction of voice communications and implementing as an evolutionary way the automatic process to meet the operational requirement and coordinated and harmonized with the global ATM system.

3. Evaluate the capacity and the need to modernize the control centres and the aircraft fleet operating in the respective FIR and airspace in order to implement the air – ground data links in accordance with the operational requirements, the SARPs and the ICAO guidance, incorporating the implementation planning of the mentioned capacity.

4. Establish and participate in a programme of trials and demonstrations on systems and applications of air – ground data links.

5. Examine and evaluate the arrangements made by other States/international Organizations for the implementation of data links, establishing cooperation mechanisms on a multinational basis.

6. In accordance with the global Road Map, establish a CAR/SAM regional programme for the evolutionary implementation of air – ground data links ensuring the regional and inter-regional interoperability to satisfy the global ATM system requirements in a coordinated, harmonized and seamless way.

7. Undertake and monitor research and development of communication technology and follow the development of SARPs and ICAO guidance for future evolution of data link services.

8. These activities should be developed for execution of the implementation program that is shown in Appendix AX.

APPENDIX AX

CAR/SAM REGIONAL PROGRAM FOR THE IMPLEMENTATION OF THE AIR – GROUND DATA LINKS *		
TERM	**GOALS IN THE IMPLEMENTATION OF INFRASTRUCTURE**	**SERVICES**
Near Term (2005–2009)	To implement ACARS, FANS, VDL-Mode 2 and HFDL based on SARPs and ICAO guidance.	Make maximum use of: - pre-departure dispatch; - oceanic dispatch; - D-ATIS; - other flight and routine information messages; and - automatic position reporting on the part of the operating aircrafts.
Medium Term (2009–2014)		- more complex safety related information can be exchanged, including ATC clearances.
Long Term (after 2014)	Implement Data links as the future evolution and based on the new SARPs and ICAO guidance.	- The use will include down linking of aircraft flight parameters for use by the ATM system; and - uplink of traffic data for improved situational awareness in the cockpit.

***Note*:**
* This regional Program is in accordance with the global Road Map for the implementation of air – ground data links.

APPENDIX AY

TABLE/TABLA CNS 1Ba – ATN ROUTERS REGIONAL PLAN / PLAN REGIONAL DE ENCAMINADORES ATN

Administration and Location/ Administración y Localidad	Type of Router / Tipo de Encaminador	Type of Interconnection/ Tipo de interconexión	Connected Router- Encaminador Conectado	Link Speed- Velocidad del enlace	Link Protocol- Protocolo del Enlace	Via Vía	Target Date / Fecha Meta	Remarks Observaciones
1	2	3	4	5	6	7	8	9

APPENDIX AZ

Table CNS 1Bb – ATN GROUND-GROUND APPLICATIONS PLAN / Tabla CNS1 Bb – PLAN DE APLICACIONES TIERRA-TIERRA ATN

ATN GROUND-GROUND APPLICATIONS PLAN / PLAN DE APLICACIONES TIERRA-TIERRA					
Administration and Location/ Administración y localidad	Application Type/ Tipo de Aplicación	Conneted with Administration & Location of/ Conectada con Administración y Localidad de	Used Standard / Norma usada	Implementation Date/ Fecha de Implementación	Remarks/ Observaciones
1	2	3	4	5	6

APPENDIX BA

CAR/SAM Regional Strategy for the deployment of the ATN and its applications	
	Short term (2005 – 2011)
1.	States/Territories/International Organizations complete the updating of the aeronautical digital communication networks by providing intra and inter-regional interconnection and interoperability.
2.	The ATN ground-to-ground portion will initially support the implementation of the ATS message handling system (AMHS) to replace the AFTN.
3.	States/Territories/International Organizations carry out the strategic deployment of a limited number of ATN routers of the ATN backbone to support other ground-ground and air-ground applications.
4.	During the transition phase some AFTN circuits and systems may remain in operation. A reasonable timeframe must be established for its replacement with AMHS.
5.	The referred ATN routers must provide AFTN/AMHS gateway during the transition phase.
6.	States/Territories/International Organizations carry out the gradual updating of the AFTN centres by AMHS servers. In order that necessary interfaces in the AFTN centres be implemented to connect AMHS circuits and the new AMHS servers be implemented with the capacity of connecting AFTN circuits.
7.	The implementation of the AIDC within control centres of adjacent States/Territories/International Organizations begins.
8.	States/Territories/International Organizations must work in close cooperation to support themselves on a multinational basis to implement the ATN and its applications to ensure the system interoperability.
9.	States/Territories/International Organizations must undertake the training of operational and technical personnel in order to provide the necessary knowledge to introduce the ATN and its ground-ground applications (AMHS and AIDC).
10.	Based on the relevant deployment of the ATN ground-to-ground infrastructures and ground applications, States/Territories/International Organizations must gradually introduce ATN air-ground applications.
11.	Implementation will be in full agreement with SARPs, ICAO PANS and GREPECAS guide.
	Medium term (2011 – 2015)
12.	Here the implementation of AMHS must be completed and the implementation of the AIDC continues.
13.	States/Territories/International Organizations must extend the deployment of air-ground applications.
14.	The use of the ATN with techniques defined in the SARPs continues and the planning to update the ATN terrestrial portion commence to satisfy the new ATM global system requirements.
	Long term (As of 2015)
15.	Planning and implementation of the ATN and its applications will be carried out in accordance with the ATN evolution and the development of associated techniques and in conformity with the ATM global system requirements and the new SARPs, ICAO PANS and GREPECAS guidelines.

APPENDIX BB

STATUS OF SBAS AUGMENTATION SYSTEM TRIALS ACCORDING TO THE RLA/00/009 PROJECT

Introduction

1. Among the activities scheduled in the CAR/SAM SBAS augmentation trials (RLA/00/009 project), was completion of the CSTB augmentation platform, continuous data collection from the reference stations, holding of flight trials to verify augmentation, an initial feasibility study regarding the extension of WAAS in the CAR/SAM Regions, and the project's final report.

2. The Project has thought it convenient that flight trials to verify augmentation would be best if carried out once there is a model on error correction caused in GPS signals by the ionosphere, and is uploaded in the CSTB master stations with the aim that the augmentation system also supports approach operations with vertical guidance (APV).

3. The completion date of RLA/00/009 was scheduled for mid-2004, but was extended until the necessary studies to solve ionosphere problems in both regions, and their incidence on the CSTB augmentation trial system, were completed. During this time, all reference stations would remain installed, as well as the communications platform.

CSTB communications platform

4. At the end of October 2004, the reference (TRS) and master (TMS) stations at Santiago, Chile's, Arturo Merino Benitez international airport were relocated to the station in Cerro Colorado, where the South American Digital Network (REDDIG) VSAT node is located.

5. The Santiago master station's router was connected to REDDIG, therefore completing communications links through REDDIG with the Ezeiza (Argentina), La Paz (Bolivia) and Lima (Peru) reference stations routers. Also, the Tegucigalpa (Honduras–COCESNA) router was connected to the Bogota (Colombia) router through the Colombian VSAT network, and the information from the two stations in Bogota was connected to the REDDIG node in that city for transmission to the REDDIG node in Curitiba, Brazil, and thence to the Rio de Janeiro master station router, via Brazil's VSAT.

6. Therefore, the implementation of the CSTB communications platform through REDDIG was completed at the beginning of November 2004. With this new platform, substitution of communications platform based on direct digital connections, rented to communications providers and representing a very high cost to administrations, was replaced by permanent virtual circuits on a frame relay network, where current circuit costs represent a minimum as regards the previous ones.

7. Connections between TRS and TMS made through REDDIG are permanent frame relay virtual circuits transmitted at 19.2 kbits/sec, the connection between the Santiago and Rio de Janeiro TMS is a 64 kbits/sec frame relay permanent virtual circuit.

8. The 64 kbits/sec direct digital communications link between Santiago and the FAA technological centre in Atlantic City was removed, and starting January 2005, in substitution to this link, a 64 kbits/sec direct digital communications circuit was established between Rio de Janeiro and the FAA technological centre in Atlantic City.

9. The afore mentioned circuit has the purpose of transmitting all information from each of the TRS stations forming part of the CSTB, to the Atlantic City FAA technological centre for data processing.

10. The **Attachment** to the Appendix presents the new configuration of the CSTB communications platform.

Possible extension of the CSTB

11. Panama has a TRS station installed, forming part of the NTSB (FAA WAAS trial network). The information collected in the Panama TRS is transmitted to Atlantic City via a 64 kbits/sec direct digital circuit. Due to the high cost this circuit with Atlantic City represents to Panama, there are plans for its disconnection. The information would continue to be recorded off line in a CD, and later sent to Atlantic City.

12. The Panama TRS could be connected to the CSTB using the Colombian VSAT network. Panama already has a Colombian VSAT network node installed, which is used to transport ATS speech communications and AFTN data between Panama and Bogota. Information would be connected to the Bogota CSTB router, and then on to the REDDIG node. If the current equipment capacity can support this, the solution would be cheaper than that of the existing circuit.

WAAS extension feasibility in the CAR/SAM Regions

13. The Third Coordination Meeting of RLA/00/009 project, held in Rio de Janeiro from 15 to 17 October 2003, considered that, as result of the first trials, the approach of the project's trials would be towards NPA navigation operations and, to this effect, the need to start cost-benefit analysis studies was taken under consideration.

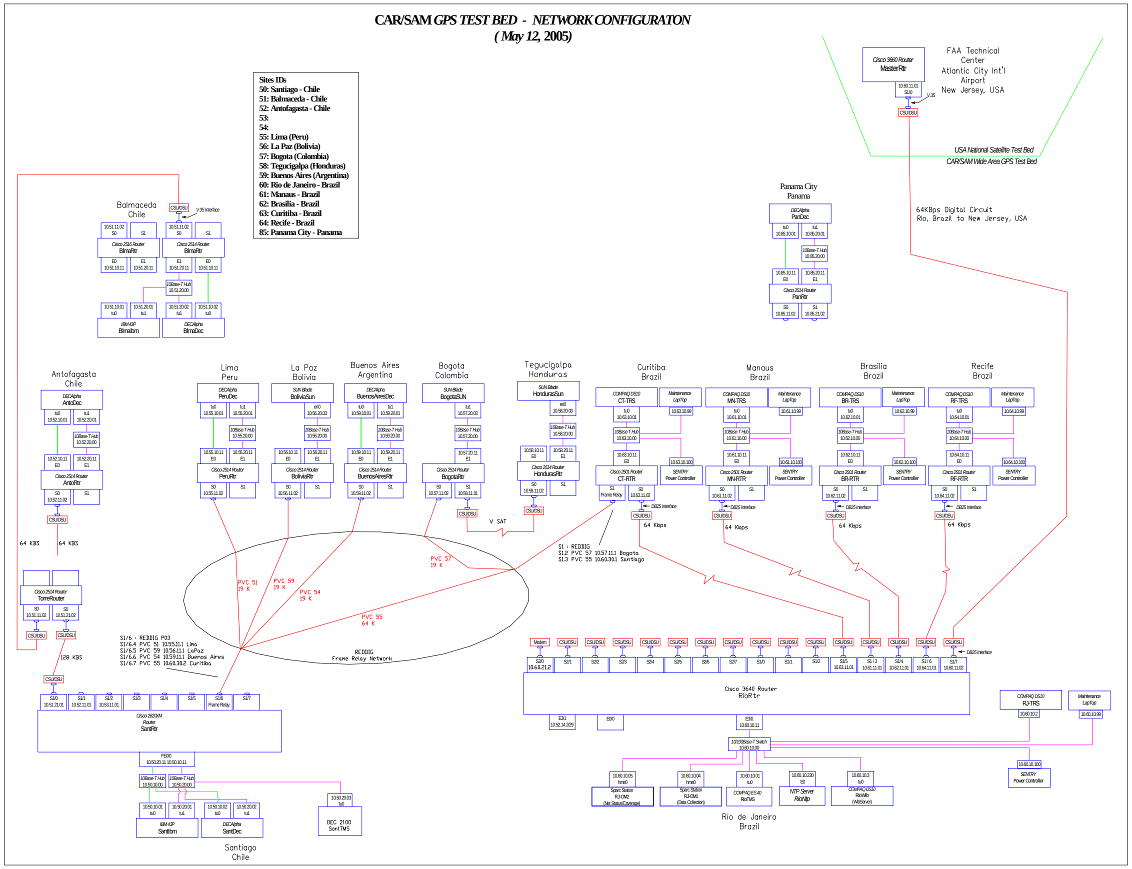
14. For this purpose, consideration was given to study the technical feasibility for the extension of WAAS to the CAR/SAM Regions, through a minimum number of reference stations connected to the WAAS master stations. The Project considered that if this solution were possible, CAR/SAM NPA requirements could be met. To this effect, FAA was consulted on the possibility that it might study the technical feasibility, and formulated Conclusion 3/2.

Analysis of data collected

15. RLA/00/009 project is currently carrying out the task of data collecting. From the analysis made by the FAA, it has been observed that ionosphere incidence on CAR/SAM GPS signals is having lesser effects than those obtained during the analyses carried out during 2001-2002. This is due since solar incidence on the ionosphere was much higher in those years due to the cyclic effect. It is expected that this incidence continue decreasing until 2008, and as of that year, it increase until an incidence maximum is repeated in 2011 - 2012.

16. Data collection in real time from each of the reference stations will continue as long as necessary. This information will be kept recorded and will represent valuable information regarding the ionosphere behaviour at the collected signals. Data collection has been carried out at some of the stations since 2001.

ATTACHMENT TO APPENDIX BB



APPENDIX BC

STATUS OF ACTIVITIES OF PROJECT RLA/03/902 PHASE II - SACCSA

1. Background

1.2 The CAR/SAM Regional Project RLA/03/902 Phase II - *Augmentation solution for the Caribbean, Central and South America (SACCSA)***,** was the result of negotiations held for the last four years, during which time the GREPECAS mechanism examined possible alternatives and trials that would lead to the implementation of an SBAS system in the CAR/SAM Regions. To that end, ICAO developed a regional project, the first phase of which was entitled RLA/03/902 *"SBAS/EGNOS trials in the CAR/SAM Regions"*, which assessed the services provided and the feasibility of implementing the system, based on the EDISA Programme of the European Commission. In order to conduct these trials, a trial infrastructure was displayed based on the implementation of the EGNOS signal in the CAR area and in the North Western portion of the SAM Region. Accordingly, three RIMS stations were installed in Colombia (Bogotá), COCESNA – Honduras (Tegucigalpa) and Cuba (Havana). These stations were connected to Madrid *via* the HISPASAT satellite, and signals were sent from Madrid to the ESTB master station in Hönefoss (Norway), and from there through the Toulouse earth station (France) to the INMARSAT AOR-E satellite, from where they were broadcast to users.

1.3 Once the infrastructure was in place, static data were collected for a period of 2.5 months and flight trials were conducted. The data collected were then analysed and reported. The data showed that it was possible to put an EGNOS signal in the CAR/SAM Regions, with the support of an earth infrastructure of monitoring stations, processing the signals in the European control stations **(**MCC), and broadcasting the augmentation signals through the AOR-E satellite, with the possibility of providing APV I services. The results of Phase I were presented at the Third Meeting of the CNS Committee (CNS/COMM/3).

1.4 Given that Phase I results were satisfactory, the third meeting of the ATM/CNS Subgroup (ATM/CNS SG/3), held in Rio, Brazil, in March 2004, proposed, through its CNS Committee, the implementation of a second phase of Project RLA/03/902, the stated objective of which was: *"to develop and plan the technical, financial, operational and institutional aspects for the implementation of an SBAS system for the CAR/SAM Regions"*. The ultimate objective would be to develop the necessary elements of judgment for deciding on the best SBAS system model for implementation in the CAR/SAM Regions, and then conduct with the necessary international tenders to support such implementation.

1.5 Subsequently, the GREPECAS/12 meeting, held in Havana, Cuba, in June 2004, adopted Conclusions 12/45 and 12/46, which established the beginning of the second phase of Project RLA/03/902 and invited CAR/SAM States, Territories and International Organisations to participate in it.

1.6 The Third Meeting of the Coordination Committee (RCC/3) of Project RLA/03/902, held in Bogotá, Colombia, 12–14 April 2005, was the beginning of Phase II of this project, entitled *"Augmentation service for the Caribbean, Central and South America (SACCSA)"*. The conclusions of the RCC/3 meeting were submitted to the first meeting of the GNSS Task Force (GNSS TF/1), held in Mexico City, 30 May - 2 June 2005.

2. PROJECT RLA/03/902 – PHASE II

General

2.1 This second phase of Project RLA/03/902 is not intended as an alternative to, or counterpart of, other projects with similar objectives or proposals, but rather to provide a different approach and perspective in order to have more elements of judgment which, supplemented by other regional projects, will allow CAR/SAM States, Territories and International Organisations to make the most appropriate decision on the implementation of the GNSS system and, more specifically, SBAS augmentation, in these Regions. Accordingly, close and continued coordination will be maintained through the GNSS Task Force, created to that end by the CNS Committee of the GREPECAS ATM/CNS Subgroup.

Activities and status of implementation

2.2 For the development of Phase II, a working group will be established. Under ICAO supervision, it will include the industries, operators, users, providers and civil aviation administrations, and will carry out the necessary tasks based on the following main activities:

1. Collect information from service providers and airspace users on current conditions and requirements.
2. Definition of system requirements.
3. Review of the various system alternatives.
4. Collection and analysis of data for the ionospheric model.
5. Specifications of the SBAS solution.
6. Specifications of the SBAS MTAST solution.
7. Management and operation considerations.
8. Human resources and training.
9. Economic and financial feasibility study.
10. Planning of the activities required for the development of a CAR/SAM SBAS.
11. Review of industrial positioning.
12. Courses and seminars.

2.3 This project will study the feasibility that CAR and SAM Regions have an SBAS system that meets their needs and those of their airspace users. This system will be defined according to the specific characteristics of both Regions, adjusting its configuration to the distribution of airspace requirements. Furthermore, the bases for its management and operation will be established, contributing to the definition of the international bodies that would need to be created in order to perform those activities. Furthermore, Project RLA/03/902 – SACCSA will define and develop the technical, operational, financial, and organisational specifications of an SBAS system for the CAR/SAM Regions**.**

2.4 On the other hand, and given the relatively high cost of implementing an SBAS, a thorough analysis will be made of the financial resources required and of ways of obtaining those through the various lending sources and modalities available, and benefits will be assessed.

2.5 A general explanation is presented in **Attachment 1** to this Appendix on each of the activities foreseen in Phase II of the aforementioned project.

Additional activities subject to the incorporation of new members into the Project

2.6 The RCC/3 meeting of Project RLA/03/902 recognised the importance of broadening the participation of States in the second phase of the project, as well as of other organisations and corporations of the aeronautical sector that could contribute expertise and resources to extend the scope of current objectives and budget. The project will provide valuable information for the establishment of a single GNSS implementation strategy in the CAR/SAM Regions, capable of harmonising all the activities being carried out at national level, and also at regional level, in a coordinated manner. For this reason, current States and organisations are willing to facilitate the incorporation of new members and coordinate participation in the activities and resource organisation.

2.7 The cited meeting reviewed the contributions made by the current members of this project, as well as the resources contributed by a group of States to another technical cooperation project also related to the GNSS (RLA/00/009). Accordingly, it formulated Conclusion 3/6, in which it established the revised quotas to be paid by States, Territories and International Organisations under Project RLA/03/902 Phase II, according to the following criteria:

a) for RLA/00/009 project members, the contribution will be US$ 25.000.00; and
b) for other States/Organisations, the contribution will be US $ 35.000.00.

2.8 States joining the project, in addition to being involved in its coordination, general activities, and regional orientation, will be able to carry out a number of very important tasks to consolidate the development of satellite navigation within their territory.

2.9 It is especially important to identify the specific condition of each airspace and its concrete requirements, as well as airport distribution, APV I and APV II approach requirements, operational benefits and design of the first SBAS procedures at airports that could benefit from this system. This will give a first idea of the actual short- and medium-term benefits that could be derived from SACCSA implementation.

2.10 The increased budget resulting from the new contributions will permit the creation of a GNSS monitoring network, which would initially be for GPS and would evolve to SBAS once the augmentation signal is available. Data collected will permit the States/Organisations to conduct studies and statistical analyses of GNSS and RAIM availability, make recordings to be used for ionospheric analyses and other benefits, all of which will help in achieving the goal of migrating from ground-based navigation to satellite navigation and obtain its benefits. On the other hand, the availability of new funds would permit the study of the SBAS MTSAT model, analysing the feasibility of an alternative that includes aeronautical communications and meteorological information.

2.11 SBAS systems are multimodal systems that will not only provide SoL (Safety of Life) type services to the aeronautical sector, but could also be used by a large number of users of different means of transportation. In this sense, it is necessary to supplement the SACCSA Project with an analysis of the situation in the various States, reviewing the sectors that could benefit from an SBAS system, taking into account that such system has a guaranteed and certified signal, and thus offers guaranteed availability that will be very useful for critical applications.

2.12 One of the activities to be carried within the extended scope of the Project is a description of the individual situation in each State, analysing aeronautical, railroad, road, maritime, river transportation, global localizer systems (LBS), and other applications. This information will offer prompt access to the possible utilisation of SACCSA by other users, and the establishment of the bases for a multimodal market analysis.

2.13 Another analysis to be considered involves social and State management benefits that could be obtained, such as faster emergency services, improved safety, savings in the performance of tasks, etc. All this documentation would be contained in an annex where the benefits to be derived by each State would be analysed, and would contribute to the optimisation of cost recovery and the creation of communities of users, including the corresponding regulations concerning operations and payment for services.

3. BUDGET

3.1 Based on the contributions made by States and Organisations currently participating in Project RLA/03/902 SACCSA, the budget of the 12 packages currently considered in Phase II of this project is shown in **Attachment 2** to this Appendix.

3.2 Until this date, the decision to award the two international tenders of the GALILEO Common Corporation (GJU) for the creation of a resource centre and the development of GNSS activities in Ibero-America is not yet known. The winning consortia in these tenders must coordinate their activities and resources with Project RLA/03/902 SACCSA, to which they contribute, as established in the terms of reference.

3.3 At present, negotiations are underway with ICAO, ESA, GALILEO, AENA, and the international aeronautical industry in order to add a new work package to the project and to conduct SBAS/GNSS static and non-operational in-flight trials in South America.

ATTACHMENT 1 TO APPENDIX BC

OUTLOOK OF ACTIVITIES SCHEDULED UNDER PROJECT RLA/03/902 – PHASE II

1. Collect information from service providers and airspace users on current conditions and requirements

1.1 This task is the starting point of the project, and will involve an analysis of the current status of CAR/SAM airspace, its structure, current services, future requirements, growth forecasts, and fleets flying in these regions.

2. Definition of system requirements

2.1 Based on the information obtained in 2.1, a chart will be developed of the services to be provided and the requirements to be met by the system chosen for implementation. Accordingly, note should be taken of the characteristics of SBAS systems, since consideration should be given to the distribution of earth stations, coverage, initial ionospheric models, correction models, etc.

3. Review of the various system alternatives

3.1. Following the conclusions of the GNSS Task Force, a review will be made of the SBAS option and of the MTSAT-type solution (the latter is subject to budget availability).

3.2 Furthermore, this solution will be reviewed at a high level, and a preliminary analysis made of its various components to serve as a basis for the in-depth analysis to be made under items 5 and 6. This review will include: global description; data processing; communications; satellite; elements and location; navigation services. For the MTSAT, an additional item will be included on communication and meteorology capabilities.

3.3 Any of the proposed options will be developed considering their evolution to the new GALILEO and GPS III systems, in such a way that, in the future, they will become regional augmentations of said systems.

4. Collection and analysis of data for the ionospheric model

4.1 This task is absolutely necessary, and is subject to the availability of the required budget. It involves analysing the ionosphere in the equatorial/tropical zone and preparing an analysis for the future development of a model and algorithm capable of being implemented in an operational system (which, due to its very high cost, which may exceed 3 M€, cannot be included in this project). To that end, data will be collected at various points (the collection campaign in Antarctica has been completed) and then analysed, and a study of the ionospheric model will be prepared.

5. Specifications of the SBAS solution

5.1 From the point of view of SBAS concepts, this solution seems to be the most logical and feasible. Therefore, the specifications for this solution will be developed, including the process and service segment, control segment, topology of earth stations, earth communications network, navigation load, and other satellite options. The result will be a List of Technical Specifications that will serve for the development and implementation of the system.

6. Specifications of the SBAS MTSAT solution

6.1 The implementation of this model is subject to the availability of the necessary funds.

6.2 The MTSAT satellites of Japan are dual-mission satellites that encompass the meteorological and the navigation/communications loads according to the ICAO CNS/ATM concept. Communications are exclusively for aeronautical use, covering mobile and fixed communications. The navigation load covers the service area of the MSAS system, which is one of the currently available SBAS systems, together with the WAAS and the EGNOS.

6.3 This model could be an alternative, since it would support the implementation of the CNS/ATM concept in the CAR/SAM Regions, based on dedicated satellites, and providing fixed and mobile communications, navigation and ADS support services, in addition to meteorological services. Two satellites would be required.

7. System management and operation considerations

7.1 SBAS systems are navigation systems that provide a high level of service, with multinational coverage, thus requiring new models for their management and operation. Accordingly, studies will be based on the experience gained in other areas, as is the case of Europe, with EGNOS. The result of this work is intended to serve as reference material to assist institutional arrangement groups in their work.

7.2 It should be noted that SBAS systems could serve all type of users that need a regulated, high-precision and high-integrity signal. Accordingly, they will not focus only on the aeronautical sector, although they were developed based on the requirements of that sector.

8. Human resources and training

8.1 Human resources are a fundamental part of any activity and system. These resources, in addition to having the proper qualifications, should be training in the new technologies they will be using.

8.2 This task must include a description of human resource requirements, their initial qualifications, the required level of training, the establishment of a network of classroom and on-line training centres, refresher courses and maintenance of qualifications and licenses.

8.3 On the other hand, since training does not need to be limited to the GNSS, the infrastructure and methodology will be proposed in such a way that they can be used for training in other topics and technologies.

9. Economic and financial feasibility study

9.1 When defining a system with the characteristics defined in this project, a financial chapter needs to be included, which analyses system costs, funding methods, economic feasibility, a cost-benefit analysis supporting the analysis and search for funding entities and conditions.

10. Planning of the activities required for the development of a CAR/SAM SBAS

10.1 A project of these characteristics must be thoroughly planned, describing in detail its different phases, the plan for their implementation and a strict work programme.

11. Review of industrial positioning

11.1 When developing and implementing a system with the characteristics of an SBAS, the position of the industry in the region to be covered by the system must be analysed. This task is of vital importance when establishing the levels of industrial participation in the development, maintenance, operation, etc. of the system. Accordingly, two reviews will be made, one from the point of view of technical capacity, and the other in terms of the level of participation in the project. It should be noted that the “INDUSTRIAL” concept does not only refer to the industry that manufactures, develops or implements something, but also to the industry that operates (operators), provides services (service providers), or markets concrete applications.

12. Courses and seminars

12.1 Two seminars and one course will be conducted to report on the evolution and results of project RLA/03/902. A training course on data collection equipment; a mid-project seminar to provide detailed information and establish possible corrective action for the various tasks; and a seminar at the end of the project to present the final results and deliver the work performed.

ATTACHMENT 2 TO APPENDIX BC

GENERAL BUDGET OF PROJECT RLA/03/902

No.	TASK	Budget in $USD
1.	Collect information from service providers and airspace users on current conditions and requirements.	36,188.18
2.	Definition of system requirements.	78,407.72
3.	Review of the various system alternatives.	37,394.45+51,869.72
4.	Collection and analysis of data for the ionospheric model.	149,577.80
5.	Specifications of the SBAS solution.	86,851.63
6.	Specifications of the SBAS MTSAT solution.	84,439.08
7.	System management and operation considerations.	24,125.45
8.	Human resources and training.	78,407.72
9.	Economic and financial feasibility study.	79,613.99
10.	Planning of the activities required for the development of a CAR/SAM SBAS.	10,856.45
11.	Review of industrial positioning.	42,219.54
12.	Courses and seminars.	126,658.62
	TOTAL	886,610.35

Rate exchange: 1$US= 0.829€

APPENDIX BD

SUMMARY OF IONOSPHERIC ISSUES FOR A SATELLITE-BASED AUGMENTATION SYSTEM (SBAS) NEAR THE GEOMAGNETIC EQUATOR RLA/00/009

1. Introduction

1.1 The U.S. Federal Aviation Administration (FAA) has invested a substantial amount of effort in developing the Wide Area Augmentation System (WAAS) as an augmentation to the Global Positioning System (GPS) to permit safe navigation and guidance for aircraft. WAAS is operational in the continental United States and has been approved for operations up to and including Lateral Approach with Vertical Guidance (LPV). For WAAS, and any other regional satellite based augmentation system currently in development, the user receiver is a single frequency (L1) GPS receiver, requiring the augmentation system to account for range error due to ionospheric delay, and provide a bound for the remaining ionospheric error.

1.2 WAAS transmits a grid of spatial vertical ionospheric delay information, which the user receiver interpolates and applies to each GPS range measurement. WAAS also generates an error bound for each grid point, called the Grid Ionospheric Vertical Error, or GIVE. The user receiver incorporates this error bound in its computation of the Vertical Protection Level (VPL) and Horizontal Protection Level (HPL) for the aircraft. The WAAS system assures the safety of the user by bounding the expected position error with the protection levels – and if the protection level exceeds the alert limit, then the pilot is warned to not continue the approach (if the runway is not in sight) [1].

1.3 WAAS informs the user receiver of ionospheric delay using a form of planar approximation that utilizes a bound for the possible ionospheric error resulting from potential irregularity in the ionosphere. The safety and availability of WAAS, therefore, needs to be considered when the ionosphere is disturbed and spatial delay becomes non-planar.

1.4 This paper reviews the GPS system augmentation features related to the ionosphere, and documents several of the "bad" features and effects of the ionosphere that have been observed in continental United States by the WAAS system, and in Brazil the Brazilian Test Bed system.

2. GNSS Augmentation Safety Features Related to Ionospheric Delay

2.1 The WAAS system continually tests the planar model of the ionosphere on which its safety depends. If any condition is detected over a radius of at least 800 km from a grid point which shows that ionospheric delay is not well represented by a smooth plane, the GIVE for that grid point is set to 45 m, effectively removing it from use.

2.2 This approach to assuring safety is discussed in [2]. Medium and large geomagnetic storms have been observed to create an irregular ionosphere over the continental United States, and the impact on WAAS has been to disable vertical guidance during these conditions. The system assures safety with a tradeoff in availability, and users of the system will either use an alternate landing aid, or conduct a Non-Precision Approach (NPA) using WAAS or stand-alone GPS to land. Fortunately, the number of geomagnetic storms that are expected to disrupt the vertical guidance service of the WAAS system over a large area is expected to be rare (perhaps zero, one or two per year), at the mid-latitude location of the continental U.S.

3. Ionospheric Features at Different Latitudes

3.1 Unfortunately for the goal of worldwide standardization, ionospheric conditions differ substantially from the region near the geomagnetic equator (+/- roughly 20 degrees), and mid latitude locations like the continental U.S. Mid-latitude areas may experience irregular ionospheric conditions relatively rarely, as mentioned before, while the geomagnetic equator may see, at times, irregular conditions almost daily, due to two primary features – the equatorial anomaly and depletions [3]. The equatorial anomaly creates a bulge of ionospheric delay north and south of the geomagnetic equator during the day and seasonally, in the evening. The second and more extreme factor is depletions, which appear as elongated regions of decreased Total Electron Count (TEC) on the order or hundreds of kilometers wide, or less.

4. Scintillation

4.1 As if all the previous information is not enough – a further negative effect related to an irregular ionosphere is scintillation. The effects of scintillation have been documented before [4]. Recent results show that the level of signal fluctuations has been decreasing since the solar peak in 2001, but that scintillation has still been observed frequently up through March 2004 in data from the Brazil Test Bed (BTB).

5. Ionospheric Features Near the Geomagnetic Equator

5.1 The ionospheric features that GPS augmentations systems face near the geomagnetic equator present three problems to solve: (1) the irregularities from a planar surface are significant, (2) these irregularities occur fairly often, and (3) these irregularities are related to scintillation.

6. Ionospheric Deviations from a Smooth Planar Surface

6.1 As the FAA became aware of the severe non-planar features that exist near the geomagnetic equator, a significant amount of research was focused on this problem (for example, see [5,6,7,8]). The two main causes of the non-planar ionosphere are (1) the equatorial anomaly and (2) plasma depletions. Initial research has not yet yielded an accepted method for SBAS to provide an ionospheric correction with a GIVE small enough to bound the error which would provide an available lateral navigation/vertical navigation (LNAV/VNAV) or LPV service while the severe irregular conditions exist.

6.2 Equatorial Anomaly

6.2.1 The Equatorial or Appleton Anomaly was recognized as early as the mid-1950’s, and the physics is discussed in [9]. The responsible force moves equatorial plasma north and south away from the equator. The equatorial anomaly varies in strength, and the result is an ionosphere with an increasing delay near the “anomaly region” (roughly +/- 15 degrees around the geomagnetic equator), and a decrease in delay near the geomagnetic equator.

6.2.2 Figures 9 shows a longitudinal cross section of the maximum vertical ionospheric delay (no CAR/SAM testbed data was available just south of the equator at that time). The plot shows the “bulging” nature of the delay at the anomaly region and the smoother mid-latitude conditions.

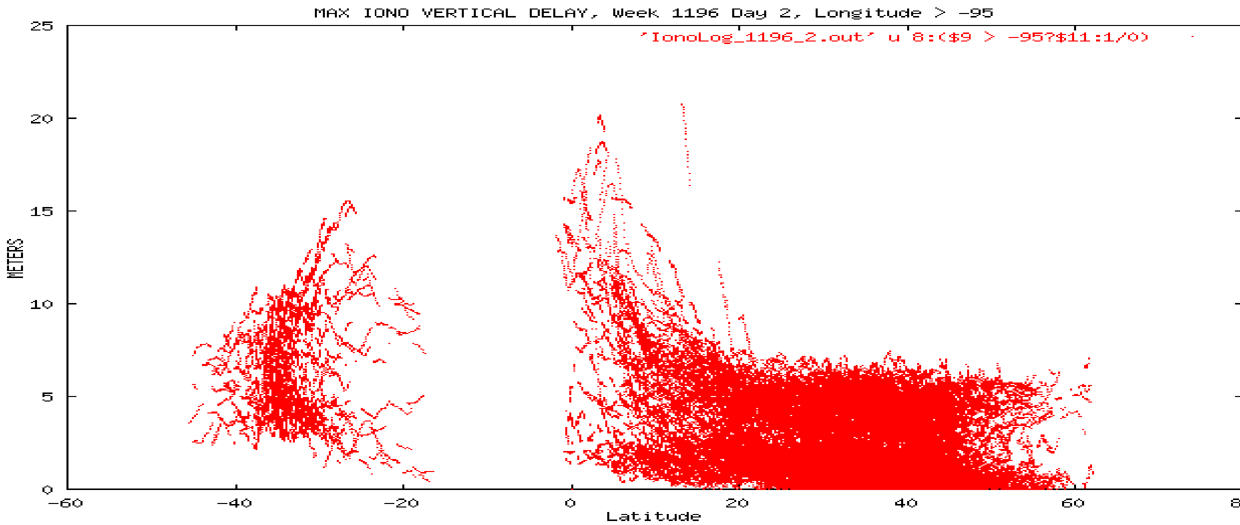


Figure 9. Equatorial Anomaly effect on maximum vertical delay

6.3 Equatorial Depletions

6.3.1 The anomaly itself contributes to the non-planar ionosphere, but this gradient (measured at 20 mm/km in [8]), is gradual compared to the gradient found in ionospheric depletions. The physical forces and mechanisms causing depletions have been studied for several decades [10]. Some depletions spread further north-south than others [11], and typically move west to east at 100-150 m/s, although there is a large range of speeds [12]. Figure 10 is reprinted from [3] to illustrate size, gradients, and motion of a depletion observed in October 2001 by two receivers spaced 95 km apart, East – West, in Rio de Janeiro, Brazil. One of the interesting times on the plot is at 346000, where neither site sees into the depletion on the line of site to the geosynchronous satellite (GEO), implying the entire depletion is contained within these points. The 10 m change of TEC over a distance of (1/2) 95 km implies a gradient of roughly 200 mm/km.

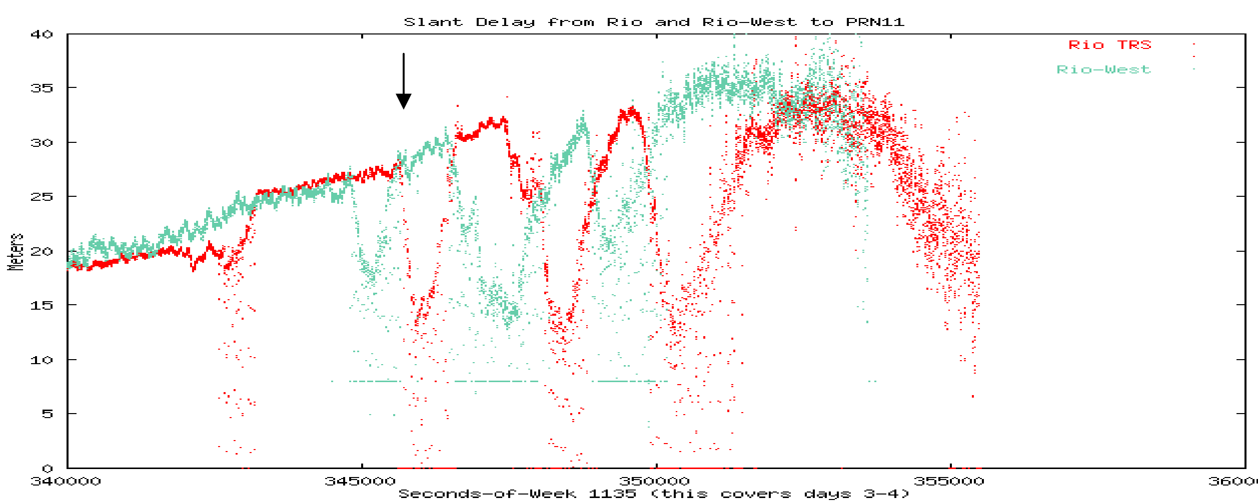


Figure 10. Depletion measurements in Rio De Janeiro

6.3.2 Figures 11-16 show the depletions measurements to PRN 7 on 6 consecutive nights from two nearly co-located receivers on Ascension Island. This shows the night-to-night variation possible during periods of severe depletions.

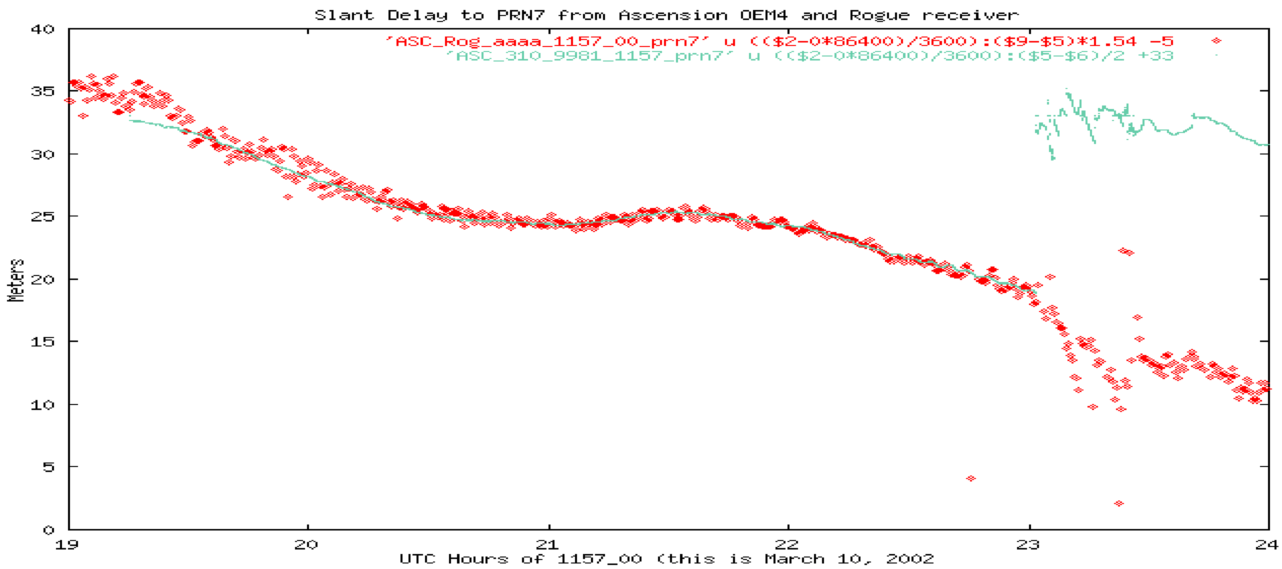


Figure 11. Depletion Measurements at Ascension Island, PRN 7, March 10, 2002 (note: green line is plot of OEM4 receiver using (code-carrier)/2; offset late in pass due to loss of lock.

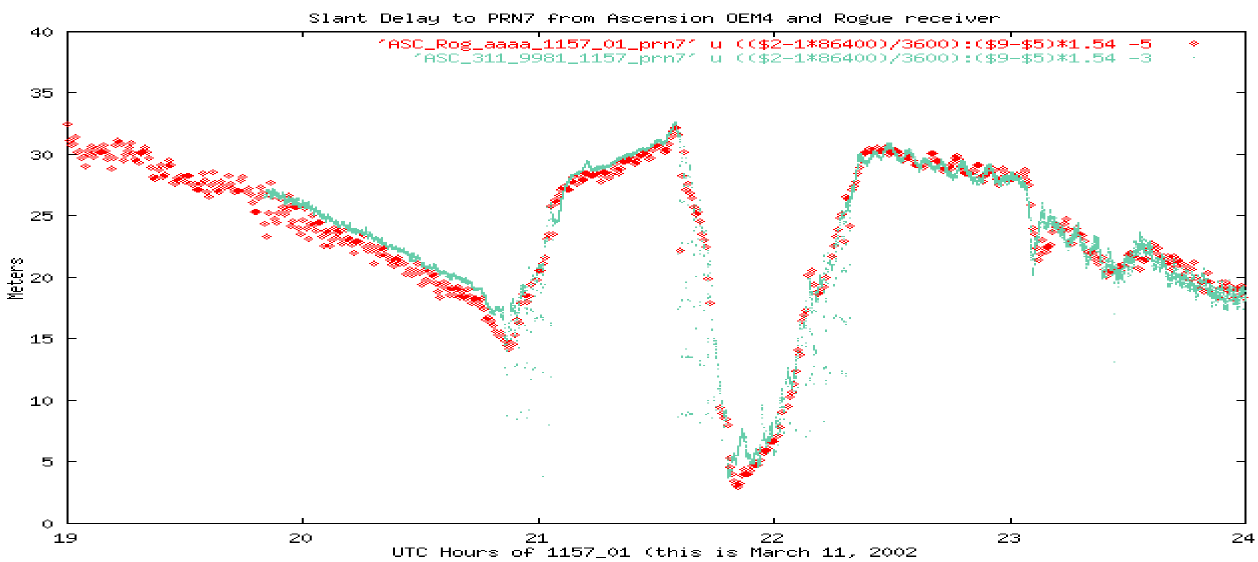


Figure 12. Depletion Measurements at Ascension Island, PRN 7, March 11, 2002

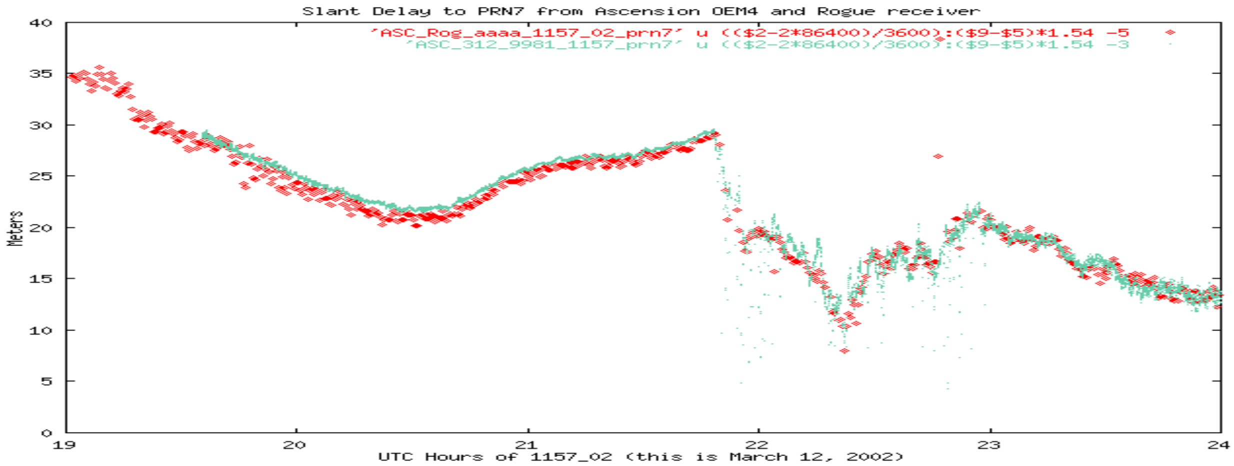


Figure 13. Depletion Measurements at Ascension Island, PRN 7, March 12, 2002

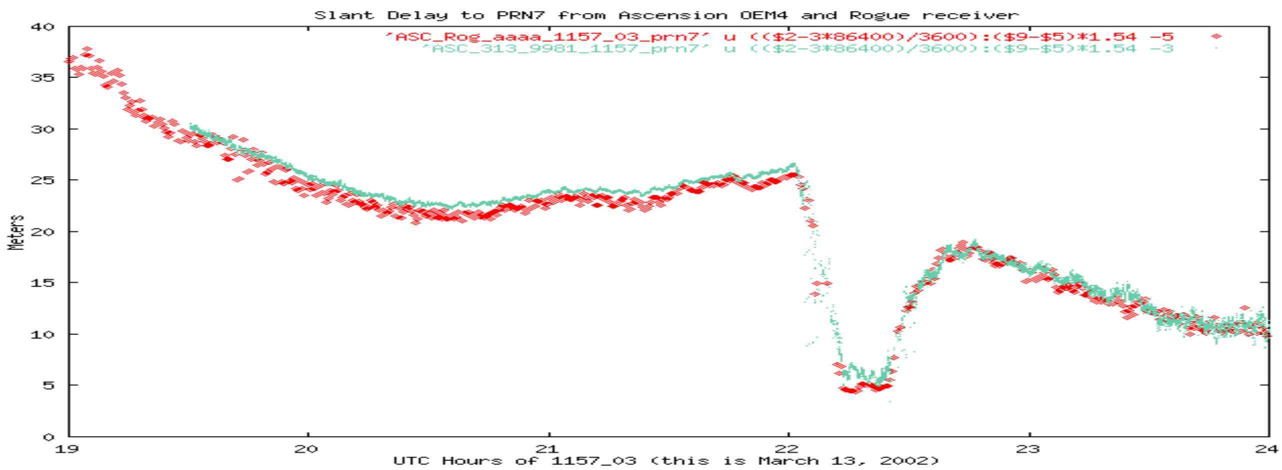


Figure 14. Depletion Measurements at Ascension Island, PRN 7, March 13, 2002

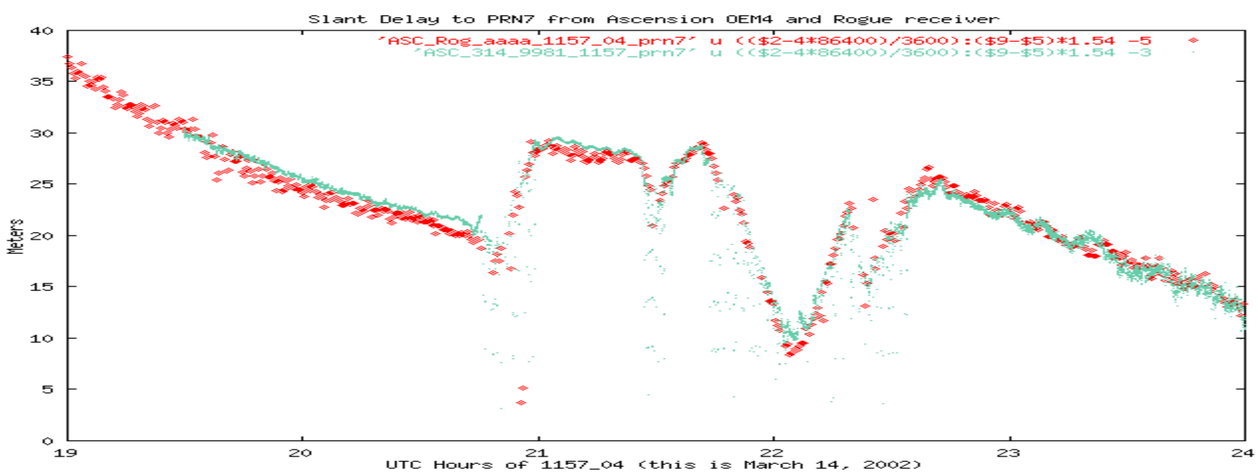


Figure 15. Depletion Measurements at Ascension Island, PRN 7, March 14, 2002

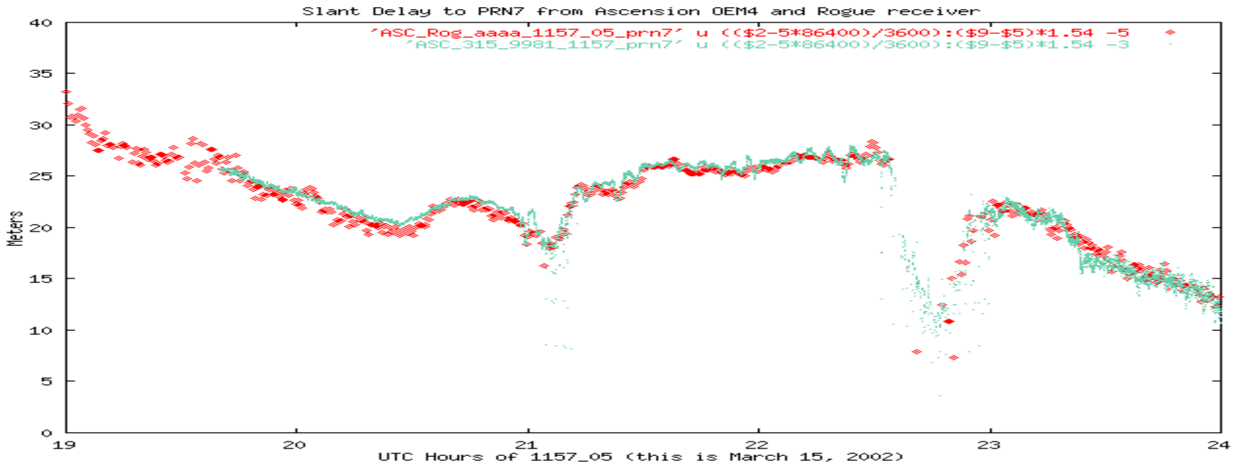


Figure 16. Depletion Measurements at Ascension Island, PRN 7, March 15, 2002

6.3.3 These figures show the extreme change in delay while the depletion exists in the years near the peak of the solar cycle (potentially over 30 meters of delay change). These figures also provide a graphic record that, when the season and times for depletion conditions exist, shows that they are very common. Later in the solar cycle, in 2004 for example, the observed depletions are generally smaller in magnitude (probably because the surrounding TEC is typically less than near the solar peak). A plot of the solar cycle is shown in Figure 17. (Thanks to www.sec.noaa.gov)

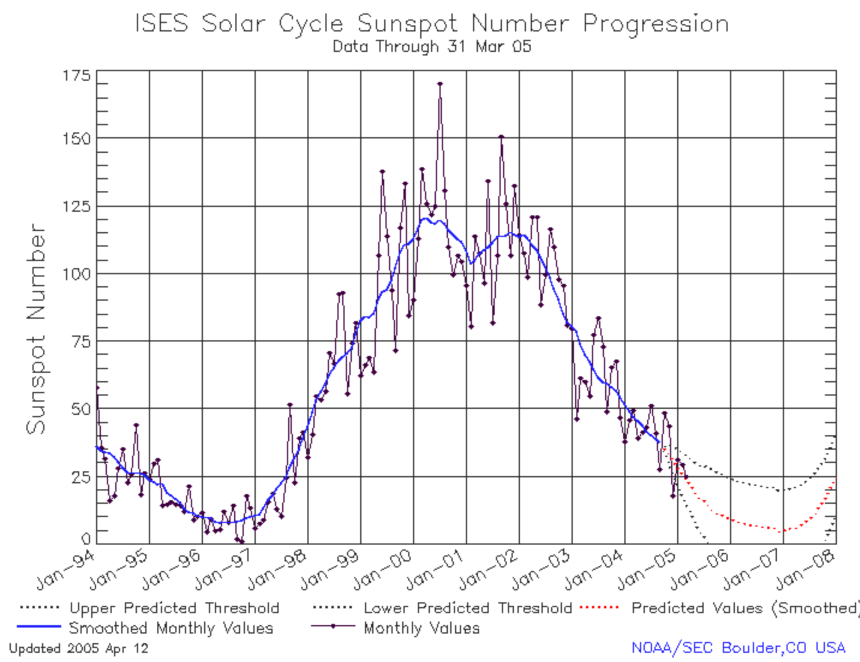


Figure 17. Current Solar Cycle

6.3.4 Figure 18 shows a depletion in October 2003 – 2 years further down the solar cycle than the previous depletion plot from Brazil (Figure 11). Figure 18 shows a depletion with a smaller magnitude, as should be more typical in non-solar-peak years.

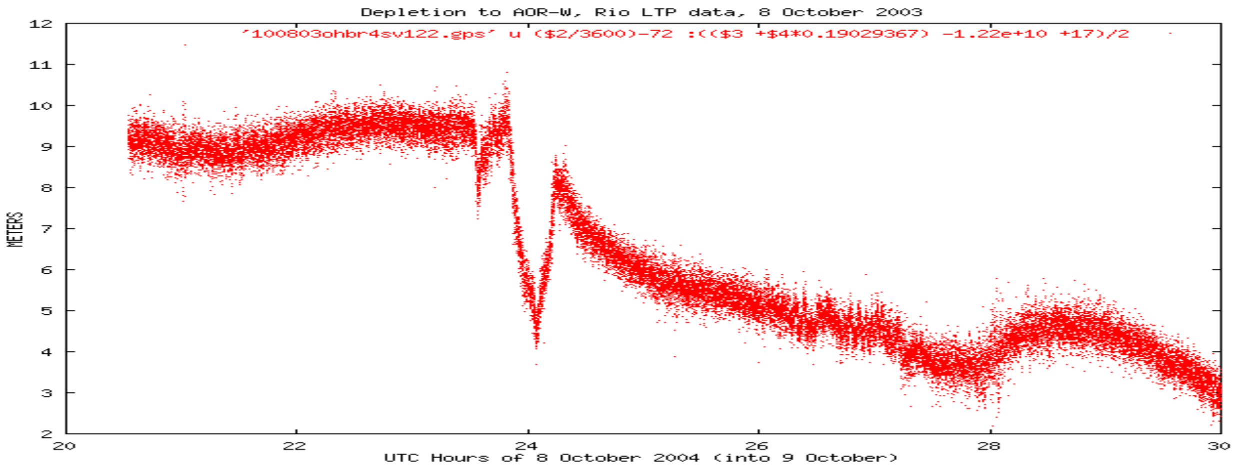


Figure 18. Smaller depletion in GEO link, October 8, 2004, from Rio De Janeiro LTP data.

6.3.5 The next section will further investigate the frequency of depletion occurrence in relation to the solar cycle, time of day, and season.

7. Depletion Frequency of Occurrence Near the Geomagnetic Equator

7.1 Previous studies of equatorial depletions have also characterized their frequency of occurrence. For example, depletions exist in Brazil as often as 86% of the evenings in the month of January [10].

7.2 Depletions are banana shaped holes in the ionospheric plasma that are aligned North – South from the geomagnetic equator. A convenient indicator of the existence of depletions on any given night is the fluctuation caused in the receiver reported GPS C/N_0 ratio. The fluctuations are due to the scintillation that occurs in conjunction with the depletions. The most convenient satellite to use for these observations is the GEO transmitting the FAA WAAS correction signal on L1.

7.3 Figure 19 shows the fluctuations in the GEO signal to noise ratio (SNR) from receivers in Recife, Brasilia, and Rio de Janeiro (receivers are increasingly further from the geomagnetic equator but not in a straight line). Figure 19 shows strong fluctuations on two of the four nights in the Rio de Janeiro area, in October 2001, while the receivers further north show more days of occurrence. The nights and places where signal fluctuations are seen support the general understanding of the depletions. They start on the geomagnetic equator and grow North and South until they reach the maximum extent under the existing conditions.

7.4 Figures 20-22 show this data recorded for three weeks in January 2004 (several years after the peak of the solar cycle). These figures show the similar characteristics of a higher probability of occurrence closer to the geomagnetic equator, but if depletions reach the Rio de Janeiro area, the fluctuations can still be strong. From these figures, it appears that the magnitude of the fluctuations has decreased, several years from the peak of the solar cycle, as is expected by studies on scintillation [11]. Figure 20 makes this point clear since scintillation only reached the line of sight from Rio de Janeiro to the Atlantic Ocean Region – West (AOR-W) Inmarsat GEO once during the week (elevation angle about 60 degrees looking roughly Northwest). The shape and extent of the depletions suggests that the number of satellite links affected and severity will be dependent on site location with respect to the geomagnetic equator. From Rio de Janeiro, for example, an azimuth angle looking north to the satellite is more likely to pass through a depletion on any night when depletions exist.

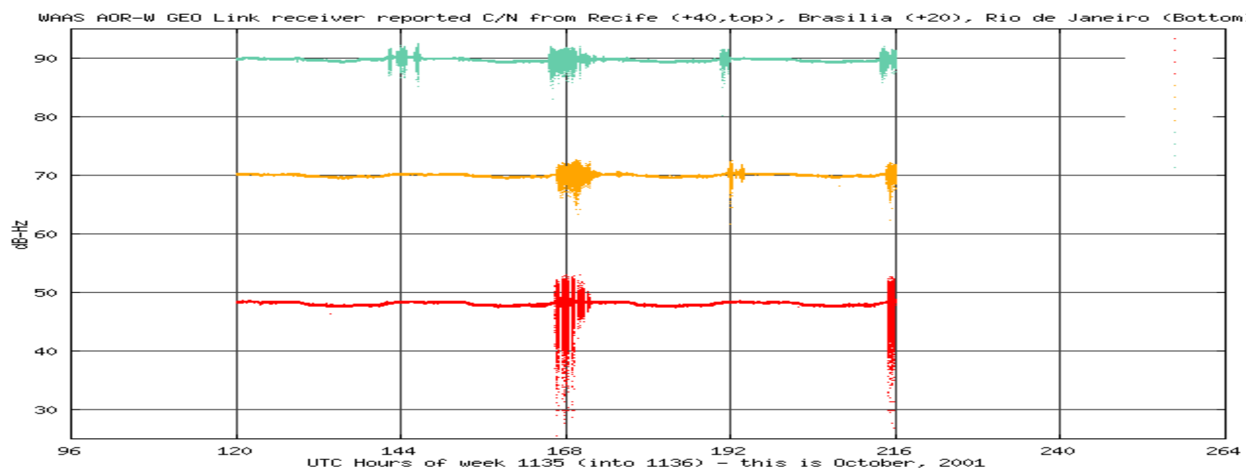


Figure 19. WAAS AOR-W GEO SNR fluctuations recorded by the Brazil Testbed, October, 2001

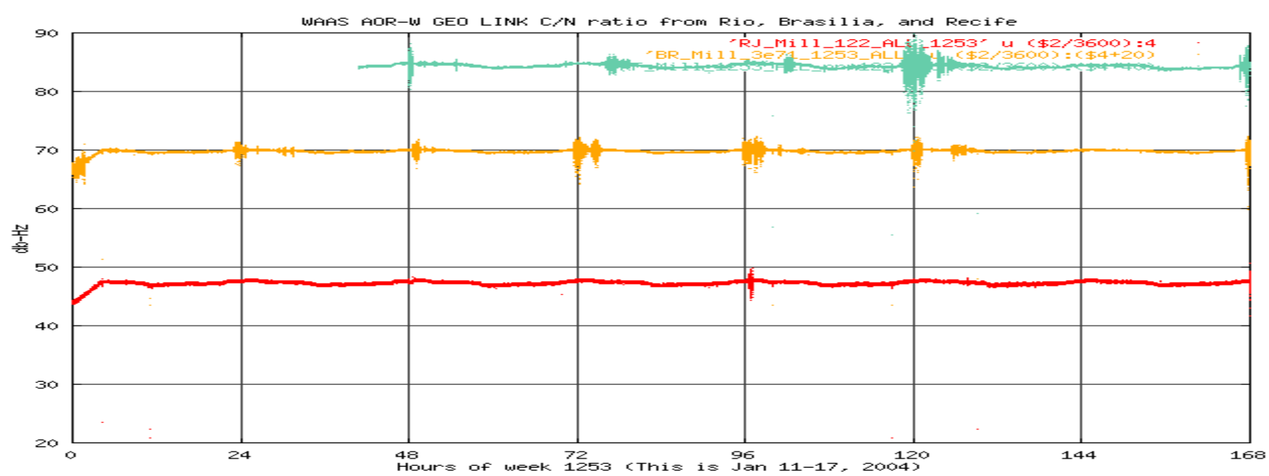


Figure 20. WAAS AOR-W GEO SNR fluctuations recorded by the Brazil Testbed, Jan 11-17, 2004

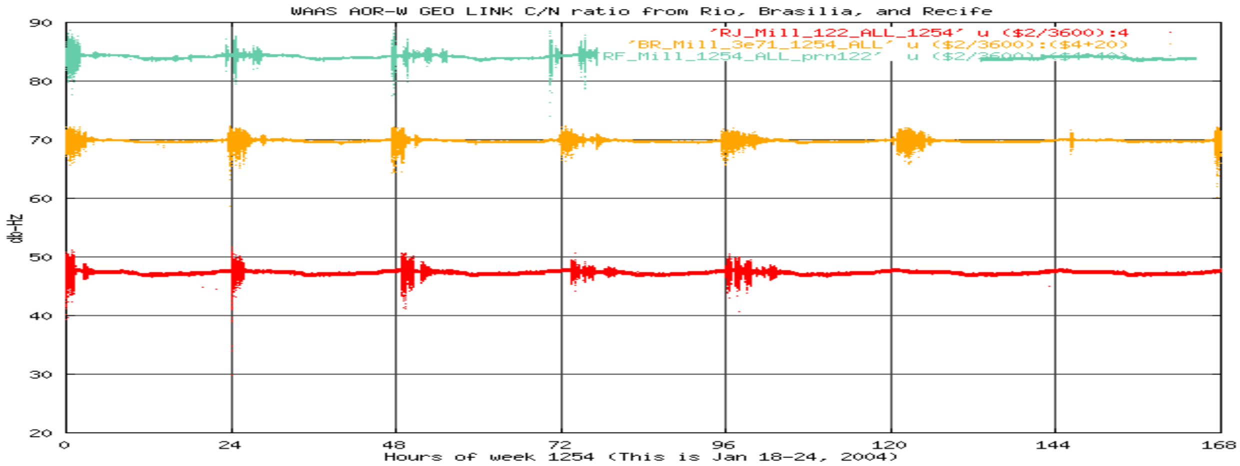


Figure 21. WAAS AOR-W GEO SNR fluctuations recorded by the Brazil Testbed, Jan 18-24, 2004

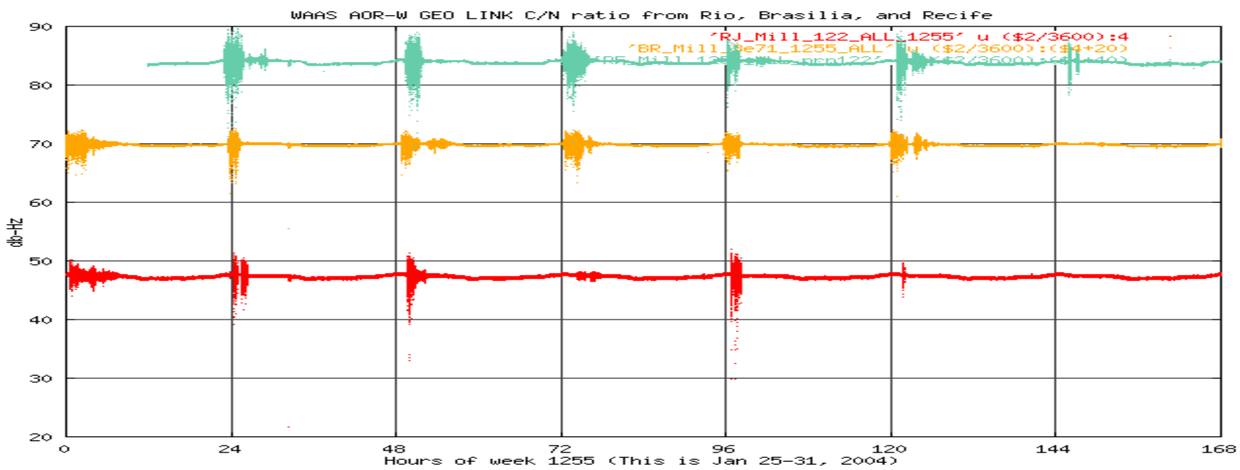


Figure 22. WAAS AOR-W GEO SNR fluctuations recorded by the Brazil Testbed, Jan 24-31, 2004

8. Dropouts Due to Scintillation

8.1 The final challenge to be overcome is receiver dropouts due to scintillation. The previous section showed signal fluctuations on the GEO link to sites in Brazil during depletions. The fluctuations, by themselves, are not detrimental to GPS performance. It is detrimental; however, if the scintillation causes strong enough fading to cause code (or carrier loop) loss of lock between the receiver and the satellite signals. Figure 11 showed a plot of OEM4 GPS receiver data using (code-carrier)/2 – repeated loss of lock starting about hour 23 is evident.

8.2 ***Since there are not yet specific performance requirements for aviation receivers under scintillation, and scintillation is only seen very rarely at mid-latitudes, this is an issue that may need further investigation and specification***.

9. Continuing Research

9.1 Research continues on how to solve the problems of safe interpolation/extrapolation of ionospheric delay from GPS augmentations systems to L1-only airborne users. The worst irregularities, or non-planar features, are formed in the ionosphere by geomagnetic storms in mid-latitudes and, more commonly, by Earth's ionospheric physics in areas near the geomagnetic equator.

9.2 The ultimate answer is the use of dual frequencies, such as the second civil frequency for GPS, called L5. A second civil frequency will permit the aircraft to directly measure the ionospheric delay and compensate for it, instead of trying to have the ground augmentation system estimate what ionospheric delay the aircraft's measurements might be experiencing at any given location. The additional civil frequency will not completely solve the problem of dropouts due to scintillation, and thus further research and specification in this area may be needed.

10. Second Civil Frequency

10.1 Non-aviation civil users will be the first group able to conduct dual frequency measurements on ionospheric delay with the introduction of the new L2C signal. L2C will not be available for civil aviation safety-of-life uses since it is not in a frequency band protected for aviation safety-of-life applications.

10.2 The L5 signal is a robust new signal designed to meet the needs of aviation users. It provides greater resistance to interference and improved acquisition properties. The data message will be new, and is designed to meet the accuracy needs and provide flexibility required by future users. The addition of this third civil frequency will provide worldwide, continuous availability of ionospheric measurement to all civil users.

10.3 Full capability of these signals will be provided when sufficient satellites are launched to provide adequate global coverage, and the GPS Control Segment is enhanced to monitor and control them. Initial operating capability (IOC) for L2C is approximately 2010, with full operating capability (FOC) in 2012. L5 IOC is approximated for 2013 with FOC in 2015. These schedules are approximate and therefore subject to change.

11. Conclusions

11.1 Satellite Navigation for aviation provides an almost quantum leap in capability above conventional navigation aids, and the effects of the ionosphere on services like en route navigation and non-precision approach are almost nil. The use of satellite navigation for precision vertical guidance, however, requires precise correction and bounding of ionospheric delay estimation errors.

11.2 WAAS has already experienced major geomagnetic storms where vertical guidance has been automatically disabled for periods lasting several hours over the United States. Ionospheric features that exist often in areas near the geomagnetic equator continue to be studied, but a solution using a single-frequency SBAS system to provide vertical guidance has not yet been defined, at least for times when these severe features exist.

11.3 It is hoped that this information paper can continue to contribute to the dialogue between aviation system planners, developers, ionospheric scientists, and users in the U.S. and around the world, by raising the common awareness and understanding of these challenges to global SBAS operation.

11.4 The meeting is requested to note the material presented in this information paper. For additional information on the ionospheric research ongoing in the U.S. and within Regional Project for Latin America, RLA/00/009, please contact:

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Technical Lead, National Satellite Test Bed (NSTB)
FAA William J. Hughes Technical Center
Phone: (609) 485-4790
Email: tom.dehel@faa.gov

12. *Acknowledgements*

12.1 We would like to acknowledge the excellent assistance from coworkers at the FAA Technical Center in developing software and analyzing data; to the Air Force Research Labs for the Ascension data; to FAA Headquarters for their support; to our friends in Brazil and around the world, without whom none of this work would be possible; and to the many ionospheric scientists from whom we have learned a great deal.

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APPENDIX BE

OVERVIEW ON THE SECONDARY SURVEILLANCE RADAR SYSTEM IN MODE S

Generals

1. SSR is used either as autonomous system or in common movement and synchronised with the primary radar of surveillance (PSR). The ground equipment is an interrogator and the aircraft equipment is a transponder responding to the signals issued by the interrogator. All SSR facilities operate in 1,030 MHz for the air-ground interrogation signal and in 1,090 MHz for the air-ground response. The wide utilisation of the repetitive pulse frequency (RPF) discrimination and the techniques for treatment of the radar points plan, help to reduce the number of invalid responses processing the ground-reception system.

2. SSR employs Mode A to transmit the identification and Mode C to transmit the altitude precision information. Mode S uses the aircraft selective routing and its capacity of data link is limited. Mode S has been established as a permanent need, especially in some high-density air traffic airspace parts.

Mode-S Secondary Surveillance Radar System

3. The Mode-S Secondary Surveillance radar system is a new radar generation that shall replace the current SSR. The general principle of the SSR is to interrogate transponders on board of aircraft, which, as per the interrogation received respond to the aircraft identification (Mode A) or its flight level (Mode C).

4. The current identification methods of SSR have reached its limit, it is always more difficult to assign a unique code Mode A to an individual flight, creating high risk in lack of identification.

5. Mode S radars overcome these difficulties identifying all aircraft individually on a global basis. Hence, their name “S” (selective). Thus, Mode S is based in the selective routing concept in which each aircraft is identified by a single ICAO Code composed of 24 bits; it represents the routing of the aircraft.

6. The selective function of these radars ensures the data integrity and increases the probability of detection. The Mode S radar operates in the same frequency of conventional SSR radars (1030 MHz for ascending link and 1090 MHz for descending link) and is compatible with SSR Mode A and C.

7. Also, the Airborne Collision Avoidance System (ACAS II) uses the Mode S transponder when both systems are connected.

8. ICAO SARPs related with Mode S are contained in Annex 10, Volume III, Chapter 5 (SSR Mode S air-ground link), Chapter 9 (Plan of aircraft directions), Annex 10 Volume IV, Chapters 2 and 3, and Document 9684 (Manual on secondary surveillance radar (SSR), as well as Document 9688 (Manual in Mode S – specific services).

APPENDIX BF

OUTLOOK ON THE ADS-C AND ADS-B SYSTEMS DEVELOPMENT

References:

- Global Air Navigation Plan for CNS/ATM systems – Second Edition -– 2002. (Doc 9750 – AN/963).
- Report of the AN-Conf/11. Montreal, 22 Set. – 3 Oct. 2003.
- Annex 10, Volumes III and IV.
- Annex 11 y Doc 4444.
- Data links applications for the air traffic services (Doc 9694).

1. *ADS SYSTEM*

1.1 The automatic dependent surveillance (ADS) is an application for the ATS use in which the aircrafts transmit to the ATC automatically, through the air-ground data communications, information, sufficiently accurate and reliable, derived from the airborne navigations systems. As a minimum those data include the aircraft identification and in three-dimensional position, but additional data may be provided as appropriate. The ATC system would use the ADS data to present information to the controller and it must also have the capacity to exchange messages between the pilot and the controller, through data and voice links, in order to perform emergency and non-routine communications.

1.2 The ADS may provide surveillance services in the following areas:

a) where the current infrastructure lacks of radar surveillance services in particular the oceanic areas and other in which the conventional systems are difficult, very expensive or impossible to implement;
b) in high density air traffic areas where it may serve as an adjunct and/or back-up for the secondary surveillance radar (SSR) thereby reducing the need for primary surveillance radar (PSR); and
c) in some circumstances, it may substitute the secondary radar.

2. *ADS-B SYSTEM*

2.1 The automatic dependent surveillance-broadcast (ADS-B) is an application of the ADS technique defined by ICAO as a surveillance technique which an aircraft periodically and automatically broadcasts, through data links in a broadcast mode, derived data of the airborne navigation systems and its four-dimensional position, including the aircraft identification and additional information when required. The broadcast signals could be received and processed by the aircrafts and ATM units under the coverage of those signals. Nowadays, the ADS-B is defined only for line-of-sight operations (e.g. broadcast over VHF digital link or by SSR Mode S extended squitter).

2.2 ADS-B facilitates ATM automation, as a subsystem of the future ATN, given its component of inter-operability that ensures interconnectivity with radar systems and other communication subsystems by data link communications at a national, regional and global scale.

2.3 Tests carried out in other ICAO regions of the world on the performance of the ADS-B system have superseded the expectations with operational applications in diverse scenarios for all flight phases, an excellent coverage and updated information rate superior than the performance level expected from a secondary radar installed in the same site, the human performance is better than with the radar and the identity data is received reliably.

2.4 The ADS-B goes beyond the traditional surveillance service, since it takes into account the heterogeneous and evolutionary situation of the available ground infrastructure, extending its capability in air-air, air-ground and ground-ground applications through the interaction among the airborne and ground elements and ATM automated systems; as well as the performance of the human element for the collaborative decision-making process.

2.5 The surveillance levels attained by the ADS-B are the elementary surveillance, the perfected surveillance (using the status vector), the objective-based surveillance (using the envisaged path) in terrain and on the air, as applicable, providing additional data such as the status vector and the envisaged path of “gate-to-gate” operations, which is to say, airport surveillance. Likewise, the ADS-B allows to increase the capacity of the future ATM system and to improve the safety levels.

Scenarios of the global ATM defined to obtained improvements by ADS-B

2.6 The Global Air Navigation Plan for CNS/ATM systems defined that improvements could be obtained through ADS and ADS-B functions in the following type of spaces:

- oceanic/continental en-route airspace with low density traffic;
- oceanic airspace with high-density traffic;
- continental airspace with high-density traffic;
- terminal area with high-density traffic; and
- terminal area with low-density traffic.

ADS-B Application

2.7 The AN-Conf/11 identified an initial set of operational applications of air-ground and air-air surveillance through the ADS-B, suitable for the high density traffic areas, without excluding other areas, and among these applications are the following:

ADS-B main applications for ATC surveillance:

2.8 If aircrafts are well equipped, ADS-B could be used to:

a) to complete the coverage of SSR (to cover areas without secondary radar coverage);
b) replace the SSR service in areas with low and medium traffic density;
c) en-route airspace;
d) terminal areas;
e) as the basis for a air traffic presentation of the piloting position (CDTI); and
f) for the surface movement, therefore becoming an alternative for the surface radar such as the airport surface detection equipment (ASDE) and the Advanced Surface Movement Guidance and Control System (A-SMGCS).

ADS-B main applications for airborne surveillance:

a) enhanced traffic situational awareness on the airport surface;
b) enhanced traffic situational awareness during flight operations;
c) enhanced visual acquisition for see and avoid;
d) enhanced successive visual approaches;
e) enhanced sequencing and merging operations;
f) in-trail procedure in oceanic airspace; and
g) enhanced crossing and passing operations.

ADS-B Technology

2.9 The Eleventh Air Navigation Conference (AN-Conf/11), by Recommendations 1/6 and 1/7 approved the use of the concept of ADS-B as an enabler of the global ATM operational concept contributing to achieve the global interoperability. Likewise, based in Recommendation 7/1 of the An-Conf/11, GREPECAS, through its Conclusion 12/44 guided to the initial use of data links SSR Mode S extended squitter for the ADS-B implementation in the CAR/SAM Regions.

2.10 The surveillance systems established have limitations that could not satisfy the capacity, flexibility and efficiency needs which are required to fulfil the air traffic growth in the future. To overcome these limitations the aeronautical industry has developed various surveillance technologies including the data links SSR Mode S 1090 MHz extended squitter (1090 ES) as a mean of interoperability for ADS-broadcast in a short term. The 1090 ES system can support an air-ground coverage up to more than 200 NM to provide ATC surveillance, depending on the configuration and location of the ground stations. Also, air-air coverage of more than 100 NM depending on the avionics configuration used and the air traffic density involved.

2.11 Other technologies are being studied as candidates for the ADS-B data links, among them are the VDL in Mode 4 and the universal access transceiver (UAT).

Avionics

2.12 Boeing and Airbus are installing the ADS-B 1090ES capacity diffusion in their new aircrafts. Also, various ACAS installations could be ready to be updated for 1090ES transmissions. These avionic technologies for ADS-B data links are already in the market and are being successfully use, this has encouraged the users to its equipment installation.

Essential technical requirements for ADS and ADS-B

2.13 The essential technical requirements for the ADS-C and the ADS-B implementation systems are the following:

Technical requirements for the implementation of the ADS-C and ADS-B in the short term			
No.	Technical requirement	**ADS-C**	**ADS-B**
1	Position data supplied by the airborne navigational equipment.	✓	✓
2	Message time stamp within one second coordinated universal time (UTC).	✓	✓
3	VHF data communication links by air-ground or bi-directional satellite.	✓	
4	Unidirectional data links by spontaneous extended squitter of the SSR in Mode S.		✓
5	A ground infrastructure that provides ATC information.	✓	✓

Benefits

2.14 The ADS-B provides important benefits in view of its support capabilities to air navigation through the ground-based stations system to increase coverage or by a digital communications network such as controller-pilot data link communications (CPDLC) and of meteorological data to support the provision of ATC and FIS in the lower and upper airspace, and SAR in the lower airspace. Moreover, it facilitates the application of other capabilities such as traffic synchronization and conflict management to comply with new ATM operational requirements.

2.15 For conflict management, the ADS-B uses air-ground data link communications that support other automatic components for ATC surveillance such as short-term conflict alert, offset advisories to an assigned route and altitude and violation to special use airspace advisories, which will undoubtedly improve ATS safety.

2.16 Moreover, for the application of the interphase for the ADS-B provides potential benefits significantly reduces the workload of ATC controllers, as well as the negative impact of human resources, and it increases the precision of data which also results in the increase of safety.

2.17 For the future environment, the ADS-B provides potential benefits to the ATM community with new key operational applications in a more advanced and global ATM environment and it offers to widen its coverage to other mixed surveillance capabilities for crew as well as for air traffic services.

Cost of the ADS-B system implementation

2.18 The ADS-B system implementation is a very useful surveillance option and some pioneering States determined its lower cost than the secondary surveillance radar.

APPENDIX BG

STATUS OF THE SARPS AND GUIDANCE MATERIAL ON ADS-C AND ADS-B

1. ICAO has published operational guidance material on ADS for air traffic services in Annex 2, Annex 11 and Doc 4444, and Doc. 9694. The Operational Data Link Panel (OPLINKP) developed the ADS-B concept, which was adopted by the AN-Conf/11 as a key application of data link for the future ATM system offering new surveillance capabilities to the aircraft crew and to the air traffic services. As a full environment of cooperation and collaboration it is included a new distribution of surveillance responsibilities between the flight crew and the ATS controller, and the ADS-B would serve as an important factor to facilitate various of the new global ATM operational systems components, including the traffic synchronizations and management of conflicts.

2. In accordance with Recommendation 1/6 of the AN-Conf/11, the OPLINKP is continuing with the investigation and development tasks in the ADS-B application areas, updating and maintaining the ADS-B use concept as far as necessary, as a based to develop the SARPs and the guidance material for the ground-air and air-air surveillance applications.

3. Annex 11 considered the ADS-B use for the air traffic services in emergency and ATC transfer messages. Likewise, Doc 4444, Air Traffic Management – Chapter 13 contemplates the ADS operational applications and meteorological aspects and position reports, and Doc. 9694 *Manual of Air Traffic Services Data Link Applications* contains the guidance material related to the ADS-B use.

4. Annex 10, Volume III contains the SARPs for the air-ground Mode S data links, including extended squitter. Volume IV of this Annex contains additional SARPS on the mentioned signals.

5. Currently, ICAO is developing work to include additional amendments on ADS-B in several of its documents. The overall intention of these proposals for amendment is to carry out procedures regarding the use of radar and ADS-B as identical as possible. The result of this, from the pilot's and the air traffic controller's perspective, is the provision of a highly up-to-date surveillance system technology. Other tasks assigned by the ANC to the OPLINKP include the operational concept of the Required Communication Performance (RCP), ADS-C, CPDLC and AIDC.

6. Regarding the ADS-B data links, based on studies carried out by the Aeronautical Mobile Communications Panel (AMCP), the AN-Conf/11 through Recommendation 7/1 Strategy for the near-term introduction ADS-B, adopted the implementation of SSR Mode S extended squitter recommending their national and regional implementation to facilitate global interoperability for the initial introduction of ADS-B. The Aeronautical Communication Panel (ACP) continues studying the VDL in Mode 4, the Universal Access Transceiver (UAT) and the SSR Mode S extended squitter as the candidates for the long term ADS-B data links. Recently, the ACP developed SARPs and preliminary guidance material on the UAT.

7. On the other hand, the Surveillance and Conflict Resolutions Systems Panel (SCRSP) under ANC tasks number CNS-9601 and CNS-9701 is developing new guidelines text and amendments to the existing texts that relate to the ADS-B and the Airborne Separation Assistance System (ASAS), as well as improvements to the SSR Mode S. The amendments to Annex 10 on ADS-B, SSR Mode S and ASAS and related documents are expected to be finalized in the fourth quarter of 2007.

APPENDIX BH

INITIATIVES FOR THE IMPLEMENTATION OF THE ADS-C AND ADS-B SYSTEMS IN THE CAR/SAM REGIONS

CAR Region

1. During the Special Eastern Caribbean Communication, Navigation and Surveillance Meeting (S-E/CAR CNS), held in Port of Span, Trinidad and Tobago, 20 to 22 August 2004, the delegation of that State informed their ADS-B implementation plans, initially in the FIR Piarco airspace. Consequently, the Meeting proposed the amendment of the FASID Table CNS 4A, adding in column 11 the "B" requirement (ADS-B) under Piarco (18 NM Northwest) and in column 12 "P" (planned).

2. Mexico and the United States are developing a plan in order to implement ADS-B in the Gulf of Mexico airspace. Also, the United States is planning to deploy ADS-B in the Oceanic Miami.

3. On the other hand, COCESNA has studied the feasibility to implement ADS and currently is studying the possibility for the ADS-B deployment in the oceanic portions (Caribbean Sea and Pacific Ocean) of the CENAMER FIR.

4. The Bahamas is studying the possibility to implement ADS-B in the Nassau FIR.

5. Haiti is planning to implement surveillance systems in the Port au Prince FIR, which includes a study on the feasibility to deploy ADS-B, specially when considering that the cost is lower than the SSR.

6. Other States and Territories of the CAR Region are studying the possibility to implement ADS or ADS-B.

SAM Region

7. Brazil would be implementing ADS-C in the Atlantic FIR. The ADS-C represents a mandatory requirement for the establishment of random routes in the EUR/SAM corridor. For this purpose, the Task Force Meeting SAT/11, held in Brazil from 13 to 16 April 2004, formulated Conclusion SAT/11 TF/18 on this respect.

8 The Aeronautical Administration of Chile, has initiated conversations with SITA regarding the financing of ADS-C connectivity service in its continental and oceanic airspace. It is foreseen that it would be implemented by the end of 2005.

9. Other States of the SAM Region are studying the possibility of the ADS-C or ADS-B implementation.

APPENDIX BI

POTENTIAL AIR SPACE TO IMPLEMENT ADS-C AND ADS-B CONSIDERED BY CAR/SAM STATES, TERRITORIES, AND INTL. ORGANIZATIONS / ESPACIOS AÉREOS POTENCIALES PARA IMPLANTAR ADS Y ADS-D CONSIDERADOS POR LOS ESTADOS/ TERRITORIOS/ORGANIZACIONES DE LAS REGIONES CAR/SAM

No.	State or Oganization/ Estado u Organización/ Center/Centro	Air Space/ Espacio aéreo	ADS Type/ Tipo	Status/ Estado	ADS-B data sharing with/ Intercambio de datos ADS-B con	Impl. Date Fecha de Impl.	Remark/ Observaciones
1	2	3	4	5	6	7	8
	CAR						
1.	Bahamas**/** **Nassau ACC**	Nassau FIR	ADS-B	S			**There are being carried out studies./Se están realizando estudios.**
2.	Haiti**/** **Port au Prince ACC**	Port au Prince FIR	ADS-B	S			**There are being carried out studies./Se están realizando estudios.**
3.	Mexico**/** **Mérida ACC** **Monterrey ACC**	Golf of Mexico (Central zone between Houston Oceanic and Mexico FIRs / Zona central entre las FIRS Houston Oceanic y México)	ADS-B	P	Houston ARTCC		**Based on an agreement Mexico - USA/ Basado en acuerdo México - Estados Unidos.**
4.	Trinidad and Tobago**/** **Piarco ACC**	Piarco FIR (Oceanic East Sector/Sector Este oceánico)	ADS-B	P			**There are being carried out more studies./Se están realizando más estudios.**
5.	United States**/** **Houston ARTCC** **Miami ARTCC**	Golf of Mexico (Central zone between Houston Oceanic and Mexico FIRs / Zona central entre las FIRS Houston Oceanic y México) Miami Oceanic FIR	ADS-B ADS-B	P P			**Based on an agreement Mexico - USA/ Basado en acuerdo México - Estados Unidos.**
6.	COCESNA**/** **Cenamer ACC**	Cenamer FIR (Caribbean and Pacific Oceanic sectors / Sectores oceánicos Caribe y Pacífico)	ADS-B	S			**There are being carried out studies./ Se están realizando estudios.**
7.		Other air spaces./ Otros espacios aéreos					**Pending of the studies/ Pendiente de estudios.**
	SAM						
8.	Brasil**/** **Atlántico ACC**	Atlántico FIR	ADS-C	P			**Trials have been carried out and It has an installation plan in the EUR/SAM corridor / Se han realizado ensayos y existe un plan de implantación en el corredor EUR/SAM.**
9.	Chile**/** **Chile´s ACC/ ACCs de Chile**	Chile FIRs (Continental and Oceanic air space./ Espacios aéreos continental y oceánicos)	ADS-C	S			**In the 2005 tests will be begun to implement ADS./** **En el 2005 se comenzarán pruebas para implementar ADS.**
10.		Other air spaces./ Otros espacios aéreos					**Pending of the studies/ Pendiente de estudios.**

P – Planned/Planificado S – Study/Estudio

APPENDIX BJ

REVIEWED ASTERIX SAC CODE ASSIGNMENT PLAN TO THE CAR/SAM REGIONS
PLAN REVISADO DE ASIGNACIÓN DE CÓDIGO SAC ASTERIX PARA LAS REGIONES CAR/SAM

State/Territory Estado/Territorio	SAC Code Format Formato Código SAC								Hexadecimal SAC Code Código SAC Hexadecimal
	B7	B6	B5	B4	B3	B2	B1	B0	
Anguilla (United Kingdom)	1	1	1	0	0	0	0	0	E0
Antigua & Barbuda	1	1	1	0	0	0	0	1	E1
Argentina	1	1	1	0	0	0	1	0	E2
Aruba (Netherlands)	1	1	1	0	0	0	1	1	E3
Bahamas	1	1	1	0	0	1	0	0	E4
Barbados	1	1	1	0	0	1	0	1	E5
Belize	1	1	1	0	0	1	1	0	E6
Bolivia	1	1	1	0	0	1	1	1	E7
Brasil	1	1	1	0	1	0	0	0	E8
Cayman Islands (United Kingdom)	1	1	1	0	1	0	0	1	E9
Chile	1	1	1	0	1	0	1	0	EA
Colombia	1	1	1	0	1	0	1	1	EB
Costa rica	1	1	1	1	1	1	0	0	EC
Cuba	1	1	1	0	1	1	0	1	ED
Dominica	1	1	1	0	1	1	0	1	EE
Dominican Republic	1	1	1	0	1	1	1	1	EF
Ecuador	1	1	1	1	0	0	0	0	F0
El Salvador	1	1	1	1	0	0	0	1	F1
Guadeloupe, French Antilles (France)	0	0	0	0	1		0		08
Martinique, French Antilles (France)	0	0	0	0	1		0	0	08
French Guiana (France)	00	0	0	0	1	0	0	0	08
Grenada	1	1	1	1	0	1	0	1	F5
Guatemala	1	1	1	1	0	1	1	0	F6
Guyana	1	1	1	1	0	1	1	1	F7
Haiti	1	1	1	1	1	0	0	0	F8
Honduras	1	1	1	1	1	0	0	1	F9
Jamaica	1	1	1	1	1	0	1	0	FA
Mexico	1	1	1	1	1	0	1	1	FB
Montserrat (United Kingdom)	1	1	1	1	1	1	0	0	FC
Netherland Antilles (Netherlands)	1	1	1	1	1	1	0	1	FD
Nicaragua	1	1	1	1	1	1	1	0	FE
Panama	1	1	1	1	1	1	1	1	FF
Paraguay	1	1	0	1	0	0	0	0	D0
Peru	1	1	0	1	0	0	0	1	D1
Puerto Rico (United States)	1	1	0	1	0	0	0	1	D2
Saint Kitts and Nevis	1	1	0	1	0	0	1	1	D3
Saint Lucia	1	1	0	1	0	1	0	0	D4
Saint Vincent and Grenadines	1	1	0	1	0	1	0	1	D5
Saint Maarten	1	1	0	1	0	1	1	0	D6
Suriname	1	1	0	1	0	1	1	1	D7
Tortola	1	1	0	1	1	0	0	0	D8
Trinidad and Tobago	1	1	0	1	1	0	0	1	D9
Turks and Caicos Is. (United Kingdom)	1	1	0	1	1	0	1	0	DA
United States (For sharing with CAR Region)	1	1	0	1	1	0	1	1	DB
Uruguay	1	1	0	1	1	1	0	0	DC
Venezuela	1	1	0	1	1	1	0	1	DD
Virgin Island (United Kingdom)	1	1	0	1	1	1	1	0	DE
Virgin Island (United States)	1	1	0	1	1	1	1	1	DF

Agenda Item 4 Air navigation planning and implementation deficiencies/problems in the CAR/SAM Regions

4.1 Report of the ASB/6 Meeting

4.1.1 The Chairman of GREPECAS presented the Report of the Sixth Meeting of the Aviation Safety Board, held on 13 November 2005, in Santiago, Chile. The Meeting recalled that the ASB had classified deficiencies in four Categories, as shown below:

Appendix A Specific deficiencies

Appendix B Deficiencies upon which ASB found requirements for region-wide action

Appendix C Corrected deficiencies

Appendix D Action Plan for resolving regional air navigation deficiencies.

4.1.2 The Secretariat presented the available updated information on the deficiencies classified as shown in the previous paragraph. This information was reviewed by ASB/6, based on the Uniform Methodology for the identification, assessment and reporting of air navigation deficiencies, which had been approved by the ICAO Council on 30 November 2001. Consequently, **Appendices A, B, C** and **D** to this Report, as modified, contain the information resulting from the review carried out by ASB/6. Although there are blank spaces in several columns of the appendices, it should be noted that the Lima and Mexico Regional Offices are continuously doing the follow-up through missions to the States, personalized letters, e-mails and, in some cases, by telephone.

4.1.3 Under this agenda item, the Meeting took note on the impact that the deficiency related to aerodrome maintenance had on safety. The Meeting was also informed that this was a region-wide deficiency and recalled that this matter was pending since GREPECAS/12. Consequently, it formulated the following conclusion, which would be an important contribution to the States/Territories, in preparation for the Universal Safety Oversight Audit Programme (USOAP):

CONCLUSION 13/90 REGIONAL ACTION FOR RESOLVING THE DEFICIENCIES RELATED TO AERODROME MAINTENANCE

That ICAO approve a Special Implementation Project (SIP) for the CAR/SAM Regions, in order to provide regional measures for resolving the deficiencies related to aerodrome maintenance in preparation for the systemic USAOP audits.

4.1.4 The Meeting took note that the ICAO Council had expressed considerable interest in the GREPECAS Decision 12/124, related to last-resort action for resolving deficiencies and had requested the ASB to report back to the Council on the actions taken in this respect, since there was interest in taking the same actions in other ICAO Regions. The Meeting was informed that, for the time being, there was no deficiency to be classified in this manner.

Deficiencies database

4.1.5 Upon reviewing the GREPECAS Air Navigation Deficiencies Database, the Meeting noted that the States of both Regions were not taking full advantage of the potential of this electronic tool, in the sense of providing updated information for said database.

4.1.6 In view of the above, the Meeting formulated the following decision:

DECISION 13/91 FOCAL POINTS FOR GANDD COORDINATION

That the CAR/SAM Regional Offices designate their respective focal points for coordinating the GANDD with the States/Territories/International Organizations, as follows: SAM Office, Mr. Arturo Martínez, am@lima.icao.int and NACC Office, Mr. Gabriel Meneses, gmeneses@mexico.icao.int.

4.1.7 The Meeting reiterated the action taken by GREPECAS/12 on the development of an action plan for resolving the identified deficiencies, including the difficulties encountered for taking corrective action.

4.1.8 The Meeting recalled that, when efforts to eliminate deficiencies prove unsuccessful after exhausting all alternatives, GREPECAS/12 had agreed to apply "last resort action" (Decision 12/124 refers). Taking this decision into account, the Meeting urged States to eliminate urgent deficiencies within next two years and subsequently would review its status during GREPECAS/15 with an intent to consider the application of last resort action, wherever applicable.

CONCLUSION 13/92 ACTION FOR RESOLVING URGENT AIR NAVIGATION DEFICIENCIES

That, with a view to resolving air navigation deficiencies, especially those that might have a negative impact on safety, States/Territories/International Organizations that have not yet done so:

a) develop and implement an Action Plan for each deficiency, based on the format presented in the **Appendix E** to this part of the Report, specifying corrective measures, the completion date, and assigning the necessary resources;

b) submit the action plan to the ICAO Regional Offices, no later than **30 June 2006**, indicating any difficulties encountered;

c) consider as a maximum two years **(31 December 2007)** for the elimination of “urgent” deficiencies, at which point the “last resort action” will be considered (GREPECAS Decision 12/124); and

d) make utmost use of the GANDD.

4.1.9 Likewise, the Meeting took note of the need for States to have specialized and trained personnel to correct air navigation deficiencies.

ATM Deficiencies

4.1.10 The Meeting was informed that most of the ATM deficiencies are referred to the lack of use of ICAO aeronautical phraseology and of the English language by air traffic controllers, recognizing that both deficiencies also involved the pilots operating in the region.

4.1.11 The Meeting took note that Annex 1 contained a standard related to the optimum level of English to be attained by aeronautical personnel, and their continuous training to ensure their level of proficiency in the English language, and to make sure that, by 2008, all of the States will have implemented an English language proficiency system. The Meeting also agreed that the implementation of ATS quality assurance programmes could minimize the deficiency related to the misuse of ICAO phraseology. In order to validate the efforts made by the CAR/SAM Regions to resolve these two deficiencies in particular, the Meeting agreed to conduct a survey through IATA and IFALPA.

4.1.12 Based on the above, the Meeting took note of the offer made by IATA, IFALPA and IFATCA to work together with ICAO in the preparation of said survey, and adopted the following conclusion:

CONCLUSION 13/93 FOLLOW UP OF ATM DEFICIENCIES

That ICAO, together with IATA, IFALPA and IFATCA, prepare a survey to follow-up and verify the status of the deficiencies related to aeronautical phraseology and the use of the English language in the CAR/SAM Regions.

AGA deficiencies

4.1.13 The Meeting took note that, with the implementation of the CAR/SAM Regional Bird Hazard and Wildlife Prevention Committee (CARSAMPAF), of National Committees and Airport Coordination Committees, the regional bird and wildlife hazard deficiency is considered as corrected, and will only appear for those States that have specific bird hazard and wildlife problems.

MET deficiencies

4.1.14 Regarding MET deficiencies, the Meeting noted that, in most CAR States, the meteorological service had been assigned to the national meteorological services, which report to agencies that do not belong to civil aviation. Likewise, the Meeting considered that it was important for States/Territories to be aware that the provision of this service remained the responsibility of the civil aviation authority.

AIS deficiencies

4.1.15 The Meeting noted that IATA will provide information about those States that had problems with WGS-84 implementation. The Meeting was also informed that ICAO was considering the approval of a Special Implementation Project (SIP) for full WGS-84 implementation under the IFAAS.

4.1.16 The Meeting received information about a project in Jamaica to correct MET and AIS deficiencies, which would start in December 2005, and would be completed by January 2006.

4.1.17 The Meeting noted that additional information was required regarding the list of deficiencies presented by IATA, so that they could be integrated into the air navigation deficiencies database. In view of the above, the Meeting adopted the following decision:

DECISION 13/94 AIR NAVIGATION DEFICIENCIES PRESENTED BY IATA

That:

a) IATA make a thorough review of the list of deficiencies presented to the Meeting and send it to the corresponding Regional Offices within a **period not to exceed three weeks**;

b) upon receiving said deficiencies, ICAO send them to the corresponding States for their validation within a **period of two months**; and

c) the Regional Offices enter those deficiencies, as validated by the States, in the GREPECAS Air Navigation Deficiencies Database.

4.2 Specific air navigation planning and implementation deficiencies/problems in the CAR/SAM Regions

4.2.1 Upon reviewing the status of high-priority deficiencies (“A”), which affect the safety of air navigation, as well as “B” deficiencies, which affect the regularity and efficiency of air navigation, and based on the information collected by the ICAO Regional Offices and reviewed and updated by GREPECAS contributory bodies, as well as the information provided by some States through the Air Navigation Deficiencies Database (GANDD), the Meeting examined the tables containing information on “valid deficiencies”; the “Action plans and corrective measures of the States” and the “deficiencies that have been corrected or eliminated”.

4.2.2 As a result of this analysis, and recognizing the problems that States/Territories/Organizations were having in terms of obtaining resources for the implementation of ANP requirements, the Meeting stressed the convenience of using the methodology established by ICAO, as well as the need to report deficiencies, and to verify and update them using the valuable tool of the GANDD database. ICAO made a presentation to show how the GANDD could be accessed and used.

4.2.3 This presentation and the circular letters that have been sent have allowed the Sates/Territories/International Organizations to learn about the procedures for accessing and using the air navigation deficiencies database (GANDD) through the address www.mexico.icao.int/bases, entering a user name and a password assigned to the person designated by each Administration. Instructions for access appear in **Appendix F** to this part of the Report.

4.2.4 During the discussion of this item, Brazil submitted a proposal for harmonizing the documentation on air navigation deficiencies, concerning the use of the GANDD, since some information on Brazil and some working papers had not been incorporated into the database. Thus, the information contained in the database would not reflect the actual number of deficiencies identified for Brazil.

4.2.5 On the other hand, COCESNA informed the Meeting that, in keeping with ICAO instructions for the update of the deficiencies database, COCESNA had coordinated and taken action with the Central American States to update and resolve each of the deficiencies of the various States and of its own, and urged other States to use the ICAO GANDD, since it was a useful and user-friendly tool.

4.2.6 Likewise, Cuba informed about the measures taken by its Administration to resolve the deficiencies in the various air navigation areas. Likewise, the Meeting took note of conclusion 13/92, formulated by the ASB/6, which equally applies to A and B priority deficiencies.

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA Bahamas												
AGA 59 C	Fencing (Annex 14, Vol. I, Chap. 8.4)	Bahamas, NORTH ELEUTHERA, North Eleuthera	Access of vehicles and animals to the manoeuvring area	1999	IFALPA Meeting November 2000	Repair the fence. Implement security measures	Bahamas	31/10/02	U	2 - State Letter sent		
AGA 318 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4 - 9.4.3, 4 & 10)	Bahamas, NASSAU, Nassau Int'l	The runway pavement surfaces are in very poor condition with irregularities, FOD and rubber deposits (Runway 14/32 is in worse condition than Runway 09/27)	05/2002	ICAO Visit May 2002	Upgrade the runway pavements	Bahamas	TBD	U	State letter to be sent		
AGA 64 C	Rescue and Fire Fighting Service and Airport Emergency Planning (Annex 14, Vol. I, Chap. 9.1 & 9.2)	Bahamas, FREEPORT, Grand Bahama Intl	No RFFS facility with direct access to the runway is provided as required in Annex 14 , Vol. I Section 9.2.19, 22, 25 & 26)	10/2000	ICAO Visit October 2000	Provide a RFFS facility with direct access to the runway	Bahamas	03/2004	U	1 - State Letter sent		
AGA 306 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 5.2.7.1)	Bahamas, NASSAU, Nassau Int'l	Runway 14/32 has no side stripe markings along part of its length	05/2002	ICAO Visit May 2002	Provide side stripe markings on runways	Bahamas	TBD	U	State letter to be sent		
AGA 309 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 5.2.9.3)	Bahamas, NASSAU, Nassau Int'l	Runway-holding position markings on some taxiways are incorrect in pattern	05/2002	ICAO Visit May 2002	Verify the pattern of runway-holding position markings and correct where necessary	Bahamas	TBD	U	State letter to be sent		
AGA 312 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 5.3.10.9 & 5.3.11.4)	Bahamas, NASSAU, Nassau Int'l	Runway threshold and end lights were observed to be white at one runway end	05/2002	ICAO Visit May 2002	Verify the colour of all airfield lighting and replace with lights of correct colour where necessary	Bahamas	TBD	U	State letter to be sent		
AGA 320 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 9.4.21)	Bahamas, NASSAU, Nassau Int'l	Runway and taxiway markings are faded	05/2002	ICAO Visit May 2002	Re-paint the runway and taxiway markings	Bahamas	TBD	U	State letter to be sent		
AGA 39 C	Visual Aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP 1)	Bahamas, NASSAU, Nassau Intl.	RWY and TWY markings missing or faded	1996	ICAO Visit October 2000 and May 2002 IFALPA Meeting November 2000	Require re-painting	Bahamas	2003	U	Action taken and ongoing 1. PAAST Follow-up visit undertaken and confirmed corrective action remains outstanding. 2. State reports will be corrected as part of imminent runway upgrading project.	Bahamas	Subject to verification

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action				
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA Belize/Belice												
AGA 168 C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4 - 3.4.1 & 7-11)	Belize, BELIZE CITY, Philip Goldson International	Runway end safety areas are not provided at both runway ends: •East runway end – vegetation, wet ground •West runway end – swamp	11/2001	ICAO Visit November 2001	Consider providing RESAs by not declaring stopways, clearing vegetation and strengthening the ground	Belize	TBD	U	State Letter sent		
AGA 166 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3 - 3.3.2)	Belize, BELIZE CITY, Philip Goldson International	Runway strip length at western runway end is insufficient	11/2001	ICAO Visit November 2001	Do not declare stopway for Runway 25	Belize	TBD	U	State Letter sent		
AGA 170 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 5.2.4.10)	Belize, BELIZE CITY, Philip Goldson International	Displaced runway threshold markings are still visible at both runway ends.	11/2001	ICAO Visit November 2001	Remove runway displaced threshold markings	Belize	TBD	U	State Letter sent		
AGA 171 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 5.2.8.3)	Belize, BELIZE CITY, Philip Goldson International	Taxiway centreline markings to guide aircraft turning around at east runway end are not provided	11/2001	ICAO Visit November 2001	Provide turn-around guidance centreline markings at east runway end	Belize	TBD	U	State Letter sent		
AGA 177 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 9.4.21)	Belize, BELIZE CITY, Philip Goldson International	PAPIs not working and runway lighting intensity reported to be deficient	11/2001	ICAO Visit November 2001	Repair PAPIs and runway lighting system	Belize	TBD	U	State Letter sent		
AGA Dominican Republic/República Dominicana												
AGA 45 C	Visual Aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP 1)	Dominican Republic, SANTO DOMINGO, Las Americas Intl	Runway markings faded	05/2000	ICAO Visit May 2000	Repaint runway markings	Dominican Republic	2005	U	Referred to PAAST.		Subject to verification
AGA El Salvador												
AGA 80 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4)	El Salvador, SAN SALVADOR, El Salvador Intl	Excessive rubber deposit on runway surface resulting in poor friction characteristics - Ref. Annex 14, Vol. I, Section 9.4.10	2000	ICAO Visit November 2000 IATA Report January 2001	Remove rubber from runway surface	El Salvador	TBD	U	2 - State Letter sent		
AGA Guatemala												
AGA 131 C	Bird Hazards (Annex 14, Vol. I, Chap. 9.5)	Guatemala, GUATEMALA, La Aurora	Birds were observed hovering above reported waste dump sites off the southern runway end	05/2001	ICAO Visit May 2001	Confirm bird hazard and implement necessary mitigation measures	Guatemala	TBD	U	State Letter sent		
AGA 130 C	Fencing (Annex 14, Vol. I, Chap. 8.4 - 8.4.1)	Guatemala, GUATEMALA, La Aurora	A dog was observed on the runway strip at the southern end	05/2001	ICAO Visit May 2001	Review perimeter fencing and gates for deficiencies and correct those identified to ensure animals can not enter the airfield. If the animals reside on the aerodrome, these should be removed.	Guatemala	TBD	U	State Letter sent		

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 28 C	Obstacles (Annex 14, Vol. I, Chap. 4)	Guatemala, GUATEMALA, La Aurora	Obstacles exist in the approach, take-off, transitional and inner horizontal obstacle limitation surfaces	12/1999	ICAO Visit December 1999 and May 2001 IATA Letter January 2001	ASB recommended:1. DGAC complete surveys to establish obstacles 2. DGAC remove, light and mark obstacles as appropriate 3. DGAC update AIP obstacle charts 4. DGAC update aerodrome obstacle safeguarding plan	Guatemala	TBD	U	Action taken and ongoing: 1. DGAC through IGN are implementing a survey of all obstacles affecting the aerodrome in conjunction with the WGS-84 survey 2. DGAC through the ICAO Technical Co-operation Project in Guatemala is implementing a study to evaluate the aerodrome obstacle conditions	Guatemala	Subject to verification
AGA 23 C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4)	Guatemala, GUATEMALA, La Aurora	No runway end safety areas are provided on both runway ends as specified in Annex 14 Vol I Section 3.4.1	12/1999	ICAO Visit December 1999 and May 2001	Provide RESAs	Guatemala	TBD	U	Action taken and ongoing: 1. ICAO provided DGAC with an illustration for the provision of RESAs through the reduction of declared distances 2. AGA/AOP/SG Task Force on RESAs evaluated Guatemala as a case study. 3. DGAC are still considering the future provision of RESAs through the reduction of runway declared distances by 90 m and the relocation of runway end lights at both runway ends.	Guatemala	Subject to verification
AGA 129 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3 - 3.3.2 & 6)	Guatemala, GUATEMALA, La Aurora	Runway end light pits and the disused localiser bases/bolts are objects in the runway strip at both runway ends	05/2001	ICAO Visit May 2001	Cover the lighting pits with aircraft load bearing covers Remove the disused localiser bases/bolts	Guatemala	TBD	U	State Letter sent		
AGA Haiti												
AGA 87 C	Bird Strike Hazards (Annex 14, Vol. I, Chap. 9.5)	Haiti, PORT AU PRINCE, Port au Prince Intl	Bird strikes reported	03/2001	IATA Report March 2001	Undertake bird hazard assessment to identify mitigation measures	Haiti	TBD	U	3 - State Letter sent		

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
Requirements		States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 62 C	Fencing (Annex 14, Vol. I, Chap. 8.4)	Haiti, CAP HAITIEN, Cap Haitien Intl	No perimeter security barrier	06/2000	ICAO Visit June 2000	Install perimeter security barrier	Haiti	En proceso	U	2 - State Letter sent		
AGA 29 C	Obstacles (Annex 14, Vol. I, Chap. 4)	Haiti, CAP HAITIEN, Cap Haitien Intl	Obstacles exist in the approach, take-off and transitional obstacle limitation surfaces	06/2000	ICAO Visit June 2000	Eliminate obstacles	Haiti	TBD	U	3 - State Letter sent		
AGA 81 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4)	Haiti, PORT AU PRINCE, Port au Prince Intl	Runway surface pavement rubber deposit accumulation.	06/2000	ICAO Visit June 2000	Remove rubber	Haiti	TBD	U	2 - State Letter sent		
AGA 68 C	Rescue and Fire Fighting Service and Airport Emergency Planning (Annex 14, Vol. I, Chap. 9.1 & 9.2)	Haiti, CAP HAITIEN, Cap Haitien Intl	RFFS deficient	06/2000	ICAO Visit June 2000	Upgrade RFFS	Haiti	TBD	U	1 - State Letter sent		
AGA 69 C	Rescue and Fire Fighting Service and Airport Emergency Planning (Annex 14, Vol. I, Chap. 9.1 & 9.2)	Haiti, CAP HAITIEN, Cap Haitien Intl	No AEP	06/2000	ICAO Visit June 2000	Prepare AEP and undertake emergency exercise	Haiti	TBD	U	1 - State Letter sent		
AGA	**Honduras**											
AGA 191 C	Bird Hazard (Annex 14, Vol. I, Chap 9.5)	Honduras, TEGUCIGALPA, Intl Toncontín	Several birds were observed flying over the waste disposal sites reported to be located near the northeast end of the runway and overflying the runway during aircraft operations	11/2001	ICAO Visit November 2001	Confirm bird hazard and implement mitigation measures as necessary.	Honduras	TBD	U	State Letter sent		
AGA 202 C	Bird Hazard (Annex 14, Vol. I, Chap 9.5)	Honduras, SAN PEDRO SULA, Intl. La Mesa	Big birds were observed on the runway strip	11/2001	ICAO Visit November 2001	Confirm bird hazard and implement mitigation measures as necessary	Honduras	TBD	U	State Letter sent		
AGA 188 C	Fencing (Annex 14, Vol. I, Chap. 8.4 - 8.4.1)	Honduras, TEGUCIGALPA, Intl Toncontín	A dog was observed on the runway	11/2001	ICAO Visit November 2001	Check for deficiencies in the perimeter fencing and gates to correct them and ensure that animals cannor enter the movement area. If animals live in the airport, to remove them	Honduras	TBD	U	State Letter sent		
AGA 184 C	Obstacles (Annex 14, Vol. I, Chap. 4 - 4.2.27)	Honduras, TEGUCIGALPA, Intl Toncontín	Obstacles infringing on the take off climb surfaces include topography and vegetation, on Runway 19 also includes fencing and road	11/2001	ICAO Visit November 2001	Remove fencing and road at the southern end or reduce declared distances for Runway 19	Honduras	TBD	U	State Letter sent		

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 190 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4 - 9.4.3, 4 & 10)	Honduras, TEGUCIGALPA, Intl Toncontín	The surface of the runway has irregularities in several areas, with loose stones and rubber deposits	11/2001	ICAO Visit November 2001	Remove loose stones through continuous monitoring, remove rubber and repair the runway pavement surface	Honduras	TBD	U	State Letter sent		
AGA 199 C	Rescue and Fire Fighting Service and Airport Emergency Planning (Annex 14, Vol. I, Chap. 9.1 & 9.2 - 9.2.19, 20, 25, 31, 32 and 38)	Honduras, SAN PEDRO SULA, Intl. La Mesa	It was reported that the extinguishing agents reserves are insufficient, the rescue equipment in vehicles is insufficient, vehicles are in poor condition, communications and alert systems are defficient and the protection equipment for the personnel is innadequate	11/2001	ICAO Visit November 2001	Maintain required extinguishing agent reserves Provide the required rescue equipment in vehicles Maintain vehicles in adequate condition Maintain adequate communications and alert systems Provide personnel with required protection equipment	Honduras	TBD	U	Referred to PAAST		No further report of action taken
AGA 182 C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4 - 3.4.1)	Honduras, TEGUCIGALPA, Intl Toncontín	There are no runway end safety areas at both ends of the runway	11/2001	ICAO Visit November 2001	Provide runway end safety areas by removing objects or reducing declared distances for the runway	Honduras	TBD	U	State Letter sent		
AGA 194 C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4 - 3.4.1)	Honduras, SAN PEDRO SULA, Intl. La Mesa	There are no runway end safety areas at both ends of the runway	11/2001	ICAO Visit November 2001	Provide RESAs by reducing stopways and declared distances	Honduras	TBD	U	State Letter sent		
AGA 179 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3 - 3.3.2)	Honduras, TEGUCIGALPA, Intl Toncontín	Runway strip length is insufficient in the southern part of the runway	11/2001	ICAO Visit November 2001	Increase runway strip length by removing objects or reducing declared distances for Runway 19	Honduras	TBD	U	State Letter sent		
AGA 192 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3 - 3.3.2)	Honduras, SAN PEDRO SULA, Intl. La Mesa	Runway Strip length is insufficient	11/2001	ICAO Visit November 2001	Provide runway strip by reducing declared stopways	Honduras	TBD	U	State Letter sent		
AGA 180 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3 - 3.3.5)	Honduras, TEGUCIGALPA, Intl Toncontín	Runway strip width is insufficient at both ends of the runway	11/2001	ICAO Visit November 2001	Increase runway strip width by removing objects or reducing runway declared distances	Honduras	TBD	U	State Letter sent		
AGA 195 C	Visual Aids (Annex 14, Vol. I, Chap 5 - 5.2.2.4 & 5)	Honduras, SAN PEDRO SULA, Intl. La Mesa	Runway designation markings at both ends are incorrect because they indicate the presence of two parallel runways	11/2001	ICAO Visit November 2001	Correct the runway designation markings	Honduras	TBD	U	State Letter sent		

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
Requirements		States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 196 C	Visual Aids (Annex 14, Vol. I, Chap 5 - 5.2.8.1)	Honduras, SAN PEDRO SULA, Intl. La Mesa	Markings on the parallel taxiway are incorrect because are for a runway	11/2001	ICAO Visit November 2001	Correct the centreline marking in the parallel taxiway and remove the runway markings	Honduras	TBD	U	State Letter sent		
AGA 198 C	Visual Aids (Annex 14, Vol. I, Chap 5 - 7.3.1)	Honduras, SAN PEDRO SULA, Intl. La Mesa	Runway 04 has incorrect chevron markings in the area located before the threshold	11/2001	ICAO Visit November 2001	Remove the chevron markings in the area located before the threshold on Runway 04	Honduras	TBD	U	State Letter sent		
AGA 201 C	Visual Aids (Annex 14, Vol. I, Chap 5 - 9.4.21)	Honduras, SAN PEDRO SULA, Intl. La Mesa	Runway markings are defficient	11/2001	ICAO Visit November 2001	Repaint runway markings	Honduras	TBD	U	State Letter sent		
AGA Jamaica												
AGA 24 C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4)	Jamaica, KINGSTON, Norman Manley Intl	No runway end safety areas are provided on both runway ends as specified in Annex 14 Vol I Section 3.4.1	10/2000	ICAO Visit October 2000	Provide runway end safety areas by extending the platform or reducing the declared distances	Jamaica	TBD	U	3 - State Letter sent		
AGA 25 C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4)	Jamaica, MONTEGO BAY, Sangster Intl	No runway end safety area is provided on the western runway end as specified in Annex 14 Vol I Section 3.4.1	10/2000	ICAO Visit October 2000	Provide runway end safety area by extending the platform or reducing the declared distances	Jamaica	TBD	U	3 - State Letter sent		
AGA 15 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3)	Jamaica, KINGSTON, Norman Manley Intl	Runway strip extension length and width at both runway ends is less than specified in Annex 14 Vol. I Sections 3.3.2 and 4	10/2000	ICAO Visit October 2000	Extend and widen runway strip or reduce runway declared distances	Jamaica	TBD	U	3 - State Letter sent		
AGA 17 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3)	Jamaica, MONTEGO BAY, Sangster Intl	Runway strip extension length on west runway end and width at both runway ends is less than specified in Annex 14 Vol. I Sections 3.3.2, 3 and 4	10/2000	ICAO Visit October 2000	Extend and widen runway strip or reduce runway declared distances	Jamaica	TBD	U	3 - State Letter sent		
AGA 19 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3)	Jamaica, MONTEGO BAY, Sangster Intl	Runway graded strip contains ponds and does not comply with the specifications in Annex 14 Vol. I Section 3.3.16	10/2000	ICAO Visit October 2000	Remove ponds in runway strip	Jamaica	TBD	U	3 - State Letter sent		
AGA Mexico												
AGA 150 C	Rescue and Fire Fighting Service and Airport Emergency Planning (Annex 14, Vol. I, Chap. 9.1 & 9.2 - 9.2.3)	Mexico, MONTERREY, Gral. Mariano Escobedo International	The rescue and fire fighting category is defficient for ocasional operations of B747, An-124 and A330 and regular operations of B767.	09/2001	ICAO Visit September 2001	To elevate the RFFS category from 7 to 8	Mexico	TBD	U	State Letter sent		

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 146 C	Runway end safety area (Annex 14, Vol. I, Chap. 3.4 - 3.4.1 and 7)	Mexico, CANCUN, Cancun International	The runway end safety area on the west end of the runway is not graded.	09/2001	ICAO Visit September 2001	To grade the runway end safety area.	Mexico	TBD	U	State Letter sent		
AGA 148 C	Runway end safety area (Annex 14, Vol.I, Chap. 3.4 - 3.4.1, 6 and 7)	Mexico, MONTERREY, Gral. Mariano Escobedo International	The runway end safety area on the south end of runway 16/34 has vegetation and it is not graded.	09/2001	ICAO Visit September 2001	To remove vegetation and to grade the runway end safety area.	Mexico	TBD	U	State Letter sent		
AGA 152 C	Visual Aids (Annex 14, Vol. I, Chap. 5, 9.4.21 and ANP, Table AOP1)	Mexico, MONTERREY, Gral. Mariano Escobedo International	The centreline marking on Runway 11/29 is defficient	09/2001	ICAO Visit September 2001	To repaint the runway centreline markings	Mexico	TBD	U	State Letter sent		

AGA Netherlands Antilles/Antillas Neerlandesas

AGA 257 C	Rescue and Fire Fighting (Annex 14, Vol. I, Chap. 9.1 & 2 - 9.1.1)	Netherlands Antilles, BONAIRE/ KRALENDIJK, Flamingo	The aerodrome emergency plan is not complete	02/2002	ICAO Visit February 2002	Complete the aerodrome emergency plan	Netherlands Antilles	TBD	U	State letter to be sent		
AGA 258 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 9.4.21)	Netherlands Antilles, BONAIRE/ KRALENDIJK, Flamingo	Runway centreline markings are fading	02/2002	ICAO Visit February 2002	Re-paint runway markings	Netherlands Antilles	TBD	U	State letter to be sent		

AGA Nicaragua

AGA 243 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4 - 9.4.3, 4 & 10)	Nicaragua, MANAGUA, Intl Managua	The runway surface is defficient and has irregularities, loose stones and rubber deposits	03/2002	ICAO Visit March 2002	To remove FOD through continous monitoring, remove rubber and rehabilitate the runway pavement surface	Nicaragua	TBD	U	State letter to be sent		
AGA 233 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3 - 3.3.6)	Nicaragua, MANAGUA, Intl Managua	The military helicopters parked on the runway strip are obstacles	03/2002	ICAO Visit March 2002	To avoid that the parked helicopters become an obstacle	Nicaragua	TBD	U	State letter to be sent		
AGA 235 C	Visual Aids (Annex 14, Vol. I, Chap. 5- 5.2.4.7)	Nicaragua, MANAGUA, Intl Managua	The threshold markings has no transversal strips in order to distinguish it from the pavement areas before the threshold	03/2002	ICAO Visit March 2002	Provide transversal strip markings on the threshold	Nicaragua	TBD	U	State letter to be sent		
AGA 239 C	Visual Aids (Annex 14, Vol. I, Chap. 5- 5.3.14.1)	Nicaragua, MANAGUA, Intl Managua	Stopway lights are not provided	03/2002	ICAO Visit March 2002	Provide stopway lights or eliminate stopways and correct the ASDA declared distances published in the AIP	Nicaragua	TBD	U	State letter to be sent		
AGA 244 C	Visual Aids (Annex 14, Vol. I, Chap. 5- 9.4.21)	Nicaragua, MANAGUA, Intl Managua	The markings on the runway and taxiway centrelines are defficient	03/2002	ICAO Visit March 2002	Re-paint the runway and taxiway centrelines	Nicaragua	TBD	U	State letter to be sent		

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA Saint Kitts and Nevis/San Kitts y Nevis												
AGA 284 C	Fencing (Annex 14, Vol. I, Chap. 8.4 - Rec. 8.4.1 & 2)	St. Kitts and Nevis, BASSETERRE, Robert L. Bradshaw Int'l	The perimeter fencing is inadequate	01/2003	ICAO Visit - January 2003	Upgrade perimeter barrier to prevent unauthorised access by people and entrance of animals	St. Kitts and Nevis	TBD	U	State letter to be sent		
AGA 289 C	Fencing (Annex 14, Vol. I, Chap. 8.4 - Rec. 8.4.1 & 2)	St. Kitts and Nevis, CHARLESTOWN, Vance W. Amory Int'l	The perimeter fencing is inadequate	01/2003	ICAO Visit January 2003	Upgrade perimeter barrier to prevent unauthorised access by people and entrance of animals	St. Kitts and Nevis	TBD	U	State letter to be sent		
AGA 282 C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4 - Std. 3.4.1)	St. Kitts and Nevis, BASSETERRE, Robert L. Bradshaw Int'l	Runway end safety areas are not provided	01/2003	ICAO Visit - January 2003	Provide runway end safety areas by extension of airfield or do not declare stopways and reduce runway declared distances	St. Kitts and Nevis	TBD	U	State letter to be sent		
AGA 280 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3 - Std. 3.3.2)	St. Kitts and Nevis, BASSETERRE, Robert L. Bradshaw Int'l	Runway strip length at runway ends is insufficient	01/2003	ICAO Visit - January 2003	Extend runway strip or do not declare stopways and reduce runway declared distances	St. Kitts and Nevis	TBD	U	State letter to be sent		
AGA Saint Lucia/Santa Lucía												
AGA 112 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4, 9.4.3 & 4)	Saint Lucia, CASTRIES, George F. L. Charles Intl	Runway pavement surface severely deficient in many areas and FOD is present	07/2001	ICAO Visit July 2001	Maintain runway surface clean of FOD and upgrade the runway pavement	Saint Lucia	TBD	U	State Letter sent		
AGA Saint Vincent and the G./San Vicente y las Granadinas												
AGA 220 C	Obstacles (Annex 14, Vol. I , Chap. 4 - Stolport Manual 4.2)	St. Vincent and the Grenadines, MUSTIQUE, Mustique	Take-off obstacle limitation surface contains severe infringements by terrain and vegetation based on runway take-off declared distance published in AIP	12/2001	ICAO Visit December 2001	Reduce Runway 09 take-off declared distance to reflect displaced runway end for curved departure path and publish in the AIP	St. Vincent and the Grenadines	TBD	U	State Letter sent		
AGA 222 C	Rescue and Fire Fighting (Annex 14, Vol. I, Chap. 9.1 - Stolport Manual 9.1.1 & 2)	St. Vincent and the Grenadines, MUSTIQUE, Mustique	No stolport emergency plan exists	12/2001	ICAO Visit December 2001	Prepare a stolport emergency plan	St. Vincent and the Grenadines	TBD	U	State Letter sent		

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Comp. date**	**P**	**ASB remedial action**	**Executing body**	**Results**
AGA 223 C	Rescue and Fire Fighting (Annex 14, Vol. I, Chap. 9.2 - Stolport Manual 9.2.2 and Annex 14 Vol. I para. 9.2.29 & 30)	St. Vincent and the Grenadines, MUSTIQUE, Mustique	The present position of the rescue and fire-fighting vehicle on the western edge of the apron is remote from personnel and does not have direct access to the runway and Security personnel double up as RFFS personnel	12/2001	ICAO Visit December 2001	Relocate position of RFFS vehicle to be close to personnel and have direct access to the runway and specify security procedures in the case of an emergency	St. Vincent and the Grenadines	TBD	U	State Letter sent		
AGA 219 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3 - Stolport Manual 3.3.2.2)	St. Vincent and the Grenadines, MUSTIQUE, Mustique	Runway strip length at east runway end is insufficient	12/2001	ICAO Visit December 2001	Displace Runway 09 end and reduce the corresponding landing and take-off declared distances	St. Vincent and the Grenadines	TBD	U	State Letter sent		
AGA 221 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - Stolport Manual 5.3.1)	St. Vincent and the Grenadines, MUSTIQUE, Mustique	No stolport designation marking is provided at the Runway 09 threshold	12/2001	ICAO Visit December 2001	Provide stolport designation marking	St. Vincent and the Grenadines	TBD	U	State Letter sent		

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification		Deficiencies			Corrective Action			ASB Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Comp. date**	**P**	**ASB remedial action**	**Executing body**	**Results**
AGA Venezuela											
AGA 93 S Rescue and Fire Fighting Service and airport emergency plan (Annex 14, Vol. I, Chap.9)	Venezuela, BARCELONA, Barcelona Intl. Airport	There is currently no emergency plan available	2001	IATA Report of the Venezuela Airport Operational Assessment, March 05-08, 2001	Develop emergency plan and disseminate it among the aviation community "PENDING ACTION PLAN"	Venezuela	TBD	U	State Letter sent		
AGA 26 S RWY surface conditioins (Annex 14, Vol. I, Chap. 3)	Venezuela, MARGARITA/Del Caribe Aerodrome	Slippery runway surface at RWY 09, in the first 1000 m	1996	IFALPA CAR/SAM Meeting, 98REG049, Buenos Aires, 9/10 Dec. 1997	Improve the RWY surface with grooving "PENDING ACTION PLAN"	Venezuela	TBD	U	State Letter sent	ICAO Regional Office	
AGA 73 S RWY surface conditions (Annex 14, Vol. I, Chap. 3)	Venezuela, CARACAS/Maiquetia Aerodrome	Heavy rubber deposits on the runway 09/27	2001	IATA Report of the Venezuela Airport Operational Assessment, March 05-08, 2001	Remove the rubber deposits "PENDING ACTION PLAN"	Venezuela	TBD	U	State Letter sent	ICAO Regional Office	NO RESULTS
AGA 74 S RWY surface conditions (Annex 14, Vol. I, Chap. 3)	Venezuela, CARACAS/Maiquetia Aerodrome	Overall condition of runway 08/26 is very poor. All types of cracks, potholes, rutting, vegetation growth, ravelling do exist, runway to rough	2001	IATA Report of the Venezuela Airport Operational Assessment, March 05-08, 2001	Reconstruct runway 08/26 immediately "PENDING ACTION PLAN"	Venezuela	TBD	U	State Letter sent	ICAO Regional Office	
AGA 75 S TWY surface conditions (Annex 14, Vol. I, Chap. 3)	Venezuela, CARACAS/Maiquetia Aerodrome	Cracks and vegetation growth on the taxiways, no pavement maintenance. Presence of FOD (loose aggregates)	2001	IATA Report of the Venezuela Airport Operational Assessment, March 05-08, 2001	Reconstruct the taxiways "PENDING ACTION PLAN"	Venezuela	TBD	U	State Letter sent		
AGA 80 S Visual aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP)	Venezuela, CARACAS/Maiquetia Aerodrome	There are no windsocks located near runway 27L or 26	2001	IATA Report of the Venezuela Airport Operational Assessment, March 05-08, 2001	Install a windsock for runways 27L and 26 "PENDING ACTION PLAN"	Venezuela	TBD	U	State Letter sent		
AGA 83 S Visual aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP)	Venezuela, VALENCIA/Valencia Intl. Airport	There is no windsock located near runway 28	2001	IATA Report of the Venezuela Airport Operational Assessment, March 05-08, 2001	Install a windsock for runway 28 "PENDING ACTION PLAN"	Venezuela	TBD	U	State Letter sent		
AGA 85 S Visual aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP)	Venezuela, MARGARITA, Margarita Intl. Airport	Threshold and runway designation markings are faded	2001	IATA Report of the Venezuela Airport Operational Assessment, March 05-08, 2001	Threshold and runway designation markings should be repainted "PENDING ACTION PLAN"	Venezuela	TBD	U	State Letter sent		
AGA 86 S Visual aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP)	Venezuela, MARGARITA, Margarita Intl. Airport	No windsock is located at runway 27	2001	IATA Report of the Venezuela Airport Operational Assessment, March 05-08, 2001	Install a windsock for the runway 27 "PENDING ACTION PLAN"	Venezuela	Venezuela	U	State Letter sent		
AGA 28 S Visual Aids (Annex 14, Vol. I. Ch. 5)	Venezuela, MARACAIBO/La Chinita Aerodrome	No PAPI at RWY 20	1996	IFALPA CAR/SAM Meeting, 98REG049, Buenos Aires, 9/10 Dec. 1997	Implement the facility "PENDING ACTION PLAN"	Venezuela	TBD	U	State Letter sent	SAM	

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification		Deficiencies			Corrective Action			ASB Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Comp. date**	**P**	**ASB remedial action**	**Executing body**	**Results**
AGA 27 S Visual Aids (Annex 14, Vol. I.Ch. 5)	Venezuela, CARACAS/Maiquetia Aerodrome	PAPI on RWY 09 unreliable	1996	IFALPA CAR/SAM Meeting, 98REG049, Buenos Aires, 9/10 Dec. 1997	Verify "PENDING ACTION PLAN"	Venezuela	TBD	U	State Letter sent	SAM	

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM Anguilla												
ATM 34 C	Use of the aeronautical phraseology	Anguilla	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required.	CAA OECS	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	
ATM Bahamas												
ATM 18 C	Use of the aeronautical phraseology	Bahamas	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9, RO ATM/SAR mission in April 2005.	Continuous training and supervision in the use of aeronautical phraseology is required, in accordance with what is stated in Doc 4444 PANS-ATM. Bahamas is implementing the ICAO SARPs.	CAA Bahamas	2006	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	
ATM Belize/Belice												
ATM 4 C	Provision of air traffic control service CAR/SAM/3 Rec. 5/33	Belize	Some segments of ATS routes of the FIR do not count yet with ATS at the required levels.	Sept./94	GREPECAS/4, Report IATA Conc. 4/10, Appendix 5	Provide ATS and improve VHF COM in the area in question.	CAA Belize	2003	U	IATA will carry out a survey on this deficiency	NACC	
ATM 20 C	Use of the aeronautical phraseology	Belize	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required.	CAA Belize	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	
ATM British Virgin Islands/Islas Vírgenes Británicas												
ATM 42 C	Use of the aeronautical phraseology	British Virgin Islands	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required.	CAA UK	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	
ATM Dominica												
ATM 40 C	Use of the aeronautical phraseology	Dominica	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required.	ECCAA	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM El Salvador												
ATM 8 C	English proficiency in Air Traffic Services CAR/SAM/3 Rec. 5/35	El Salvador	The proficiency in the English language of some ATC units is below the desired level and could be a contributing factor for the ocurrence of incidents and/or aeronautical accidents.	Oct. 95	GREPECAS/5. Collaborative actions have been taken with other states for the recurrent training in the English language of air traffic controllers.	a) After the effective date of Amendment to Annex 1, which establishes that the English level required for ATC personnel, the States/Territories/International Organizations, should evaluate the personnel of their ATC units and further provide information regarding the deviation level required in the box "Remarks" b) In order to reach and maintain the English language level required, the States/Territories/International Organizations shall establish a permanent and continuous training plan of ATC units, which contemplates the follow-up of the improvements of personnel of ATC units and shall implement in the same, the ATS quality assurance programme. c) The States/Territories/International Organizations shall demand the personnel who works in ATC units, the English language knowledge to be required by ICAO Annex 1.	CAA El Salvador	2008	U	SARPs effective 2008	NACC	
ATM 24 C	Use of the aeronautical phraseology	El Salvador	In general, the use of aeronautical phraseology in Spanish and/or English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9. Recurrent courses for the use of aeronautical phraseology for air traffic controllers have been implemented.	Continuous training and supervision in the use of aeronautical phraseology is required.	CAA El Salvador	2008	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Comp. date**	**P**	**ASB remedial action**	**Executing body**	**Results**
ATM Grenada/Granada												
ATM 25 C	Use of the aeronautical phraseology	Grenada	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required.	CAA OECS	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	
ATM Guatemala												
ATM 9 C	English proficiency in Air Traffic Services CAR/SAM/3 Rec. 5/35	Guatemala	The proficiency in the English language of some ATC units is below the desired level and could be a contributing factor for the ocurrence of incidents and/or aeronautical accidents.	Oct. 95	GREPECAS/5	a) In order to reach and maintain the English language level required, the States/Territories/International Organizations shall establish a permanent and continuous training plan of ATC units, which contemplates the follow-up of the improvements of personnel of ATC units and shall implement in the same, the ATS quality assurance programme. b) The States/Territories/International Organizations shall demand the personnel who works in ATC units, the English language knowledge required by ICAO Annex 1.	CAA Guatemala	2003	U	Referred to PAAST. Problem of such magnitude that PAAST could not assist	NACC	
ATM 26 C	Use of the aeronautical phraseology	Guatemala	In general, the use of aeronautical phraseology in Spanish and/or English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required.	CAA Guatemala	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	
ATM Honduras												
ATM 28 C	Use of the aeronautical phraseology	Honduras	In general, the use of aeronautical phraseology in Spanish and/or English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required.	CAA Honduras	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM Montserrat												
ATM 37 C	Use of the aeronautical phraseology	Montserrat	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required.	CAA UK	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	
ATM Saint Kitts and Nevis/San Kitts y Nevis												
ATM 41 C	Use of the aeronautical phraseology	Saint Kitts and Nevis	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required.	CAA Saint Kitts	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	
ATM Saint Lucia/Santa Lucía												
ATM 32 C	Use of the aeronautical phraseology	Saint Lucia	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required.	CAA OECS	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	
ATM Trinidad and Tobago/Trinidad y Tabago												
ATM 33 C	Use of the aeronautical phraseology	Trinidad and Tobago	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9. Since 2004 a continuing training process for air traffic controllers has been implemented.	Continuous training and supervision in the use of aeronautical phraseology is required.	CAA Trinidad and Tobago	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	
ATM Turks and Caicos/Islas Turcas y Caicos												
ATM 39 C	Use of the aeronautical phraseology	Turks and Caicos	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required.	CAA Turks and Caicos	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE CNS FIELD IN THE SAM REGION

Identification			Deficiencies			Corrective Action			ASB Action			
Requirements		States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
CNS Ecuador												
CNS 28 S	Aeronautical Mobile Service Plan. Table CNS 1A. Lack of VHF communications in the Guayaquil FIR	Ecuador	North portion of the Guayaquil FIR lacked VHF communications coverage	ASB/5	IATA report	Ecuador assured the deficiency will be resolved by the end of 2005.	State	12/2005	U			
CNS Venezuela												
CNS 14 S	Aeronautical Mobile Service Plan. Table CNS 1A. Lack of VHF communications in the Maiquetia FIR	Venezuela	Due to the lack of VHF coverage in some segments of ATS routes crossing the Maiquetia FIR, ATS is not yet provided in the required level	05/2001	AP/ATM/2 meeting.	A new VHF communication system for Maiqueti ACC was acquired through the ICAO Technical Cooperation with the aim to guarantee the complete coverage of the ACC . It is expected that the implementation of the project be finalized by 2006.	Venezuela CAA	2006	U	CAA commitment to correct by 2006.		

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE MET FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
Requirements		States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
MET Haiti												
MET 2 C	SIGMET information (Annex 3, Part I, Chapter 7, standard 7.1.1)	Haiti	Not all SIGMET messages are prepared based on the procedures established by ICAO.	22/05/96	a) Implement the COM/MET SIP recommendations for the CAR Region; and b) make use of the Guide for the preparation, dissemination and use of SIGMET messages in the CAR/SAM Regions.	Ensure the correct elaboration of SIGMETs and their dissemination in accordance with the requirements of Table MET 2A.	State	04/03	U	ICAO SIP Project. Ongoing	NACC	SIP Meeting in 4th quarter. Then need to verify
MET Jamaica												
MET 4 C	SIGMET information (Annex 3, Part I, Chapter 7, standard 7.1.1)	Jamaica	Not all SIGMET messages are prepared based on the procedures established by ICAO	22/05/96	a) Implement the COM/MET SIP recommendations for the CAR Region; and b) make use of the Guide for the preparation, dissemination and use of SIGMET messages in the CAR/SAM Regions	Ensure the correct elaboration of SIGMETs and their dissemination in accordance with the requirements of Table MET 2A.	State	04/03	U	ICAO SIP Project. Ongoing	NACC	SIP Meeting in 4th quarter. Then need to verify
MET Netherlands Antilles/Antillas Neerlandesas												
MET 5 C	SIGMET information (Annex 3, Part I, Chapter 7, standard 7.1.1)	Netherlands Antilles	Not all SIGMET messages are prepared based on the procedures established by ICAO.	22/05/96	a) Implement the COM/MET SIP recommendations for the CAR Region; and b) make use of the Guide for the preparation, dissemination and use of SIGMET messages in the CAR/SAM Regions.	Ensure the correct elaboration of SIGMETs and their dissemination in accordance with the requirements of Table MET 2A.	State	04/03	U	ICAO SIP Project. Ongoing	NACC	SIP Meeting in 4th quarter. Then need to verify

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE CAR REGION

Identification				Deficiencies			Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS Aruba													
AIS	29 C	Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Aruba	Implementation of the WGS-84 is on going	01/01/98	GREPECAS AIS/MAP Subgroup Survey to States	Need to implement the WGS-84 Geodetic System	State	30/11/05	U	Survey and coordinates determination in process. Publication in November 2005	GEN NACC	C/CAR AIS/MAP Task Force is developing an implementation plan for FIR boundaries coordination.
AIS	96 C	Doc. 8733 Basic ANP, Part VIII, Paras. 9 to 12	Aruba	Lack of highest priority for printing of AIS publications.	18/09/96	Records/files NACC RO; GREPECAS reports	Need to provide a higher priority for the printing of AIS publications	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/AIS/MAP/SG	Lack of action plan.
AIS Bahamas													
AIS	7 C	Annex 15, Chap. 4, Para. 4.2.9; Doc. 8733, Basic ANP, Part VIII, Paras 33 to 37	Bahamas	Lack of regular and effective updating of the AIP Document	24/10/00	GREPECAS AIS/MAP Subgroup	Need to keep updated the information/data contained in the AIP	State	TBD	U	Transferred to the AIS/MAP/SG for future actions.	NACC/IATA	Lack of action plan.
AIS	17 C	Annex 15, Chapter 3, Paras. 3.1.5 and 3.1.6; Chapter 5, Paras. 5.1.1.1 and Sec. 5.3	Bahamas	Timely distribution of the information through NOTAM	25/10/00	GREPECAS AIS/MAP Subgroup	Need to disseminate on time all operational information through NOTAM	State	TBD	U	Consultation with AIS/MAP/SG indicated that AIS services should be automated and AIS Quality Assurance programme be implemented.	NACC/AIS/MAP/SG	Lack of action plan.
AIS	30 C	Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Bahamas	Implementation of the WGS-84 is on going	01/01/98	GREPECAS AIS/MAP Subgroup Survey to States	Need to implement the WGS-84 Geodetic System	State	30/11/05	U	Survey and Coordinates determination in process. Publication in November 2005	GEN NACC	C/CAR AIS/MAP Task Force is developing an implementation plan for FIR boundaries coordination.
AIS	97 C	Doc. 8733 Basic ANP, Part VIII, Paras. 9 to 12	Bahamas	Lack of highest priority for printing of AIS publications.	18/09/96	Records/files NACC RO; GREPECAS reports	Need to provide a higher priority for the printing of AIS publications	State	TBD	U	Referred to AIS/MAP/SG for further action	NACC/AIS/MAP/SG	

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS Belize/Belice												
AIS 31 C	Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Belize	Lack of implementation of the WGS-84	01/01/98	GREPECAS AIS/MAP Subgroup Survey to States	Need to implement the WGS-84 Geodetic System	State	30/11/06	U	COCESNA and Central American States are developing a total WGS 84 implementation project.	GEN NACC	Lack of action plan.
AIS 273 C	Doc. 8733 Basic ANP, Part VIII, Paras. 9 to 12	Belize	Lack of highest priority for printing of AIS publications.	27/04/01	Records/files in NACC R0; ICAO visit April 2001	Need to provide a higher priority for the printing of AIS publications	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/AIS/MAP/SG	Lack of action plan.
AIS British Virgin Islands/Islas Vírgenes Británicas												
AIS 216 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	British Virgin Islands	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; GREPECAS and AIS/MAP/SG reports.	Need for effective production of aeronautical charts of this series according to the ICAO specifications.	State	TBD	U	Transferred to the AIS/MAP/SG for future action.		Lack of action plan.
AIS Costa Rica												
AIS 33 C	Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Costa Rica	Partial implementation of the WGS-84	01/01/98	GREPECAS AIS/MAP Subgroup Survey to States	Need to implement the WGS-84 Geodetic System	State	30/11/06	U	COCESNA and Central American States are developing a total WGS 84 implementation project.	GEN NACC	Lack of action plan.
AIS El Salvador												
AIS 10 C	Annex 15, Chap. 4, Para. 4.2.9; Doc. 8733, Basic ANP, Part VIII, Paras 36 to 37	El Salvador	Lack of regular and effective updating of the AIP Document	24/10/00	GREPECAS AIS/MAP Subgroup	Need to keep updated the information/data contained in the AIP	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC	Lack of action plan.
AIS 35 C	Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	El Salvador	Partial implementation of the WGS-84	01/01/98	GREPECAS AIS/MAP Subgroup Survey to States	Need to implement the WGS-84 Geodetic System	State	30/11/06	U	COCESNA and Central American States are developing a total WGS 84 implementation project.	GEN NACC	Lack of action plan.
AIS 98 C	Doc. 8733 Basic ANP, Part VIII, Paras. 9 to 12	El Salvador	Lack of highest priority for printing of AIS publications.	18/09/96	Records/files NACC RO; GREPECAS reports	Need to provide a higher priority for the printing of AIS publications	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/AIS/MAP/SG	Lack of action plan.

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS Guatemala												
AIS 11 C	Annex 15, Chap. 4, Para. 4.2.9; Doc. 8733, Basic ANP, Part VIII, Paras 36 to 37	Guatemala	Lack of regular and effective updating of the AIP Document	24/10/00	GREPECAS AIS/MAP Subgroup	Need to keep updated the information/data contained in the AIP	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/IATA	Lack of action plan.
AIS 36 C	Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Guatemala	Partial implementation of the WGS-84	01/01/98	GREPECAS AIS/MAP Subgroup Survey to States	Need to implement the WGS-84 Geodetic System	State	30/11/06	U	COCESNA and Central American are developing a total WGS 84 implementation project.	GEN NACC	Lack of action plan.
AIS 207 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Guatemala	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; GREPECAS and AIS/MAP/SG reports.	Need for effective production of aeronautical charts of this series according to the ICAO specifications.	State	TBD	U	Transferred to the AIS/MAP/SG for future action.		Lack of action plan.
AIS 99 C	Doc. 8733 Basic ANP, Part VIII, Paras. 9 to 12	Guatemala	Lack of highest priority for printing of AIS publications.	18/09/96	Records/files NACC RO; GREPECAS reports	Need to provide a higher priority for the printing of AIS publications	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/AIS/MAP/SG	Lack of action plan.
AIS Honduras												
AIS 13 C	Annex 15, Chap. 4, Para. 4.2.9; Doc. 8733, Basic ANP, Part VIII, Paras 36 to 37	Honduras	Lack of regular and effective updating of the AIP Document	24/10/00	GREPECAS AIS/MAP Subgroup	Need to keep updated the information/data contained in the AIP	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/IATA	Lack of action plan.
AIS 267 C	Doc 8733 Basic ANP, Part VIII, Paras. 59 k), 61, 62. 64 7) and FASID Table AIS 7.	Honduras	Lack of production of the World Aeronautical Chart ICAO 1:1000 000	06/01/94	Records/files NACC RO; GREPECAS reports	Need to produce the chart.	State	TBD	U	Transferred to the AIS/MAP/SG for future action. A project ICAO/IPGH is planned.	NACC/AIS/MAP/SG	Lack of action plan.
AIS 101 C	Doc. 8733 Basic ANP, Part VIII, Paras. 9 to 12	Honduras	Lack of highest priority for printing of AIS publications.	18/09/96	Records/files NACC RO; GREPECAS reports	Need to provide a higher priority for the printing of AIS publications	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/AIS/MAP/SG	Lack of action plan.
AIS Jamaica												
AIS 14 C	Annex 15, Chap. 4, Para. 4.2.9; Doc. 8733, Basic ANP, Part VIII, Paras 36 to 37	Jamaica	Lack of regular and effective updating of the AIP Document	24/10/00	GREPECAS AIS/MAP Subgroup	Need to keep updated the information/data contained in the AIP	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/IATA	Lack of action plan.

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REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS 25 C	Annex 15, Chapter 3, Paras. 3.1.5 and 3.1.6; Chapter 5, Paras. 5.1.1.1 and Sec. 5.3	Jamaica	Timely distribution of the information through NOTAM	25/10/00	GREPECAS AIS/MAP Subgroup	Need to disseminate on time all operational information through NOTAM	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/AIS/MAP/SG	Lack of action plan.
AIS 39 C	Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Jamaica	Lack of implementation of the WGS-84	01/01/98	GREPECAS AIS/MAP Subgroup Survey to States	Need to implement the WGS-84 Geodetic System	State	30/11/06	U	C/CAR AIS/MAP Task Force is developing an implementation plan for FIR boundaries	GEN NACC	Lack of action plan.
AIS 102 C	Doc. 8733 Basic ANP, Part VIII, Paras. 9 to 12	Jamaica	Lack of highest priority for printing of AIS publications.	18/09/96	Records/files NACC RO; GREPECAS reports	Need to provide a higher priority for the printing of AIS publications	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/AIS/MAP/SG	Lack of action plan.
AIS Mexico												
AIS 15 C	Annex 15, Chap. 4, Para. 4.2.9; Doc. 8733, Basic ANP, Part VIII, Para. 33 to 35	Mexico	Lack of regular and effective updating of the AIP Document	24/10/00	GREPECAS AIS/MAP Subgroup	Need to keep updated the information/data contained in the AIP	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/IATA	Lack of action plan.
AIS 26 C	Annex 15, Chapter 3, Paras. 3.1.5 and 3.1.6; Chapter 5, Paras. 5.1.1.1 and Sec. 5.3	Mexico	Timely distribution of the information through NOTAM	25/10/00	GREPECAS AIS/MAP Subgroup	Need to disseminate on time all operational information through NOTAM	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/AIS/MAP/SG	Lack of action plan.
AIS 311 C	Annex 15, Chapter 4, Paras. 4.2.8 and 4.3.4., Chapter 6; Doc 8733 Basic ANP Part VIII, Paras. 45 to 49	Mexico	Lack of effective compliance with the AIRAC system requirement	06/06/04	Records/files NACC RO	Need for an efficient application of AIRAC requirements.	State	TBD	U	Transferred to the AIS/MAP/SG for future actions.	NACC/AIS/MAP/SG/IATA	Lack of action plan.
AIS 40 C	Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Mexico	Lack of implementation of the WGS-84	01/01/98	GREPECAS AIS/MAP Subgroup Survey to States	Need to implement the WGS-84 Geodetic System	State	TBD	U	Activities were carried out under RLA/98/003 Project and other States.	GEN NACC	Falta de plan de acción.
AIS 210 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Mexico	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; GREPECAS and AIS/MAP/SG reports.	Need for effective production of aeronautical charts of this series according to the ICAO specifications.	State	TBD	U	Transferred to the AIS/MAP/SG for future action.		Lack of action plan.
AIS 271 C	Doc. 8733 Basic ANP, Part VIII, Paras. 61 to 64, FASID Table AIS 7	Mexico	Lack of production of the World Aeronautical Chart ICAO 1:1000 000	01/11/94	Records/files NACC RO; GREPECAS reports	Need of production of the World Aeronautical Chart ICAO 1:1000 000	State	TBD	U	Transferred to the AIS/MAP/SG for future action.	NACC/AIS/MAP/SG	Lack of action plan.

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REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS Netherlands Antilles/Antillas Neerlandesas												
AIS 268 C	Annex 15, Chapter 4, Para. 4.2.9; Doc. 8733, ANP, Part VI, 3.2	Netherlands Antilles	Lack of regular and effective updating of the AIP Document	24/10/00	GREPECAS AIS/MAP Subgroup	Need to keep updated the information/data contained in the AIP	State	TBD	U	Transferred to the AIS/MAP/SG for future actions.	NACC/IATA	Lack of action plan.
AIS 41 C	Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Netherlands Antilles	Lack of implementation of the WGS-84	01/01/98	GREPECAS AIS/MAP Subgroup Survey to States	Need to implement the WGS-84 Geodetic System	State	30/11/04	U	C/CAR AIS/MAP Task Force is developing an implementation plan for FIR boundaries.	GEN NACC	Lack of action plan.
AIS 211 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Netherlands Antilles	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; GREPECAS and AIS/MAP/SG reports.	Need for effective production of aeronautical charts of this series according to the ICAO specifications.	State	TBD	U	Transferred to the AIS/MAP/SG for future actions.		Lack of action plan.
AIS 104 C	Doc. 8733 Basic ANP, Part VIII, Paras. 9 to 12	Netherlands Antilles	Lack of highest priority for printing of AIS publications.	18/09/96	Records/files NACC RO; GREPECAS reports	Need to provide a higher priority for the printing of AIS publications	State	TBD	U	Transferred to the AIS/MAP/SG for future actions.	NACC/AIS/MAP/SG	Included in the action plan.
AIS Turks and Caicos/Islas Turcas y Caicos												
AIS 28 C	Annex 15, Chapter 3, Paras. 3.1.5 and 3.1.6; Chapter 5, Paras. 5.1.1.1 and Sec. 5.3	Turks and Caicos Islands	Timely distribution of the information through NOTAM	25/10/00	GREPECAS AIS/MAP Subgroup	Need to disseminate on time all operational information through NOTAM	State	TBD	U	Transferred to the AIS/MAP/SG for future actions.	NACC/AIS/MAP/SG	Lack of action plan.
AIS 105 C	Doc. 8733 Basic ANP, Part VIII, Paras. 9 to 12	Turks and Caicos Islands	Lack of highest priority for printing of AIS publications.	18/09/96	Records/files NACC RO; GREPECAS reports	Need to provide a higher priority for the printing of AIS publications	State	TBD	U	Transferred to the AIS/MAP/SG for future actions.	NACC/AIS/MAP/SG	Lack of action plan.

SPECIFIC DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE SAM REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS Panama												
AIS 157 S	Annex 4, Chap 13, Para 13.6.1 C). Aerodrome/Heliport Chart - ICAO.	Panama	Requirement to effectively satisfy the specification on the inclusion of geoid undulation in the Aerodrome/Heliport Chart - ICAO.	2001	Records SAM Office.	# It is not indicated in Action Plan (2002) when this requirement will satisfied.	Indicate State	2005	U	NO ACTION	SAM RO	ONGOING
AIS Paraguay												
AIS 201 S	Annex 4, Chap 13, Para 13.6.1 C). Aerodrome/Heliport Chart - ICAO.	Paraguay	Need for the inclusion of geoid undulation in the Aerodrome/Heliport Chart - ICAO.	2001	Records SAM Office.	# It is not indicated in Action Plan (2002) when this requirement will satisfied.	Indicated State	TBD	U	NO ACTION	SAM RO	ONGOING
AIS Suriname												
AIS 203 S	Annex 4, Chap 13, Para 13.6.1 C). Aerodrome/Heliport Chart - ICAO.	Suriname	Need for the inclusion of geoid undulation in the Aerodrome/Heliport Chart - ICAO.	2001	Records SAM Office.	# Lack of action plan.	Indicated State	TBD	U	NO ACTION	SAM RO	NONE
AIS Venezuela												
AIS 205 S	Annex 4, Chap 13, Para 13.6.1 C). Aerodrome/Heliport Chart - ICAO.	Venezuela	Need for the inclusion of geoid undulation in the Aerodrome/Heliport Chart - ICAO.	2001	Records SAM Office.	# As it is indicated in Action Plan (2004), required relevant actions are being taken.	Indicated State	TBD	U	NO ACTION	SAM RO	NONE

DEFICIENCIES UPON WHICH ASB FOUND REQUIREMENT FOR REGION WIDE ACTION

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR/SAM REGIONS

Identification			Deficiencies			Corrective Action			ASB Action			
Requirements		States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA CAR/SAM												
AGA 139 S	Airfield maintenance (Annex 14, Vol. I, Ch. 9.4)	This problem exists in both CAR and SAM Regions.	Deficiencies in pavements, lights, markings, signs, secondary power supply and fencing.	2001	ASB/2 Meeting	Establishment and implementation of airfield maintenance programmes 1. AGA/AOP/SG established a Task Force on Pavements. 2. ICAO held a seminar on Pavement Maintenance and a Short Course on the ACFT/PAV. Interaction in July 2002. 3. Latin America and Caribbean Association of Airfield Pavement was created in July 2002 during the seminar/short course held in Santa Cruz de la Sierra, Bolivia. 4. ICAO held a seminar on Pavement Management Systems & a Short Course on the PCI Method in November 2003. 5. Seminar on Pavement Design & a Short Course on Managing the Annex 14 is planned for 2004.	States	Permanent	U	1. AGA/AOP/SG established a Task Force on Pavements. 2. ICAO held a seminar on Pavement Maintenance and a Short Course on the ACFT/PAV. Interaction in July 2002 3. Latin America and Caribbean Association of Airfield Pavement was created in July 2002 during the seminar/short course held in Santa Cruz de la Sierra, Bolivia. 4. ICAO held a seminar on Pavement Management Systems & a Short Course on the PCI Method in November 2003. 5. Seminar on Pavement Design & a Short Course on Managing the Annex 14 is planned for 2004.	ICAO	No results

DEFICIENCIES UPON WHICH ASB FOUND REQUIREMENT FOR REGION WIDE ACTION

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE CAR/SAM REGIONS

Identification				Deficiencies			Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS CAR/SAM													
AIS	309 C	Complete WGS-84 implementation	This problem exists in the CAR/SAM Regions	Lack of completion o the WGS-84 system implementation	1998	GREPECAS AIS/MAP/SG	Need to implement the WGS-84 Geodetic System	States	TBD	U	The AIS/MAP/SG Meeting should analyze the situation in order to implement the WGS-84 Geodetic System. ICAO to undertake a survey of States to update implementation status.	ICAO	Circular Letter requesting urgent correction
AIS	308 C	Effective and regular updating of the AIS/MAP Integrated Aeronautical Information Package	This problem exists in the CAR/SAM Regions	Deficiencies in updating aeronautical information/data	2000	GREPECAS AIS/MAP/SG	Follow-up through meetings and letters to States. Implementation of AIS Quality System	States	In course	U	The AIS/MAP/SG/8 Meeting should analyze the situation to correct this deficiency. ICAO to undertake a survey of States to update implementation status	ICAO	The ASB Meeting was informed on the corrective actions adopted by the Civil Aviation Authorities of Mexico to comply with the specified requirements

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA Antigua and Barbuda/Antigua y Barbuda												
AGA 95 C	Visual Aids (Annex 14, Vol. I, Chap. 5, 5.2.8.1)	Antigua and Barbuda, ST. JOHNS, V. C. Bird Intl	Taxiway centreline markings to guide aircraft turning around at runway ends are not provided	07/2001	ICAO Visit July 2001	Corrected	Antigua and Barbuda	2002	U			
AGA 100 C	Visual Aids (Annex 14, Vol. I, Chap. 5, 9.4.21)	Antigua and Barbuda, ST. JOHNS, V. C. Bird Intl	Runway centreline and side strip markings are faded	07/2001	ICAO Visit July 2001	Corrected	Antigua and Barbuda	2002	U			
AGA Aruba												
AGA 304 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4 - Rec. 9.4.3, 4, 5, 7 & 10)	Aruba, ORANJESTAD, Reina Beatrix Int'l	The runway pavement surface has irregularities (some cracking), FOD and rubber accumulation. Concrete section of western runway end in particularly poor condition due to pavement failure.	01/2003	ICAO Visit January 2003	Corrected	Aruba Airport Authority	2003	U			
AGA Bahamas												
AGA 72 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4)	Bahamas, FREEPORT, Grand Bahama Intl	Runway and apron pavement is deficient in strength and surface irregularities - Ref Annex 14, Vol. I Sections 9.4.3 & 4	10/2000	ICAO Visit October 2000	Corrected	Bahamas	2002	U			
AGA 32 C	Radio Aids (ANP, Table AOP 1)	Bahamas, NASSAU, Nassau Intl	VOR regularly out of service	2002	ICAO Visit October 2000 IATA Report September 2000 IFALPA Meeting November 2000	Corrected	Bahamas	2002	U			
AGA 65 C	Rescue and Fire Fighting Service and Airport Emergency Planning (Annex 14, Vol. I, Chap. 9.1 & 9.2)	Bahamas, FREEPORT, Grand Bahama Intl	Insufficient RFFS personnel is provided - Ref Annex 14 Vol. I Sections 9.2.32 & 33	10/2000	ICAO Visit October 2000	Corrected	Bahamas	2002	U			
AGA 21 C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4)	Bahamas, FREEPORT, Grand Bahama Intl	Northeast RESA width does not comply with Annex 14 Vol I Section 3.4.4	10/2000	ICAO Visit October 2000	Corrected	Bahamas	May 2003	U			
AGA 9 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3)	Bahamas, FREEPORT, Grand Bahama Intl	Runway strip width at northeast runway end does not comply with Annex 14, Vol. I Section 3.3.3	10/2000	ICAO Visit October 2000	Corrected	Bahamas	May 2003	U			
AGA 35 C	Visual Aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP 1)	Bahamas, FREEPORT, Grand Bahama Intl	Deficient RWY markings	10/2000	ICAO Visit October 2000	Corrected	Bahamas	2002	U			
AGA 37 C	Visual Aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP 1)	Bahamas, NASSAU, Nassau Intl.	All approach lighting systems not serviceable	1996	ICAO Visit October 2000 IFALPA Meeting November 2000	Corrected	Bahamas	2002	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification				Deficiencies			Corrective Action			ASB Action			
		Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA	38 C	Visual Aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP 1)	Bahamas, NASSAU, Nassau Intl.	All PAPIs except RWY 14 unserviceable	1996	ICAO Visit October 2000 IFALPA Meeting November 2000	Corrected	Bahamas	2002	U			
AGA Barbados													
AGA	165 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 9.4.21)	Barbados, BRIDGETOWN, Grantley Adams Intl	Runway centreline markings are faded in the Runway 09 touchdown zone	12/2001	ICAO Visit December 2001	Corrected	Barbados	2003	U			
AGA CAR/SAM													
AGA	89 C	Airfield maintenance (Annex 14, Vol. I, Ch. 9.4)	This problem exists in both CAR and SAM Regions.	Deficiencies in pavements, lights, markings, signs, secondary power supply and fencing.	2001	ASB/2 Meeting	Establishment and implementation of airfield maintenance programmes Corrected	States	2005	U	1. AGA/AOP/SG established a Task Force on Pavements. 2. ICAO held a seminar and course on pavements in 2002 and another is planned in 2003. 3. Latin America and Caribbean Association of Airfield Pavement being established.		
AGA	88 C	Bird Strike Hazard (Annex 14, Vol. I Ch. 9.5)	This problem exists in both CAR and SAM Regions.	Increased bird activity at the aerodrome and surrounding areas.	2000	ASB/1 Meeting	Establishment of National and Airport Bird Hazard Committees. Corrected. Use SAM version.	States	2005	U	1. AGA/AOP/SG established a Task Force on Bird Hazards. 2. ICAO held a seminar in 2001. 3. CAR/SAM Regional Bird Hazard Prevention Committee being esablished.		
AGA Cayman Islands/Islas Caimanes													
AGA	85 C	Bird Strike Hazards (Annex 14, Vol. I, Chap. 9.5)	Cayman Islands, CAYMAN BRAC, Gerrard Smith Intl	Bird hazard exists	10/2000	ICAO Visit October 2000	Corrected	Cayman Islands	2002	U			
AGA	60 C	Fencing (Annex 14, Vol. I, Chap. 8.4)	Cayman Islands, CAYMAN BRAC, Gerrard Smith Intl	Perimeter fencing incomplete - Ref. Annex 14 Vol. I Sections 8.4.1 & 2	10/2000	ICAO Visit October 2000	Corrected	Cayman Islands	2002	U			
AGA	74 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4)	Cayman Islands, CAYMAN BRAC, Gerrard Smith Intl	Runway, pavement surface deficient - Ref. Annex 14 Vol. I Section 9.4	10/2000	ICAO Visit October 2000	Corrected	Cayman Islands	2002	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification				Deficiencies			Corrective Action			ASB Action			
		Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA	41 C	Visual Aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP 1)	Cayman Islands, CAYMAN BRAC, Gerrard Smith Intl	Runway markings faded - Ref. Annex 14 Vol. I Section 5.2.2 - 4	10/2000	ICAO Visit October 2000	Corrected	Cayman Islands	2002	U			
AGA	**Costa Rica**												
AGA	86 C	Bird Strike Hazards (Annex 14, Vol. I, Chap. 9.5)	Costa Rica, ALAJUELA, Juan Santamaria Intl	Bird strikes reported, sanitary landfills located in the vicinity of airport	2000	ASB/4 Review	Undertake bird hazard assessment to identify mitigation measures	Costa Rica	2002	U			
AGA	227 C	Obstacles (Annex 14, Vol. I , Chap. 4 - 4.2.27)	Costa Rica, ALAJUELA/ SAN JOSE, Intl Juan Santamaria	There are obstacles infringing the take off surface on Runway 07, this includes fencing and vehicles on the taxiway	03/2002	ICAO Visit March 2002	Corrected	Costa Rica	2003	U			
AGA	76 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4)	Costa Rica, ALAJUELA, Juan Santamaria Intl	Excessive rubber deposit on runway surface resulting in poor friction characteristics - Ref. Annex 14, Vol. I, Section 9.4.10	2000	IATA Report December 2000	Remove rubber from runway surface	Costa Rica	2002	U			
AGA	225 C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4 - 3.4.1)	Costa Rica, ALAJUELA/ SAN JOSE, Intl Juan Santamaria	The runway has no runway end safety areas on both sides	03/2002	ICAO Visit March 2002	Corrected	Costa Rica	2003	U			
AGA	**Dominican Republic/República Dominicana**												
AGA	66 C	Rescue and Fire Fighting Service and Airport Emergency Planning (Annex 14, Vol. I, Chap. 9.1 & 9.2)	Dominican Republic, SANTO DOMINGO, Las Americas Intl	RFFS deficient and AEP out of date	05/2000	ICAO Visit May 2000	Corrected	Dominican Republic	2003	U			
AGA	**Haiti**												
AGA	51 C	Visual Aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP 1)	Haiti, CAP HAITIEN, Cap Haitien Intl	Runway markings non-standard and faded	2000	ICAO Visit June 2000	Corrected	Haiti	2002	U			
AGA	**Jamaica**												
AGA	275 C	Fencing (Annex 14, Vol. I, Chap. 8.4)	Jamaica, Montego Bay, Sangster Int'l.	Inadequate perimeter barrier at west runway end	06/2003	ICAO visit October 2000, IATA visit November 2002	Upgrade perimeter barrier. Corrected.	Jamaica	2005	U	State letter to be sent		
AGA	83 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4)	Jamaica, MONTEGO BAY, Sangster Intl	Runway and older taxiway pavements have failed resulting in severe deficiencies in the pavement surface condition - Ref Annex 14, Vol. I Section 9.4.3	10/2000	IATA Visit Nov 2002	Corrected	Jamaica	2002	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA Mexico												
AGA 359 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4 - Recs. 9.4.5, 6, 7 & 10)	México, MÉXICO, Lic.Benito Juárez International Airport	A significant rubber accumulation was observed on the runways. Reduced braking has been reported during wet runway conditions	April 2003	ICAO Visit - April 2003	Corrected	AICM (Mexico)	2003	U			
AGA 153 C	Runway end safety area (Annex 14, Vol.I, Chap. 3.4 - 3.4.1, 6 and 7)	Mexico, GUADALAJARA, Don Miguel Hidalgo y Costilla International	The runway end safety areas on both ends of runway 02/20 have vegetation and are not graded.	09/2001	ICAO Visit September 2001	To remove vegetation and to grade runway end safety areas	Mexico	Corrected	U			
AGA Netherlands Antilles/Antillas Neerlandesas												
AGA 273 C	Rescue and Fire Fighting (Annex 14, Vol. I, Chap. 9.2 - 9.2.36)	Netherlands Antilles, SINT MAARTEN/ PHILIPSBURG, Princess Juliana Int'l	Insufficient RFFS personnel are available to respond to an emergency	02/2002	ICAO Visit February 2002	Corrected	PJIAE (Netherlands Antilles)	2002	U			
AGA 262 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 3.11.6)	Netherlands Antilles, SINT MAARTEN/ PHILIPSBURG, Princess Juliana Int'l	The runway holding positions are too close to the runway, particularly on Taxiway B	02/2002	ICAO Visit February 2002	Corrected	PJIAE (Netherlands Antilles)	2002	U			
AGA 265 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 5.2.4.7)	Netherlands Antilles, SINT MAARTEN/ PHILIPSBURG, Princess Juliana Int'l	A displaced threshold transverse stripe marking is not provided on Runway 09	02/2002	ICAO Visit February 2002	Corrected	PJIAE (Netherlands Antilles)	2002	U			
AGA 266 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 5.2.8.1 & 3)	Netherlands Antilles, SINT MAARTEN/ PHILIPSBURG, Princess Juliana Int'l	Taxiway centreline marking at Runway 09 – Taxiway A intersection is not provided	02/2002	ICAO Visit February 2002	Corrected	PJIAE (Netherlands Antilles)	2002	U			
AGA 272 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 7.3.1)	Netherlands Antilles, SINT MAARTEN/ PHILIPSBURG, Princess Juliana Int'l	Displaced threshold arrows are provided in the Runway 27 pre-threshold area	02/2002	ICAO Visit February 2002	Corrected	PJIAE (Netherlands Antilles)	2002	U			
AGA 252 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 9.4.21)	Netherlands Antilles, CURACAO/ WILLEMSTAD, Hato Int'l	Runway markings are fading	02/2002	ICAO Visit February 2002	Corrected	Netherlands Antilles	2002	U			
AGA 274 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 9.4.21)	Netherlands Antilles, SINT MAARTEN/ PHILIPSBURG, Princess Juliana Int'l	Runway centreline and edge markings are fading	02/2002	ICAO Visit February 2002	Corrected	PJIAE (Netherlands Antilles)	2002	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA Saint Lucia/Santa Lucía												
AGA 117 C	Obstacles (Annex 14, Vol. I , Chap. 4, 4.2.12 & 27)	Saint Lucia, VIEUX FORT, Hewanorra Intl	Road and fence at east runway end are obstacles in the Runway 28 approach and transitional and Runway 10 take-off climb obstacle limitation surfaces	07/2001	ICAO Visit July 2001	Corrected	SLASPA	2002	U			
AGA 106 C	Obstacles (Annex 14, Vol. I , Chap. 4, 4.2.27)	Saint Lucia, CASTRIES, George F. L. Charles Intl	Obstacles infringing on the Runway 09 take off climb obstacle limitation surface include fencing, roads, street lighting, terrain, buildings and vegetation	07/2001	ICAO Visit July 2001	Corrected	SLASPA	2002	U			
AGA 104 C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4, 3.4.1)	Saint Lucia, CASTRIES, George F. L. Charles Intl	No runway end safety areas are provided at both runway ends	07/2001	ICAO Visit July 2001	Corrected	SLASPA	2002	U			
AGA 116 C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4, 3.4.1)	Saint Lucia, VIEUX FORT, Hewanorra Intl	No runway end safety area is provided at east end	07/2001	ICAO Visit July 2001	Corrected	SLASPA	2002	U			
AGA 102 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3)	Saint Lucia, CASTRIES, George F. L. Charles Intl	Runway strip length at east end is insufficient	07/2001	ICAO Visit July 2001	Corrected	SLASPA	2002	U			
AGA 114 C	Runway Strip (Annex 14, Vol. I, Chap. 3.3, 3.3.2)	Saint Lucia, VIEUX FORT, Hewanorra Intl	Runway strip length at east end insufficient	07/2001	ICAO Visit July 2001	Corrected	SLASPA	2002	U			
AGA 119 C	Visual Aids (Annex 14, Vol. I, Chap. 5, 5.2.8.3)	Saint Lucia, VIEUX FORT, Hewanorra Intl	Taxiway centreline markings for aircraft turn-around at runway ends are not provided	07/2001	ICAO Visit July 2001	Corrected	SLASPA	06/2003	U			
AGA 107 C	Visual Aids (Annex 14, Vol. I, Chap. 5, 5.2.9.1)	Saint Lucia, CASTRIES, George F. L. Charles Intl	Runway holding position marking is not provided on east taxiway and is not full width on west taxiway	07/2001	ICAO Visit July 2001	Corrected	SLASPA	2002	U			
AGA 121 C	Visual Aids (Annex 14, Vol. I, Chap. 5, 7.1.1)	Saint Lucia, VIEUX FORT, Hewanorra Intl	No closed runway and taxiway markings are provided	07/2001	ICAO Visit July 2001	Corrected	SLASPA	2002	U			
AGA Trinidad and Tobago/Trinidad y Tabago												
AGA 292 C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 5.1.1.5)	Trinidad and Tobago. SCARBOROUGH, Crown Point Int'l	The wind direction indicator is not illuminated	05/2002	ICAO Visit May 2002	Corrected	Trinidad and Tobago	2003	U			
AGA 56 C	Visual Aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP 1)	Trinidad and Tobago, PORT OF SPAIN, Piarco Intl	Runway markings faded and non-standard	03/2001	ICAO Visits March & December 2001	Corrected	Trinidad & Tobago	2003	U			
AGA 57 C	Visual Aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP 1)	Trinidad and Tobago, PORT OF SPAIN, Piarco Intl	No displaced runway 10 end and displaced runway 28 threshold lighting is provided	03/2001	ICAO Visits March & December 2001	Corrected	Trinidad & Tobago	2003	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA United States/Estados Unidos												
AGA 336 C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4 - Recs. 9.4.3 & 9.4.4 & 9.4.5.& 9.4.7 & 4.4.10)	United States, Puerto Rico, Luis Muñoz Marin International Airport	The runway 10/28 pavement surface has irregularities, FOD and rubber accumulation. Runway in particularly poor condition due to pavement failure	10/2003	ICAO Visit - October 2003	Corrected	United States	2005	U	State letter to be sent		
AGA 277 C	Pavement Surface Conditions (Annex 14, Vol. I, Chapter 9.4, 9.4.3, 4, 5, 7 & 10)	United States, San Juan, Luis Muñoz Marin International	Runway 10/28, some taxiway and apron pavements are deficient	08/2003	ICAO observation - July 2003 & ICAO visit October 2003	Corrected	United States	2005	U	State letter to be sent		
AGA 338 C	Visual Aids (Annex 14, Chap.9.4, Std. 9.4.21)	United States, Puerto Rico, Luis Muñoz Marin International Airport	Runway centre line markings are deficient	10/2003	ICAO Visit - October 2003	Corrected	United States	2005	U	State letter to be sent		

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA Argentina												
AGA 219 S	FOD (Annex 14, Vol. I, Ch. 9.4.3, Attach. A, Sect. 8, Doc 9137-AN/898, Parts 8 and 9)	Argentina/BUENOS AYRES/Ezeiza/Min. Pistarini Int´l Airport	FOD at the apron surface, such as paper, plastic, metal, coarse aggregates, rope, etc. Joint slab deterioration	4-6 DEC 2002	Detected during mission conducted by ICAO Secretariat	Intensify daily inspections according to the ICAO SARPS. Use hot asphalt mixture to block the coarse aggregates(in process of deterioration) and/or inform the ICAO SAM Office when it will be done "PENDING ACTION PLAN" CORRECTED (AGA/AOP/SG/4, Mexico, 15-18 NOV 2004)	Argentina	2004	U	State Letter sent	ICAO	
AGA 18 S	Visual aids (Annex 14, Vol. I. Ch. 5)	Argentina, BUENOS AIRES/Ezeiza Aerodrome	No PAPI at RWY 17	1996	IFALPA CAR/SAM Meeting, 98REG049, Buenos Aires, 9/10 Dec. 1997	ACTION TAKEN: Deficiency eliminated. PAPI was installed during repavement works and extension of runway 17/35, verified and published CORRECTED	Argentina	2002	U	State letter sent	ICAO Regional Office	Corrected
AGA Bolivia												
AGA 33 S	Visual aids (Annex 14, Vol. I, Ch. 5 and Ch.6)	Bolivia, SANTA CRUZ/Viru Viru	RWY centerline marks are faded	Sep-2001	Detected during mission conducted by ICAO Secretariat Corrected in June 2002, fax NAV/AER/702/02 from Bolivia	Repaint RWY centerline marks. ACTION TAKEN: RWY centerline marks repainted. The painting is carried out at least once a year according to the SABSA´s maintenance program CORRECTED	Bolivia/SABSA	June 2002	U	State Letter sent		

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA CAR/SAM												
AGA 138 S	Bird Strike Hazard (Annex 14, Vol. I Ch. 9.5)	This problem exists in both CAR and SAM Regions.	Increased bird activity at the aerodrome and surrounding areas.	2000	ASB/1 Meeting	Establishment of National and Airport Bird Hazard Committees Corrected	States	Permanent	U	1. AGA/AOP/SG established a Task Force on Bird Hazards. 2. ICAO held a seminar in 2001. 3. CAR/SAM Regional Bird Hazard Prevention Committee was established in October 2003. 4. ICAO held a workshop in Santiago, Chile, October 2003. 5. ICAO gives conitinuous advise to the Regional Committee.	ICAO	
AGA Colombia												
AGA 110 S	Apron surface conditions (Annex 14, Vol. I, Chap. 3)	Colombia, RIO NEGRO/José María Cordova	Badly contaminated apron surface	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1	Clean apron surface.Correct the source of contamination "PENDING ACTION PLAN" ACTION TAKEN: Apron area was cleaned (Doc 2000-1057, 23 October 2003, UAEAC, Colombia) CORRECTED	Colombia	2002	U	State Letter sent		
AGA 52 S	Obstacles (Annex 14, Vol. I, Chap. 4)	Colombia, SANTAFE DE BOGOTA/Eldorado Airport	There are trees at the approach zone of 13R end (South RWY)	July 2001	Detected during mission conducted by ICAO Secretariat	The trees should be cut "PENDING ACTION PLAN" ACTION TAKEN: The trees were cut - End 13R (Doc 2000-1057, 23 OCT 2003, UAEAC, Colombia) CORRECTED	Colombia	2002	U	State Letter sent		

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification			Deficiencies			Corrective Action			ASB Action			
Requirements		States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 55 S	Obstacles (Annex 14, Vol. I, Chap. 4)	Colombia, SANTAFE DE BOGOTA/Eldorado Airport	There are trees at the approach zone of 13R end (North RWY)	July 2001	Detected during mission conducted by ICAO Secretariat	The trees should be cut "PENDING ACTION PLAN" ACTION TAKEN: The trees were cut - Approach zone of END 13R (Doc 2000 - 1057, 23 OCT 2003, UAEAC, Colombia) CORRECTED	Colombia	2002	U	State Letter sent		
AGA 111 S	RWY surface conditions (Annex 14, Vol. I, Chap. 3)	Colombia, SAN ANDRES/Sesquicentenario	Uneven RWY surface with numerous large puddles after rainfall	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1 Corrected in OCT 1998, fax 1003-054-03 from Colombia	Conduct functional & structural evaluation of the pavements and correct pavement surface. ACTION TAKEN: Problem solved. CORRECTED	Colombia	OCT 1998	U	State Letter sent		
AGA 22 S	RWY surface conditions (Annex 14, Vol. I. Chap. 3)	Colombia, SANTAFE DE BOGOTA/Eldorado Airport	Heavy rubber contamination at RWY 12 and 30	1996	IFALPA CAR/SAM Meeting, 98REG049, Buenos Aires, 9/10 Dec. 1997 Corrected in SEP 2002, fax 1003-052-03 from Colombia	ACTION TAKEN: Removed the rubber deposit CORRECTED	Colombia	SEP 2002	U	State Letter sent	ICAO Regional Office	
AGA 38 S	RWY surface conditions (Annex 14, Vol. I. Chap. 3)	Colombia, RIO NEGRO/Jose Maria Cordoba Airport	Rubber contamination at RWY 36	July 2001	Detected during mission conducted by ICAO Secretariat Corrected, fax letter 1003-054-03 from Colombia	Remove the rubber deposit at RWY 36. ACTION TAKEN: Work done in 2000 CORRECTED	Colombia	NOV 2000	U	State Letter sent		
AGA 98 S	Visual aids (Annex 14, Vol. I, Chap. 5)	Colombia, BARRANQUILLA/Ernesto Cortissoz Airport	PAPI lights RWY 22 unserviceable	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1 Corrected on Jun 10/2002, fax 1003-052-03 from Colombia	Replace PAPI lights RWY 22. ACTION TAKEN: PAPI lights replaced. CORRECTED	Colombia	10 JUN 2002	U	State Letter sent		
AGA 99 S	Visual aids (Annex 14, Vol. I, Chap. 5)	Colombia, BARRANQUILLA/Ernesto Cortissoz Airport	No lights for windsock	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1 Planned for 2003, fax 1003-052-03 from Colombia	Provide lights for windsock "PENDING ACTION PLAN" ACTION TAKEN: Lights were installaled according to Annex 14, Vol. I (Doc 2000 - 1057, 23 OCT 2003, UAEAC, Colombia) CORRECTED	Colombia	2002	U	State Letter sent		
AGA 100 S	Visual aids (Annex 14, Vol. I, Chap. 5)	Colombia, CALI/Alfonso Bonilla Aragon	RWY 19 PAPI out of service	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1 Corrected on 17 NOV 2002, fax 1003-052-03 from Colombia	Repair RWY 19 PAPI. ACTION TAKEN: PAPI repaired. CORRECTED	Colombia	17 NOV 2002	U	State Letter sent		

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification		Deficiencies			Corrective Action			ASB Action			
Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 101 S Visual aids (Annex 14, Vol. I, Chap. 5)	Colombia, CALI/Alfonso Bonilla Aragon	RWY 01 PAPI out of service	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1 Corrected on 17 NOV 2002, fax 1003-052-03 from Colombia	Repair RWY 19 PAPI. ACTION TAKEN: PAPI repaired. CORRECTED	Colombia	17 NOV 2002	U	State Letter sent		
AGA 102 S Visual aids (Annex 14, Vol. I, Chap. 5)	Colombia, CALI/Alfonso Bonilla Aragon	RWY and TWY markings need repainting	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1	Repaint RWY and TWY markings "PENDING ACTION PLAN" ACTION TAKEN: The RWY and TWY markings were repainted (Doc 2000 - 1057, 23 OCT 2003, UAEAC, Colombia) CORRECTED	Colombia	2002	U	State Letter sent		
AGA 103 S Visual aids (Annex 14, Vol. I, Chap. 5)	Colombia, SANTA FE DE BOGOTA/Eldorado	The radial at the VOR signal checking circle marking is missing	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1	Provide the radial at the VOR signal checking circle marking "PENDING ACTION PLAN" ACTION TAKEN: The radial at the VOR signal checking circle marking was painted (Doc 2000 - 1057, 23 OCT 2003, UAEAC, Colombia) CORRECTED	Colombia	2003	U	State Letter sent		
AGA 104 S Visual aids (Annex 14, Vol. I, Chap. 5)	Colombia, SANTA FE DE BOGOTA/Eldorado	Apron markings need repainting	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1	Repaint apron markings "PENDING ACTION PLAN" ACTION TAKEN: The apron markings were repainted (Doc 2000 - 1057, 23 OCT 2003, UAEAC, Colombia) CORRECTED	Colombia	2003	U	State Letter sent		
AGA 105 S Visual aids (Annex 14, Vol. I, Chap. 5)	Colombia, SAN ANDRES/Sesquicentenario	PAPI lights not calibrated	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1 Corrected on 11 DEC 2002, fax 1003-052-03 from Colombia	Calibrate PAPI lights. ACTION TAKEN: PAPI lights calibrated. CORRECTED	Colombia	11 DEC 2002	U	State Letter sent		

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 106 S	Visual aids (Annex 14, Vol. I, Chap. 5)	Colombia, SAN ANDRES/Sesquicentenario	No lights for windsocks	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1	Provide lights for windsocks "PENDING ACTION PLAN" ACTION TAKEN: Lights were installed according to Annex 14, Vol. I (Doc 2000 - 1057, 23 OCT 2003, UAEAC, Colombia) CORRECTED	Colombia	2002	U	State Letter sent		
AGA 107 S	Visual aids (Annex 14, Vol. I, Chap. 5)	Colombia, SAN ANDRES/Sesquicentenario	40% of RWY edge lights are missing Corrected on 17 NOV 2002, fax 1003-052-03 from Colombia	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1 Corrected on 17 NOV 2002, fax 1003-052-03 from Colombia	Provide lights for RWY edge. ACTION TAKEN: Lights for RWY edge provided. CORRECTED	Colombia	17 NOV 2002	U	State Letter sent		
AGA 108 S	Visual aids (Annex 14, Vol. I, Chap. 5)	Colombia, SAN ANDRES/Sesquicentenario	RWY markings need repainting	May-02	IFALPA Annex 19 Part 3 19-3-SAM-1	Repint RWY markings "PENDING ACTION PLAN" CORRECTED (AEROCIVIL 2002-1272, 23 NOV 2004)	Colombia	JUN 2004	U	State Letter sent		
AGA Ecuador												
AGA 313 S	Emergency (Annex 14, Vol. I, Ch. 9)	ECUADOR/CORPAQ/QUIPORT/Mariscal Sucre	There are 2 airport chiefs. One is from DAC and the other one from QUIPORT. There is no good coordination between them. There are 2 emergency plans and 2 procedures for managing the apron area	MAY 2003	ICAO Regular Mission (12-14 MAY 2003, Recommended Action AGA/13 of its respective Report)	The airport operator (QUIPORT) should comply with the approved documents by DAC and submit the updated documentation for analysis and DAC´s approval and keep close coordination with DAC "PENDING ACTION PLAN" ACTION TAKEN: Excellent coordination was reached. COE will be managed by the DAC Airport Chief (Doc DGAC-j-025-04, 25 JUN 2004). CORRECTED	ECUADOR/DAC/CORPAQ/QUIPORT	2004	U	State Letter sent	ICAO	

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 314 S	Emergency Plan - COE (Annex 14, Vol. I, Ch. 9 & Doc 9137-AN/898, Part 7)	ECUADOR/DAC/CORPAQ/QUIPORT	The DAC Chief of Airport triggers the Emergency Operations Centre COE. The COE is not well located. There is no complete view of the movement area and the remote parking positions. In addition, there is a type of dispute/competition between the 2 airport chiefs	MAY 2003	ICAO Regular Mission (12-14 MAY 2003, Recommended Action AGA/14 of its respective Report)	DAC must coordinate with CORPAQ and QUIPORT and clearly define who is in charge of the Emergency Operations Centre and makes clear that everybody has to strictly follow what is approved. Good location should be provided for the COE "PENDING ACTION PLAN" ACTION TAKEN: DGAC Airport Chief is the COE president. In addition, the COE will count on a CCTV system, which allow clear vision of the movement area (Doc DGAC-j-025-04, 25 JUN 2004). CORRECTED	ECUADOR/DAC/CORPAQ/QUIPORT	2004	U	State Letter sent	ICAO	
AGA Guyana												
AGA 251 S	Emergency plans (Annex 14, Vol. I, Ch. 9.1and Doc 9137-AN/898, Part 7)	Guyana/TIMEHRI/Cheddi Jagan Int´l Airport	The emergency plan is not updated and no exercise has been done in the last 2 years	NOV 2002	Detected during mission conducted by ICAO Secretariat	Run exercise with old emergency plan until the new one become available "PENDING ACTION PLAN" ACTION PLAN: Full Scale Emergency Drill to be conducted at CJIA during the 1st. Quarter 2004 (Doc GCAA-ICAO/5/312, 20 FEB 2004). Emergency plan would be updated and approved on 25 June 2004 (Doc ICAO/5/3/1, 22 JUN 2004) CORRECTED	Guyana	SEP 2004	U	State Letter sent	ICAO	

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 250 S	Physical characteristics (Annex 14, Vol. I, Ch. 3)	Guyana/TIMEHRI/Cheddi Jagan Int´l Airport	The distance between RWY and the TWY centerlines is 125 m. Minimum separation required for instrument RWYs and aerodrome code reference 4D is 176 m	NOV 2002	Detected during mission conducted by ICAO Secretariat	Before starting the operation of RWY 06 as CAT I, run aeronautical studies in order to comply with the paragraph 3.8.7 of Annex 14, Vol. I "PENDING ACTION PLAN" ACTION PLAN: Aircraft must therefore, not be located to operate or park on taxiway Charlie while other aircraft are landing or takingoff from RWY 06/24 (Doc GCAA-ICAO/5/312, 20 FEB 2004) ACTION TAKEN: ATC procedure instituted to avoid aircraft parking or taxing on TWY C while RWY 06 is operating at CAT I (Doc ICAO/5/3/1, 22 JUN 2004) CORRECTED	Guyana	2004	U	State Letter sent	ICAO	

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA Panama												
AGA 367 S	Emergency/RFF (Annex 14, Vol. I, Ch. 9)	PANAMA/DGAC/Tocumén	There is one ambulance but only the rear door could be open. The lateral door was completed locked without any chance to be open. There are 2 technicians per shift for first aids. However, they are part of their respective fire fighters shifts. There are 47 fire figthers (1 chief, 3 officers and 3 shifts with 10 fire fighters each one). From these 47 fire fighters, 16 help another national airport (1 officer and 3 shifts with 5 fire fighters each one)	MAY 2003	ICAO Regular Mission (19-20 MAY 2003, Recommended Action AGA/34 of its respective Report)	Urgently, re-structure the emergency services. Recuperate the ambulance and, if necessary, provide a new one and allocate the necessary number of fire fighters in order to comply with the ICAO SARPs and to provide the necessary safety. "PENDING ACTION PLAN" ACTION TAKEN: The ambulance was recuperated and it is on service- Starting in MAR 2004, a contract was signed with a private ambulance services to give support to the airport needs (Doc 134/PAN/03/902). CORRECTED	PANAMA/DGAC	MAR 2004	U	State Letter sent	ICAO	
AGA 368 S	Emergency/RFF (Annex 14, Vol. I, Ch. 9)	PANAMA/DGAC/Tocumén	The deposits of extinguishing agents have old pieces of rug, old furniture and other types of material. If someone needs to grab the agents, he/she must pass over this material	MAY 2003	ICAO Regular Mission (19-20 MAY 2003, Recommended Action AGA/35 of its respective Report)	Urgently, provide the cleanness of the deposits leaving inside only the extinguishing agents with free access "PENDING ACTION PLAN" ACTION TAKEN: Deposits cleanness totally done. Total recuperation of the fire figters installations (Doc 134/PAN/03/902). CORRECTED	PANAMA/DGAC	JUN 2004	U	State Letter sent	ICAO	

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 365 S	RFF (Anexo 14, Vol. I, Ch. 9)	PANAMA/DGAC/Tocumén	The RFF chief did not know that Tocumén Airport should be RFF Category 9, as it recommends the Regional ANP (B-747 is the critical aircraft). As a team leader, the RFF chief didn´t exercise his leadership. He was not updated with RFF SARPs and he was not able to answer questions related to his job. The personnel was not motivated.	MAY 2003	ICAO Regular Mission (19-20 MAY 2003, Recommended Action AGA/32 of its respective Report)	Urgently, strength the RFF chief leadership. Make arrangements in order to have the RFF personnel motivated and updated with the basic information on the ICAO SARPs on RFF services "PENDING ACTION PLAN" ACTION TAKEN: New RFF authorities were assigned. ICAO Technical Cooperation provided training for supervisors and instructors. Airport CAT 10 (Doc 134/PAN/03/902). CORRECTED	PANAMA/DGAC	MAR 2004	U	State Letter sent	ICAO	
AGA 366 S	RFF (Annex 14, Vol. I, Ch. 9 & Doc 9137-AN/898, Part 7)	PANAMA/DGAC/Tocumén	The fire fighters shift is 24 h (rest of 48 h). At the moment of the inspection, only one person was on duty. The other fire fighters, including the chief, were practicing sports. It took some minutes to have them at the pariing area for a talk. Suddenly, the alarm was activated and it took 55 s just to move the trucks out of the parking area. If one accident occurs at the 23rd hour of their shift, they will not be able to react to the needs accordingly	MAY 2003	ICAO Regular Mission (19-20 MAY 2003, Recommended Action AGA/33 of its respective Report)	In sake of safety, urgently study the reorganization of the RFF personnel according to the airport needs. The personnel should be trained and, besides knowing their duty, they should be aware of the requirements of the ICAO SARPs on RFF services "PENDING ACTION PLAN" ACTION TAKEN: Begining in 01 JAN 2004, fire fighters shift changed to 8 h with 10/11 fire fighters/shift and 20 professionals were incorporated. Seven seminars/courses were carried out in 2003 in different areas related to Safety (Doc 134/PAN/03/902). CORRECTED	PANAMA/DGAC	JAN 2004	U	State Letter sent	ICAO	

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification			Deficiencies			Corrective Action			ASB Action			
Requirements		States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 23 S	Visual aids (Annex 14, Vol. I, Ch. 5)	Panama/Tocumen	Vasis system out of service	12/2000	IATA/e-mail sent to SAM Office in December 7, 2000. IATA Report Corrected in 16 OCT 2001, fax DAC-1039-NA from Panama	To install a PAPI system. ACTION TAKEN: PAPI installed. CORRECTED	Panama	OCT 2001	U	Corrected		
AGA Paraguay												
AGA 64 S	Obstacles (Annex 14, Vol. I, Chap. 4)	Paraguay, Aerodrome of Asuncion/Silvio Pettirossi	Open trench (0.60 m wide & 0.75 m deep) and cable boxes of concrete open near the 20 end	Sep-2001	Detected during mission conducted by ICAO Secretariat Planned for 2003, fax letter 22 NOV 2002 from Paraguay	Cover or eliminate objects from the RWY strip. ACTION TAKEN: To be done by the aerodrome administration, depending upon availability of resources CORRECTED	Paraguay	2003	U	State Letter sent		
AGA Peru												
AGA 384 S	Annex 14, Vol. I, Sec. 8.7	PERU/DGAC/CORPAC/LAP/Jorge Chávez	Pieces of rock on the RWY 33 RESA	MAY 2004	ICAO regular mission (17-18 MAY 2004, Recommended Action AGA/17 of its respective Report)	Remove the pieces of rock from RWY 33 RESA "PENDING ACTION PLAN" CORRECTED (OF. 1659-2004-MTC/12.05, 02 NOV 2004)	DGAC/CORPAC/LAP	2004	U	State Letter sent	ICAO	
AGA 385 S	Annex 14, Vol. I, Sec. 9.4	PERU/DGAC/LAP/Jorge Chávez	FOD on apron surface	MAY 2004	ICAO regular mission (17-18 MAY 2004, Recommended Action AGA/18 of its respective Report)	Maintain apron free of FOD "PENDING ACTION PLAN" CORRECTED (OF. 1659-2004-MTC/12.05, 02 NOV 2004)	LAP	2004	U	State Letter sent	ICAO	
AGA 68 S	Obstacles (Annex 14, Vol. I, Chap. 4)	Peru, LIMA-CALLAO/Jorge Chávez Intl.	Pieces of rock, open trenches for cable installation and boxes of concrete at stopway zone of the 33 end	Nov-2001	Detected during mission conducted by ICAO Secretariat Corrected, letter No. 1284-2002-MTC/12.06 from Peru	ACTION TAKEN: Removed pieces of rock, closed the open trenches and the boxes of concrete were levelled with the soil surface CORRECTED	Peru	25 OCT 2002	U	State Letter sent		

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AGA 72 S	Rescue and Fire Fighting Service (Annex 14, Vol. I, Chap. 9)	Peru, LIMA-CALLAO/Jorge Chávez Intl.	There is a door at the parking area of the fire-fighting trucks	Nov-2001	Detected during mission conducted by ICAO Secretariat Corrected, letter 1284-2002-MTC/12.06 from Peru	Maintain the fire-fighting trucks ready to leave without any type of door or obstacle. ACTION TAKEN: New and lighter doors installed - Response time adequate CORRECTED	Peru	25 OCT 2002	U	State Letter sent		
AGA Uruguay												
AGA 258 S	Emergency Plans (Annex 14, Vol. I, Ch. 9 & Doc 9137-AN/898)	Uruguay/DINACIA/Int´l airports	No-compliance with the periods for full-scale/partial exercises	March 2004	ICAO Regular Mission (05/06 AUG 2003 - Recommended Action AGA/02 of its respective Report)	Comply with the periods recommended for full-scale/partial exercises "PENDING ACTION PLAN" ACTION PLAN: Planning approved for full exercise in DEC 2004 (Fax 075/04, 21 SEP 2004, from DINACIA) CORRECTED (DINACIA Fax 003/05, 04 JAN 2005)	Uruguay/DINACIA	DEC 2004	U	State Letter sent	ICAO	
AGA Venezuela												
AGA 419 S	Annex 14, Vol. I, Ch. 10	VENEZUELA/INAC/IAAIM	FOD such as papers, plastic, plastic bottles, metals pens, coarse aggregates on the TWYs and aprons surface	DEC 2004	ICAO regular mission (06-09 DEC 2004, Recommended Action AGA/31 of its respective Report)	Eliminate FOD from the TWYs and aprons surfaces "PENDING ACTION PLAN" CORRECTED (DOC PRE 704.05 - 06 APR 05)	INAC/IAAIM	FEB 05	U			
AGA 422 S	Annex 14, Vol. I, Ch. 10	VENEZUELA/INAC/IAAIM	Unfinished construction work on the apron without adequate signalling	DEC 2004	ICAO regular mission (06-09 DEC 2004, Recommended Action AGA/34 of its respective Report)	Provide adequate signalling for unfinished construction work in the apron "PENDING ACTION PLAN" CORRECTED (DOC PRE 704.05 - 06 APR 05)	INAC/IAAIM	FEB 05	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE CAR REGION

Identification			Deficiencies				Corrective Action				ASB Action		
		Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM Antigua and Barbuda/Antigua y Barbuda													
ATM	17 C	Use of the aeronautical phraseology	Antigua and Barbuda	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Corrected.	CAA OECS	08/2003	U			
ATM Aruba													
ATM	35 C	Use of the aeronautical phraseology	Aruba	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Corrected	CAA Aruba	09/2003	U			
ATM Barbados													
ATM	19 C	Use of the aeronautical phraseology	Barbados	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Corrected	CAA Barbados	05/2003	U			
ATM CAR/SAM													
ATM	46 C	English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	This problem exists both in CAR and SAM Regions	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents. (Annex 1)	Oct/1995	GREPECAS/5	Only 2 CAR States still present this deficiency. They are reported separately.	CAR/SAM States		U	SARPs effective 2008	NACC	
ATM	47 C	Use of the aeronautical phraseology	This problem exists both in CAR and SAM Regions	In general, the use of aeronautical phraseology in Spanish and English does not meet the required levels and it is a relevant factor with regard to ATS incidents	Sep/2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required. The ATM CO/4 meeting was of the opinion that, in view that this is a general aspect where all CAR/SAM States are involved, it should be detelted and the attention should be centered on States/Territories/International Organizations presenting this deficiency.	CAR/SAM States		U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE CAR REGION

Identification			Deficiencies				Corrective Action				ASB Action		
Requirements		States/facilities	Description	Date first reported	Remarks		Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM Cayman Islands/Islas Caimanes													
ATM 36 C	Use of the aeronautical phraseology	Cayman Islands	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9		Corrected	CAA Cayman Islands	2002	U			
ATM COCESNA													
ATM 14 C	English proficiency in Air Traffic Services CAR/SAM/3 Rec. 5/35	COCESNA	The proficiency in the English language of some ATC units is below the desired level and could be a contributing factor for the ocurrence of incidents and/or aeronautical accidents.	Oct. 95	GREPECAS/5		Corrected	COCESNA	2005	U			
ATM 43 C	Use of the aeronautical phraseology	COCESNA	In general, the use of aeronautical phraseology in Spanish and/or English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9		Corrected	COCESNA	2003	U			
ATM Costa Rica													
ATM 6 C	English proficiency in Air Traffic Services CAR/SAM/3 Rec. 5/35	Costa Rica	The proficiency in the English language of some ATC units is below the desired level and could be a contributing factor for the ocurrence of incidents and/or aeronautical accidents.	10/95	GREPECAS/5		Corrected	CAA Costa Rica	06/2003	U			
ATM 21 C	Use of the aeronautical phraseology	Costa Rica	In general, the use of aeronautical phraseology in Spanish and/or English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9		Corrected	CAA Costa Rica	2003	U			
ATM Cuba													
ATM 7 C	English proficiency in Air Traffic Services CAR/SAM/3 Rec. 5/35	Cuba	The proficiency in the English language of some ATC units is below the desired level and could be a contributing factor for the ocurrence of incidents and/or aeronautical accidents.	10/95	Proficiency in the English language is required to take controller training courses. Specialized English courses are also provided to existing personnel when deficiencies are detected		Corrected	CAA Cuba	2002	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE CAR REGION

Identification				Deficiencies			Corrective Action			ASB Action			
		Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM		**Dominican Republic/República Dominicana**											
ATM	13 C	English proficiency in Air Traffic Services CAR/SAM/3 Rec. 5/35	Dominican Republic	The proficiency in the English language of some ATC units is below the desired level and could be a contributing factor for the ocurrence of incidents and/or aeronautical accidents.	Oct. 95	GREPECAS/5	Corrected	CAA Dominican Republic	2002	U			
ATM		**French Antilles/Antillas Francesas**											
ATM	16 C	English proficiency in Air Traffic Services CAR/SAM/3 Rec. 5/35	French Antilles	The proficiency in the English language of some ATC units is below the desired level and could be a contributing factor for the ocurrence of incidents and/or aeronautical accidents.	Oct. 95	GREPECAS/5	Corrected	CAA French Antilles	2000	U			
ATM		**Guatemala**											
ATM	2 C	Provision of air traffic control service CAR/SAM/3 Rec. 5/33	Guatemala	Some segments of ATS routes of the FIR do not count yet with ATS at the required levels.	Sept./94	GREPECAS/4, Report IATA Conc. 4/10, Appendix 5	Provide ATS and improve VHF COM in the area in question. Corrected	CAA Guatemala	2005	U	IATA will carry out a survey on this deficiency.	NACC/IATA	
ATM		**Haiti**											
ATM	15 C	English proficiency in Air Traffic Services CAR/SAM/3 Rec. 5/35	Haiti	The proficiency in the English language of some ATC units is below the desired level and could be a contributing factor for the ocurrence of incidents and/or aeronautical accidents.	Oct. 95	GREPECAS/5	Corrected	CAA Haiti	2002	U			
ATM	27 C	Use of the aeronautical phraseology	Haiti	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Corrected.	OFNAC Haiti	2003	U	SIPs for Central America in 2003 and for Caribbean ongoing	NACC	
ATM		**Honduras**											
ATM	3 C	Provision of air traffic control service CAR/SAM/3 Rec. 5/33	Honduras	Some segments of ATS routes of the FIR do not count yet with ATS at the required levels.	Sept./94	GREPECAS/4, Report IATA Conc. 4/10, Appendix 5	Provide ATS and improve VHF COM in the area in question. Corrected	CAA Honduras	2005	U	IATA will carry out a survey on this deficiency.	NACC/IATA	
ATM		**Jamaica**											
ATM	29 C	Use of the aeronautical phraseology	Jamaica	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Corrected	CAA Jamaica	05/2003	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE CAR REGION

Identification				Deficiencies			Corrective Action			ASB Action			
		Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM		**Mexico**											
ATM	11 C	English proficiency in Air Traffic Services CAR/SAM/3 Rec. 5/35	Mexico	The proficiency in the English language of some ATC units is below the desired level and could be a contributing factor for the ocurrence of incidents and/or aeronautical accidents.	Oct. 95	In 1998, Mexico instituted a programme to review and update the study programme for air traffic controllers and therefore, requires from candidates a certificate of English proficiency at an advanced level of 80%. The ATS providing agency has established a programme to encourage ATS personnel to improve their level of English through advanced courses at recognised institutions, offering the possibility of covering the cost of said courses	Corrected	CAA Mexico	09/2003	U			
ATM	30 C	Use of the aeronautical phraseology	Mexico	In general, the use of aeronautical phraseology in Spanish and/or English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	Although no document has been approved containing a standard phraseology for adoption by the States in the Region, Mexico has developed a Manual on Aeronautical Phraseology for use by ATS personnel and pilots. This document is constantly being reviewed.	Corrected	CAA Mexico / SENEAM	2003	U			
ATM		**Netherlands Antilles/Antillas Neerlandesas**											
ATM	44 C	Curaçao ACC Air/Ground Communications in order to give the Area Control Services	Netherlands Antilles Curaçao FIR	IATA Reports indicated difficulties to communicate in VHF with the Curaçao ACC in the NW part of the Curaçao FIR during RNAV trials in the CAR/SAM Regions	May 2001	Second Meeting/Workshop of ATM Authorities and Planners Lima, May 2001	Corrected	DCA Netherlands Antilles	2003	U			
ATM	38 C	Use of the aeronautical phraseology	Netherlands Antilles	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Corrected	CAA Netherlands Antilles	2003	U			
ATM		**Nicaragua**											
ATM	12 C	English proficiency in Air Traffic Services CAR/SAM/3 Rec. 5/35	Nicaragua	The proficiency in the English language of some ATC units is below the desired level and could be a contributing factor for the ocurrence of incidents and/or aeronautical accidents.	Oct. 95	GREPECAS/5	Corrected	CAA Nicaragua	2003	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE CAR REGION

Identification				Deficiencies			Corrective Action			ASB Action			
		Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM	1 C	Provision of air traffic control service CAR/SAM/3 Rec. 5/33	Nicaragua	Some segments of ATS routes of the FIR do not count yet with ATS at the required levels.	Sept./94	GREPECAS/4, Report IATA Conc. 4/10, Appendix 5	Corrected	CAA Nicaragua	2003	U			
ATM	31 C	Use of the aeronautical phraseology	Nicaragua	In general, the use of aeronautical phraseology in Spanish and/or English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Corrected	CAA Nicaragua	2003	U			
ATM	**Saint Vincent and the G./San Vicente y las Granadinas**												
ATM	22 C	Use of the aeronautical phraseology	Saint Vincent and the Grenadines	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sept./2000	ATS/SG/9	Corrected	CAA OECS	2003	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification		Deficiencies			Corrective Action			ASB Action			
Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM Argentina											
ATM 12 S Use of the aeronautical phraseology	Argentina	In general, the use of aeronautical phraseology in Spanish and English does not meet the required levels and it is a relevant factor with regard to ATS incidents	Sep/2000	ATM/SAR 02/00-SAM Meeting	The Argentinean administration emphasized training to ATCOs on the correct use of ICAO aeronautical phraseology. The verification of the correct use was initiated through tapes listening, and also a high level of non-compliance by crews was also detected. A training, improvement and continuous updating plan (PC PAC) has been implemented.	CRA Argentina	Corrected	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification		Deficiencies			Corrective Action			ASB Action			
Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM Bolivia											
ATM 2 S English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35.	Bolivia	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents. (Annex 1).	Oct/1995	GREPECAS/5	Through Note NAV/AER/702/02 DGAC-0-1-1876 dated 12 November 2002, Bolivia informed that: 1) At the end of 2001 and beginning of 2002, two ATS procedures courses were held in English language, for ATCOs carried out by FAA instructors. 2) During 2002, two courses were carried out for ATCOs, with emphasis in English language phraseology. 3) The requisites for new a ATCOs is maintained, English knowledge and test, as of 2002. 4) CAD informed AASANA on the audits to ATS units, as of November 2003 and instructed ATCOs in English language. 5) AASANA is aware of ICAO requirements for 2008 in the English language.	CAD Bolivia	Corrected	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification				Deficiencies			Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM	13 S	Use of the aeronautical phraseology	Bolivia	In general, the use of aeronautical phraseology does not meet the required levels and it is a relevant factor with regard to ATS incidents	Sep/2000	ATM/SAR 02/00-SAM Meeting.	Through note NAV/AER/702/02 DGAC-0-1-1876 dated 12 November 2002, Bolivia informed that: 1) Aeronautical phraseology included in Doc 4444, last edition 2001, was disseminated to all ATS untis personnel, with recommendations for its appropriate use to persons in charge of the supervision. 2) Supervisors and persons in charge are monitoring on a permanent basis on the use of aeronautical phraseology. 3) The refreshment courses provided at the INAC, include the use of the aeronautical phraseology and place special emphasis on ATS personnel training.	CAD Bolivia	Corrected	U			
ATM Brazil/Brasil													
ATM	3 S	English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	Brazil/Brasil	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents. (Annex 1)	Oct/1995	GREPECAS/5	Through MSSGE No. 198/CECATI/2002-30 August 2002, Brazil informed that improvement courses are being provided to ATCOs in the operational units, with the aim to improve English language fluently. The English language competence is being verified, taking as a basis the new regulations of ICAO Annex 1 on this matter. At the same time, refreshing courses are being provided to ATC personnel.	CERNAI Brazil	Corrected	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification				Deficiencies			Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM	14 S	Use of the aeronautical phraseology	Brazil/Brasil	In general, the use of aeronautical phraseology in English does not meet the required levels and it is a relevant factor with regard to ATS incidents	Sep/2000	ATM/SAR 02/00-SAM Meeting.	1) Implement a continuous training and updating plan. 2) Continuously monitor its correct use in ATS units.	CERNAI Brazil	Corrected	U			
ATM CAR/SAM													
ATM	28 S	English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	This problem exists both in CAR and SAM Regions	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents.	Oct/1995	GREPECAS/5	a) After the effective date of Amendment to Annex 1, which establishes that the English level required for ATC personnel, the States/Territories/International Organizations, should evaluate the personnel of their ATC units and further provide information regarding the deviation level required in the box "Remarks". b) In order to reach and maintain the English language level required, the States/Territories/International Organizations shall establish a permanent and continuous training plan of ATC units, which contemplates the follow-up of the improvements of personnel of ATC units and shall implement in the same, the ATS quality assurance programme. c) The States/Territories/International Organizations shall demand the personnel who works in ATC units, the English language knowledge to be required by ICAO Annex 1.	CAR/SAM States	Corrected	U	SARPs effective 2008	SAM/IATA	

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE CAR REGION

Identification				Deficiencies			Corrective Action			ASB Action			
		Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM	29 S	Use of the aeronautical phraseology	This problem exists both in CAR and SAM Regions	In general, the use of aeronautical phraseology in Spanish and English does not meet the required levels and it is a relevant factor with regard to ATS incidents	Sep/2000	ATS/SG/9	Continuous training and supervision in the use of aeronautical phraseology is required.	CAR/SAM States	Corrected	U	Ongoing	SAM	
ATM Chile													
ATM	4 S	English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	Chile	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents.	Oct/1995	GREPECAS/5	By letter dated 7 May 2002, received by SAM RO, the Chile CAD informed that there is an improvement programme for the English language for ATCOs. The first state of the programme will cover 98 ATCs from the most important ATS units who use language. The second stage, 2003, shall cover the rest of the ATS units. (2004: through letter No. 04/3/915 of September 2004, air traffic servcies in Chile are certified as per ISO 9001:2000 standard, which contains the necessary procedures to keep quality assurance on this matter).	CAD Chile	Corrected	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification				Deficiencies			Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM	16 S	Use of the aeronautical phraseology	Chile	In general, the use of aeronautical phraseology does not meet the required levels and it is a relevant factor with regard to ATS incidents	Sep/2000	ATM/SAR 02/00-SAM Meeting.	Aeronautical phraseology will have to be widely disseminated so it may be studied, learnt and well applied by ATCOs. (2004: through letter No. 04/3/915 of September 2004, air traffic servcies in Chile are certified as per ISO 9001:2000 standard, which contains the necessary procedures to keep quality assurance on this matter).	CAD Chile	Corrected	U	Ongoing	SAM	
ATM Colombia													
ATM	9 S	English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	Colombia	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents.	Oct/1995	GREPECAS/5	Through Note 1003-52-03-A dated 17 February 2003, in reply to letter LT 1/19-SA985 dated 27 December 2002, the Colombian Administration has established a minimum level of English knowledge to access technical courses of the CEA, especially for ATC/AIS/COM/MET personnel, firemen, and electronics. A permanent training programme of grammar and technical English supports this. (Mission 2003: has a training programme which establishes a regular programme of refreshing courses for ATCOs).	UAEAC Colombia	Corrected	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification				Deficiencies			Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM	15 S	Use of the aeronautical phraseology	Colombia	In general, the use of aeronautical phraseology does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sep/2000	ATM/SAR 02/00-SAM Meeting.	1) Implement a continuous training and updating plan. 2) Continuously monitor its correct use in ATS units. (Mission 2003: has a training programme which establishes a regular programme of refreshing courses for ATCOs).	UAEAC Colombia	Corrected	U	Ongoing	SAM	
ATM Ecuador													
ATM	17 S	Use of the aeronautical phraseology	Ecuador	In general, the use of aeronautical phraseology does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sep/2000	ATM/SAR 02/00-SAM Meeting.	1) Implement a continuous training and updating plan. 2) Continuously monitor its correct use in ATS units. (Mission 2003: the State is encouraged to continue with training plan).	CAD Ecuador	Corrected	U	Ongoing.	SAM	

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification				Deficiencies			Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM French Guiana/Guyana Francesa													
ATM	8 S	English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	French Guyana/Guyana Francesa	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents.	Oct/1995	a) After the effective date of Amendment to Annex 1, which establishes that the English level required for ATC personnel, the States/Territories/International Organizations, should evaluate the personnel of their ATC units and further provide information regarding the deviation level required in the box "Remarks". b) In order to reach and maintain the English language level required, the States/Territories/International Organizations shall establish a permanent and continuous training plan of ATC units, which contemplates the follow-up of the improvements of personnel of ATC units and shall implement in the same, the ATS quality assurance programme. c) The States/Territories/International Organizations shall demand the personnel who works in ATC units, the English language knowledge to be required by ICAO Annex 1.	There is a National Programme in place that consists if the following: 1) Define the minimum average English proficiency level; 2) Assess the level of each ATC controller and after, 3) Definition of an English language programme in three areas: a) Phraseology, b) Aeronautical English, and c) General English (25th E/CAR IWG Meeting, May 2001).	CAD French Guyana	Corrected	U			
ATM	18 S	Use of the aeronautical phraseology	French Guyana/Guyana Francesa	In general, the use of aeronautical phraseology in Spanish and English does not meet the required levels and it is a relevant factor with regard to ATS incidents	Sep/2000	Continuous training and supervision in the use of aeronautical phraseology is required.	The national phraseology (English and French) has been reviewed by a Working Group in France. The result is the publication of a new official phraseology (English and French); this phraseology has been distributed to each ATC who has received complementary training (E-CAR/SAM-NE ICG/2 Dic 2003).	CAD French Guyana	Corrected	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification		Deficiencies			Corrective Action			ASB Action			
Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM Guyana											
ATM 26 S Provision of air traffic control service CAR/SAM/3, Rec 5/33	Guyana	Due to air traffic volume at Georgetown FIR area control provision is required	NA	Finalized	The ICAO SAM Regional Office, through a Technical Cooperation project, assisted Guyana in the implementation of the Georgetown ACC, implemented on 21 March 2002.	CAA Guyana	Corrected	U			Corrected
ATM 19 S Use of the aeronautical phraseology	Guyana	In general, the use of aeronautical phraseology in Spanish and English does not meet the required levels and it is a relevant factor with regard to ATS incidents	Sep/2000	ATM/SAR 02/00-SAM Meeting.	1) Implement a continuous training and updating plan. 2) Continuously monitor its correct use in ATS units.	CAD Guyana	Corrected	U			
ATM Panama											
ATM 6 S English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	Panama	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents.	Oct/1995	GREPECAS/5	Through Note DAC-1038-NA dated 24 December 2002, the Panamanian administration has established through its Human Factors Office, the English language as a second language, within the ATCOs profile. (Mission 2003 programme continues to be applied as a permanent measure).	CAD Panama	Corrected	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification				Deficiencies			Corrective Action			ASB Action				
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM	20 S	Use of the aeronautical phraseology	Panama	In general, the use of aeronautical phraseology in Spanish and English does not meet the required levels and it is a relevant factor with regard to ATS incidents	Sep/2000	ATM/SAR 02/00-SAM Meeting.	Through DAC-1038-NA dated 24 December 2002, the Panamanian administration informed that they will implement in 2003 the quality assurance programme, in which, among other things, an intensive monitoring programme on the English language and aeronautical phraseology will be developed through a continuous review of the ATC voice recording. Mission 2003 programme continues to be applied as a permanent measure).	CAD Panama	Corrected	U			
ATM Peru													
ATM	7 S	English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	Peru	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents.	Oct/1995	GREPECAS/5	Through Note G.G.985.2002 dated 7 October 2002, the Peruvian administration has informed that the programme established to reach de advanced English language level. The personnel that reaches an advanced level will participate in permanent conversation workshops. (Mission 2003: Programme continues to be applied).	CAD Peru	Corrected	U			
ATM	22 S	Use of the aeronautical phraseology	Peru	In general, the use of aeronautical phraseology does not meet the required levels and it is a relevant factor with regard to ATS incidents	Sep/2000	ATM/SAR 02/00-SAM Meeting.	1) Implement a continuous training and updating plan. 2) Continuously monitor its correct use in ATS units. (Mission 2003: Programme continues to be applied).	CAD Peru	Corrected	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification				Deficiencies			Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
ATM Suriname													
ATM	24 S	Use of the aeronautical phraseology	Suriname	In general, the use of aeronautical phraseology in does not meet the required levels and it is a relevant factor with regard to ATS incidents.	Sep/2000	ATM/SAR 02/00-SAM Meeting.	1) Implement a continuous training and updating plan. 2) Continuously monitor its correct use in ATS units. 3) During mission carried out 2004, of plan mentioned in 1) continued.	CAD Suriname	Corrected	U	Ongoing.	SAM	

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE CNS FIELD IN THE CAR REGION

Identification				Deficiencies			Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
CNS Bahamas													
CNS	31 C	Radio navigation Aids (Table CNS 3) - VOR	Bahamas, Nassau, Nassau Intl.	VOR is regularly out of service.	Sept. 2000	- IATA report Sept. 2000 - ICAO Visit, Oct. 2000 - IFALPA Meeting, Nov. 2000	Corrected.	Bahamas	2002	U			
CNS Mexico													
CNS	55 C	HF/AMS-voice. Mobile Aeronautical Service plan (CNS2A and CNS2B Tables). Merida ACC	Mexico	Low availability (80%) of the Mexico Radio HF/AMS voice communications, installed in Merida due that the HF and SELCAL equipment are obsolete	01/2002	RO/ATM mission	Mexico completed final tests of the new HF/AMS and SELCAL equipment are being carried out. Corregida	Mexico	06/2005	U	State letter to be sent		

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE CNS FIELD IN THE SAM REGION

Identification				Deficiencies			Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
CNS Argentina													
CNS	11 S	Aeronautical Mobile Service Plan. Table CNS 1A. Lack of HF communicaitons coverage in the Ezeiza FIR, Oceanic Sector	Argentina	Deficiencies in the HF communications have been identified in the oceanic part of the Ezeiza FIR.	09/1994	GREPECAS/4. IATA Report.	Argentina installed HF equipment and a control station at the Ezeiza ACC, all of which is already in operation.	Argentina CAA	August 2005	U		SAM Regional Office	
CNS Brazil/Brasil													
CNS	13 S	Aeronautical Mobile Service Plan. Table CNS 1A. Lack of VHF communications coverage in the Manaus, Porto Velho and Recife FIRs	Brazil/Brasil	Due to the lack of VHF coverage in some segments of ATS routes crossing the Manaus, Porto Velho and Recife FIRs, ATS is not yet provided in the required level.	09/1994	GREPECAS Conclusion 4/10. IATA Report	Corrected	Brazil CAA		U			
CNS	12 S	Aeronautical mobile service plan. Table CNS 1A. Lack of HF communications coverage in the Brasilia FIR, Oceanic Sector	Brazil/Brasil	Deficiencies in the HF communications have been identified in the oceanic part of the Brasilia FIR	09/1994	GREPECAS/4. IATA Report.	Corrected	Brazil CAA		U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE MET FIELD IN THE CAR REGION

Identification				Deficiencies			Corrective Action			ASB Action			
		Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
MET Dominican Republic/República Dominicana													
MET	1 C	CAR/SAM ANP requirements, Part VI, para. 6 and Annex 3 provision, Chapter 7, para. 7.2.1.	Dominican Republic	There is no follow-up on local procedures for issuance of SIGMETs.	22/05/96	CAR/SAM ANP requirements, Part VI, par. 6 and availability of Annex 3, Chapter 7, par. 7.2.1	Corrected	States	2005	U	ICAO SIP Project. Ongoing	NACC	SIP Meeting in 4th quarter. Then need to verify
MET Honduras													
MET	3 C	CAR/SAM ANP requirements, Part VI, para. 6 and Annex 3 provision, Chapter 7, para. 7.2.1.	Honduras	There is no follow-up on local procedures for issuance of SIGMETs.	22/05/96	MWOs should review the local procedures for the issuance of SIGMETs and control of its issuance on a periodical basis.	Corrected	State	2002	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE MET FIELD IN THE SAM REGION

Identification			Deficiencies				Corrective Action			ASB Action				
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
MET Argentina													
MET	24 S	SIGMET information (Annex 3, Part I, Chapter 7, standard 7.1.1)	Argentina / Meteorological watch offices (MWOs)	Not all SIGMET messages are prepared based on the procedures established by ICAO.	06/2000	a) Implement the SIGMET SIP recommendations for the SAM Region; and b) make use of the Guide for the preparation, dissemination and use of SIGMET messages in the CAR/SAM Regions.	CORRECTED	National Meteorological Service	March 2001	U			
MET Bolivia													
MET	1 S	Retransmission of Special AIREPs by ATS units (Annex 3, Part I, Chapter 5, standard 5.8)	Bolivia / Dependencias ATS	ATS dependencies do not transmit regularly all special AIREPs to MET dependencies	22/06/96	Review ATS/MET Letter of agreement and make follow-up to ensure its compliance.	CORRECTED Application of the Letter of Agreement ATS/MET	AASANA	Nov 2002	U			
MET Chile													
MET	55 S	Exchange of special AIREPs (Annex 3, Chapter 5, para. 5.9)	Chile / ATS dependencies	ATS dependencies do not transmit regularly all special AIREPs to MET dependencies.		Review the ATS/MET letter of agreement and make a follow-up to ensure its compliance.	CORRECTED	DGAC	)ecember 200	U			
MET	26 S	SIGMET information (Annex 3, Chapter 7, para. 7.2)	Chile / Meteorological watch offices (MWOs)	Not all SIGMET messages are prepared based on the procedures established by ICAO.	06/2000	a) Implement the SIGMET SIP recommendations for the SAM Region; and b) make use of the Guide for the preparation, dissemination and use of SIGMET messages in the CAR/SAM Regions.	CORRECTED	DGAC	)ecember 200	U			
MET Colombia													
MET	2 S	Relay of air-reports by ATS units (Annex 3, Part I, Chapter 5, standard 5.8)	Colombia / ATS Dependencies	ATS dependencies do not transmit regularly all special AIREPs to MET dependencies	22/06/96	Review the ATS/MET Letter of agreement and make a follow-up to ensure its compliance.	CORRECTED	UAEAC	TBD	U			
MET	25 S	SIGMET information (Annex 3, Part I, Chapter 7, standard 7.1.1)	Colombia / Meteorological watch offices (MWOs) of Bogotá	Not all SIGMET messages are prepared based on the procedures established by ICAO.	06/2000	a) Implement the SIGMET SIP recommendations for the SAM Region; and b) make use of the Guide for the preparation, dissemination and use of SIGMET messages in the CAR/SAM Regions.	a) In consultancy process, through TDA, through which alternatives for the solution to this problems are expected; and b) the organization of the Meteorological Services is being carried out in Aerocivil Colombia. CORRECTED	UAEAC		U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE MET FIELD IN THE SAM REGION

Identification			Deficiencies			Corrective Action			ASB Action			
Requirements		States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
MET Ecuador												
MET 3 S	Relay of air-reports by ATS units (Annex 3, Part I, Chapter 5, standard 5.8)	Ecuador / ATS dependencies	ATS dependencies do not transmit regularly all special AIREPs to MET dependencies.	22/06/96	Review the ATS/MET letter of agreement and make a follow-up to ensure its compliance.	CORRECTED			U			
MET 27 S	SIGMET information (Annex 3, Chapter 7, para. 7.2)	Ecuador / Meteorological watch office (MWO) of Guayaquil	Not all SIGMET messages are prepared based on the procedures established by ICAO.	06/2000	a) Implement the SIGMET SIP recommendations for the SAM Region; and b) make use of the Guide for the preparation, dissemination and use of SIGMET messages in the CAR/SAM Regions.	CORRECTED	DGAC	2002	U			
MET Guyana												
MET 4 S	Relay of air reports by ATS units (Annex 3, Part I, Chapter 5, standard 5.8)	Guyana / ATS dependencies	ATS dependencies do not transmit regularly all special AIREPs to MET dependencies	22/06/96	Review the ATS/MET Letter of agreement and make a follow-up to ensure its compliance.	CORRECTED			U			
MET 28 S	SIGMET information (Annex 3, Part I, Chapter 7, standard 7.1.1)	Guyana / Meteorological watch offices (MWOs) of Georgetown	Not all SIGMET messages are prepared based on the procedures established by ICAO.	06/2000	a) Implement the SIGMET SIP recommendations for the SAM Region; and b) make use of the Guide for the preparation, dissemination and use of SIGMET messages in the CAR/SAM Regions.	CORRECTED	Guyana Hydromet National Service	Dec 2004	U	Referred to AERMETSG for further action. Follow-up action in progress	AERMETSG	
MET Panama												
MET 5 S	Exchange of special AIREPs (Annex 3, Part I, Chapter 5, standard 5.9)	Panama / ATS Dependencies	ATS dependencies do not transmit regularly all special AIREPs to MET dependencies	22/06/96	Review ATS/MET Letter of agreement and make a follow-up to ensure its compliance.	CORRECTED	DAC	Dec 2004	U			
MET 57 S	Relay of air-reports by ATS units (Annex 3, Part I, Chapter 5, para. 5.8)	Panama ATS dependency	ATS dependencies do not relay regularly all the special AIREPs to the MET dependencies	Sep. 2003	Review the ATS letter of agreement and follow-up to the compliance of same	Emphasis to the ATS/MET personnel to comply with this requirement. They will initiate a programme to regulate the AIREPs retransmission CORRECTED	CAA	Dec. 2004	U			
MET Paraguay												
MET 6 S	Relay of air-reports by ATS units (Annex 3, Part I, Chapter 5, standard 5.8)	Paraguay / ATS Dependencies	ATS dependencies do not trasmit regularly all special AIREPs to MET dependencies.	22/06/96	Review the ATS/MET Letter of agreement and make a follow-up to ensure its compliance.	ATS/MET coordination has been reviewed (2002) CORRECTED	DINAC	Dec 2004	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE MET FIELD IN THE SAM REGION

Identification				Deficiencies			Corrective Action				ASB Action		
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
MET Uruguay													
MET	60 S	Requirements for communications (Annex 3, Part I, Chapter 11, standards 11.1.1 and 11.1.2)	Uruguay CNS 1 Units	There is no communication between the aerodrome MET office and the ATS dependencies neiterh with the MWO and the ACC. CORRECTED	Dec. 2003	Establish communications	Coordination with Electronics - DINACIA CORRECTED	DINACIA/Electronics	2004	U			
MET Venezuela													
MET	9 S	Exchange of special AIREPs (Annex 3, chapter 5, para. 5.9)	Venezuela / ATS dependencies	ATS dependencies do not transmit regularly all special AIREPs to MET dependencies	22/06/96	Review ATS/MET Letter of agreement and make a follow-up to ensure its compliance.	CORRECTED	INAC, in coordination with Natl. MET Service	ecember 200	U			
MET	54 S	SIGMET information (Annex 3, Chapter 7, para. 7.1)	Venezuela / Meteorological watch offices (MWOs) of Maiquetía	Not all SIGMET messages are prepared based on the procedures established by ICAO.	06/2000	a) Implement the SIGMET SIP recommendations for the SAM Region; and b) make use of the Guide for the preparation, dissemination and use of SIGMET messages in the CAR/SAM Regions.	CORRECTED	INAC in coordination with National Weather Service	June 2004	U			

CORRECTED DEFICIENCIES

REPORTING FORM ON A IR NAVIGATION DEFICIENCIES IN THE SAR FIELD IN THE SAM REGION

Identification		Deficiencies			Corrective Action			ASB Action			
Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
SAR Guyana											
SAR 2 S Search and Rescue Facilities CAR/SAM/3 Rec. 6/2	SRR Georgetown	RCC not implemented. Lack of SAR qualified personnel. Inadequate SAR organization.	Oct/95	GREPECAS/5	Comply with CAR/SAM/3 Rec. 6/2, 6/8, 6/9, 6/10, 6/11, 6/12 and CAR/SAM/2 Rec. 7/12.	Guyana CAD	2004	U	AGA/ATM/CNS/AIS/SAR experts Mission	SAM/IATA	

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
	Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS	**Anguilla**											
AIS 202 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Anguilla	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; New AIP Edition (May-01)	Corrected	State	17/05/2001	U	Corrected		
AIS	**Antigua and Barbuda/Antigua y Barbuda**											
AIS 203 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Antigua and Barbuda	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; New AIP Edition (May-01)	Corrected	State	TBD	U	Corrected		
AIS	**Belize/Belice**											
AIS 8 C	Annex 15, Chap. 4, Para. 4.2.9; Doc. 8733, Basic ANP, Part VIII, Paras 33 to 37	Belize	Lack of regular and effective updating of the AIP Document	24/10/00	GREPECAS AIS/MAP Subgroup	Corrected	State	TBD	U	Corrected	NACC/IATA	
AIS 18 C	Annex 15, Chapter 3, Paras. 3.1.5 and 3.1.6; Chapter 5, Paras. 5.1.1.1 and Sec. 5.3	Belize	Timely distribution of the information through NOTAM	25/10/00	COCESNA assumes control of the NOF/CA and implement the NOTAM Data Base in CA	Corrected	State/COCESNA	27/04/2001	U	Corrected		
AIS	**Cayman Islands/Islas Caimanes**											
AIS 19 C	Annex 15, Chapter 3, Paras. 3.1.5 and 3.1.6; Chapter 5, Paras. 5.1.1.1 and Sec. 5.3	Cayman Islands	Timely distribution of the information through NOTAM	25/10/00	GREPECAS AIS/MAP Subgroup	Corrected	State	2001	U	Corrected		
AIS 32 C	Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Cayman Islands	Implementation of the WGS-84 is on going	01/01/98	GREPECAS AIS/MAP Subgroup Survey to States	Corrected	State	2001	U	Corrected		
AIS 204 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Cayman Islands	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; New AIP Edition (Jan-01)	Corrected	State	01/01/2001	U	Corrected		
AIS	**Costa Rica**											
AIS 9 C	Annex 15, Chap. 4, Para. 4.2.9	Costa Rica	Lack of regular and effective updating of the AIP Document	24/10/00	GREPECAS AIS/MAP Subgroup	Corrected	State	08/12/2000	U	Corrected		

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE CAR REGION

Identification			Deficiencies				Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS	20 C	Annex 15, Chapter 3, Paras. 3.1.5 and 3.1.6; Chapter 5, Paras. 5.1.1.1 and Sec. 5.3	Costa Rica	Timely distribution of the information through NOTAM	25/10/00	COCESNA assumes control of the NOF/CA and implement the NOTAM Data Base in CA	Corrected	State/COCESNA	08/12/2000	U	Corrected		
AIS	73 C	Annex 15, Chapter 4, Paras. 4.2.8 and 4.3.4., Chapter 6; Doc 8733 Basic ANP Part VIII, Paras. 45 to 49	Costa Rica	Lack of effective compliance with the AIRAC system requirement	01/11/94	Records/files NACC RO; ICAO visit December 2000	Corrected	State	2002	U	Corrected		
AIS	**Cuba**												
AIS	269 C	Doc. 8733 Basic ANP, Part VIII, Paras. 61 to 64, FASID Table AIS 7	Cuba	Lack of production of the World Aeronautical Chart ICAO 1:1000 000	01/11/94	Records/files NACC RO; GREPECAS reports	Corrected	State	2002	U	Corrected		
AIS	**Dominica**												
AIS	206 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Dominica	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; New AIP Edition (May-01)	Corrected	State	17/05/2001	U	Corrected		
AIS	**El Salvador**												
AIS	21 C	Annex 15, Chapter 3, Paras. 3.1.5 and 3.1.6; Chapter 5, Paras. 5.1.1.1 and Sec. 5.3	El Salvador	Timely distribution of the information through NOTAM	25/10/00	COCESNA assumes control of the NOF/CA and implement the NOTAM Data Base in CA	Corrected	State/COCESNA	30/11/2000	U	Corrected		
AIS	**French Antilles/Antillas Francesas**												
AIS	270 C	Doc. 8733 Basic ANP, Part VIII, Paras. 61 to 64, FASID Table AIS 7	French Antilles	Lack of production of the World Aeronautical Chart ICAO 1:1000 000	01/11/94	Records/files NACC RO; GREPECAS reports	Corrected	State	2003	U	Corrected		
AIS	**Grenada/Granada**												
AIS	208 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Grenada	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; New AIP Edition (May-01).	Corrected	State	17/05/2001	U	Corrected		
AIS	**Guatemala**												
AIS	22 C	Annex 15, Chapter 3, Paras. 3.1.5 and 3.1.6; Chapter 5, Paras. 5.1.1.1 and Sec. 5.3	Guatemala	Timely distribution of the information through NOTAM	25/10/00	COCESNA assumes control of the NOF/CA and implement the NOTAM Data Base in CA	Corrected	State/COCESNA	28/11/2000	U	Corrected		

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE CAR REGION

Identification		Deficiencies			Corrective Action			ASB Action			
Requirements	States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS 74 C Annex 15, Chapter 4, Paras. 4.2.8 and 4.3.4., Chapter 6; Doc 8733 Basic ANP Part VIII, Paras. 45 to 49	Guatemala	Lack of effective compliance with the AIRAC system requirement	01/11/94	Records/files NACC RO; ICAO visit November 2000	Corrected	State	2002	U	Corrected		
AIS Haiti											
AIS 12 C Annex 15, Chap. 4, Para. 4.2.9; Doc 8733 ANP Básico, Parte VIII, Paras 33 a 37	Haiti	Lack of regular and effective updating of the AIP Document	24/10/00	GREPECAS AIS/MAP Subgroup	Corrected	State	TBD	U	Corrected		
AIS 23 C Annex 15, Chapter 3, Paras. 3.1.5 and 3.1.6; Chapter 5, Paras. 5.1.1.1 and Sec. 5.3	Haiti	Timely distribution of the information through NOTAM	25/10/00	GREPECAS AIS/MAP Subgroup	Corrected	State	TBD	U	Corrected		
AIS 37 C Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Haiti	Lack of implementation of the WGS-84	01/01/98	GREPECAS AIS/MAP Subgroup Survey to States	Corrected	State	30/11/04	U	Corrected	GEN NACC	
AIS 209 C Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Haiti	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; GREPECAS and AIS/MAP/SG reports.	Corrected	State	TBD	U	Corrected.		
AIS 100 C Doc. 8733 Basic ANP, Part VIII, Paras. 9 to 12	Haiti	Lack of highest priority for printing of AIS publications.	18/09/96	Records/files NACC RO; GREPECAS reports	Corrected	State	TBD	U	Corrected		
AIS Honduras											
AIS 24 C Annex 15, Chapter 3, Paras. 3.1.5 and 3.1.6; Chapter 5, Paras. 5.1.1.1 and Sec. 5.3	Honduras	Timely distribution of the information through NOTAM	25/10/00	COCESNA assumes control of the NOF/CA and implement the NOTAM Data Base in CA	Corrected	State/COCESNA	04/12/2000	U	Corrected		
AIS 38 C Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Honduras	Partial implementation of the WGS-84	01/01/98	GREPECAS AIS/MAP Subgroup Survey to States	Need to implement the WGS-84 Geodetic System	State	30/08/05	U	Corrected		
AIS Nicaragua											
AIS 27 C Annex 15, Chapter 3, Paras. 3.1.5 and 3.1.6; Chapter 5, Paras. 5.1.1.1 and Sec. 5.3	Nicaragua	Timely distribution of the information through NOTAM	25/10/00	COCESNA assumes control of the NOF/CA and implement the NOTAM Data Base in CA	Corrected	State/COCESNA	06/12/2000	U	Corrected		

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE CAR REGION

Identification			Deficiencies			Corrective Action			ASB Action			
Requirements		States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS	274 C	Annex 15, Chapter 4, Paras. 4.2.8 and 4.3.4., Chapter 6; Doc 8733 Basic ANP Part VIII, Paras. 45 to 49	Nicaragua	Lack of effective compliance with the AIRAC system requirement	06/12/00	Records/files NACC RO; ICAO visit December 2000	Corrected	State	2004	U	Corrected		
AIS	103 C	Doc. 8733 Basic ANP, Part VIII, Paras. 9 to 12	Nicaragua	Lack of highest priority for printing of AIS publications.	18/09/96	Records/files NACC RO; GREPECAS reports	Corrected	State	2004	U			
AIS	**Saint Kitts and Nevis/San Kitts y Nevis**												
AIS	212 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Saint Kitts and Nevis	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; New AIP Edition (May-01)	Corrected	State	17/05/2001	U	Corrected		
AIS	**Saint Lucia/Santa Lucía**												
AIS	213 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Saint Lucia	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; New AIP Edition (May-01)	Corrected	State	17/05/2001	U	Corrected		
AIS	**Saint Vincent and the G./San Vicente y las Granadinas**												
AIS	214 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Saint Vincent and the Grenadines	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; New AIP Edition (May-01)	Corrected	State	17/05/2001	U	Corrected		
AIS	**Trinidad and Tobago/Trinidad y Tabago**												
AIS	215 C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Trinidad and Tobago	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	06/01/94	Records/files in NACC RO; New AIP Edition (May-01)	Corrected	State	17/05/2001	U	Corrected		

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE SAM REGION

Identification				Deficiencies			Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS		**Brazil/Brasil**											
AIS	221 S	CAR-SAM ANP Part VIII (AIS); Para. 65, 66, 67, 68 AND 69. Regional AIS automated system	Brazil/Brasil	Requirement for implementation of automated system at the AIS services, in agreement with the indicated in the CAR/SAM Air Navigation Plan..	1989	Records SAM Office.	# Action Plan (2004) indicated that relevant action is being taken on the matter. NOTAM Data Bank implemented.	Indicated State	2000	U	NO ACTION	SAM RO	ONGOING
AIS		**Chile**											
AIS	222 S	CAR-SAM ANP Part VIII (AIS); Para. 65, 66, 67, 68 AND 69. Regional AIS automated system	Chile	Requirement for implementation of automated system at the AIS services, in agreement with the indicated in the CAR/SAM Air Navigation Plan..	1989	Records SAM Office.	# Action Plan (2004) indicated that relevant action is being taken on the matter. NOTAM Data Bank implemented.	Indicated State	2004	U	NO ACTION	SAM RO	ONGOING
AIS		**Colombia**											
AIS	223 S	CAR-SAM ANP Part VIII (AIS); Para. 65, 66, 67, 68 AND 69. Regional AIS automated system	Colombia	Requirement for implementation of automated system at the AIS services, in agreement with the indicated in the CAR/SAM Air Navigation Plan..	1989	Records SAM Office.	# Action Plan (2004) indicated that relevant action is being taken on the matter. NOTAM Data Bank implemented.	Indicated State	1998	U	NO ACTION	SAM RO	ONGOING
AIS		**Ecuador**											
AIS	224 S	CAR-SAM ANP Part VIII (AIS); Para. 65, 66, 67, 68 AND 69. Regional AIS automated system	Ecuador	Requirement for implementation of automated system at the AIS services, in agreement with the indicated in the CAR/SAM Air Navigation Plan..	1989	Records SAM Office.	Plan de acción 2004. NOTAM Data Bank implemented; operational problems are being faced..	Indicated State	1998	U	NO ACTION	SAM RO	ONGOING

CORRECTED DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE SAM REGION

Identification				Deficiencies			Corrective Action			ASB Action			
Requirements			States/facilities	Description	Date first reported	Remarks	Description	Executing body	Comp. date	P	ASB remedial action	Executing body	Results
AIS Guyana Francesa													
AIS	168 S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	French Guiana	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	2003	Relevant technical documentation and rules are being prapared by the GREPECAS AIS/MAP Subgroup, in order to assist the CAR/SAM States to achieve this objective	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2003	U	The AIS/MAP/SG/9 meeting should review the level of implementation of this requirement in the CAR/SAM Region. The relevant ICAO regional offices should apply specific strategic to support the concerning States for the implementation of indicated objective.	AIS/MAP/SG; SAM Office	Implemented
AIS Peru													
AIS	228 S	CAR-SAM ANP Part VIII (AIS); Para. 65, 66, 67, 68 AND 69. Regional AIS automated system	Peru	Requirement for implementation of automated system at the AIS services, in agreement with the indicated in the CAR/SAM Air Navigation Plan..	1989	Records SAM Office.	# Action Plan (2002/2004) indicated that relevant action is being taken on the matter. NOTAM Data Bank implemented.	Indicated State	1998	U	NO ACTION	SAM RO	ONGOING
AIS Uruguay													
AIS	230 S	CAR-SAM ANP Part VIII (AIS); Para. 65, 66, 67, 68 AND 69. Regional AIS automated system	Uruguay	Requirement for implementation of automated system at the AIS services, in agreement with the indicated in the CAR/SAM Air Navigation Plan..	1989	Records SAM Office.	# Action Plan (2004) indicated that relevant action is being taken on the matter. NOTAM Data Bank implemented.	Indicated State	2005	U	NO ACTION	SAM RO	ONGOING

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification		Deficiencies	Action Plan				
Requirements	States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AGA Antigua and Barbuda/Antigua y Barbuda							
AGA 93C Obstacles (Annex 14, Vol. I , Chap. 4, 4.2.12 & 27)	Antigua and Barbuda, ST. JOHNS, V. C. Bird Intl	Vehicles on the public road at the east runway end are obstacles infringing on the Runway 07 take-off climb and Runway 25 approach and transitional obstacle limitation surfaces	22/07/2003	Reduce the runway declared distances or implement traffic control system on the public road. Action Plan: Reduce the runway declared distances. Relocation of the road.	Antigua and Barbuda Ministry of Aviation	2003&2004	
AGA 99C Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4, 9.4.4)	Antigua and Barbuda, ST. JOHNS, V. C. Bird Intl	Runway pavement surface deficient at the runway ends due to aircraft turn-arounds	22/07/2003	Upgrade pavements at runway ends	Antigua and Barbuda Ministry of Aviation	12/2004	Pending the availability of funding for completion of Phase I of Master Plan.
AGA 91C Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4, 3.4.1 & 7-10)	Antigua and Barbuda, ST. JOHNS, V. C. Bird Intl	Runway end safety areas are not provided at both runway ends: East runway end – fence, road & sea West runway end – fence & grading	22/07/2003	Provide east RESA by reducing the Runway 07 declared distances by approximately 90 m.Do not declare stopway, thereby bringing the runway strip end and RESA 60 m closer to the west runway end and prepare and grade the surface for a RESA.	Antigua and Barbuda Ministry of Aviation	12/2003	
AGA 101C Visual Aids (Annex 14, Vol. I, Chap. 5, 9.4.21)	Antigua and Barbuda, ST. JOHNS, V. C. Bird Intl	Runway 07 approach lighting system reported to be 50 % serviceable	22/07/2003	Repair approach lighting system. Action Plan: Replace approach lighting system.	Antigua and Barbuda Ministry of Aviation	7/2004	Pending the availability of funding for completion of Phase I of Master Plan.
AGA Aruba							
AGA 303C Rescue and Fire Fighting (Annex 14, Vol. I, Chap. 9.1 & 2 - Std. 9.2.21 and Rec. 9.2.22, 30 & 31)	Aruba, ORANJESTAD, Reina Beatrix Int'l	RFFS response time was reported to be between 2.5 and 3 minutes. Furthermore, a test alarm from the control tower resulted in a 1.5 minute delay between alarm call and RFFS response	10/06/2003	Reduce the response time by providing direct access to runway. Improve the alarm system and procedures between the control tower and the RFFS control room and test regularly. Action Plan: Remarks forwarded to Chief Fire Services for comment.	Aruba Airport Authority	TBD	
AGA 296C Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4 - Std. 3.4.1)	Aruba, ORANJESTAD, Reina Beatrix Int'l	No runway end safety areas are provided at both runway ends	10/06/2003	Provide runway end safety areas by not declaring stopways, extension and/or displacing the runway ends and reducing the runway declared distances.	Aruba Airport Authority	TBD	Compliance with the standard will have significant structural and financial implications on the infrastructure of the airport. Several factors such as land acquisition, construction in the sea and the impact here-of on the community demand extensive study to arrive at the final decisions.
AGA 297C Visual Aids (Annex 14, Vol. I, Chap. 5 - Std. 3.11.6)	Aruba, ORANJESTAD, Reina Beatrix Int'l	The runway-holding position on the south side of the runway is provided on the GA apron. The old runway-holding position markings on Taxiways D, E and F are no longer valid.	10/06/2003	Remove the disused runway-holding position markings on Taxiways D, E and F. Action Plan: The old runway-holding position markings on taxiways D, E and F will be removed.	Aruba Airport Authority	6/2003	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification			Deficiencies	Action Plan				
Requirements		States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AGA Barbados								
AGA 161C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 5.2.8.1 & 3)	Barbados, BRIDGETOWN, Grantley Adams Intl	Taxiway centreline marking to guide aircraft turning around at the east runway end is not provided	06/10/2004	Provide turn-around guidance centreline markings at the runway end. Action Plan: The necessary drawings and funding to address this matter have been approved. Work will start shortly on this item. Completion has been scheduled for November 2004.	Barbados	11/2004	
AGA Cayman Islands/Islas Caimanes								
AGA 22C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4)	Cayman Islands, GRAND CAYMAN, Owen Roberts Intl	No runway end safety area is provided at the eastern runway end as specified in Annex 14 Vol I Section 3.4.1	25/03/2003	Provide runway end safety areas by extending the platform or reducing the declared distances. Action Plan: Study of operational impact on reducing existing declared runway length to provide RESAs being carried out. Difference published in AIP.	Cayman Islands	TBD	
AGA 12C	Runway Strip (Annex 14, Vol. I, Chap. 3.3)	Cayman Islands, GRAND CAYMAN, Owen Roberts Intl	Runway strip length at the eastern runway end and does not comply with Annex 14 Vol. I Section 3.3.2	25/03/2003	Extend the runway strip or reduce declared distances. Action Plan: Subject to airport master plan implementation date. Difference published in AIP.	Cayman Islands	TBD	
AGA Cuba								
AGA 133C	Pavement surface conditions (Annex 14, Vol. I, Chap. 9.4 - 9.4.3, 4 & 9)	Cuba, HABANA, José Marti International	The runway, taxiway and Terminal 1 apron surfaces are failing causing irregularities and FOD in large areas.	27/01/04	To remove FOD through continous monitoring and to repair the pavement surfaces Action Plan: To repair the surfaces to eliminate ondulations	Cuba	2º Sem2004	
AGA 139C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4, 3.4.1)	Cuba, SANTIAGO DE CUBA, Antonio Maceo	There are no runway end safety areas.	27/01/04	To provide runway end safety areas possible through the reduction of declared distances.	Cuba	1ºSem2005	
AGA Dominican Republic/República Dominicana								
AGA 61C	Fencing (Annex 14, Vol. I, Chap. 8.4)	Dominican Republic, SANTO DOMINGO, Las Americas Intl	Perimeter security deficient	09/02/04	Provide secure perimeter barrier. Action Plan: The perimeter barrier is being installed.	Dominican Republic	2004	
AGA 77C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4)	Dominican Republic, SANTO DOMINGO, Las Americas Intl	Runway surface pavement irregularities and rubber deposit accumulation.	09/02/04	Remove rubber and upgrade pavements. Action Plan: Regarding the rubber removal, we are in the process of purchasing a removal machine. Regarding the pavement upgrade, we are conditioning the parallel taxiway in order to use it as a probable runway, by doing this, we will give maintenance to the runway.	Dominican Republic	2005	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AGA Grenada/Granada									
AGA	126C	Fencing (Annex 14, Vol. I, Chap. 8.4, 8.4.1 & 2)	Grenada, ST. GEORGES, Point Salines Intl	Fencing incomplete around perimeter	28/01/2003	Provide complete perimeter security barrier	Grenada	04/2003	
AGA	128C	Rescue and Fire Fighting (Annex 14, Vol. I, Chap. 9.2, 9.2.32 & 33)	Grenada, ST. GEORGES, Point Salines Intl	Present staff levels are considered inadequate for Category 9 with 7 plus a supervisor reported	28/01/2003	Staff levels should be increased to 9 plus supervisor for Category 9 and 3 vehicles	Grenada	03/2003	
AGA Mexico									
AGA	360C	Maintenance (Annex 14, Chap. 9.4 - Std. 9.4.21)	México, MÉXICO, Lic.Benito Juárez International Airport	The centreline markings of the runway, some taxiways and aprons are deficient	27/08/2003	Re-paint the deficient markings	AICM (Mexico)	TBD	
AGA	358C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4 - Recs. 9.4.3 & 4)	México, MÉXICO, Lic.Benito Juárez International Airport	The runway, shoulder, taxiway and apron surfaces were observed to be deficient with irregularities and FOD. The taxiways and aprons have elevated and depressed manholes. Also, the fitted lights are elevated in both runways and there are holes on the pavement of Runway 05R/23L, where lights have been removed and not replaced	27/08/2003	Improve the runway, taxiway and apron pavement surface conditions. Taxiways B and C and the cargo apron require immediate attention. Action Plan: During this year the following will be reinstated/rehabilitated: Runway 05R/23L, Customs and Emergency Aprons, Bravo Taxiway, shoulders, slope lamps and pavement sealing. Two additional taxiways will be built. The manhole correction will be finished in December 2003	AICM (Mexico)	TBD	
AGA	345C	Runway End Safety Area (Annex 14, Vol.I, Chap. 3.4, Std. 3.4.1)	México, MÉXICO, Lic.Benito Juárez International Airport	The length and width of the runway end safety area of Runway 05L/23R is insufficient at both ends	27/08/2003	To broaden the runway end safety area dimensions of Runway 05L/23R or to reduce the runway declared distances. Action Plan: To attend this observation, the AICM is preparing proposals to be studied and approved by the DGAC, or that the DGAC prepares the corresponding recommendations and adopts the necessary measures in order to notify ICAO of the differences or to establish a Mexican Standard that endorses the difference as a State rule.	AICM (Mexico)	TBD	

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REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AGA	341C	Runway Geometry (Annex 14, Vol. I, Chapter 3.1 - 3.1.18 and 19, 3.2.4, 3.3.14, 9.4.8)	México, MÉXICO, Lic.Benito Juárez International Airport	The transversal slopes of the runways, shoulders and strips should ease to have a fas evacuation and to prevent the water accumulation on the surfaces. Sometimes runways are closed after it rains due to water saturation and innapropriate drainage.	27/08/2003	To adequate the transversal slopes of the ruways, shoulders and strips and to improve the drainage in order to avoid water accumulation on the runway and shoulders surfaces; to provide the adequate resistance to the strips. To consider the slots on the runway surfaces. Action Plan: Emergent actions: Maintenance of strips, neighboring areas and complementary works. Rehabilitation of rain drainage in taxiways Bravo 3, Bravo 4, Bravo 7, replacement of collapsed pipes in Bravo 3 and complementary works. Emergent re-adaptation to the water displacement in the current drainage. Draining and rehabilitation of the drainage system (1st Phase). Rental of two high-pressure and vacuum hydropneumatic draining equipment. Removal of nozzles to link them to the main drainage network. Finishing of the deep drainpipes. Rectify strips. Rehabilitate the general drainage system. Waterproofing of the terminal building. Future actions: Hydraulic studies and photogrammetric surveys. Replacement of the pumping equipment. Draining and rehabilitation of the drainage system (2nd Phase).	AICM (Mexico)	TBD	
AGA	349C	Runway holding position (Annex 14, Chap. 3.11 - Std, 3.11.6)	México, MÉXICO, Lic.Benito Juárez International Airport	The runway holding positions in some taxiways do not have the required distance from the corresponding centreline	27/08/2003	Provide the required distance between the runway holding positions in the taxiways and the runway centrelines.	AICM (Mexico)	TBD	
AGA	342C	Runway Strip (Annex 14, Vol.I, Chap.3.3, Std. 3.3.2)	México, MÉXICO, Lic.Benito Juárez International Airport	The length of the Runway Strip 05L/23R is insufficient at both runway ends	27/08/2003	To extend the strip or to reduce the declared distances of the runway. Action Plan: To attend this observation, the AICM is preparing proposals to be studied and approved by the DGAC, or that the DGAC prepares the corresponding recommendations and adopts the necessary measures in order to notify ICAO of the differences or to establish a Mexican Standard that endorses the difference as a State rule.	AICM (Mexico)	TBD	
AGA		**Netherlands Antilles/Antillas Neerlandesas**							
AGA	264C	Obstacles (Annex 14, Vol. I , Chap. 4 - 4.2.12)	Netherlands Antilles, SINT MAARTEN/ PHILIPSBURG, Princess Juliana Int'l	Obstacles infringing on the take off climb and approach obstacle limitation surfaces for both Runways 09 & 27 include fencing, vehicles on roads, buildings, vegetation and terrain.	02/2002	Eliminate some obstacles by not declaring the stopways at both runway ends. This may involve a displacement of the Runway 09 threshold and Runway 27 end. Remove, light and mark remaining obstacles as appropriate.	PJIAE (Netherlands Antilles)	12/2005	

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Identification			Deficiencies	Action Plan				
Requirements		States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AGA	251C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4 - 9.4.4)	Netherlands Antilles, CURACAO/ WILLEMSTAD, Hato Int'l	Runway pavement has extensive cracking	25/03/2003	Upgrade runway pavement. Action Plan: Airport operator to seal runway surface.	Netherlands Antilles	2003	Airport operator has carried out a specialized technical study, which establishes that the cracking is only superficial, not structural.
AGA	261C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4 - 3.4.1)	Netherlands Antilles, SINT MAARTEN/ PHILIPSBURG, Princess Juliana Int'l	Runway end safety areas are not provided at both runway ends	02/2002	Provide the required runway end safety areas by not declaring the stopways at both runway ends. Action Plan: NACO has been commissioned and has worked out a plan of action to address this matter.	PJIAE (Netherlands Antilles)	12/2005	
AGA	259C	Runway Strip (Annex 14, Vol. I, Chap. 3.3 - 3.3.2)	Netherlands Antilles, SINT MAARTEN/ PHILIPSBURG, Princess Juliana Int'l	The runway strip length is insufficient at both runway ends.	02/2002	Provide the required runway strip length by not declaring the stopways at both runway ends. Action Plan: Strip extends up to 60 m beyond end of runway. This length is available by not declaring stopways. Has been investigated to establish the implications.	PJIAE (Netherlands Antilles)	12/2005	
AGA	246C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 5.2.8.1 & 3)	Netherlands Antilles, CURACAO/ WILLEMSTAD, Hato Int'l	Taxiway centreline markings at runway – taxiway intersections are not provided on some taxiways	25/03/2003	Provide taxiway centreline markings at all runway – taxiway intersections. Action Plan: Airport operator to paint taxiway centreline markings on runway intersections.	Netherlands Antilles	30/04/2003	
AGA	249C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 5.3.14.1)	Netherlands Antilles, CURACAO/ WILLEMSTAD, Hato Int'l	Stopway lights are not provided	25/03/2003	Provide stopway lights or do not declare stopway. Action Plan: NOTAM to be issued by DCA notifying lack of stopway lights. Airport operator to engage in consultation process with DCA and aircraft operators to confirm the need for stopways. If stopways are not necessary, DCA not to declare, modify the runway declared ASDA distance and amend AIP. If stopways are necessary, airport operator to provide stopway lights.	Netherlands Antilles	2004	
AGA	270C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 5.3.14.1)	Netherlands Antilles, SINT MAARTEN/ PHILIPSBURG, Princess Juliana Int'l	Stopway lights are not provided at both runway ends	02/2002	Provide stopway lights or do not declare stopways at both runway ends. Action Plan: Stopways should not be declared, no lights required.	PJIAE (Netherlands Antilles)	12/2005	
AGA		**Saint Kitts and Nevis/San Kitts y Nevis**							
AGA	286C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4 - Std. 3.4.2)	St. Kitts and Nevis, CHARLESTOWN, Vance W. Amory Int'l	The runway end safety area length at the east end is insufficient	09/09/2003	Extend the runway end safety area length, reduce the Runway 10 declared distances or reduce the aerodrome category. Action Plan: Runway upgrade project.	Nevis Island Administration	2006	
AGA		**Saint Lucia/Santa Lucía**							
AGA	118C	Visual Aids (Annex 14, Vol. I, Chap. 5, 5.1.1.5)	Saint Lucia, VIEUX FORT, Hewanorra Intl	Wind direction indicator is not illuminated	14/04/2004	Provide illuminated wind indicator. Status: Pending	SLASPA	06/2003	

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Requirements		States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AGA	120C	Visual Aids (Annex 14, Vol. I, Chap. 5, 5.3.5.1 & 3 and ANP FASID Table AOP 1)	Saint Lucia, VIEUX FORT, Hewanorra Intl	Runway 28 PAPI is not operational due to lack of electrical power supply	14/04/2004	Provide PAPI for Runway 28. Status: Pending	SLASPA	10/2003	
AGA Saint Vincent and the G./San Vicente y las Granadinas									
AGA	213C	Fencing (Annex 14, Vol. I, Chap. 8.4 - 8.4.1 & 2)	St. Vincent and the Grenadines, KINGSTOWN, E. T. Joshua	An unauthorised person was observed crossing the runway strip at the west runway end and chickens were observed in front of the rescue and fire-fighting facility	5/02/2004	Ensure perimeter barrier is secure to prevent access to the airfield by animals and unauthorised persons. Action Plan: Repair and replacement of security fences, and construction of a perimeter road along the fence.	Min. NS. PS & AD St. Vincent and the Grenadines	12/2005	
AGA	209C	Obstacles (Annex 14, Vol. I , Chap. 4 - 4.2.27)	St. Vincent and the Grenadines, KINGSTOWN, E. T. Joshua	Obstacles infringing on the Runway 07 take off climb obstacle limitation surface include fencing, roads, terrain, buildings and vegetation	5/02/2004	Discontinue Runway 07 take-off operations with immediate effect. Action Plan: Discontinuation of Runway 07 take offs except under special dispensation by licensing authority.	Min. NS, PS & AD St. Vincent and the Grenadines	12/2004	
AGA	215C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4 - 9.4.3 & 4)	St. Vincent and the Grenadines, KINGSTOWN, E. T. Joshua	Runway sides, taxiway and apron pavement surfaces severely deficient in many areas and FOD is present	5/02/2004	Maintain pavement surfaces clean of FOD and repair pavements. Action Plan: Repair and upgrading of pavement surfaces is a part of the ongoing Airport Improvement Project.	Min. NS, PS & AD St. Vincent and the Grenadines	6/2006	
AGA	214C	Rescue and Fire Fighting (Annex 14, Vol. I, Chap. 9.2 - 9.2.3, 5 & 6)	St. Vincent and the Grenadines, KINGSTOWN, E. T. Joshua	Rescue and fire-fighting Category should be 7, minimum 6, for B727 operations	5/02/2004	Discontinue B727 operations or upgrade RFFS Category to 7, or 6 minimum. Action Plan: RFF Category to be upgraded in keeping with aircraft types using airport.	Min. NS, PS & AD St. Vincent and the Grenadines	6/2006	
AGA	206C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4 - 3.4.1)	St. Vincent and the Grenadines, KINGSTOWN, E. T. Joshua	No runway end safety area is provided at the east runway end	5/02/2004	Provide a runway end safety area by displacing the Runway 07 end and reducing the declared landing distance. Action Plan: Runway end safety area will be established under Airport Improvement Project. New declared distances will be published.	Min. NS, PS & AD St. Vincent and the Grenadines	6/2006	
AGA	207C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4 - 3.4.2 & 4)	St. Vincent and the Grenadines, KINGSTOWN, E. T. Joshua	Length and width of the runway end safety area at the west runway end is insufficient	5/02/2004	Correct the runway end safety area deficiencies by displacing the Runway 25 end and reducing the declared take-off distance. Action Plan: Runway end safety area will be established at west runway end under the Airport Improvement Project.	Min. NS, PS & AD St. Vincent and the Grenadines	6/2006	
AGA	204C	Runway Strip (Annex 14, Vol. I, Chap. 3.3 - 3.3.2)	St. Vincent and the Grenadines, KINGSTOWN, E. T. Joshua	No runway strip is provided at the east runway end	5/02/2004	Provide the runway strip by displacing the Runway 07 end and reducing the declared landing distance. Action Plan: Runway 07 end will be displaced to provide runway strip. Declared distances will be revised.	Min. NS, PS & AD St. Vincent and the Grenadines	6/2006	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AGA	216C	Visual Aids (Annex 14, Vol. I, Chap. 5 - 9.4.21)	St. Vincent and the Grenadines, KINGSTOWN, E. T. Joshua	Runway 07 designation and threshold markings are faded	5/02/2004	Re-paint runway markings. Action Plan: Corrective action being undertaken.	Min. NS, PS & AD St. Vincent and the Grenadines	6/2004	
AGA		**Trinidad and Tobago/Trinidad y Tabago**							
AGA	84C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4, 9.4.3, 4 & 10)	Trinidad & Tobago, PORT OF SPAIN, Piarco Intl	Runway pavement surface condition deficient. Excessive rubber deposits on the runway surface	10/12/2003	Upgrade runway pavement. Action Plan: Rubber has been removed. Runway upgrading project ongoing.	AATT (Trinidad and Tobago)	9/2004	
AGA	71C	Rescue and Fire Fighting Service and Airport Emergency Planning (Annex 14, Vol. I, Chap. 9.1 & 9.2)	Trinidad and Tobago, PORT OF SPAIN, Piarco	RFFS facilities are inadequate- Ref Annex 14 Vol. I Sections 9.2.21, 22, 29 & 30	10/12/2003	Provide new RFFS facility at a location with direct access to the runway and ensuring minimum response times to both runway ends. Action Plan: New RFFS facility under construction.	Trinidad & Tobago	6/2004	
AGA	291C	Runway End Safety Area (Annex 14, Vol. I, Chap. 3.4 - 3.4.1)	Trinidad and Tobago. SCARBOROUGH, Crown Point Int'l	No runway end safety area is provided at the western runway end	10/12/2003	Provide the required runway end safety area. Action Plan: Publish lack of RESA in AIP. Analyse operational impact of reducing runway declared distances.	TTCAA/AATT (Trinidad and Tobago)	3/2004	
AGA	290C	Runway Strip (Annex 14, Vol. I, Chap. 3.3 - 3.3.2)	Trinidad and Tobago. SCARBOROUGH, Crown Point Int'l	The runway strip length is insufficient at the western runway end.	10/12/2003	Provide the required runway strip length. Action Plan: Publish lack of runway strip in AIP. Analyse operational impact of reducing runway declared distances.	TTCAA/AATT (Trinidad and Tobago)	3/2004	
AGA		**United States/Estados Unidos**							
AGA	279C	Runway end safety area (Annex 14, Vol. I, Chapter 3.4)	United States, San Juan, Luis Muñoz Marin International	No RESA is provided at the east end of Runway 08/26	16/02/2005	Provide RESA Action Plan: Threshold displaced to coincident with new parallel Twy S (underway) and relocated ILS. SJU working with FAA, US EPA and US Army Corps of Engineers to obtain a FONSI to continue extension of RESA.	United States	TBD	
AGA	323C	Runway End Safety Area (Annex 14, Vol.I, Chap. 3.4, Std. 3.4.1)	United States, Puerto Rico, Luis Muñoz Marin International Airport	No runway end safety area is provided at the east end of Runway 08/26	16/02/2005	Provide runway end safety area by extension and/or displacing the Runway 08 end and Runway 26 threshold and reduce the runway declared distances accordingly. Action Plan: Threshold displaced to coincident with new parallel Twy S (underway) and relocated ILS. SJU working with FAA, US EPA and US Army Corps of Engineers to obtain a FONSI to continue extension of RESA.	United States	TBD	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE CAR REGION

Identification		Deficiencies	Action Plan				
Requirements	**States/facilities**	**Description**	**Date of presentation**	**Corrective Action**	**Executing Body**	**Date of correction**	**Difficulties Encountered**
AGA 321C Runway Strip (Annex 14, Vol.I, Chap.3.3, Std. 3.3.2)	United States, Puerto Rico, Luis Muñoz Marin International Airport	Runway 08/26 strip length is insufficient at the east end	16/02/2005	Lengthen the runway strip or displace the Runway 08 end and Runway 26 threshold and reduce the runway declared distances accordingly. Action Plan: Threshold displaced to coincident with new parallel Twy S (underway) and relocated ILS. SJU working with FAA, US EPA and US Army Corps of Engineers to obtain a FONSI to continue extension of RESA.	United States	TBD	

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REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AGA Argentina									
AGA	220S	Emergency plans (Annex 14, Vol. I, Ch. 9, Doc 9137-AN/898, Part 7)	Argentina/BUENOS AYRES/Ezeiza/Min. Pistarini Int´l Airport	Last aerodrome emergency exercise was conducted on 9 NOV 2000	NOV 2004	Carry out aerodrome emergency exercises at intervals not exceeding two years and comply with ICAO SARPS and/or inform the ICAO SAM Office when it will be done "PENDING ACTION PLAN" ACTION PLAN: Scheduled for 09 NOV 2004 (AGA/AOP/SG/4, Mexico, 15-18 NOV 2004) Re-scheduled for October 2005 (Fax 273/05, FAA, 18 AUG 05)	Argentina	NOV 2004	
AGA CAR/SAM									
AGA	139S	Airfield maintenance (Annex 14, Vol. I, Ch. 9.4)	This problem exists in both CAR and SAM Regions.	Deficiencies in pavements, lights, markings, signs, secondary power supply and fencing.	2001-CONTINUOUS	Establishment and implementation of airfield maintenance programmes 1. AGA/AOP/SG established a Task Force on Pavements. 2. ICAO held a seminar on Pavement Maintenance and a Short Course on the ACFT/PAV. Interaction in July 2002. 3. Latin America and Caribbean Association of Airfield Pavement was created in July 2002 during the seminar/short course held in Santa Cruz de la Sierra, Bolivia. 4. ICAO held a seminar on Pavement Management Systems & a Short Course on the PCI Method in November 2003. 5. Seminar on Pavement Design & a Short Course on Managing the Annex 14 is planned for 2004.	States	Permanent	
AGA Ecuador									
AGA	325S	Emergency Plans (Annex 14, Vol. I, Ch. 9)	ECUADOR/DAC/CORPAQ/QUIPORT/Quito/Mariscal Sucre	October 2000 was the last time that a full-scale exercise on the airport emergency plan was carried out	JUN 2004	DAC should urgently provide the update and to carry out a full-scale exercise with the Airport Emergency Plan "PENDING ACTION PLAN" ACTION PLAN: Emergency Plan is updated. A full exercise is planned for 21 JUL 2004 (Doc DGAC-j-025-04, 25 JUN 2004).	ECUADOR/DAC/CORPAQ/QUIPORT	JUL 2004	
AGA Guyana									
AGA	443S	Annex 14, Vol. I, Ch. 9	GUYANA/CAA/SYCJ – TIMEHRI/Cheddi Jagan Int´l	Airport Administration has no direct control of RFF. Fire fighters skills need to be improved	AGO 05	Make arrangements to have RFF services under direct control of airport administration. Improve fire fighters skills ACTION PLAN: Coordination is underway with Minister of Home Affairs (Doc GCAA/ICAO/5/3/2, 18 AUG 05)	CAA/Airport Operator	TBD	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AGA	245S	Emergency Plans (Annex 14, Vol. I, Par. 9.1 and Doc 9137-AN/898, Part 7)	Guyana/All international aerodromes	No updated and no practices on emergency plans	FEB 2004	Update emergency plans. Practice with old plans while the new plans become available "PENDING ACTION PLAN" ACTION PLAN: The updating of the emergency plans has been completed, testing has not yet been effected (Doc GCAA-ICAO/5/312, 20 FEB 2004) Exercise scheduled for AUG 2004 (Doc ICAO/5/3/1, 22 JUN 2004)	Guyana	JUL 2004	
AGA	**Paraguay**								
AGA	24S	RWY surface conditions (Annex 14, Vol. I, Chap. 3)	Paraguay, Aerodrome of Asuncion/Silvio Pettirossi	The main RWY pavement is in process of deterioration	22 NOV 2002	ACTION TAKEN: The repair in both ends: 1000m RWY02 and 600m RWY 20 was finalized, and to this date the overlaying of the 100% of the runway is in process. 60 working days is estimated for the finalization of the second phase of 1.700m of runway. ACTION PLAN: Resurface scheduled for the 15m RWY central part for 2006 (Doc DINAC 832/2005, 22 JUL 05)	Paraguay	2003	
AGA	**Uruguay**								
AGA	25S	Visual aids (Annex 14, Vol. I, Ch. 5)	Uruguay, MONTEVIDEO/Carrasco Aerodrome	No PAPI at RWY 24	AUG 05	Implement the facility "PENDING ACTION PLAN" ACTION PLAN: Installation scheduled for 20 AUG 05 ((Doc 055/05, 17 AUG 05)	Uruguay	AUG 05	
AGA	**Venezuela**								
AGA	424S	Annex 14, Vol. I, Ch. 10	VENEZUELA/INAC/IAAIM	Rubber built-up on the first third of RWY 10	01 MAR 05	Remove excess of rubber built-up from the first third of RWY 10 "PENDING ACTION PLAN" ACTION PLAN: The excess of rubber will be removed after the pavement studies (DOC PRE 704.05 - 06 APR 05)	INAC/IAAIM	30 JUN 05	
AGA	427S	Annex 14, Vol. I, Ch. 4	VENEZUELA/INAC/IAAIM	Presence of concrete boxes > 20 cm of the terrain surface, open box (4m x 4m x ≈ 5 m deep, room for equipments, rigid base for antennas, etc on the RWY strip	01 MAR 05	Eliminate all the obstacles from the RWY strip and provide frangible base for antennas. "PENDING ACTION PLAN" ACTION PLAN: The obstacles will be eliminated and frangible bases will be provided for the antennas (DOC PRE 704.05 - 06 APR 05)	INAC/IAAIM	31 OCT 05	

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REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AGA FIELD IN THE SAM REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AGA	415S	Annex 14, Vol. I, Ch. 4 & 6	VENEZUELA/INAC/IAAIM	Great number of obstacles: hills, buildings, antennas, etc	01 MAR 05	Identify all the obstacles and publish them in the obstacle plans in the Venezuelan AIP "PENDING ACTION PLAN" ACTION PLAN: Sheduled topographic survey, identification, location and publication in AIP-Venezuela (DOC PRE 704.05 - 06 APR 05)	INAC/IAAIM	30 SEP 05	
AGA	392S	Annex 14, Vol. I, Ch. 9	VENEZUELA/INAC	Emergency plans are not updated & no good facilities for Emergency Operations Centre	01 MAR 05	Update Emergency plans and provide good facilities for Emergency Operations Centre "PENDING ACTION PLAN" ACTION PLAN: The int´l airports will be required to present updated plans between 01 JUL and 31 DEC 05 (DOC PRE 704.05 - 06 APR 05)	INAC	31 DEC 05	
AGA	413S	Annex 14, Vol. I, Ch. 9	VENEZUELA/INAC/IAAIM	No good installations for COE. System for triggering the COE is not adequate	01 MAR 05	Provide installations for the COE, keeping one person responsible for triggering the COE "PENDING ACTION PLAN" ACTION PLAN: Scheduled new installations and designation of a responsible H24 (DOC PRE 704.05 - 06 APR 05)	INAC/IAAIM	30 NOV 05	
AGA	414S	Annex 14, Vol. I, Ch. 9	VENEZUELA/INAC/IAAIM	Only 8 old protective closing equipments	01 MAR 05	Provide new and adequate number of protective closing equipments "PENDING ACTION PLAN" ACTION PLAN: New and adequate protective closing equipments will be acquired (DOC PRE 704.05 - 06 APR 05)	INAC/IAAIM	30 SEP 05	
AGA	416S	Annex 14, Vol. I, Ch. 9	VENEZUELA/INAC/IAAIM	Risks of bird strikes. Many birds at/on the airport	01 MAR 05	Create Apt. Coord. Comm. on Bird/wildlife Hazard Prevention. Work hard for reduction/ control of birds "PENDING ACTION PLAN" ACTION PLAN: Committee will be created and equipments for dispersing birds will be acquired (DOC PRE 704.05 - 06 APR 05)	INAC/IAAIM	31 DEC 05	
AGA	403S	Doc 8733, FASID CAR/SAM – AOP	VENEZUELA/INAC/ Margarita	TWY holding position marking for RWY 27	01 MAR 05	Provide RWY holding position marking for RWY 27 "PENDING ACTION PLAN" ACTION PLAN: Painting planned (DOC PRE 704.05 - 06 APR 05)	INAC	30 JUN 05	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE CAR REGION

Identification		Deficiencies	Action Plan				
Requirements	**States/facilities**	**Description**	**Date of presentation**	**Corrective Action**	**Executing Body**	**Date of correction**	**Difficulties Encountered**
ATM Dominican Republic/República Dominicana							
ATM 23C Use of the aeronautical phraseology	Dominican Republic	In general, the use of aeronautical phraseology in Spanish and/or English does not meet the required levels and it is a relevant factor with regard to ATS incidents.	02/04	Continuous training and supervision in the use of aeronautical phraseology is required. Action Plan: Training processes carried out since 2002 have satisfactorily risen the use of aeronautical phraseology, which has considerably decreased the aeronautical incidents. In addition, enhancements to the training plans have been implemented in order to keep on rising the aeronautical phraseology standards.	CAA Dominican Republic	2005	
ATM Honduras							
ATM 10C English proficiency in Air Traffic Services CAR/SAM/3 Rec. 5/35	Honduras	The proficiency in the English language of some ATC units is below the desired level and could be a contributing factor for the ocurrence of incidents and/or aeronautical accidents.	10/04	a) The required English language evaluation was carried out and effectively, its was noted that 60% of the Air Traffic Controllers presented the deficiency. b) The State has been required to ensure that the recruitment of new personnel be done in accordance with ICAO standards, as well as English proficiency. Additionally, The ATS Quality Assurance Plan is in process. c) The required use of English and Spanish aeronautical phraseology has also been demanded, and to that end, some local courses have been offered in this regard.	CAA Honduras	2005	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification			Deficiencies	Action Plan				
Requirements		States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
ATM Argentina								
ATM	1S	English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	Argentina	The proficiency in the English language of some ATC units could be a contributory factor for the occurrence of incidents and/or aeronautical accidents (Annex 1).	2002	(FAX N° 286/02 – Departamento OACI – 30 octubre 2002) A continuous English language training plan has been implemented for ATCOs. The following issues have been adopted: 1) Incorporate personnel with a good level of colloquial English. 2) Incorporation of a CTA course, one-month colloquial intensive English in a language center. 3) Implementation of a training, improvement of the English language for ATCOs (PCP IIC). The administration has carried out an evaluation of English language proficiency to ATC personnel. The level does not meet the minimum ICAO requirements as established in Annex 1. As of year 2004, personnel will be provided with ATC simulation courses and English courses in recognised national institutes or abroad.	CRA Argentina	2007	Argentina informed that the correction of this deficiency is in process, foreseeing its finalization by 2007.
ATM Brazil/Brasil								
ATM	36S	Unmanned free balloons (Annex 2, Chapter 3, para. 3.1.9)	Brazil/Brasil	Free balloons are launched by people during the months of May, June and July, causing serious problems in air operations.	2004	The State has taken measures through television programmes to make people aware of the problem. Actions directed to ATC on information provided to pilots. The deficiency persists.	Indicated State	TBD	This is a deficiency which is produced in the months of May, June and July due to national festivities. The major difficulty is that its is a popular costum. In view of this, the State has taken measures such as making the population aware through the media. It has also adopted actions directed towards the ATC and to inform pilots through aeronautical publications. Brazil informed that laws were developed that prevent punishments for people launching free balloons. However, due that this is a popular tradition; it is difficult to establish a finalization date.
ATM Ecuador								
ATM	5S	English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	Ecuador	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents. (Annex 1).	2003	1) Incorporate personnel with a good level of colloquial English. 2) Establish a training plan and recurrence of the English language. (Mission 2003: State is encouraged to continue with training plan).	CAD Ecuador	2007	Ecuador informed that its controllers have not been able to reach level 4 of the language proficiency foreseeing its finalization by 2007.

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
ATM Paraguay									
ATM	10S	English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	Paraguay	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents. (Annex 1)	2003	Through Note GNA-001/02 dated 22 November 2002, the administration has initiated the training process for the English language proficiency, scheduled to finalize in 2005. (Mission 2004: State is encouraged to maintain the training programme on this field).	DINAC Paraguay	2007	Paraguay informed that the solution is foreseen by 2007.
ATM	21S	Use of the aeronautical phraseology	Paraguay	In general, the use of aeronautical phraseology does not meet the required levels and it is a relevant factor with regard to ATS incidents	2003	The training process is expected to be finalized for 2005. (Mission 2004: State is encouraged to maintain the training programme on this field)	DINAC Paraguay	2006	Paraguay informed that the solution is foreseen by 2006.
ATM Uruguay									
ATM	11S	English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	Uruguay	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents. (Annex 1)	2003	Through communication No. 025/02 dated 20 March 2002, the Uruguayan administration informed that they are studying the possibility to reinitiate improvement of English courses for ATCOs, planning aeronautical phraseology course for ATCOs with bilingual requirements in Spanish and English. During 2003, training programme was reinitiated to reach level 5 of Annex 1. When hiring neew personnel the minimum level required corresponds to the "First Certificate of Advanced English".	DINACIA Uruguay	2007	Uruguay informed that a training system for air traffic controllers in English language proficiency foreseeing its solution by 2007.
ATM	23S	Use of the aeronautical phraseology	Uruguay	In general, the use of aeronautical phraseology does not meet the required levels and it is a relevant factor with regard to ATS incidents	2003	1) Implement a continuous training and updating plan. 2) Continuously monitor its correct use in ATS units. 3) Has training programmes (Mission Nov 2003) for the correct use of aeronautical phraseology in Spanish and English languages for ATCOs, with supervision on the adequate use of the same.	DINACIA Uruguay	2006	Uruguay informed that a training process on the use of aeronautical phraseology for air traffic controllers has been implemented, foreseeing its solution by 2006.
ATM Venezuela									
ATM	27S	English proficiency in Air Traffic Services, CAR/SAM/3 Rec. 5/35	Venezuela	The proficiency in the English language of some ATC units is below the desired level and could be a contributory factor for the occurrence of incidents and/or aeronautical accidents. (Annex 1)	2002	1) Incorporate personnel with a good level of colloquial English. 2) Establish a training plan and recurrence of the English language. (E-CAR/SAM-NE ICG/2 Dic 2003). Also, the administration has informed that they are carrying out coordinations with the PANAM Int. Flight Academy to send ATCOs. (Note 0253 dated 19 February 2003).	INAC Venezuela	2008	Venezuela informed that a continuing process for training of air traffic controllers has been implemented, foreseeing its solution by 2008.

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE ATM FIELD IN THE SAM REGION

Identification		Deficiencies	Action Plan				
Requirements	**States/facilities**	**Description**	**Date of presentation**	**Corrective Action**	**Executing Body**	**Date of correction**	**Difficulties Encountered**
ATM 25S Use of the aeronautical phraseology	Venezuela	In general, the use of aeronautical phraseology does not meet the required levels and is a relevant factor with regard to ATS incidents.	2002	1) Implement a continuous training and updating plan. 2) Continuously monitor its correct use in ATS units. (E-CAR/SAM-NE ICG/2 Dic 2003). Realization of refreshment courses for ATCOs during 2004.	INAC Venezuela	2007	Venezuela informed that a continuing process for training in the use of aeronautical phraseology for air traffic controllers has been implemented, foreseeing its solution by 2007.

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE CNS FIELD IN THE CAR REGION

Identification			Deficiencies	Action Plan				
Requirements		States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
CNS Mexico								
CNS 54C	VHF/AMS-voice. Aeronautical Mobile Service Plan (Table CNS 2A)	United States	Lack of VHF-AMS oral coverage under the FL280 in Houston oceanic FIR in the CTA Merida boundaries with the CTA Monterrey. This requirement does not figure in the Table CNS 2A of the FASID, which ICAO is coordinating with the United States.	10/02/2004	To implement the required equipment for the operation of VHF/AMS oral functions. Implement a VHF remote stations in Mexico, based in a current agreement between Unites States and Mexico, as well as its mitigation by implementing ADS-B.	United States/Mexico	2005	Budget specific approval for this purpose.
CNS Trinidad and Tobago/Trinidad y Tabago								
CNS 22C	VHF/HF-AMS Communications Plan (Table CNS 2A) TTZP Piarco HF Voice	Trinidad and Tobago/CAR-A(3), CAR-B(1), SAM-2(2)	Several reports of pilots indicated that Piarco ACC was not available via HF frequencies. The Piarco centre has not implemented all required frequency, so it does not has 24 hours a day communication availability.	10/2004	It has been agreed that airlines contact Piarco ACC through ARINC's HF radio facilities in New York, this temporary solution was implemented. Through an ICAO Technical cooperation project a new equipment has been installed and according to information from Trinidad and Tobago, it was expeted that its commissioning would be in September 2005.	CAA Trinidad and Tobago.	09/2005	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE MET FIELD IN THE SAM REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
MET Peru									
MET	46S	Notify the RVR for CAT 1 operations [(Annex 3, Part I, Chapter 4, para. 4.7.4 a)]	Peru / Aeronautical meteorological stations	RVRs SPIM MID, SPQU, SPHI, SPRU, SPSO and SPTN have not been implemented.	2004	Lima TDZ and Cusco: 2001, Iquitos 2002, Arequipa 2004, Chiclayo and Trujillo 2006, Pisco and Tacna 2007. The RVR MID of Lima, December 2004.	CORPAC	2007	
MET	63S	Runway visual range (Annex 3, Part I, Chap. 4, standard 4.6.3.4) FASIC Table AOP 1 (CAR/SAM III-AOP 1-39)	Aerodrome meteorological station of Lima-Callao	No runway visual range assessments are made in the middle point.	2004	The RVR will be transferred from the runway end to the middle point.		2005	
MET	62S	WMO requirements regarding qualifications and training of MET personnel (Annex 3, Part I, Chapter 2, standard 2.1.15)	Peru, MWO and Aerodrome MET Office of Lima-Callao	Meteorological technicians (Classes III and IV) are making MET forecasts and developing supervisory functions.	2004	Rotation of the corresponding charges.	CORPAC	2005	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE SAR FIELD IN THE CAR REGION

Identification			Deficiencies	Action Plan				
Requirements		States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
SAR Haiti								
SAR	1C	Search and Rescue facilities CAR/SAM/3 Rec. 6/2.	Haiti SRR/RCC Port-au-Prince	SRR/RCC not implemented	04/05	The following items will be developed: SAR General Mission, Legal Aspects, Responsibility of providing SAR services, National entity SAR, Covering Area, SAR Means, SAR training, SAR Documentation, SAR Agreements.	CAA Haiti	2006	
SAR Trinidad and Tobago/Trinidad y Tabago								
SAR	2C	Search and Rescue facilities CAR/SAM/3 Rec. 6/2	Trinidad and Tobago RCC Piarco	SAR partially implemented	10/12/03	Procurement of equipment ongoing.	CAA Trinidad and Tobago/Ministry of Nat.Sec.	2006	Signatures of SAR Agreememts with SRRs and RCCs pending.

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE SAR FIELD IN THE SAM REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
SAR Bolivia									
SAR	1S	Search and Rescue Facilities CAR/SAM/3 Rec. 6/2	Bolivia SRR La Paz	RCC not implemented. Lack of SAR qualified personnel. Inadequate SAR organization	Jan 2005	Comply with CAR/SAM/3 Rec. 6/2, 6/8, 6/9, 6/10, 6/11, 6/12 and CAR/SAM/2 Rec. 7/12. Preparation of a National SAR Plan, SAR Agreements and assignment of a data provider for Cospas-Sarsat.	Bolivia CAD, AASANA and BAF	Dec 2005	Budgetary.

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE CAR REGION

Identification			Deficiencies	Action Plan				
Requirements		States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AIS	**Cuba**							
AIS 205C	Annex 4 Chap. 3; Doc. 8733 Basic ANP, Part VIII, Paras. 59 a) and 64 1); FASID Table AIS 6	Cuba	Partial application of ICAO requirements for the production of Aerodrome obstacle chart-ICAO Type A.	27/01/04	AIP/Chart will include aeronautical charts of this series for all the international airports that so require. All the international airports are in the process of surveying. Action Plan: Publish the ICAO Type-A aerodrome obstacles plans for those international aerodromes with air navigation obstacles.	State	12/05	The solution of this deficiency by AIS depends on the surveys, analysis and submission of data by the aerodromes entity, as per the planned schedule.
AIS	**Dominican Republic/República Dominicana**							
AIS 34C	Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Dominican Republic	Partial implementation of the WGS-84	09/02/04	Need to implement the WGS-84 Geodetic System. Action Plan: 90% completed.	State	30/11/04	Administrative coordination.
AIS 272C	Doc. 8733 Basic ANP, Part VIII, Paras. 61 to 64, FASID Table AIS 7	Dominican Republic	Lack of production of the World Aeronautical Chart ICAO 1:1000 000	09/02/04	Need of production of the World Aeronautical Chart ICAO 1:1000 000. Action Plan: on-going. Aeronautical and topographic charts are nowadays being modified and updated.	State	11/04	Administrative coordination with external organization.
AIS	**Nicaragua**							
AIS 16C	Annex 15, Chapter 4, Para. 4.2.9; Doc. 8733, Basic ANP, Part VIII, Paras 33 to 37	Nicaragua	Lack of regular and effective updating of the AIP Document	16/01/04	Need to keep updated the information/data contained in the AIP. Action Plan: The distribution of amendments and rest of the integrated documentation allows to update all the AIP information.	State	02/04	
AIS 42C	Annex 15, Para. 3.6.4; Annex 4, Para. 2.18; Doc. 8733, Basic ANP, Part VIII, Paras 50 to 58, FASID Table AIS 5	Nicaragua	Lack of implementation of the WGS-84	16/01/04	Need to implement the WGS-84 Geodetic System. Action Plan: Surveys have been performed at the main aerodromes of the country.	State	30/11/04	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE SAM REGION

Identification			Deficiencies	Action Plan				
Requirements		States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AIS Argentina								
AIS 81S	Anexx 4; Chap. 5. Aerodrome Obstacle Chart - ICAO, Type C.	Argentina	Requirement for the production of the aerodrome obstacle chart - ICAO, Type C; and/or to publish in the AIP the data of obstacles exceeding 120 m (400 ft) above the lowest elevation on the runways, until a distance of 45 Km (24NM) from the aerodrome refence point (ARP).	2004	Need that this technical requirement be implemented, to satisfy the operational requirements to determine minimun safe heights # In relevant action plan (2004), it is indicated that this requirement will not be satisfy by Argentina.	Indicated State	TBD	
AIS 162S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Argentina	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	2004	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	
AIS 178S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Argentina	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	2004	# implementation Plan (2004) indicated that relevant action is being taken on the matter.	Indicated States	2007	
AIS 219S	CAR-SAM ANP Part VIII (AIS); Para. 65, 66, 67, 68 AND 69. Regional AIS automated system	Argentina	Requirement for implementation of automated system at the AIS services, in agreement with the indicated in the CAR/SAM Air Navigation Plan..	2004	# Action Plan (2004) indicated that relevant action is being taken on the matter.	Indicated State	TBD	
AIS Bolivia								
AIS 82S	Anexx 4; Chap. 5. Aerodrome Obstacle Chart - ICAO, Type C.	Bolivia	Requirement for the production of the aerodrome obstacle chart - ICAO, Type C; and/or to publish in the AIP the data of obstacles exceeding 120 m (400 ft) above the lowest elevation on the runways, until a distance of 45 Km (24NM) from the aerodrome refence point (ARP).	2003	# In action plan (2002/2004) it is indicated that measures should be taken as required.	Indicated State	TBD	
AIS 163S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Bolivia	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	2003	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	
AIS 179S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Bolivia	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	2003	# implementation Plan (2003/2004) indicated that relevant action is being taken on the matter.	Indicated States	2007	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE SAM REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AIS	220S	CAR-SAM ANP Part VIII (AIS); Para. 65, 66, 67, 68 AND 69. Regional AIS automated system	Bolivia	Requirement for implementation of automated system at the AIS services, in agreement with the indicated in the CAR/SAM Air Navigation Plan..	2003	# Action Plan (2003/2004) indicated that relevant action is being taken on the matter.	Indicated State	TBD	
AIS	7S	ICAO Annex 15, Para. 3.4.4.1 WGS-84.Geodetic System	Bolivia	Need to comply with effective and total implementation of the WGS-84.	2003	# Implementation Plan (2003/2004) indicated that relevant action is being taken on the matter	Indicated State	TBD	
AIS	16S	ICAO Annex 4. WGS-84.Geodetic System	Bolivia	.Need for production of all required aeronautical charts under the WGS-84 system.	2003	# Action Plan (2003/2004) indicated that relevant action is being taken on the matter.	Indicated State	TBD	
AIS	**Brazil/Brasil**								
AIS	83S	Anexx 4; Chap. 5. Aerodrome Obstacle Chart - ICAO, Type C.	Brazil/Brasil	Requirement for the production of the aerodrome obstacle chart - ICAO, Type C; and/or to publish in the AIP the data of obstacles exceeding 120 m (400 ft) above the lowest elevation on the runways, until a distance of 45 Km (24NM) from the aerodrome refence point (ARP).	NIL	# Implementation Plan (2004) indicated that relevant action is being taken on the matter.	Indicated State	TBD	
AIS	164S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Brazil	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	NIL	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	
AIS	180S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Brazil	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	NIL	# implementation Plan (2004) indicated that relevant action is being taken on the matter.	Indicated States	2007	
AIS	97S	Annex 4, Chap 13, Para 13.6.1 C). Aerodrome/Heliport Chart - ICAO.	Brazil	Need for the inclusion of geoid undulation in the Aerodrome/Heliport Chart - ICAO.	NIL	# In action plan (2004) it is indicated that measures should be taken as required.	Indicated State	2005	
AIS	**Chile**								
AIS	84S	Anexx 4; Chap. 5. Aerodrome Obstacle Chart - ICAO, Type C.	Chile	Requirement for the production of the aerodrome obstacle chart - ICAO, Type C; and/or to publish in the AIP the data of obstacles exceeding 120 m (400 ft) above the lowest elevation on the runways, until a distance of 45 Km (24NM) from the aerodrome refence point (ARP).	2004	# In action plan (2004) it is indicated that measures should be taken as required.	Indicated State	TBD	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE SAM REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AIS	165S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Chile	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	2004	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	
AIS	181S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Chile	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	2004	# implementation Plan (2004) indicated that relevant action is being taken on the matter.	Indicated States	2007	
AIS	131S	Annex 4, Chap 13, Para 13.6.1 C). Aerodrome/Heliport Chart - ICAO.	Chile	Requirement to effectively satisfy the specification on the inclusion of geoid undulation in the Aerodrome/Heliport Chart - ICAO.	2004	# It is indicated in Action Plan (2004) that relevant difference has been issued.	Indicated State	2005	
AIS		**Colombia**							
AIS	85S	Anexx 4; Chap. 5. Aerodrome Obstacle Chart - ICAO, Type C.	Colombia	Requirement for the production of the aerodrome obstacle chart - ICAO, Type C; and/or to publish in the AIP the data of obstacles exceeding 120 m (400 ft) above the lowest elevation on the runways, until a distance of 45 Km (24NM) from the aerodrome refence point (ARP).	2004	# In action plan (2004) it is indicated that measures should be taken as required.	Indicated State	TBD	
AIS	166S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Colombia	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	2004	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	
AIS	182S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Colombia	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	2004	# implementation Plan (2004) indicated that relevant action is being taken on the matter.	Indicated States	2007	
AIS	132S	Annex 4, Chap 13, Para 13.6.1 C). Aerodrome/Heliport Chart - ICAO.	Colombia	Requirement to effectively satisfy the specification on the inclusion of geoid undulation in the Aerodrome/Heliport Chart - ICAO.	NIL	# It is not indicated in Action Plan (2004) when this requirement will satisfied.	Indicated State	2005	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE SAM REGION

Identification			Deficiencies	Action Plan				
Requirements		States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AIS Ecuador								
AIS 86S	Anexx 4; Chap. 5. Aerodrome Obstacle Chart - ICAO, Type C.	Ecuador	Requirement for the production of the aerodrome obstacle chart - ICAO, Type C; and/or to publish in the AIP the data of obstacles exceeding 120 m (400 ft) above the lowest elevation on the runways, until a distance of 45 Km (24NM) from the aerodrome refence point (ARP).	NIL	# Action plan is required.	Indicated State	TBD	
AIS 167S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Ecuador	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	NIL	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	
AIS 183S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Ecuador	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	NIL	Action plan 2004.	Indicated States	2007	
AIS 133S	Annex 4, Chap 13, Para 13.6.1 C). Aerodrome/Heliport Chart - ICAO.	Ecuador	Requirement to effectively satisfy the specification on the inclusion of geoid undulation in the Aerodrome/Heliport Chart - ICAO.	2003	# Lack of action plan.	Indicated State	2005	
AIS French Guiana								
AIS 184S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	French Guiana	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	NIL	# implementation Plan (2004) indicated that relevant action is being taken on the matter.	Indicated States	2007	
AIS Guyana								
AIS 88S	Anexx 4; Chap. 5. Aerodrome Obstacle Chart - ICAO, Type C.	Guyana	Requirement for the production of the aerodrome obstacle chart - ICAO, Type C; and/or to publish in the AIP the data of obstacles exceeding 120 m (400 ft) above the lowest elevation on the runways, until a distance of 45 Km (24NM) from the aerodrome refence point (ARP).	2003	# In action plan (2003/2004) it is indicated that measures should be taken as required.	Indicated State	TBD	
AIS 169S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Guyana	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	2003	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE SAM REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AIS	185S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Guyana	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	2003	# implementation Plan (2003/2004) indicated that relevant action is being taken on the matter.	Indicated States	2007	
AIS	134S	Annex 4, Chap 13, Para 13.6.1 C). Aerodrome/Heliport Chart - ICAO.	Guyana	Requirement to effectively satisfy the specification on the inclusion of geoid undulation in the Aerodrome/Heliport Chart - ICAO.	NIL	# Action Plan (2003/2004) indicated that relevant action is being taken on the matter.	Indicated State	2005	
AIS	225S	CAR-SAM ANP Part VIII (AIS); Para. 65, 66, 67, 68 AND 69. Regional AIS automated system	Guyana	Requirement for implementation of automated system at the AIS services, in agreement with the indicated in the CAR/SAM Air Navigation Plan..	2002/2004	# Action Plan (2004) indicated that relevant action is being taken on the matter.	Indicated State	TBD	
AIS	9S	ICAO Annex 15, Para. 3.4.4.1 WGS-84.Geodetic System	Guyana	Need to comply with effective and total implementation of the WGS-84.	2003	# Implementation Plan (2003/2004) indicated that relevant action is being taken on the matter	Indicated State	TBD	
AIS	20S	ICAO Annex 4. WGS-84.Geodetic System	Guyana	Need for production of all required aeronautical charts under the WGS-84 system.	2003	# Action Plan (2003/2004) indicated that relevant action is being taken on the matter.	Indicated State	TBD	
AIS	**Panama**								
AIS	89S	Anexx 4; Chap. 5. Aerodrome Obstacle Chart - ICAO, Type C.	Panama	Requirement for the production of the aerodrome obstacle chart - ICAO, Type C; and/or to publish in the AIP the data of obstacles exceeding 120 m (400 ft) above the lowest elevation on the runways, until a distance of 45 Km (24NM) from the aerodrome refence point (ARP).	2002	# In action plan (2002) it is indicated that obstacles data are issued in the AIP; but measures should be also taken as required.	Indicated State	TBD	
AIS	170S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Panama	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	2002	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	
AIS	186S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Panama	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	2002	# implementation Plan (2002) indicated that relevant action is being taken on the matter.	Indicated States	2007	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE SAM REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AIS	226S	CAR-SAM ANP Part VIII (AIS); Para. 65, 66, 67, 68 AND 69. Regional AIS automated system	Panama	Requirement for implementation of automated system at the AIS services, in agreement with the indicated in the CAR/SAM Air Navigation Plan..	2002	# Action Plan (2002) indicated that relevant action is being taken on the matter.	Indicated State	TBD	
AIS	**Paraguay**								
AIS	90S	Anexx 4; Chap. 5. Aerodrome Obstacle Chart - ICAO, Type C.	Paraguay	Requirement for the production of the aerodrome obstacle chart - ICAO, Type C; and/or to publish in the AIP the data of obstacles exceeding 120 m (400 ft) above the lowest elevation on the runways, until a distance of 45 Km (24NM) from the aerodrome refence point (ARP).	2002	# In action plan (2002) it is indicated that obstacles data are issued in the AIP; but that operational convenience to produce this serie of chart should be studied.	Indicated State	TBD	
AIS	171S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Paraguay	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	2002	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	
AIS	187S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Paraguay	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	2002	# implementation Plan (2002) indicated that relevant action is being taken on the matter.	Indicated States	2007	
AIS	227S	CAR-SAM ANP Part VIII (AIS); Para. 65, 66, 67, 68 AND 69. Regional AIS automated system	Paraguay	Requirement for implementation of automated system at the AIS services, in agreement with the indicated in the CAR/SAM Air Navigation Plan..	2002	# Action Plan (2002) indicated that relevant action is being taken on the matter.	Indicated State	TBD	
AIS	**Peru**								
AIS	172S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Peru	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	2002/2004	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	
AIS	188S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Peru	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	2002/2004	# implementation Plan (2002/2004) indicated that relevant action is being taken on the matter.	Indicated States	2007	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE SAM REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AIS	202S	Annex 4, Chap 13, Para 13.6.1 C). Aerodrome/Heliport Chart - ICAO.	Peru	Need for the inclusion of geoid undulation in the Aerodrome/Heliport Chart - ICAO.	2002/2004	# It is not indicated in Action Plan (2002/2004) when this requirement will satisfied.	Indicated State	TBD	
AIS	**Suriname**								
AIS	92S	Anexx 4; Chap. 5. Aerodrome Obstacle Chart - ICAO, Type C.	Suriname	Requirement for the production of the aerodrome obstacle chart - ICAO, Type C; and/or to publish in the AIP the data of obstacles exceeding 120 m (400 ft) above the lowest elevation on the runways, until a distance of 45 Km (24NM) from the aerodrome refence point (ARP).	NIL	# Action plan is required.	Indicated State	TBD	
AIS	173S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Suriname	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	NIL	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	
AIS	189S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Suriname	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	NIL	# Action plan is required.	Indicated States	2007	
AIS	229S	CAR-SAM ANP Part VIII (AIS); Para. 65, 66, 67, 68 AND 69. Regional AIS automated system	Suriname	Requirement for implementation of automated system at the AIS services, in agreement with the indicated in the CAR/SAM Air Navigation Plan..	NIL	# Lack of action plan.	Indicated State	TBD	
AIS	13S	ICAO Annex 15, Para. 3.4.4.1 WGS-84.Geodetic System	Suriname	Need to comply with effective and total implementation of the WGS-84.	NIL	# Lack of action plan.	Indicated State	TBD	
AIS	24S	ICAO Annex 4. WGS-84.Geodetic System	Suriname	Need for production of all required aeronautical charts under the WGS-84 system.	NIL	# Lack of action plan.	Indicated State	TBD	
AIS	**Uruguay**								
AIS	93S	Anexx 4; Chap. 5. Aerodrome Obstacle Chart - ICAO, Type C.	Uruguay	Requirement for the production of the aerodrome obstacle chart - ICAO, Type C; and/or to publish in the AIP the data of obstacles exceeding 120 m (400 ft) above the lowest elevation on the runways, until a distance of 45 Km (24NM) from the aerodrome refence point (ARP).	2004	# In action plan (2004) it is indicated that measures should be taken as required.	Indicated State	TBD	

ACTION PLAN FOR RESOLVING REGIONAL AIR NAVIGATION DEFICIENCIES

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE AIS FIELD IN THE SAM REGION

Identification				Deficiencies	Action Plan				
Requirements			States/facilities	Description	Date of presentation	Corrective Action	Executing Body	Date of correction	Difficulties Encountered
AIS	174S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Uruguay	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	2004	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	
AIS	190S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Uruguay	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	2004	# implementation Plan (2004) indicated that relevant action is being taken on the matter.	Indicated States	2007	
AIS	204S	Annex 4, Chap 13, Para 13.6.1 C). Aerodrome/Heliport Chart - ICAO.	Uruguay	Need for the inclusion of geoid undulation in the Aerodrome/Heliport Chart - ICAO.	2004	# As it is indicated in Action Plan (2004), required relevant actions are being taken.	Indicated State	2006	
AIS	**Venezuela**								
AIS	94S	Anexx 4; Chap. 5. Aerodrome Obstacle Chart - ICAO, Type C.	Venezuela	Requirement for the production of the aerodrome obstacle chart - ICAO, Type C; and/or to publish in the AIP the data of obstacles exceeding 120 m (400 ft) above the lowest elevation on the runways, until a distance of 45 Km (24NM) from the aerodrome refence point (ARP).	NIL	# In action plan (2004) it is indicated that measures should be taken as required.	Indicated State	TBD	
AIS	175S	Annex 15, Para. 3.2 Implementation of Quality system (QS) at the AIS	Venezuela	It is required the implementation of a quality system (QS); as well as, of the quality assurance and quality control procedures at the AIS/MAP services.	NIL	# The GREPECAS is being duly informed by the AIS/MAP/SG on the advances operated in this specifc area.	Indicated State	2006	
AIS	191S	ANNEX 15; Chap 3, 3.2.8, and 3.2.10 Integrity of aeronautical information/data.	Venezuela	Need that quality control (QC) system be implemented by the States, to ensure the required level of integrity of the aeronautical information/data issued and/or available. Application of cyclic redundancy check (CRC).	NIL	# implementation Plan (2004) indicated that relevant action is being taken on the matter.	Indicated States	2007	
AIS	14S	ICAO Annex 15, Para. 3.4.4.1 WGS-84.Geodetic System	Venezuela	Need to comply with effective and total implementation of the WGS-84.	NIL	# Implementation Plan (2004) indicated that relevant action is being taken on the matter	Indicated State	TBD	
AIS	26S	ICAO Annex 4. WGS-84.Geodetic System	Venezuela	Need for production of all required aeronautical charts under the WGS-84 system.	NIL	# Implementation Plan (2004) indicated that relevant action is being taken on the matter	Indicated State	TBD	

APPENDIX E

ACTION PLAN FOR THE RESOLUTION OF EACH ONE OF THE REGIONAL AIR NAVIGATION DEFICIENCIES

PLAN DE ACCIÓN PARA RESOLVER CADA UNA DE LAS DEFICIENCIAS REGIONALES DE NAVEGACIÓN AÉREA

State/Intl. Organization:
Estado/Org. Internacional: Date/Fecha:

ID	Deficiency/ Deficiencia	Corrective Action/ Acción correctiva	Date of Correction/ Fecha de corrección	Executing Body/ Organo Ejecutor	Difficulties encountered/ Dificultades encontradas
Identificación de la deficiencia usando el formato AREA-NUM-REG	**Descripción exacta de la deficiencia tal y como aparece en la Base de Datos**	**El Estado deberá informar la acción correctiva propuesta o que llevará a cabo, tomando en cuenta la acción ya descrita por la Secretaría**	**Fecha estimada para concluir la acción correctiva de la deficiencia, indicando al menos el año en que se finalizará**	**Responsable de llevar a cabo la acción correctiva**	**Mencionar cualquier dificultad encontrada o que se pueda presentar para la adecuada implementación de la acción correctiva.**
Identify the deficiency using the format AREA-NUM-REG	**Exact description of the deficiency as appears in the Databank**	**State must inform the proposed corrective action or to be carried out, taking into account the action described by the Secretariat**	**Estimated date for the conclusion of the corrective action of the deficiency, indicating at least the year in which it will be completed**	**Responsible of carrying out the corrective action**	**Indicate any difficulty encountered or that could appear for the adequate implementation of the corrective action**

APPENDIX F

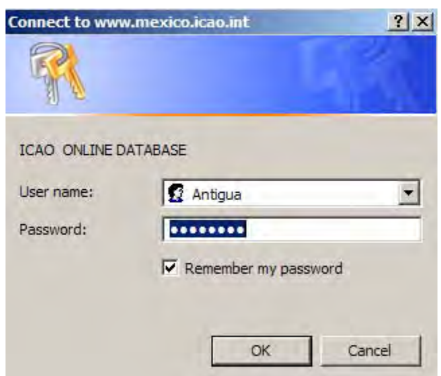
SPECIAL IMPLEMENTATION PROJECT
PUBLICATION OF THE CAR/SAM AIR NAVIGATION DEFICIENCIES
VIA INTERNET

With the purpose of providing on-line access to the Air Navigation Deficiencies Database and that States/Territories in the CAR/SAM Regions have an appropriate way to identify, assess and report changes, an application to publish the Database through the Internet has been implemented in such a way that a timely follow-up can be given by using this technology.

This application has been finished and is available for the States/Territories of the CAR/SAM Regions through the link "GREPECAS AIR NAVIGATION DEFICIENCIES DATABASE (GANDD) available in the following address: www.icao.int/nacc

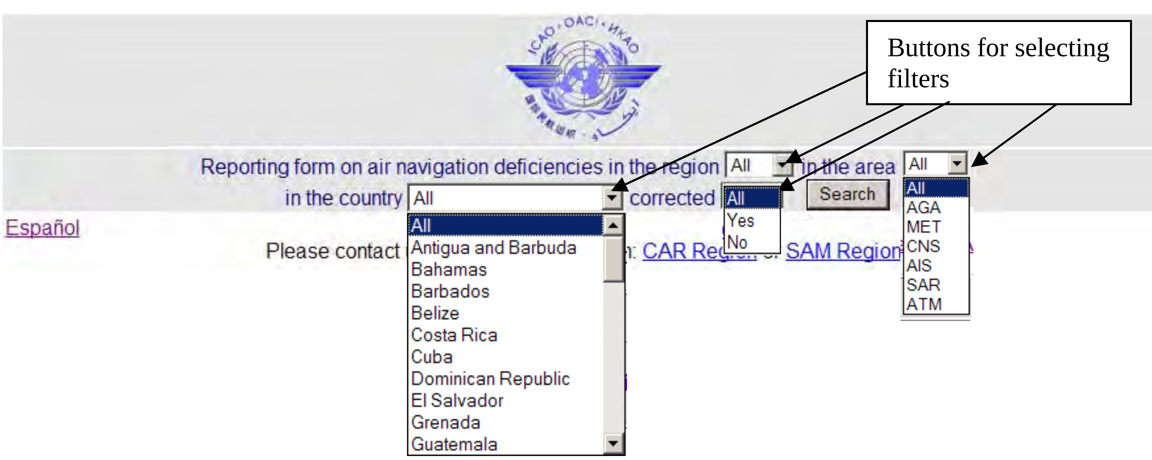
When accessing this link a header will open where some selection buttons will appear for filtering the search of some deficiencies in particular (it is recommended to use a resolution screen of 1024 x 768 pixels even though it is also possible to work with 800x600 pixels.

Access to this site is restricted with the use of a username and a password which will be requested at the moment of accessing the corresponding link.



In accordance with the username used, the deficiencies corresponding to that State will initially appear, however, it is also possible to see the global information by using the corresponding filters.

Filters can be created by selecting the Region, Area, State and corrected fields.



Once the combination of these is selected, press the button "Search" and the table or tables containing the requested information will show as follows:

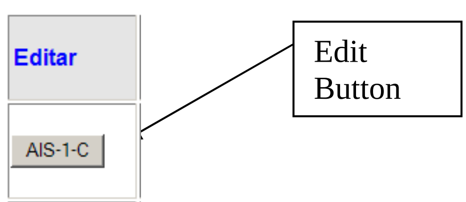
Records found for region CAR in the area AGA in Costa Rica

Identification			Deficiencies			Corrective Action			
Edit	Requirements	States/ Facilities	Description	Date First Reported	Remarks	Description	Executing Body	Date of Comple - tition	P
AGA-44-C	Visual Aids (Annex 14, Vol. I, Chap. 5 and ANP, Table AOP 1)	Costa Rica, ALAJUELA, Juan Santamaria Intl.	Non standard TWY markings and non standard signs	1996	IFALPA Meeting November 2000	Replaced by deficiency AGA 232 C	Costa Rica	2002	A
AGA-86-C	Bird Strike Hazards (Annex 14, Vol. I, Chap. 9.5)	Costa Rica, ALAJUELA, Juan Santamaria Intl	Bird strikes reported, sanitary landfills located in the vicinity of airport	2000	ASB/4 Review	Undertake bird hazard assessment to identify mitigation measures	Costa Rica	2002	U
AGA-76-C	Pavement Surface Conditions (Annex 14, Vol. I, Chap. 9.4)	Costa Rica, ALAJUELA, Juan Santamaria Intl	Excessive rubber deposit on runway surface resulting in poor friction characteristics - Ref. Annex 14, Vol. I, Section 9.4.10	2000	IATA Report December 2000	Remove rubber from runway surface	Costa Rica	2002	U

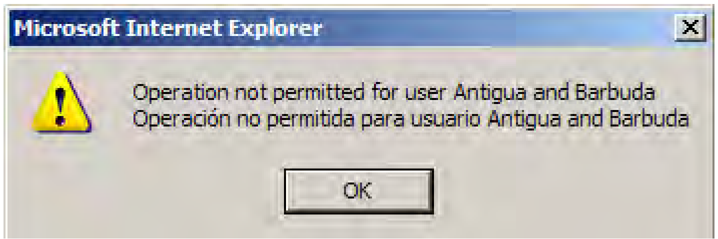
Initially the information will be presented in English, if the information is required in Spanish, press the button of language shown in the upper left corner of the page.

The information shown is the present information captured in the databases of each one of the CAR/SAM Regional Offices.

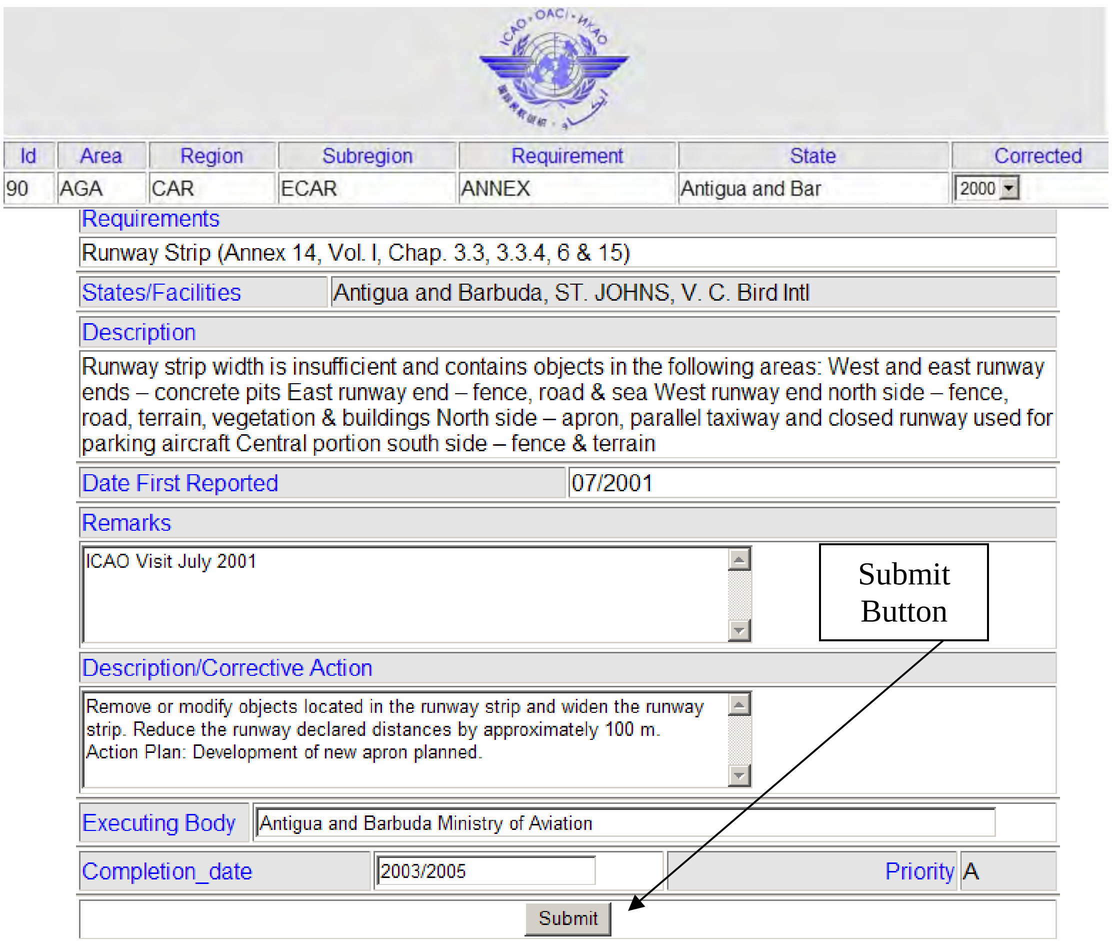
The intention of showing the databases through the Internet is for Contracting States/Territories to see the information at any moment and request its change and/or update. For this purpose a capture form has been created that could be displayed for each deficiency by pressing the buttons of the column "Edit".



Only those users whose name and password correspond to the deficiency edited will be the ones authorized for its edition, on the contrary a message similar to the following will be shown:



In case the edition is authorized, a form with the information of the selected deficiency will appear as shown below:



Id	Area	Region	Subregion	Requirement	State	Corrected
90	AGA	CAR	ECAR	ANNEX	Antigua and Bar	2000

Requirements

Runway Strip (Annex 14, Vol. I, Chap. 3.3, 3.3.4, 6 & 15)

States/Facilities: Antigua and Barbuda, ST. JOHNS, V. C. Bird Intl

Description

Runway strip width is insufficient and contains objects in the following areas: West and east runway ends – concrete pits East runway end – fence, road & sea West runway end north side – fence, road, terrain, vegetation & buildings North side – apron, parallel taxiway and closed runway used for parking aircraft Central portion south side – fence & terrain

Date First Reported: 07/2001

Remarks

ICAO Visit July 2001

Submit Button

Description/Corrective Action

Remove or modify objects located in the runway strip and widen the runway strip. Reduce the runway declared distances by approximately 100 m. Action Plan: Development of new apron planned.

Executing Body: Antigua and Barbuda Ministry of Aviation

Completion_date: 2003/2005 Priority: A

Submit

The request for changing and/or updating the information should be captured directly on such form in the fields allowed, either in Spanish or English, and once done press the Button “Submit”.

The same procedure should be followed for each Registry willing to be modified.

The modified information of each registry will be sent via e-mail to the Regional Office concerned, NACC or SAM, according to the selected State, however, the database will not reflect immediately the requested changes. Those changes will be previously validated by the Regional Officer in each area before being updated in the database.

Updates to the databases published in the Web will be made periodically, at least 45 days or less which will be decided by each area officer.

-END-

Agenda Item 5 Management of the GREPECAS Mechanism

5.1 Report of the ACG/5 Meeting

5.1.1 The Meeting noted the results of the Fifth Meeting of the GREPECAS Administration Coordination Group (ACG/5) held in Mexico, City, Mexico on 1 and 2 March 2005 related with the following issues: review of the terms of reference and work programme of GREPECAS and of all its contributory bodies, status of implementation of such work programmes, last resort actions to resolve deficiencies and review of the GREPECAS mechanism structure, review of the Procedural Handbook of this Group, establishment of the tentative meeting programme for 2005-2006, as well as conclusions approved through the GREPECAS fast track mechanism in view of its urgent nature, resulting from the AERMET/SG/7 and AIS/MAP/SG/9 meetings, and are presented to the corresponding parts of the aforementioned sub-groups.

5.1.2 Based on several working papers presented, the Meeting thoroughly reviewed the proposal formulated by the ACG/5 Meeting on the possibility to disband the AIS/MAP and AERMET sub-groups, in view mainly of the critical situation of the GREPECAS budget and the fact that most of the tasks of these sub-groups are related with implementation. As a result of this analysis, the Meeting considered that discontinuance of some contributory bodies to save resources, would produce a negative impact and worsen the development and implementation of air navigation services thus affecting safety oversight and aviation safety, and recalled that the implementation activities are part of the GREPECAS terms of reference. Therefore, the Meeting considered that the actions should be aimed to request the support of the civil aviation administrations and the continuity and possible increase of ICAO financial support, as well as the application of internal measures which contribute to save resources and optimize the management and work of the GREPECAS mechanism. **Appendix A** to this part of the Report shows some of these measures.

5.1.3 As a result of the analysis carried out, the Meeting formulated the following Conclusion and Decision:

CONCLUSION 13/95 REQUEST FOR SUPPORT FROM THE CIVIL AVIATION ADMINISTATIONS AND ICAO FOR THE GREPECAS MECHANISM

That, in order to be able to continue with the GREPECAS work, addressed towards planning and implementation of air navigation services, safety oversight and aviation safety:

a) States, Territories and International Organizations are encouraged to provide resource support as suggested in measures No. 1 and No. 3 described in Appendix A to this part of the Report; and

b) ICAO is urged to continue and increase the financial support to GREPECAS.

DECISION 13/96 REVIEW AND OPTIMIZATION OF THE GREPECAS MECHANISM

That, keeping in mind the information, analysis and proposals presented, particularly regarding the critical situation of the GREPECAS budget and the status, need for and importance to continue with the implementation of the tasks assigned to the AIS/MAP and AERMET Subgroups, and other air navigation services, which affect to a great extent civil aviation safety oversight:

a) AIS/MAP and AERMET Sub-groups remain within the GREPECAS mechanism, based on ICAO and States/Territories/International Organizations contribution;

b) Optimize the application of actions that are presented in Appendix A to this part of the Report, with the aim to save resources and optimize efficiency of the GREPECAS mechanism; and

c) Foster effective regional cooperation mechanism, including plans and budgets addressed to achieve the resources required.

5.1.4 Also, several Members emphasized the need to keep simultaneous interpretation services in GREPECAS and its contributory bodies meetings.

5.1.5 With the aim to contribute to GREPECAS mechanism, Venezuela offered to host the forthcoming AIS/MAP meeting in Caracas. United States indicated that it would also try to host an AERMET/SG meeting after Chile.

5.1.6 Also, Spain, in coordination with ICAO, is organizing the realization of an AIS Global Conference, which would be held in June 2006.

5.2 Review of GREPECAS and its Contributory Bodies Terms of Reference and Work Programmes

ATM/CNS Subgroup (ATM/CNS/SG)

5.2.1 The Meeting was also presented with a proposal to include three new items in the work programme of the ATM/CNS Subgroup, taking into account the need to develop planning documentation for a gradual implementation of the communications, navigation and surveillance infrastructure that would take into account the ATM requirements and therefore the operational requirements of the users in the CAR and SAM Regions.

5.2.2 The proposal was based on the CNS/ATM planning taking into account the new Global ATM concept, and on the premise that the new ATM systems implementation would be framed within this concept. The proposal required the need for more detailed operational requirements as opposed to the present Air Navigation Plans containing mainly tables of the ATM and CNS system requirements.

5.2.3 The proposal was also based on the premise that the Subgroup should develop a CAR/SAM strategy for Navigation followed by strategies for communications and surveillance. It was sustained that in order to carry out these new tasks the Subgroup needed to add tasks to develop such strategies and to consider the possibility of modifying the methodology of the Subgroup to allow it to form task groups comprising ATM and CNS experts to performs these new proposed tasks, an to consider extending the plenary sessions to allow for additional coordination of the independent work of each ATM and CNS Committees.

5.2.4 Following the review of these considerations, the Meeting agreed to submit to ATM/CNS Subgroup these proposals.

Work Programme and Terms of Reference of GREPECAS and its contributory bodies

5.2.5 After reviewing the work carried out by GREPECAS and its contributory bodies under Agenda Items 3, 4 and 5 of this Meeting, the Group went on to review its Terms of Reference and the Work Programmes. In view of the above, the Meeting formulated the following decision:

DECISION 13/97 TERMS OF REFERENCE, WORK PROGRAMME AND COMPOSITION OF GREPECAS CONTRIBUTORY BODIES

GREPECAS approves the Terms of Reference, Work Programme and Composition of its contributory bodies, as shown in **Appendices B** to **K** to this part of the Report.

APPENDIX A

RECOMMENDED MEASURES TO SAVE RESOURCES AND OPTIMISE THE WORK OF THE GREPECAS MECHANISM

1. Establishment of a system whereby the venue of the meetings of GREPECAS and its contributory bodies rotates amongst the States, Territories and International Organizations.

2. Extension of the period between the meetings of GREPECAS and its contributory bodies.

3. Establishment of a three-year meeting venue.

4. Establishment of project management methods.

5. Use of the Internet and teleconferencing.

6. Others.

APPENDIX B

TERMS OF REFERENCE OF GREPECAS

1. The Terms of Reference of the Group are:

   a) continuous and coherent development of the CAR/SAM Air Navigation Plan and other relevant regional documentation in a manner that is harmonized with adjacent regions, consistent with ICAO SARPs and reflecting global requirements;

   b) facilitate the implementation of air navigation systems and services as identified in the CAR/SAM air navigation plan with due observance to the primacy of air safety and security; and

   c) identification and addressing of specific deficiencies in the air navigation field.

2. In order to meet the Terms of Reference the Group shall:

   a) review, and propose when necessary, the target dates for implementation of facilities, services and procedures to ensure the coordinated development of the Air Navigation System in the CAR and SAM Regions;

   b) assist the ICAO Regional Offices providing services in the CAR and SAM Regions in their assigned task of fostering implementation of the CAR/SAM Regional Air Navigation Plan;

   c) in line with the Global Aviation Safety Plan (GASP), ensure the conduct of any necessary systems performance monitoring, identify specific deficiencies in the Air Navigation field, especially in the context of safety and security, and propose corrective action;

   d) ensure the development and implementation of an action plan by States to resolve identified deficiencies, where necessary;

   e) promote, support and facilitate the regional implementation of AVSEC provisions;

   f) develop amendment proposals for the update of the CAR/SAM Air Navigation Plan necessary to satisfy any changes in the requirements, thus removing the need for regular regional air navigation meetings;

   g) monitor implementation of air navigation facilities and services and where necessary, ensure interregional harmonization, taking due account of cost/benefit analysis, business case development, environmental benefits and financing issues;

h) examine human resource planning and training issues and ensure that the human resource development capabilities in the region are compatible with the CAR/SAM Regional Air Navigation Plan;

i) review the Statement of Basic Operational Requirements and Planning Criteria and recommend to the Air Navigation Commission such changes to them as may be required in the light of developments;

j) invite financial institutions, as required, on a consultative basis and at a time it considers appropriate in the planning process to participate in this work;

k) ensure close cooperation with relevant organizations and State grouping to optimize the use of available expertise and resources; and

l) conduct the above activities in the most efficient manner possible with a minimum of formality and documentation and call meetings of the GREPECAS only when the Secretary and the Chairperson, through the Administration Coordination Group (ACG), are convinced that it is necessary to do so.

3. Composition

Antigua and Barbuda (*representing Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and Grenadines*), Argentina, Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, France, Haiti*, Jamaica*, Mexico, Panama, Paraguay*, Peru, Trinidad and Tobago, United Kingdom, United States, Uruguay and Venezuela.

*Submitted to the ICAO Council for approval.

APPENDIX C

ADMINISTRATION COORDINATION GROUP (ACG)

1. **Terms of reference**

a) To coordinate and harmonize administrative matters of GREPECAS and its contributory bodies, and to take part in the tasks relating to its internal organization, the holding of events, and the administrative supervision of the subgroups and task forces.

b) To expedite follow-up work of the GREPECAS and its contributory bodies between plenary meetings, taking into account the work undertaken by other contributory bodies active in the air navigation field in the CAR/SAM Regions.

c) To take follow-up action and monitoring of target dates assigned to tasks under a project management process.

2. **Work Programme**

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
ACG/1	Review and propose amendments to the GREPECAS Procedural Handbook as required.	A		Continuous
ACG/2	Monitor the planning and progress of GREPECAS contributory body work programmes and meeting schedules and offer any advice thereon, as appropriate.	A		Continuous
ACG/3	Seek the prompt approval preferably by electronic means of draft GREPECAS Conclusions developed by GREPECAS Contributory Bodies on the basis of specific requests from such bodies or when the ACG deems that efficiencies could be derived.	A		Continuous
ACG/4	Prepare reports of ACG activities to each GREPECAS meeting, as appropriate.	A		Continuous
ACG/5	Review the GREPECAS working methods and propose specific actions to improve its performance.	A		Continuous
ACG/6	Prepare the draft Agenda for GREPECAS meetings and plan and coordinate Secretariat support work and documentation for such meetings.	A		Continuous

3. **Composition**

The Administration Coordination Group is composed by the Chairperson and Vice-Chairperson and Secretary of GREPECAS, the Regional Directors, a RAO representative and the Secretaries of the Contributory Bodies. In the event of considering it necessary, the Chairpersons and Vice-Chairpersons of the Contributory Bodies will be invited to participate.

APPENDIX D

AVIATION SAFETY BOARD

1. Terms of reference

a) The Board will evaluate, validate, monitor and follow-up urgent air navigation deficiencies in the CAR/SAM regions and develop appropriate action to be taken.

b) The Board will act as an advocate and instrument in resolving urgent (U) deficiencies.

2. Work Programme

Tasks		Priority	Completion
1)	The Board will consider urgent deficiencies and develop solutions it would propose through the appropriate ICAO regional office. To achieve resolution, either an individual state/states/executing body, the Air Navigation Commission, or referral to the appropriate subgroup for further evaluation may need to be involved.	A	
2)	The Board will offer, through the ICAO Regional Offices, to assist an individual state/states/executing body in identifying resources and acting as a resource in order to resolve the shortcoming/deficiency through the advocacy with relevant high-level officials and/or donor organizations.	A	

3. Priority

A High priority tasks, on which work should be speeded up.
B Medium priority tasks, on which work should be begun as soon as possible, but without detriment to priority **A** tasks.
C Tasks of lesser priority, on which work should be begun as time and resources allow, but without detriment to Priority **A** and **B** tasks.

4. Composition

The Aviation Safety Board is composed by the Chairperson and Secretary of GREPECAS, the Directors of the ICAO Regional Offices, a representative from the Regional Affairs Office at ICAO Headquarters, the Chairpersons and/or Vice-Chairpersons of the Subgroups and a representative from the following observer organizations: ACI, IATA, IBAC, IFALPA and IFATCA. The secretaries of the contributory bodies may participate in an advisory capacity as required.

APPENDIX E

TERMS OF REFERENCE AND WORK PROGRAMME
AVIATION SECURITY COMMITTEE (AVSEC/COMM)

1. Terms of Reference

a) To foster regional cooperation among States, international organizations and industry in order to facilitate the successful implementation of ICAO Standards and Recommended Practices (SARPs) related to aviation security (AVSEC);

b) to encourage the participation of States in the ICAO AVSEC Mechanism and Implementation Programmes to include their provision of voluntary funding and personnel when requested by ICAO;

c) to actively support the approved ICAO AVSEC Plan of Action and other regional AVSEC initiatives; and

d) to promulgate AVSEC awareness within the region through sponsorship of and participation in related training activities and seminars.

2. Work Programme

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
AVSEC/1	Identify and analyse shortcomings and deficiencies in the implementation of ICAO AVSEC provisions which are common in many States/Territories of the CAR/SAM Regions and develop regional initiatives and measures which will encourage and facilitate their resolution.	A	AVSEC/COMM/2	Continuous
AVSEC/2	Monitor existing and develop new regional AVSEC training programmes	A	AVSEC/COMM/2	Continuous
AVSEC/3	Identify potential financial sources to fund regional AVSEC training programmes	C	AVSEC/COMM/2	Continuous
AVSEC/4	Compile a directory of qualified AVSEC instructors available in States/Territories in the CAR/SAM Regions for use in regional training events	A	AVSEC/COMM/2	Continuous
AVSEC/6	Review all proposal for Amendment to Annex 17	A	AVSEC/COMM/3	Continuous
AVSEC/7	Coordinate with the LACAC AVSEC Group on the regional equipment needs.	B	AVSEC/COMM/2	Continuous
AVSEC/8	Coordinate with the LACAC AVSEC Group on the development of a regional mechanism for sharing sensitive information on threats to civil aviation	B	AVSEC/COMM/3	Continuous

3. **Priority**

A High priority tasks, on which work should be speeded up.
B Medium priority tasks, on which work should commence as soon as possible, but without detriment to priority **A** tasks.
C Tasks of lesser priority, on which work should commence as time and resources allow, but without detriment to Priority **A** and **B** tasks.

4. **Composition**

Argentina, Chile, Costa Rica, Cuba, Jamaica, Mexico, Panama, Paraguay, Peru, Spain, Trinidad and Tobago, United States, Venezuela, ACI, IATA, IFALPA and LACAC.

5. **Chairperson**

Chairman – Oscar Derby (Jamaica)
Vice-Chairman – Eduardo Cerda Gómez (Chile)

APPENDIX F

AERONAUTICAL METEOROLOGY SUBGROUP (AERMET/SG)

1. **Terms of reference**

a) Review and update the CAR/SAM Air Navigation Plan in accordance with the operational requirements of the CAR/SAM Regions and ensure its seamless and consistent implementation addressed to the new CNS/ATM systems concerning MET;

b) Monitor the implementation of the world area forecast system (WAFS) in the CAR/SAM Regions, identify any deficiency and develop proposals to improve its implementation;

c) Provide guidance to the CAR/SAM representative to the IAVWOPSG on the operational needs for CAR/SAM. Monitor the implementation of and of the international airways volcano watch (IAVW) in the CAR/SAM Regions, identify any deficiency and develop proposals to improve its implementation;

d) Review in a continuous basis the list of MET deficiencies, identify new deficiencies that prevent the implementation or provision of MET service in the CAR/SAM Regions and propose actions for their correction.

e) Monitor the research and development of CNS/ATM systems, the tests and demonstrations in the CNS/MET field and facilitate the transference of these information and experience among the CAR/SAM States and recommend specific actions aimed at the implementation of MET services to satisfy CNS/ATM requirements.

2. **Work Programme**

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
	Subject: WAFS Implementation in the CAR/S/SAM Regions			
7-9	Follow up on the accomplishment, by CAR/SAM States, of the Plan to receive WAFS products in GRIB and BUFR codes.	A	2006	2006
7-10	According to the *Modus operandi* between WAFSOPSG HQs and the PIRGS, inform the Group on any difficulty in WAFS implementation in the CAR/SAM Regions and the new requirements, if any.	B	2005	2007
7-11	Propose measures for WAFS implementation in the CAR/SAM Regions, both of the forecasts developed by the WAFS (i.e. SHE) as of the ones to be developed by the States (SWM and SWL).	A	2005	2007
7-12	In coordination with the Secretariat, develop a questionnaire format for the States of the CAR/SAM Regions on ISCS efficiency.	A	2005	2006

TASK NUMBER	**TASK DESCRIPTION**	**PRIORITY**	**DATE**	
			START	**END**
	Subject: IAVW Implementation in the CAR/SAM Regions			
7-13	Propose measures for the implementation of ICAO procedures regarding international airways volcano watch (IAVW) in the CAR/SAM Regions.	**A**	2005	2007
7-14	**Propose dates to develop tests and a coordinated scenario with the Buenos Aires and Washington VAACs, with the MWO and NOF of the States of the CAR/SAM Regions for the dissemination of volcanic ash advisories, SIGMET and ASHTAM/NOTAM related to volcanic ash;** **Prepare a list with WMO headers of SIGMET of CAR/SAM States/Territories** Inform the results to the ICAO SAM Office.	**A**	2005	2005
7-15	Develop, in coordination with the Secretariat, the draft Guidance for the development of airports emergency plans in case of volcanic eruptions in the CAR/SAM Regions.	**B**	2005	2007
7-16	According with the *Modus operandi* between HQs IAVWOPSG and the PIRGS, inform the Group on any difficulty in the implementation of the IAVW in the CAR/SAM Regions and, should it be the case, of new requirements in these regions.	A	2005	2007
	Subject: Regional and inter-regional exchange and availability of OPMET information in the CAR/SAM Regions			
7-17	Review and update OPMET requirements in the CAR/SAM Regions.		2005	2006
7-18	Coordinate with CAR/SAM States the inclusion of the changes on the TAF validity period, in accordance with the CAR/SAM ANP Basic, Part VI – MET, Paragraph 8.	**A**	2005	2006
7-19	Improve the availability of OPMET information in the States/Territories of the CAR Region..	**A**	2005	2007
7-20	Prepare, in coordination with the Secretariat, the draft OPMET Guidance including all the guidelines for regional and inter-regional OPMET exchange in only one document, including the procedures to access the Brasilia and Washington OPMET Data Banks and all AFTN addresses..	**B**	2005	2007
7-21	Based on *guidelines for the use of public Internet for aeronautical applications* on the MET field, carry out a study in order to determine the need for bilateral, multilateral or regional agreements to be included in the CAR/SAM ANP.	**B**	2005	2007
7-22	Evaluate if the proposed transition plan of aeronautical meteorological messages in BUFR code is feasible in real time terms in the CAR/SAM Regions.	**A**	2005	2007
7-23	Analyze the impact in the change of code at semiautomatic meteorological stations in operation in the CAR/SAM States and in the dissemination of ISCS OPMET information.	**A**	2005	2007

TASK NUMBER	**TASK DESCRIPTION**	**PRIORITY**	**DATE**	
			START	**END**
7-24	Develop guidance material and procedures for migration in the CAR/SAM Regions.	**A**	2005	2007
7-25	Develop a plan for the implementation of migration of OPMET messages in BUFR code, with possibilities of different scenarios for the transition, including a cost-benefit study and its implications.	**A**	2005	2007
7-26	Coordinate the control of the OPMET data exchange, analyze the results, inform the ICAO SAM Regional Office and propose measures to improve them			
	Subject: Report of completion or differences in respect to Annex 3			
7-27	Review the report of completion or differences in respect to Annex 3, including Amendment 73 to Annex 3 and develop proposals to improve the completion level in CAR/SAM States/Territories.	**A**	2005	2007
7-28	Based on the list of differences of ICAO Annex 3 (Amendment 73) prepare a list of differences including their importance and the time foreseen for their deletion.	**B**	2005	2007
	Subject: MET Requirements in the CNS/ATM concept			
7-29	Based on the edition in preparation of Doc 9750 - *Global Air Navigation Plan for CNS/ATM Systems* (to be completed for the end of 2005), update MET chapter of the *CAR/SAM Regional Plan for the implementation of CNS/ATM systems,* Document I.	**B**	2005	2007
7-30	Develop MET component of the CNS/MET Plan for the CAR/SAM Regions.	**B**	2005	2007
7-31	Monitor the research, development, tests and demonstrations of the MET concept in CNS/ATM field and facilitate the transference of this information and experience among CAR/SAM States.	**B**	2005	2009
7-32	Identify activities for the implementation of new meteorological services related both to training and application of the new CNS/ATM systems. Provide guidelines.	**A**	2005	2007
	Carry out a study to determine the need for VOLMET services in the CAR/SAM Regions.	**A**	2005	2007
7-33	**Subject: Quality management of the meteorological services for international air navigation.**			
7-34	Promote the development and implementation of quality assurance systems of MET services in the States/Territories of the CAR/SAM Regions.	**A**	2005	2007
7-35	Review the status of implementation of quality assurance systems of MET services in the CAR/SAM Regions.	**A**	2005	2007
7-36	Support the organization of seminars/workshops to promote the exchange of information among the States in issues related to quality assurance systems of MET services.	**A**	2005	2007
	Subject: MET Training			
7-37	Propose short, medium and long-term measures to satisfy the requirements for MET personnel in the States of the CAR/SAM Regions.		2005	2007

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
	Subject: MET Deficiencies			
7-38	Identify, evaluate and recommend solutions, with the appropriate priority, of MET deficiencies and refer urgent (U) priority deficiencies, with proposed corrective action, to the GREPECAS Air Safety Board	**A**	2005	Permanent
	Subject: Implementation of the ANP/FASID, Part VI in the CAR/SAM Regions			
7-39	Based on WAFSOPSG and IAVWOPSG guidelines and in the new requirements of OPMET exchange (CAR/SAM FASID Tables MMET 2A and MET 2B) develop proposals for amendment of the CAR/SAM ANP, Part VI – MET.	**A**	2005	Permanent
7-40	Review and propose actions to comply with the procedures of Part VI - Meteorology of the CAR/SAM ANP (Vol I Basic ANP; Vol II-FASID).	**A**	2005	Permanent
	Subject: Follow up on the status of implementation of MET Recommendations, Conclusions and Decisions of ICAO meetings			
7-41	Review the status of implementation of MET recommendations and conclusions of the RAN CAR/SAM/3.	**B**	2005	2007
7-42	Review the status of implementation of GREPECAS conclusions in the MET field.	**B**	2005	Permanent
7-43	Develop, in coordination with the Secretariat, a detailed schedule of each of the tasks and the responsible for their implementation.	**A**	2005	Permanent

3. **Priority**

A High priority tasks, on which work should be speeded up.

B Medium priority tasks, on which work should commence as soon as possible, but without detriment to priority **A** tasks.

C Tasks of lesser priority, on which work should commence as time and resources allow, but without detriment to priority **A** and **B** tasks.

4. **Composition**

Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, France, Panama, Paraguay, Peru, Spain, United States, Uruguay, Venezuela, COCESNA, IATA, IFALPA and WMO.

APPENDIX G

AERODROMES AND GROUND AIDS/AERODROME OPERATIONAL PLANNING SUBGROUP (AGA/AOP/SG)

1. **Terms of reference**

a) To promote and follow-up the implementation of the AOP requirements of the CAR/SAM ANP and to place special emphasis on identifying, evaluating and proposing, according to established procedures, the corresponding timely corrective actions to the deficiencies affecting aircraft and airport operations.

b) Develop the planning for the AOP Part of the CAR/SAM ANP.

c) To carry out permanent co-ordination with GREPECAS Contributory Bodies in order to ensure appropriate integration of all tasks contributing to the implementation of the CAR/SAM ANP.

d) To review the requirements of the AOP Part of the CAR/SAM Regional Air Navigation Plan with a view to developing any changes required to comply with new technological developments including environmental impact aspects.

2. **Work Programme**

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
AGA/AOP/2	Review and update the Table AOP 1 of the AOP Part of the ANP/FASID CAR/SAM at regular intervals based on the greater demands on airports in relation to air traffic growth and the accommodation of aircraft with more onerous physical requirements	B	1st Meeting	Continuous

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
AGA/AOP/3	Review and follow-up the implementation of corrective actions for AGA deficiencies including: · ▪ Objects and depressions in runway strips, principally in the graded areas ▪ Runway and taxiway separations ▪ Runway and taxiway slopes ▪ Obstacles ▪ Secondary power supply ▪ Visual aids ▪ Fencing and perimeter roads ▪ Rescue and fire-fighting services ▪ Aerodrome emergency plans ▪ Runway surface conditions ▪ Runway strips and runway end safety areas Refer urgent (U) priority deficiencies, with proposed corrective actions, to the Aviation Safety Board.	A	1st Meeting	Continuous
AGA/AOP/6	Review demand/capacity problems at airports and develop options for alleviating airport congestion.	B	1st Meeting	Continuous
AGA/AOP/7	Review runway incursion incidents at airports and develop guidance to reduce their occurrence in coordination with ATM and OPS.	A	1st Meeting	6th Meeting
AGA/AOP/8	Development of samples that include the necessary minimum requirements for Emergency Plans and Emergency Operation Centres (EOC) of the aerodromes included in the ANP and online follow-up of their implementations, updating of complete and partial exercises in order to increase the safety of airports/aircraft	A	4th Meeting	Continuous
AGA/AOP/9	On-line follow-up to the implementation of the aerodrome certification process (basic documentation and certification of every aerodrome included in the ANP) with the corresponding implementation of Safety Management Systems, as a method to identify and resolve the deficiencies that compromise the implementation of these processes	A	4th Meeting	Continuous
AGA/AOP/10	On-line follow up of the maintenance at ANP aerodromes (runways), of the action plans and of the resolution of these deficiencies	A	4th Meeting	Continuous

3. **Priority**

A High priority tasks, on which work should be speeded up.

B Medium priority tasks, on which work should commence as soon as possible, but without detriment to priority **A** tasks.

C Tasks of lesser priority, on which work should commence as time and resources allow, but without detriment to Priority **A** and **B** tasks.

4. **Composition**

Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Panama, Paraguay, Peru, Trinidad and Tobago, United States, Uruguay, Venezuela, ACI, ALACPA, CARSAMPA, IATA, IFALPA and IFATCA.

5. **Chairpersons**

Chairman	Gilberto Vázquez Alanís (Mexico)
Vice-Chairman	Richard Saurina (Uruguay)

APPENDIX H

AERONAUTICAL INFORMATION SERVICES AND AERONAUTICAL CHARTS SUBGROUP (AIS/MAP/SG)

1. **Terms of Reference**

The mission of the GREPECAS AIS/MAP Subgroup is to inform the GREPECAS of the strategy, study and development of all the aeronautical information-related activities. Additionally, it will supervise and watch all the processes of development and implementation of the planned aeronautical information projects:

a) To plan the development of requirements and strategies to adopt in the CAR/SAM Regions the standardized conceptual aeronautical information models accepted by ICAO for the electronic exchange of aeronautical information/data of the operational systems and their mutual inter-functionalities.

b) To plan the updating of the AIS/MAP staff training programmes in accordance with the SARPs, ICAO guidelines and the new requirements introduced in Annexes 4 and 15, aimed at providing AIS Services in a digital data electronic interchange environment, ensuring their integrity and quality.

c) To develop strategies for establishing requirements for an AIM in the CAR/SAM Regions in line with the elements of the global operational concept.

d) To plan the application of quality systems in the CAR/SAM AIS in accordance with ISO 9000 standards, contributing to the implementation of the AIS/MAP Quality Management System required in Annex 15 and in the Recommendations of the CAR/SAM/3 RAN Meeting, emphasizing the assessment and suggesting implementation plans of the system in question, in accordance with the relevant ICAO guidelines.

e) To study aspects related with the maintenance of the CAR/SAM Air Navigation Plan (Part VIII, AIS) to ensure its effective implementation and the evolution of global AIS/MAP requirements.

f) To foster and follow up the implementation of the AIS/MAP services required in the CAR/SAM Air Navigation Plan, with special emphasis on the identification, evaluation and proposal, according to established procedures, of the corresponding corrective actions to solve the deficiencies affecting air operations.

g) To carry out a permanent coordination with GREPECAS Contributory bodies, in order to ensure a suitable integration of all the tasks that contribute to CNS/ATM implementation.

h) To develop the project document to manage the creation or extension of a Regional CAR/SAM Technical Cooperation Project to support the development of the AIM as a key element for ATM.

2. **Work Programme**

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
AIS/MAP/1	CAR/SAM AIS database (CASADAB) system development with AIM approach and based on the conceptual model. (Note: Stand by for HQ's SARPS and guidance material)	A	2nd half 2003	STAND BY
AIS/MAP/2	Define general technical criteria for the automated processing of the Integrated Aeronautical Information Package by AIS services. (Note: Stand by for HQ's SARPS and guidance material)	B	2nd half 2003	STAND BY
AIS/MAP/3	Develop specialized AIS/MAP training programmes based on the new role of AIS/MAP personnel within CNS/ATM environment (GREP/12, TRAIN TF/8 - (Note: Stand by for HQs guidance material)) .	B	2003	STAND BY
AIS/MAP/4	Responsibilities and functions of the AIS/MAP specialist, based on the new role of AIS/MAP personnel within CNS/ATM enviroment (Note: Stand by for HQs guidance material)	A	2003	STAND BY
AIS/MAP/5	Review and update part VIII-AIS/MAP of the CAR/SAM ANP Vol. I ANP Basic and Vol. II FASID	A	2003	Dec. 2006
AIS/MAP/6	Develop an ICAO/IPGH TC draft project for the production and implementation of the 1:000,000 and 1:500,000 VFR aeronautical charts. Reactivation of the PAIGH Aeronautical Charts Committee.	A	Feb. 2005	Feb. 2007
AIS/MAP/7	Performance actions for the coordination determination and implementation of the WGS-84 coordinates of the points of the boundaries of FIRs.	A	Jul. 2005	Dec. 2006

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
AIS/MAP/8	Prepare a programme for the applications of the elements of human factors into the AIS services	A	Feb. 2005	Dec. 2006
AIS/MAP/9	Study AIS, MET and FLP products in support of the integrated provision of a pre-flight and in-flight information service.	B	2003	Dec. 2007
AIS/MAP/10	Carry out planning activities for AIS/MAP Implementation 10a. Implementations of NOTAM Data Banks utilizing common query protocols 10b. Planning of the Implementation of the Electronic AIP 10c. Planning of the Implementation of the quality management system in the AIS services 10d. Assist States on the development of action plans for the solution of AIS/MAP deficiencies 10e. Planning of the Implementation of the WGS-84 aeronautical charts, using GIS technology and Terrain digital modelling system (TDMS)	A	Jul. 2005	Dec. 2007

3. **Priority**

A High priority tasks, on which work should be speeded up.
B Medium priority tasks, on which work should commence as soon as possible, but without detriment to priority **A** tasks.
C Tasks of lesser priority, on which work should commence as time and resources allow, but without detriment to Priority **A** and **B** tasks.

4. **Composition**

Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, France, Paraguay, Peru, Spain, Trinidad and Tobago, United States, Venezuela, COCESNA, IATA, and PAIGH.

5. **Chairperson**

Chairman: Mr.Sergio García Jorquera (Chile)
Vice-Chairman: Mrs. Mirta Crespo (Cuba)

APPENDIX I

AIR TRAFFIC MANAGEMENT/COMMUNICATIONS, NAVIGATION AND SURVEILLANCE SUBGROUP (ATM/CNS/SG)

1. **Terms of reference**

a) To promote and follow-up the implementation of the CNS/ATM systems required in the CAR/SAM ANP and to place special emphasis on identifying, evaluating and proposing, according to the established procedures, the corresponding corrective actions to the /deficiencies affecting air operations.

b) To carry out permanent coordination with various GREPECAS Contributory Bodies in order to ensure appropriate integration of all tasks contributing to the implementation of the CAR/SAM ANP.

c) To develop and harmonize, in the CAR/SAM Regions, action plans to facilitate implementation of CNS/ATM systems, in order to reach a consistent and coordinated implementation, especially in multinational projects of regional/inter-regional nature, taking into account homogeneous areas and main air traffic flows contained in the CAR/SAM FASID.

d) Taking into consideration the material prepared by the different ICAO groups of experts in the CNS/ATM field, develop guidance material to keep and upgrade the technical and operational quality for the provision of CNS/ATM services.

2. **Work programme**

TASK NUMBER	**TASK DESCRIPTION**	**PRIORITY**	**DATE**	
			START	**END**
ATM/CNS/1	Follow up, coordinate and manage the work of the CNS and ATM Committees.	A	Permanent	
ATM/CNS/2	To establish inter- and intra-regional coordination on CNS/ATM systems applications.	A	Permanent	
ATM/CNS/3	To inform on the development of the new air navigation systems, SARPs development, as well as the work of the ICAO CNS/ATM Groups of Experts.	A	Permanent	
ATM/CNS/4	Refer urgent (U) priority deficiencies, with proposed corrective action, to the Aviation Safety Board.	A	Permanent	

3. **Priority**

A High priority tasks, on which work should be speeded up.
B Medium priority tasks, on which work should commence as soon as possible, but without detriment to priority **A** tasks.
C Tasks of lesser priority, on which work should commence as time and resources allow, but without detriment to Priority **A** and **B** tasks.

4. **Composition**

The ATM/CNS Subgroup is composed by the joint membership of the members of the ATM and CNS Committees.

5. **Chairperson**

Chairman	Mr. Claudio Arellano (Mexico)
Vice-Chairman	Mr. Julio Cesar de Souza Pereira (Brazil)

TERMS OF REFERENCE AND WORK PROGRAMME FOR THE CNS COMMITTEE

1. Terms of Reference

Review, fine-tune and complete the planning of the CNS systems, recommending its incorporation in the CAR/SAM FASID ANP, based on the application of planning principles developed by the CAR/SAM/3 RAN Meeting, in the global Plan of air navigation for the CNS/ATM systems, on the results of the inter-regional planning and co-ordination and on ICAO SARPs and technical guidelines, related with the coordinated implementation and harmonization of CNS/ATM systems. Also, to study, review and propose measures for the implementation of the CNS systems recommended in the ANP CAR/SAM FASID.

2. Work Programme

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
CNS/1	**General Matters**			
CNS/1-1	Review, identify, evaluate and recommend solutions with the necessary priority assignment on the deficiencies of the CNS systems.	A	Permanent	
CNS/1-4	Examine of the CNS systems in other regions, with the aim of contributing to a coordinated and harmonious interregional development, in accordance with the specified guidelines in the CNS/ATM Global Plan.	B	Permanent	
CNS/1-5	Suggest measures for the protection of the radio frequency spectrum management.	A	Permanent	
CNS/1-10	Review the status of implementation of CNS-related GREPECAS Conclusions and Decisions, recommending the relevant actions.	A	Permanent	
CNS/2	**Communications Developments**			
CNS/2-1.1	Continue the guidance on the development of the aeronautical digital communication networks and develop regional guidelines for the inter operability between the communication networks of the CAR and SAM Regions and neighbouring areas.	A	31/05/02	29/09/06
CNS/2-1.2.2	Develop regional strategies on the implementation of VDL and HFDL data links.	B	27/06/04	29/09/06
CNS/2-1.2.3	Develop the regional plan for the implementation of VDL and air-ground applications.	B	02/05/05	19/10/07
CNS/2-1.3.1	Develop a strategy for the transition to inter/network ATN services.	A	08/04/03	28/11/05

CNS/2-1.3.2	Review, fine-tune and complete the initial transition plan for the evolutionary development of the ATN and of its applications.	A	07/047/03	29/09/06
CNS/2-1.3.3	Guide the development of the ATN addressing plan in accordance with the ICAO principles and technical provisions.	B	02/02/04	28/11/06
CNS/2-1.3.4	Develop plans for the evolutionary implementation of the ground infraestructure of ATN and the development of ground-ground applications such as AIDC and AMHS.	A	08/07/03	29/09/06
CNS/2-1.3.5	Develop recommendations on the initial operational and managerial use of ATN with regard to the implementation of:	A	08/07/03	29/09/06
	a) ground-ground applications; and	A	08/07/03	28/11/06
	b) air-ground applications.	B	02/02/04	30/11/056
CNS/2-1.3.6	Review proposals for data communications infrastructure to support ATFM implementation	B	06/03/06	31/10/07
CNS/2-1.5	Develop a CAR/SAM plan to provide the communications system required for the migration toward the exchange of aeronautical MET messages (METAR/SPECI and TAF) in BUFR code form.	A	18/04/05	22/09/06
CNS/2-2.1	Development of the VHF and HF voice and data communication. Review, refine and complete the VHF and HF Regional Plan (FASID Table CNS 2A).	A	07/01/01	25/10/06
CNS/3	**Navigation Developments**			
CNS/3-2.1	Review the results of SBAS augmentation trials carried out in the CAR/SAM Regions.	A	02/07/01	30/01/07
CNS/3-2.2	Update the regional strategy for the deployment and implementation of the GNSS augmentation systems.	A	10/11/03	30/06/07
CNS/3.2.3.1	Considerations on the feasibility of regional application, technical aspects, operational benefits, related costs, implementation, implications for the on-board equipment and other relevant aspects.	A	02/06/03	22/06/07
CNS/3.2.3.2	To lead studies on regional implementation alternatives of a SBAS/GBAS system, taking into account the evolution of GNSS.	A	14/03/05	22/09/06
CNS/3-3.1	Update the regional strategy for the migration towards GNSS.	A	03/02/04	29/09/06
CNS/3-3.2	Develop a navaids transition plan and introduce pertinent target dates for the GNSS augmentation systems.	A	07/02/05	29/09/06
CNS/3-3.3	Review, fine-tune and complete the regional navigation plan suggesting the relevant amendments to FASID Table CNS 3.	B	02/10/05	09/05/07
CNS/4	**Surveillance Development**			
CNS/4-1	Develop target dates and strategies for the deployment of the ADS and ADS-B systems.	A	01/07/05	30/11/06

CNS/4-2	Studies and recommendation of actions for the sub-regional and regional implementation of the ADS and ADS-B systems.	B	09/03/04	29/09/06
CNS/4-3	Develop target dates and strategies for the deployment of the ACAS systems.	B	01/07/05	29/09/06
CNS/4-4	Studies and recommendations of actions for the SSR in Mode S, sub regional/regional implementation.	B	01/07/05	30/06/06
CNS/4-5	Update and follow-up of the regional plan on surveillance systems. Update FASID Table CNS 4A.	B	01/02/04	30/03/07
CNS/5	**ATM Automation Developments**			
CNS/5-1	Develop functional levels and a regional strategy for the implementation of ATM automation.	A	01/04/02	22/09/06
CNS/5-3	Develop guidance material and regional guidelines for data exchange among ATM units taking into consideration the communications platform.	A	17/10/05	26/05/06

3. **Priority**

A High priority tasks, on which work should be speeded up.
B Medium priority tasks, on which work should commence as soon as possible, but without detriment to Priority **A** tasks.
C Tasks of lesser priority, on which work should commence as time and resources allow, but without detriment to Priority **A** and **B** tasks.

4. **Composition**

Antigua, Argentina, Barbados, Bolivia, Brazil, Chile, Colombia, Cuba, Dominican Republic, Ecuador, France, Haiti, Jamaica, Mexico, Panama, Paraguay, Peru, Spain, Trinidad and Tobago, United States, Uruguay, Venezuela, ARINC, COCESNA, IATA, IFALPA and SITA.

The Chairperson and Vice-chairperson designated by the CNS Committee elected in the Fourth Meeting are: Ricardo Bordalí (Chile) and Mrs. Veronica Ramdath (Trinidad and Tobago) respectively.

TERMS OF REFERENCE AND WORK PROGRAMME FOR THE ATM COMMITTEE

1. Terms of Reference

a) Assist and guide States/Territories/International Organizations of the CAR/SAM Regions in the implementation of programmes related with ATS safety management.

b) To study, analyze and propose measures that allow the improvement in the areas of airspace organization and management (AOM), air traffic services (ATS), air traffic flow management (ATFM), and search and rescue (SAR) in the CAR/SAM Regions.

c) To keep informed of and to analyze the guidance material developed on the ATM systems by other ICAO experts groups for its possible adoption in the CAR/SAM Regions.

2. Work Programme

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
General (GRAL)				
ATM-GRAL/100	Based on the methodology standardized by ICAO Council, identify, assess and report, assigning priorities, the deficiencies in air navigation.	N/A	Permanent	N/A
ATM-GRAL/101	To monitor the corresponding ATM parts of the CAR/SAM Regional CNS/ATM Implementation Plan and to keep it up-to-date as a working document.	N/A	Permanent	N/A
ATM-GRAL/102	Establish operational requirements for development of ATM automation.	A Together with CNS Committee	September 2002	ATMC/6
ATM-GRAL/103	Identify activities for the implementation of new meteorological services related to both training and the implementation of the new CNS/ATM Systems. Note: Joint MET/ATM Task Force (Decision 6/24 AERMETSG)	B	2005	2009
Airspace Organization and Management (AOM)				
ATM-AOM/202	Develop a Plan for implementing, within the CAR/SAM Regions, aircraft performance based navigation, using ICAO RNAV and RNP concepts.	A	March 2004	Phase II ATMC/7
ATM-AOM/205	Elaboration of an airspace strategic plan for the CAR/SAM Regions.	C	March 2004	ATMC/6
ATM-AOM/206	Analyse and evaluate 300 ft or greater large height deviations.	N/A	Permanent	N/A

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
Air Traffic Flow Management (ATFM))				
ATM-ATFM/400	To plan an Air Traffic Flow Management (ATFM) system with a view to its future implementation in the CAR/SAM Regions.	A	March 2004	ATMC/6
Search and Rescue (SAR)				
ATM-SAR/502	To develop, according to the IAM/SAR manual, a quality assurance programme for the Search and Rescue (SAR) services for future implementation in the CAR/SAM Regions.	B	August 2003	ATMC/6

3. **Priority**

A High priority tasks, on which work should be speeded up.
B Medium priority tasks, on which work should commence as soon as possible, but without detriment to priority **A** tasks.
C Tasks of lesser priority, on which work should commence as time and resources allow, but without detriment to Priority **A** and **B** tasks.

4. **Composition**

Argentina, Barbados, Bolivia, Brazil, Chile, Colombia, Cuba**, Dominican Republic, Ecuador, France, Guatemala, Haiti, Jamaica, Mexico, Panama, Paraguay, Peru, Spain, Trinidad and Tobago, United States, Uruguay*, Venezuela, ARINC, COCESNA, IATA, IFALPA, IFATCA and SITA.

5. *Chairman: Roberto Arca (Uruguay)
**Vice-Chairman: Fidel Ara (Cuba)

APPENDIX J

HUMAN RESOURCES AND TRAINING SUBGROUP (HRT/SG)

1. **Terms of reference**

a) To promote and follow-up the implementation of the CAR/SAM Regional Air Navigation Plan and to place special emphasis on identifying, evaluating and proposing, according to established procedures, the corresponding corrective actions to the deficiencies affecting the safety of air operations attributable to human resource development.

b) To carry out permanent coordination with GREPECAS contributory bodies in order to ensure appropriate integration of all tasks contributing to implementation of the CAR/SAM Regional Air Navigation Plan.

c) Determine regional requirements for training and the capacity of the Regions to meet the demand for skilled human resources necessary to implement the facilities and services specified in the ANP.

d) Study and develop comprehensive regional plans to address professional/technical training of aeronautical personnel, incorporating human factors principles.

e) Harmonize and consolidate quality assurance programmes for training in the air navigation field.

2. **Work Programme**

	Tasks	**Priority**	**Completion**
1)	Identify training needs and types of training to implement the facilities and services specified in the ANP.		
2)	Gather information and evaluate training required within the Regions.		
3)	Determine regional training capabilities required.		
4)	Develop a planning process for rectifying shortcomings in training capacity within the Regions.		
5)	Formulate a plan for the establishment of regional training capabilities.		
6)	Establish a timetable for training programmes in accordance with the ANP.		
7)	Update information about existing training capabilities within the Regions.		
8)	Gather and evaluate existing human factors and development guidance material.		
9)	Refer urgent (U) priority deficiencies, with proposed corrective action, to the Aviation Safety Board.		

3. **Priority**

A High priority tasks, on which work should be speeded up.

B Medium priority tasks, on which work should be begun as soon as possible, but without detriment to priority **A** tasks.

C Tasks of lesser priority, on which work should be begun as time and resources allow, but without detriment to Priority **A** and **B** tasks.

4. **Composition**

Argentina, Brazil, Chile, Colombia, Panama, Paraguay, Peru, Spain, Trinidad and Tobago, United States, Uruguay, Venezuela and COCESNA.

5. **Chairperson**

The Chairperson will be designated by the Subgroup at its first meeting.

APPENDIX K

TASK FORCE ON INSTITUTIONAL ASPECTS

1. **Terms of Reference**

a) Considering the new ATM operational concept approved by the Eleventh Air Navigation Conference as a global framework for the implementation of ATM systems, study the actions adopted by the ICAO Council, as well as by some States, on institutional aspects for the implementation of these systems in the CAR/SAM Regions.

b) Suggest methods to assist the States of the CAR and SAM Regions that so require, in the development of cost/benefit analysis, as well as in the economic, financial, legal and administrative studies relevant to their technical and operational projects for the implementation of CNS/ATM systems.

c) Analyze those aspects of the CAR/SAM Regional Air Navigation Plan that would require multinational arrangements.

2. **Work Programme**

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
TF-IA/1	Considering the new ATM operational concept, develop orientation and application proposals for the CAR/SAM Regions of the actions of global nature on the institutional aspects adopted by the ICAO Council, as well as by some States.	B	As of new edition of CNS/ATM Global Plan	
TF-IA/2	Identify, based on the CAR/SAM Air Navigation Plan, scenarios with the corresponding elements that require institutional arrangements of multinational nature for their implementation.	A		Completed
TF-IA/3	Develop orientations with regional guidelines to assist CAR/SAM States in the development of cost/benefit studies for institutional arrangements of the identified multinational facilities/services.	A		2007
TF-IA/4	Develop consensus proposals for financial and administrative arrangements and other relevant arrangements for the provision of services for the implementation of multinational ATM systems.	A	It is necessary to progress with TF-IA/3	
TF-IA/5	Determine the elements that require legal arrangements on the institutional aspects identified in d) above and provide guidelines facilitating its implementation.	A		2007

TASK NUMBER	TASK DESCRIPTION	PRIORITY	DATE	
			START	END
TF-IA/6	On the basis of available material, develop a multinational facilities/services implementation strategy	A	2006	2007
TF-IA/7	Study the most appropriate way for the presentation of multinational facilities/services in the FASID in order to facilitate their identification, description and processing of future amendments.	B		2007

3. Composition

Argentina, Brazil, Chile, Colombia, Cuba, Peru, United States, Venezuela and COCESNA.

4. Rapporteur

Argentina

Agenda Item 6 Review of GREPECAS outstanding conclusions

6.1 In accordance with standing practice, the Meeting reviewed the status of implementation of outstanding GREPECAS conclusions on the basis of a uniform classification. It noted that as a result of action taken since GREPECAS/12, the following conclusions had been completed or superseded:

Conclusions: 6/45, 8/20, 9/1, 9/5, 9/11, 10/8, 10/20, 10/21, 10/22, 10/23, 10/24, 10/25, 10/29, 10/39, 10/49, 10/50, 10/51, 10/53, 10/54, 10/55, 10/57, 11/8, 11/12, 11/22, 11/23, 11/25, 11/28, 11/38, 11/41, 11/42, 11/43, 11/44, 11/45, 11/46, 11/47, 11/48, 11/49, 11/60, 11/63, 11/66, 11/67, 11/69, 11/71, 11/72, 12/2, 12/3, 12/4, 12/6, 12/7, 12/8, 12/11, 12/12, 12/13, 12/14, 12/15, 12/16, 12/17, 12/18, 12/19, 12/20, 12/21, 12/22, 12/23, 12/26, 12/27, 12/28, 12/29, 12/30, 12/33, 12/42, 12/43, 12/44, 12/46, 12/47, 12/48, 12/49, 12/50, 12/51, 12/52, 12/53, 12/54, 12/55, 12/56, 12/57, 12/58, 12/59, 12/60, 12/62, 12/63, 12/65, 12/66, 12/68, 12/69, 12/71, 12/72, 12/73, 12/75, 12/76, 12/77, 12/78, 12/79, 12/80, 12/81, 12/82, 12/83, 12/84, 12/85, 12/86, 12/87, 12/88, 12/89, 12/90, 12/91, 12/92, 12/93, 12/94, 12/95, 12/96, 12/97, 12/98, 12/101, 12/102, 12/103, 12/104, 12/105, 12/106, 12/107, 12/108, 12/109, 12/110, 12/111, 12/112, 12/113, 12/114, 12/115, 12/116, 12/117, 12/118, 12/119, 12/120, 12/121, 12/122, 12/123, 12/125 and 12/127.

6.2 The Meeting agreed also that the following conclusions remain valid:

Conclusions: 10/32. 11/10, 11/35, 11/45, 11/50, 11/55, 12/9, 12/10, 12/31, 12/32, 12/34, 12/35, 12/36, 12/37, 12/39, 12/41, 12/45, 12/61, 12/64, 12/67, 12/70; 12/74, 12/99, 12/100 and 12/129.

Agenda Item 7 Other Business

Incorporation of Paraguay, Haiti and Jamaica as Members of GREPECAS

7.1 The delegations of Paraguay, Jamaica and Haiti requested membership in the GREPECAS. The Meeting welcomed the request and formulated the following conclusion:

CONCLUSION 13/98 INCORPORATION OF PARAGUAY, HAITI AND JAMAICA AS MEMBERS OF GREPECAS

That taking into account the active participation of Paraguay, Haiti and Jamaica in the activities of GREPECAS and its contributory bodies, the request of Paraguay, Haiti and Jamaica to become members of GREPECAS be submitted to the ICAO Council for approval.

Conclusions of the Meeting of Latin American Ministers of Transport and Infrastructure

7.2 The Meeting was informed by Spain that the Meeting of Latin American Ministers of Transport and Infrastructure was held in Malaga (Spain) on 8-9 September, 2005, to exchange and define cooperation systems for transport and infrastructure. Some actions aimed at obtaining benefits for civil aviation in the CAR/SAM Regions were proposed to GREPECAS.

7.3 The aforementioned meeting highlighted in its introductory considerations that the Latin American community should take maximum advantage of the new technologies, coordinate research, development and innovation, and increase their participation in the development of new global technologies, particularly of global navigation satellite systems. The Ministers proposed to:

1) assess the creation of an exchange and cooperation centre;
2) promote strategic planning for transport and infrastructure, based on an inter-modal approach;
3) foster and coordinate continuous training and qualification programmes;
4) apply new rules to estimate the fiscal deficit, in order to exclude infrastructure investments; and
5) promote the use of alternate fuels.

7.4 Brazil congratulated Spain for its initiative in presenting this information to the Meeting and suggested that they be submitted to the Institutional Aspects Task Force for analysis. This proposal was supported by Argentina and Peru. The Meeting recommended that proposal listed under paragraph 3 above be forwarded to the Human Resources Ad-hoc Group, which was being created. This proposal was endorsed by France and Brazil. Based on the above, the Meeting formulated the following conclusion:

DECISION 13/99 MEETING OF LATIN AMERICAN MINISTERS OF TRANSPORT AND INFRASTRUCTURE

That:

a) the GREPECAS Institutional Aspects Task Force analyze:
   i) assessing the creation of an exchange and cooperation centre;
   ii) promoting strategic planning for transport and infrastructure, based on an inter-modal approach;
   iii) applying new rules to estimate the fiscal deficit, in order to exclude infrastructure investments; and
   iv) promoting the use of alternate fuels; and.

b) the GREPECAS Human Resources Ad-hoc Group analyze the training and qualification programmes.

The Information System for Aeronautical Regulations (SIAR)

7.5 The Meeting received from COCESNA a summary of the activities and work carried out by COCESNA for the implementation of computerized solutions to improve the quality of, and automate, safety management by the States, in keeping with the Convention on International Civil Aviation and its safety-related Annexes.

7.6 The Meeting was informed by Venezuela of its position regarding its decategorization by the Federal Aviation Administration, which occurred in February 1995, and of the action taken to obtain a Category 1 status.

7.7 The Meeting noted that, through the IATA Operational Safety Audit Programme launched just two years ago, 100 IOSA audits of airlines had been completed. IOSA is a key element of the six-point Safety Programme of IATA and has two fundamental aims – to improve operational safety and to reduce the number of inter-airline audits. IOSA can also offer significant benefits to States through the provision of useful data to complement their own regulatory oversight efforts. All members of IATA were progressively being audited under IOSA, and all new airlines joining IATA had to undergo an IOSA audit. IATA had also launched a Partnership for Safety programme, to provide direct assistance to airlines in developing nations to meet IOSA standards. The Meeting took note of the features of the IOSA audit programme, such as standard operating procedures, organization, and registry, State regulatory authorities, current status of audits conducted, the partnership for safety, and the future plans.

7.8 Cuba recommended consulting ICAO on the possibility of making a revision to the GREPECAS Procedural Handbook in order to allow international organizations created to provide specific services in the name of a group of States, besides being members of the contributory bodies in accordance with its Part 5 – Rules of Procedure for the Conduct of Meetings of the Contributory Bodies, Item 1.5.2 - Participation, para. 1.5.2.1, could also have administrative charges in them.

7.9 Costa Rica and Venezuela offered to host the next GREPECAS meeting.

Election of GREPECAS Vice-Chairmen

7.10 The Meeting noted that the first Vice-chairman, Mr. Raul Madrigal, Cuba, had left his position and would no longer be able to serve. Additionally, the second Vice-chairman, Mr. Herald Wilson, St. Lucia, had been elected to the Council of ICAO. As a result, the Meeting elected Mr. Oscar Derby, Jamaica as first vice-chairman, nominated by Argentina and supported by Mexico and other States. The Group also elected Mr. Jacques Boursiquot, Haiti as second vice-chairman nominated by Barbados and supported by other States. The Meeting recognized that this action is contingent upon approval of Conclusion 13/98.