INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

REPORT OF THE EIGHTEENTH MEETING OF THE APANPIRG ATM/AIS/SAR SUB-GROUP (ATM/AIS/SAR/SG/18)

Bangkok, Thailand, 23 – 27 June 2008

The views expressed in this Report should be taken as those of
The Group and not the Organization

Approved by the Meeting
And published by authority of the Secretary General

TABLE OF CONTENTS

PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The Eighteenth meeting of the APANPIRG Air Traffic Management/Aeronautical Information Services/Search and Rescue Sub-Group (ATM/AIS/SAR/SG/18) was held at the Kotaite Wing of the ICAO Asia and Pacific Regional Office, Bangkok, Thailand from 23 to 27 June 2008.

2. Attendance

2.1 The meeting was attended by 81 participants from 18 States, 2 Special Administrative Regions of China, 2 International Organizations and 1 Data Services Provider. A list of participants is provided at **Attachment 1** to this Report.

3. Officers and Secretariat

3.1 Mr. Colman Ng, Assistant Director-General (Air Traffic Management), Civil Aviation Department of Hong Kong, China acted as Chairman of the Sub-Group and presided over the meeting throughout its duration.

3.2 Mr. Andrew Tiede, Regional Officer ATM, ICAO Asia/Pacific Office, was Secretary of the meeting and was assisted by Mr. Kyotaro Harano, Regional Officer ATM and Mr. Roger Mulberge, ICAO Technical Expert.

4. Language and Documentation

4.1 The discussions were conducted in English. Documentation was issued in English with a total of 41 Working Papers and 18 Information Papers being considered by the meeting. A list of papers from the meeting is included in **Attachment 2** to this report.

5. Opening of the Meeting

ICAO Regional Office

5.1 Mr. Mokhtar A. Awan, Regional Director, ICAO Asia and Pacific Regional Office welcomed all delegates to Asia and Pacific office. Mr. Awan noted that ICAO's drive to continually improve the ATM system is focused on the Global Air Navigation Plan which contains near- and medium-term guidance on air navigation system improvements necessary to support a uniform transition to the ATM system envisioned in the globally agreed ATM operational concept. The "Global Plan Initiatives" or GPIs contained in the Plan are options for air navigation system improvements that when implemented result in direct performance enhancements. He pointed out that the APANPIRG work programme, and by extension the ATM/AIS/SAR/SG work programme, must focus on the GPIs to the extent possible and as applicable to this region

Chairman of the Sub-Group

5.2 Mr. Colman Ng welcomed all delegates to the meeting. He pointed out that, although several major events in the aviation industry took place within the Asia Pacific Region in the past year, more is yet to be done to overcome the many challenges that lie ahead and which could threaten the sound development of the industry. He re-iterated that this is a forum for all members to discuss and resolve issues in a frank and open manner and invited all present to participate actively in the discussion and provide valuable input to the agenda items. Mr. Ng thanked those present for the trust placed in him and indicated he is very glad to be able to serve the meeting for the benefit of the aviation community in the Region.

6. Draft Conclusions, Draft Decisions and Decisions of the ATM/AIS/SAR Sub-Group

6.1 The ATM/AIS/SAR Sub-Group records its actions in the form of Draft Conclusions, Draft Decisions and Decisions within the following definitions:

a) **Draft Conclusions** deal with matters that, according to APANPIRG terms of reference, merit directly the attention of States, or on which further action is required to be initiated by the Secretary according to established procedures.

b) **Draft Decisions** relate to matters dealing with the internal working arrangements but requires the prior agreement of the APANPIRG before it can be implemented or otherwise.

c) **Decisions** of ATS/AIS/SAR Sub-Group relate solely to matters dealing with the internal working arrangements of the ATS/AIS/SAR Sub-Group.

6.2 List of Draft Conclusions

Draft Conclusion SG/18/2	–	Support for Ad-Hoc GOLD Working Group
Draft Conclusion SG/18/3	–	Update SAR Matrix including guidance material
Draft Conclusion SG/18/4	–	Conduct regional runway safety seminar/workshop
Draft Conclusion SG/18/5	–	Data Link Implementation in the Manila Flight Information Region
Draft Conclusion SG/18/6	–	Establishment of an ICAO Flight Plan & ATS Message Implementation Task Force

6.3 List of Draft Decisions

Draft Decision SG/18/1	–	Dissolution of the RVSM/TF
Draft Decision SG/18/7	–	ATM/AIS/SAR Task List

AGENDA ITEM 1: ADOPTION OF PROVISIONAL AGENDA

PART II – REPORT ON AGENDA ITEMS

Agenda Item 1: Adoption of Provisional Agenda

1.1 The meeting reviewed the provisional agenda presented by the Secretariat and adopted the following agenda:

Agenda Item 1:	Adoption of Provisional Agenda
Agenda Item 2:	Review the APANPIRG/18 Report and subsequent ANC/Council Actions, with respect to ATM/AIS/SAR issues
Agenda Item 3:	Review and progress the tasks assigned to the ATM/AIS/SAR/SG by APANPIRG
Agenda Item 4:	Consider problems and make specific recommendations concerning the provision of ATM/AIS/SAR in the Asia/Pacific Region
Agenda Item 5:	Review of ATS coordination group meetings
Agenda Item 6:	Review progress of the Regional Airspace Safety Monitoring Advisory (RASMAG)
Agenda Item 7:	Review developments relating to CNS/ATM implementation
Agenda Item 8:	Deficiencies in the Air Navigation field
Agenda Item 9:	Update the ATM/AIS/SAR Task List
Agenda Item 10:	Any other business
Agenda Item 11:	Date and venue for next meeting

AGENDA ITEM 2: REVIEW THE APANPIRG/18 REPORT AND SUBSEQUENT ANC/COUNCIL ACTIONS, WITH RESPECT TO ATM/AIS/SAR ISSUES

Agenda Item 2: Review the APANPIRG/18 Report and subsequent ANC/Council Actions, with respect to ATM/AIS/SAR issues

Review of APANPIRG/18 Report and ANC/Council Actions

2.1 The meeting reviewed the Report of the Eighteenth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/18, 3-7 September 2007) and subsequent actions by the Air Navigation Commission in its follow-up review (15 May, 2008 (178-4) — AN-WP/8316).

2.2 Detailed comments by the Commission in its review of the Report of APANPIRG/18 are provided in **Appendix A** to the Report on Agenda Item 2.

2.3 In regard to action by the ICAO Council, in accordance with the revised established practice (C-DEC 177/14, 20 March 2006 refers), PIRG reports would not be presented to the Council unless the Commission deemed it necessary for the Council to take action on any of the conclusions. In the case of the APANPIRG/18 Report, as there were no specific items that required Council action the Commission did not submit the report to the Council.

Review of outstanding Conclusions and Decisions of APANPIRG

2.4 The meeting reviewed and updated the list of outstanding Conclusions and Decisions of APANPIRG meetings prior to and including APANPIRG/17 (August 2006) with respect to ATM/AIS/SAR issues, as shown at **Appendix B** to the Report on Agenda Item 2. The meeting also reviewed and updated the list of outstanding Conclusions and Decisions from the last APANPIRG meeting, APANPIRG/18 (September 2007), with respect to ATM/AIS/SAR issues, as shown at **Appendix C** to the Report on Agenda Item 2.

2.5 The updated lists of APANPIRG Conclusions and Decisions will be presented to APANPIRG/19, to be held from 1 to 5 September 2008.

2.6 The meeting noted IATA's advice that, in relation to Conclusion 18/35, one State in the region has mandated ADS-B out. However, IATA highlighted to the meeting that due to aircraft equipage, especially retrofit requirements, compliance with this mandate is not achievable in the region by 2010. Although the intent of the conclusion was supported by IATA, they considered that the wording "mandate" in the title was not appropriate given that compliance would not be possible in the short time frame specified. The meeting agreed to recommend that the CNS/MET Sub-Group review the use of the word "mandate" with the objective of raising a replacement Conclusion for consideration by APANPIRG/19.

2.7 The meeting agreed to recommend to APANPIRG/19 that Conclusions 17/2 and 17/3 should be closed as sufficient time has passed since ALLPIRG/5 to allow the work associated with these items to be incorporated into the normal work programmes of States and international organisations. In relation to Decision 17/10 the meeting agreed to recommend to APANPIRG/19 that, due to actions being taken at ICAO Headquarters to address the matters originally intended to be addressed by the Regional Performance Framework Task Force and the consequent lack of the identification of a specific task, the Task Force be dissolved.

2.8 The United States are members of APANPIRG, APMHSA and the ICAO-IMO Joint Working Group and indicated that they will provide a coordinating role for SAR activities between each group on an ongoing basis, as required by Conclusion 18/20. In light of this, the meeting agreed to recommend that Conclusion 18/20 be closed.

2.9 The meeting noted that the Air Navigation Commission supported the proposal in Conclusion 18/14 that the use of future effective time-date in NOTAMC and NOTAMR be reviewed to determine appropriate provisions for Annex 15 – *Aeronautical Information Services* and requested the Secretariat to process the issue form as a priority with the target date of 2010. Sri Lanka queried whether the future effective time-date should be used for NOTAMC and NOTAMR until the time the appropriate provision is available in 2010. Japan also expressed strong concerns about the use of the future time-date in NOTAMC and NOTAMR.

2.10 The Secretariat informed the meeting that the Asia/Pacific Operating Procedures for AIS Dynamic Data (OPADD Edition 2.0), which were adopted by APANPIRG/18 as a regional guidance material (Conclusion 18/13 refers), provide that, *"for NOTAMR and NOTAMC, the Item B) time shall correspond to the actual date/time of creation of that NOTAMR or NOTAMC"*, and *"no future coming into force is permitted"* (paragraph 2.10.1.1 of OPADD refers).

INTER-OFFICE MEMORANDUM

Ref: SWG 171 – 08-038 20 May 2008

To: Regional Director Bangkok
D/ATB
D/TCB

C/AGA
C/AIG
C/ATM
C/CNS/AIRS
C/FLS
C/MET/AIM
(through DD/ANB)

23/5/8

cc: Regional Directors, Cairo, Dakar, Lima, Mexico, Nairobi and Paris

From: D/ANB

Subject: **Review of the report of the eighteenth meeting of the ASIA/PAC air navigation planning and implementation regional group (APANPIRG/18) — ANC approval and follow-up action by the Secretariat**

1. I am pleased to inform you that, during the fourth meeting of its 178th Session held on 15 May 2008, the Air Navigation Commission considered the review of the APANPIRG/18 Report as presented by the ANC Working Group on Regional Plans (WG/RPL) in AN-WP/8316.

2. The Commission noted the APANPIRG/18 Report as well as the report of the WG/RPL thereon and requested the Secretary General to take specific action on the conclusions of the meeting, as proposed in AN-WP/8316, in conformity with the approved Business Plan and the Budget.

3. In accordance with the revised established practice (C-DEC 177/14 dated 20 March 2006 refers), PIRG reports will not be presented to the Council unless the Commission deems it necessary for the Council to take action on any of the conclusions. In the case of the APANPIRG/18 Report, as there were no specific items that required Council action, it was not submitted to the Council. Detailed comments on the APANPIRG/18 Report are outlined in AN-WP/8316.

4. Consequent to the decision by the Commission on the APANPIRG/18 Report, an action plan has been developed (the attachment refers) that indicates follow-up tasks to be initiated on specific conclusions of the meeting and the assigned responsibilities. In view of the above, it would be appreciated if you could include the relevant follow-up tasks in your respective work programmes and reflect the same in the Business Plan/Operational Plans, as appropriate. The Regional Director, Bangkok, is advised to take action on the conclusions/decisions of APANPIRG/18 that the Commission has acted upon as well as those that are not reflected in the attachment, in accordance with established practice.

Nancy J. Graham

Enclosure

ACTION PLAN — FOLLOW-UP TO SELECTED CONCLUSIONS/DECISIONS OF APANPIRG/18 MEETING
(as approved by the Air Navigation Commission on 15 May 2008 (178-4) — AN-WP/8316

Conc/Dec and Strategic Objective(s)	Title of Conclusion/ Decision	Text of Conclusion/Decision	Proposed Follow-up	Responsibility	Deliverable	Action by ANC	Reporting/ Completion Date
C 18/3 A, D	**Prevalence of LHDs from ATC Unit-to-ATC Unit coordination errors**	That, in noting the continued prevalence of RVSM Large Height Deviation (LHD) occurrences resulting from ATC Unit-to-ATC Unit coordination errors, as reported by RMAs assessing RVSM operations within Asia Pacific Region, the Regional Office:					
		a) draws to the attention of States that investigations into LHD should concentrate in this area, and	Invite States to investigate. Address the issue globally.	ICAO APAC Office ICAO HQ – ANB/ATM	State Letter Update RMA Manual	Noted. Agreed.	Completed June 2008
		b) highlight the APANPIRG recommendation that States work towards the implementation of compatible AIDC capabilities based on the Asia/Pacific AIDC ICD between ATC units as soon as possible.	Invite States to implement.	ICAO APAC Office	State letter	Noted.	Completed
C 18/4 A, D	**Consequences of global RVSM long term height monitoring**	That, the Regional Office draw to the attention of the RVSM airspace safety monitoring agencies within the Asia Pacific Region the provisional global RVSM long-term height monitoring requirements recently proposed by the ICAO Separation and Airspace Safety Panel (ICAO SASP), and request that those agencies prepare a regional impact statement summarizing the estimated consequences for the Region, including consideration of numbers of airframes required to be monitored, for initial review by RASMAG/8 in late 2007.	Inform RMAs of long-term height monitoring requirements and request they prepare impact statements.	ICAO APAC Office	RASMAG/8 addressed this issue and raised 6 action items regarding long term height monitoring of RVSM . State letter issued on 31 Jan 2008.	Noted.	Completed

TBD = To be determined

Conc/Dec and Strategic Objective(s)	Title of Conclusion/ Decision	Text of Conclusion/Decision	Proposed Follow-up	Responsibility	Deliverable	Action by ANC	Reporting/ Completion Date
C 18/10 D	**Clarification of intent of Annex 2 in relation to variations in true airspeed**	That, noting the importance of full ATC awareness of actual aircraft speed differentials in the application of reduced longitudinal separation and that a 5 percent variation in speed meant the difference between M.080 and M.084, ICAO be invited to: a) clarify the intent of paragraph 3.6.2.2 of Annex 2 – *Rules of the Air* in relation to the terminology "inadvertent changes"; and b) review the 5 percent parameter as applicable to variations in true airspeed described in paragraph 3.6.2.2 b) of Annex 2 to establish whether this parameter should be reduced in areas where reduced longitudinal separation standards were being applied.	Provide clarification. Review standard.	ICAO HQ – ANB/ ATM ICAO HQ – ANB/ ATM	SASP addressing the issue SASP addressing the issue	Noted. Noted.	June 2008 June 2008
C 18/12 D	**Assistance to States to improve AIS capability**	That, in follow up to the comprehensive survey on AIS conducted in the Asia/Pacific Region in 2006/2007, ICAO undertake a special implementation project during the second half of 2008 for a workshop/seminar to be held on AIS automation.	Establish SIP.	ICAO HQ	Proposal approved by the Council; a seminar scheduled for August 2008.	Noted.	Completed
C 18/14 D	**Review of the NOTAM format**	That, in light of various terminologies in common use for NOTAM, such as date-time of filing, date-time of origination, effective, applicable, period of validity, comes into force and the need for NOTAMC and NOTAMR to be explicit and unambiguous, ICAO be invited: a) to review and revise Annex 15 – *Aeronautical Information Services*, Appendix 6 - NOTAM Format, Instructions for the Completion of the NOTAM Format, Section 5 – Item B to provide that NOTAMC and NOTAMR shall have immediate effect and prohibit a NOTAMC and a NOTAMR with a future date-time coming into force; and b) to define the terminologies used for NOTAM in the Instructions for Completion.	Review NOTAM format.	ICAO HQ – ANB/ MET/AIM	Appropriate provision	Supported and requested the Secretariat to process the issue form as a priority.	2010

TBD = To be determined

Conc/Dec and Strategic Objective(s)	Title of Conclusion/ Decision	Text of Conclusion/Decision	Proposed Follow-up	Responsibility	Deliverable	Action by ANC	Reporting/ Completion Date
C 18/15 **D**	**Strategies to implement eTOD**	That, in light of the experiences encountered by States attempting to implement Annex 15 provisions on eTOD, ICAO be invited to:					
		a) hold an eTOD Workshop in the Asia and Pacific Region during 2008;	Conduct workshop.	ICAO APAC Office	Workshop	Supported.	Nov 2008
		b) make available the *Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information* (Doc 9881), as soon as possible; and	Circulate guidelines to States.	ICAO APAC Office	State letter	Noted.	Nov 2008
		c) provide specific guidance on cost recovery and property rights of eTOD material.	Establish and provide guidelines.	ICAO HQ – ANB/MET/AIM	Specific guidelines	Noted that worldwide symposium on Net-Centric in June 2008 will address this issue.	2010
C 18/17 **D**	**JWG Review of Regional SAR Capability Matrix**	That, the Regional Office seeks the assistance of the United States in coordinating a review of the format of the Asia/Pacific SAR Capability Matrix by the ICAO-IMO Joint Working Group on SAR, with particular guidance sought in relation to COSPAS SARSAT capabilities including Local User Terminal and SAR Point of Contact.	Liaise with USA.	ICAO APAC Office ICAO APAC Office and United States	Letter to USA Revised format of SAR Capability Matrix	Noted. Noted.	June 2008 July 2008
C 18/20 **D**	**Promote relationships between APANPIRG, APMHSA and the ICAO-IMO Joint Working Group**	That, recognizing that APANPIRG, the Asia-Pacific Heads of Maritime Safety Agencies (APHMSA) and the ICAO-IMO Joint Working Group on SAR discuss common SAR matters of relevance to the Asia/Pacific Region, the Regional Office seek the assistance of the United States in coordinating the SAR reporting activities of APANPIRG with the other two groups on a reciprocal basis.	Liaise with United States.	ICAO APAC Office	Letter to United States	Noted.	June 2008

TBD = To be determined

Conc/Dec and Strategic Objective(s)	Title of Conclusion/ Decision	Text of Conclusion/Decision	Proposed Follow-up	Responsibility	Deliverable	Action by ANC	Reporting/ Completion Date
C 18/23 D	**Discontinuation of Asia/Pacific Regional Plan for New CNS/ATM Systems**	That, a) in order to harmonize planning process with the Global Air Navigation Plan, Regional Plan for New CNS/ATM Systems be discontinued; and b) ICAO be invited to develop detailed proposals for incorporating the useful information contained in the Regional Plan for the CNS/ATM Systems into the *Asia Pacific Regional Air Navigation Plan* (Doc 9673) and completed by 2009.	Notify States. Establish proposals.	ICAO APAC Office ICAO APAC Office	State letter Proposal for consideration at APANPIRG/20 in September 2009	Noted. Noted.	Completed 2009
C 18/29 D	**Aeronautical Mobile (R) Service Strategy**	That, the Strategy for Aeronautical Mobile (R) Service in the Asia/Pacific Region shown in **Appendix D** to the Report on Agenda Item 3.3 be adopted and published.	Publish Aeronautical Mobile (R) Service Strategy.	ICAO APAC Office	State Letter	Noted.	Completed
C 18/30 D	**Strategies for the Provision of Navigation Services and GNSS Navigation Capability in the Asia/Pacific Region**	That, the Strategies for the provision of navigation services and GNSS Navigation Capability provided in **Appendix E** and **Appendix F** to the Report on Agenda Item 3.3 be adopted and published.	Publish revised strategies on ICAO APAC website.	ICAO APAC Office	Revised Strategies published in APAC Region website	Noted.	Completed

TBD = To be determined

Conc/Dec and Strategic Objective(s)	Title of Conclusion/ Decision	Text of Conclusion/Decision	Proposed Follow-up	Responsibility	Deliverable	Action by ANC	Reporting/ Completion Date
C 18/35 **D**	**Mandate Regional ADS-B Out Implementation**	That, States planning to deliver ADS-B based ATS services, implement requirements for ADS-B Out avionics equipage for aircraft operating in their airspace with a target date of 2010: *Note: The implementation would require aircraft equipped with avionics compliant with either* a) *Version 0ES as specified in Annex 10, Volume IV, Chapter 3, Paragraph 3.1.2.8.6 (up to and including Amendment 82 to Annex 10) and Chapter 2 of draft* Technical Provisions for Mode S Services and Extended Squitter *(ICAO Doc 9871) to be used till at least 2020,* or b) *Version 1ES as specified in Chapter 3 of draft* Technical Provision for Mode S Services and Extended Squitter *(ICAO Doc 9871) (Equivalent to DO260A).*	Urge the States to implement requirements for ADS-B out avionics with target date of 2010.	ICAO APAC Office All Regional Offices	State letter issued on 2 April 2008	Noted Welcomed the initiative to mandate ADS-B out and requested Secretary General to advise the remaining PIRGs to promote implementation of ADS-B.	Completed July 2009
C 18/37 **D**	**Surveillance Strategy for Asia/Pacific Region**	That, the Surveillance Strategy for Asia/Pacific Region provided in **Appendix L** to the Report on Agenda Item 3.3 be adopted and published.	Publish the guidance material. Advise the States on availability of the Strategy.	ICAO APAC Office	Surveillance Strategy in ICAO APAC website	Noted.	Completed
C 18/40	**Co-ordination between WAFCs and TCACs**	That, the WAFSOPSG be invited to consider including a provision in Annex 3 requiring the WAFCs to establish and maintain contact with the TCACs in order to harmonize the information on tropical cyclones in the WAFS SIGWX forecasts and the TCAC advisories.	To include this task in the WAFSOPSG work programme.	ICAO HQ – ANB/MET/AIM	Appropriate provisions in Annex 3	Supported request.	2013
C 18/46 **D**	**Issues related to Implementation Improvement of the SIGMET Provisions**	That, the implementation issues identified by the ASIA/PAC SIGMET seminar, listed in **Appendix N** to the Report on Agenda Item 3.3, be brought to the attention of the Meteorology Warnings Study Group (METWSG) for further study and development of additional guidance to improve the implementation.	Inform METWSG about the issues identified for further study.	ICAO HQ – ANB/MET/AIM	Amendment to Doc 8896 Annex 3 provisions	Noted.	2008 2010

TBD = To be determined

Conc/Dec and Strategic Objective(s)	Title of Conclusion/ Decision	Text of Conclusion/Decision	Proposed Follow-up	Responsibility	Deliverable	Action by ANC	Reporting/ Completion Date
C 18/49 **D**	**Developing guidance on the ATM requirements for MET services and facilities**	That, ICAO be invited to extend the guidance material in Doc 9377, *Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services*, to cover new requirements for MET services and facilities emerging from the *Global ATM Operational Concept*, Doc 9854 and the *Global Air Navigation Plan*, Doc 9750.	Coordinate with ICAO HQ for amendments of Doc 9377 to include new requirements for MET services and facilities.	ICAO HQ – ANB/MET/AIM	Amendment of Doc 9377	Noted.	2008
C 18/50 **D**	**Replacing "km/h" with "m/s" as the SI unit of measurement of wind speed in ICAO Annexes**	That, ICAO, in consultation with users, be invited to consider replacing "km/h" with "m/s" as the SI unit of measurement of wind speed in ICAO Annexes.	Coordinate with ICAO HQ for amendment proposals in consultation with users.	ICAO HQ – ANB/MET/AIM	Amendment proposal	Supported and requested the Secretariat to process the issue form as a priority.	2010
C 18/53 **D**	**Development of State PBN Implementation Plans**	That, the Regional Office encourage States to begin development of their State PBN implementation plans in harmony with the development of the Asia/Pacific Regional PBN implementation plan being coordinated by the Asia/Pacific PBN Task Force for submission to APANPIRG/19 (2008).	Encourage States to develop State PBN implementation plan by 2009.	ICAO APAC Office	State letter based on regional PBN implementation plan to be developed by PBN task force	Noted.	Sept. 2008
C 18/54 **D**	**Globally harmonized SARPS and guidance material for PBN**	That, ICAO be invited to continue to ensure development and maintenance of globally harmonized PBN SARPs and guidance materials to keep pace with operational PBN implementation demands, including development of model documentation suitable for adaptation by State regulatory authorities in implementing State aircrew and airframe approval processes for PBN.	Develop globally harmonized PBN SARPs and guidance material.	ICAO HQ – ANB/ATM	Appropriate provisions and guidance material	Supported and requested the Secretariat to process the issue form as a priority.	July 2009
C 18/58 **D**	**Adoption of APANPIRG On-line Deficiency Data Base**	That, a) the APANPIRG Deficiency Data Base be adopted and linked to the ICAO APAC web site; and b) the Regional Office provide secured access to the on-line Deficiency Data Base to all CAAs and other authorities concerned within the ASIA/PAC States.	Establish online database on APAC website.	ICAO APAC Office	User name and password provided to States and other authorities concerned	Noted and complimented APANIRG for this initiative.	Completed

TBD = To be determined

Conc/Dec and Strategic Objective(s)	Title of Conclusion/ Decision	Text of Conclusion/Decision	Proposed Follow-up	Responsibility	Deliverable	Action by ANC	Reporting/ Completion Date
C 18/59 D	**Resolution of ATM and OPS Deficiencies in the South West Pacific Small Island Developing States (SIDS)**	That, in recognizing the safety implications of the long-standing ATM and OPS deficiencies in the South-West Pacific SIDS included in the APANPIRG Deficiency Data Base, ICAO, in coordination with the international organizations and regional bodies concerned, considers providing urgent assistance to these States in order to build their capacity to provide the required services in a sustainable and cost-efficient manner.	Assist in establishment of TC project.	ICAO HQ – TCB	TC Project	Noted.	2008
C 18/62 A, D	**Resolution of air navigation deficiencies**	That, a) States establish action plans with fixed target dates for resolution of safety related deficiencies and inform ICAO Regional Office; b) States to consider utilizing the services of the ICAO Technical Cooperation Bureau for rectification of the deficiencies identified and c) States, financial institutions, industry and other partners be requested to provide funding support or kind to technical cooperation projects developed to rectify deficiencies identified.	Urge States to prepare action plan and consider utilizing the services of Technical Cooperation Bureau for resolution of deficiencies.	ICAO APAC Office States	State letter State's Action Plan to resolve deficiencies	Noted.	Completed

***Note:** ICAO has established the following Strategic Objectives for the period 2005-2010:

A: *Enhance* **Safety** *global civil aviation safety;*

B: Security - *Enhance global civil aviation security*

C: Environmental Protection - *Minimize the adverse effect of global civil aviation on the environment*

D: Efficiency - *Enhance the efficiency of aviation operations*

E: Continuity - *Maintain the continuity of aviation operations*

F: Rule of Law - Strengthen law governing international civil aviation.

— END —

TBD = To be determined

STATUS OF OUTSTANDING CONCLUSIONS/DECISIONS OF APANPIRG IN ATM/AIS/SAR FIELDS

Report Reference ---------- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status Dated May 08
C16/19		**Study of States' preparedness to implement safety management systems** That, a study of States' preparedness to implement ICAO safety management systems in accordance with Annex 11 be undertaken by the Asia/Pacific Regional Office in conjunction with the ATS coordination groups and RASMAG by the first quarter of 2006, and a plan of action developed to be reported to APANPIRG/17 in September 2006.	Coordination with States in process. However SIP proposal for additional ATS SMS training via field visits was developed by Regional Office and approved by Council of ICAO, for implementation in last quarter 2006. SIP requires participation of one fully funded State safety management expert to assist. SIP Workshop conducted 25-29 September 2006, no availability of State official to assist. RASMAG/9 (May 08) considered that this Conclusion had been overtaken by events and made recommendation to APANPIRG/19 that it be 'Closed'.	~~**On-going**~~ **CLOSED**

TBD = To be determined

STATUS OF OUTSTANDING CONCLUSIONS/DECISIONS OF APANPIRG/17 IN ATM/AIS/SAR FIELDS

Concl/Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Status Dated May 08
C 17/2 **A , D**	**Implementation of ALLPIRG/5 conclusions by States**	That States of the Asia/Pacific Region take action to implement the following conclusions of ALLPIRG/5: Conclusions 5/1, 5/4, 5/5, 5/7, 5/8,5/9, 5/11, 5/13 and 5/16	Implement conclusions	ASIA/PAC States	ICAO State letter Ref: AN 3/8:AP0106/06 dated 9 Nov 06	~~**On going**~~ **CLOSED** sufficient time has passed since ALLPIRG/5 allowing the work associated with these items to be incorporated in States normal work
C 17/3 **A , D**	**Implementation of ALLPIRG/5 conclusions by international organizations**	That international organizations take action to implement the following conclusions of ALLPIRG/5: Conclusions 5/2, 5/4, 5/5, 5/7, 5/13 and 5/16	Implement conclusions	Intl organizations	ICAO State letter Ref: AN 3/8:AP-MET 0109/06 dated 9 Nov 06	~~**On going**~~ **CLOSED** sufficient time has passed since ALLPIRG/5 allowing the work associated with these items to be incorporated in international organisations' normal work

TBD = To be determined

Concl/Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Status Dated May 08
D 17/10 **D**	**Establish APANPIRG Regional Performance Framework Task Force**	That, recognizing the new regional planning methodologies precipitated by the second amendment to the Global Air Navigation Plan and the new ICAO business planning requirements, a Task Force be established to develop a proposal/framework for consideration by APANPIRG/18 for incorporating the performance based approach into the work programme of APANPIRG and its contributory bodies. The Terms of Reference of the Task Force are provided in Appendix B to the Report on Agenda Item 2.1. ***Follow up action:*** Further action to be deferred until the outcome of two activities at ICAO HQ are known. 1. The ANC study of the merits of PIRGs and the value added from the PIRGs activities, particularly with respect to Business Plan implementation activities, which may result in changes to the mandate, activities and terms of reference of the PIRGs. 2. Development by ICAO HQ of an Air Navigation work programme to integrate where appropriate regional office activities.	Creation of TF Teleconference Follow work programme established with TORs First meeting of RPF/TF was held 2 September 2007. Further action deferred until guidance in Manual on Global Performance of the Air Navigation System (Doc 9883) is available, expected late 2008.	APANPIRG TF TF	TOR TF Report Regional performance framework Report to − ATM/AIS/ SAR/17 − CNS/MET/11 − APANPIRG/18	~~**On-going**~~ **CLOSED** Overtaken by events at HQ and no specific action by the Task Force is identified

TBD = To be determined

Concl/Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Status Dated May 08
C 17/14 **D**	**Improvement of aeronautical information exchange and management**	That, in order to increase the reliability and integrity of the aeronautical information in support of navigation functions, ICAO be invited to establish, as a matter of urgency, a standard model for the electronic exchange of aeronautical information. ***Follow up action:*** During March 2008, the Air Navigation Commission agreed that: a) a new study group, to be known as the Aeronautical Information Services-Aeronautical Information Management Study Group (AIS-AIMSG), be established to assist the Secretariat with the development of: i) a global strategy/roadmap for the transition from AIS to AIM to be delivered in draft by early 2009; ii) SARPs and guidance material, expected by 2010, related to the provision of a standard aeronautical information conceptual model and standard aeronautical information exchange model to enable the global exchange of data in digital format; 3) other SARPs, guidance and training material necessary to support AIM implementation; and b) the AISMAPSG and the ADMSG be disbanded.	Establish a standard model for the electronic exchange of aeronautical information.	ICAO HQ	Appropriate provisions	**CLOSED** actions being managed by ICAO HQ

TBD = To be determined

Concl/Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Status Dated May 08
C 17/43 **D**	**Development of provisions on MET/ATM coordination**	That, in recognizing the importance of the meteorological support for the air traffic management, a) ICAO Regional Office conduct a survey of the evolving requirements for meteorological information and services in support of air traffic management; and b) the results of the survey above, be referred to the appropriate ICAO body in view of potential extension of the existing provisions on the meteorological services for ATS, to cover the other ATM fields.	 Conduct survey Develop SARPs	 MET/ATM TF, Regional Office ICAO HQ	 Questionnaire for the survey Survey Report to be presented to − ATM/AIS/ SAR/17 − CNS/MET/11 Appropriate provisions	COMPLETED Survey has been completed. Result of the survey provided to HQ.
D 17/47 **A**	**Task Force to establish Regional Airspace Safety Monitoring Committees**	That a Task Force be established to develop and distribute to States by 30 June 2007 implementation proposals for the establishment of Regional Airspace Safety Monitoring Committees (RASMC). The Task Force would work in accordance with the terms of reference in **Appendix A** to the Report on Agenda Item 2.4 and use, *inter alia*, recent ICAO guidance materials in relation to the global approach for the funding of airspace safety monitoring.	Establish TF Develop proposal for RASMB First meeting of RASMC/TF held on 15 Feb 07. APANPIRG/18 considered outcomes and disbanded RASMC/TF	APANPIRG TF	TOR Report to RASMAG	**CLOSED**

TBD = To be determined

Concl/Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Status Dated May 08
C 17/53 **A**	**A regional on-line database of air navigation deficiencies in ASIA/PAC Region**	That, in order to ensure transparency and facilitate resolution of deficiencies, ICAO Regional Office be invited to establish a regional on-line database of air navigation deficiencies and provide secure access to States' Administrations and other users concerned.	Establish on-line database.	Regional Office, DRTF, ICAO HQ	On-line database	**COMPLETED** Online database of air navigation deficiencies has been created.
C 17/54 **A**	**Deficiency resolution objective for ASIA/PAC States**	That, a) all ASIA/PAC States listed in the APANPIRG List of deficiencies be urged to establish action plans with fixed target dates for resolution of all safety related deficiencies and inform ICAO Regional Office by mid 2007 of their plans; and b) the need for urgent action in resolving safety related deficiencies be brought to the attention of DGCA/43 conference in December 2006.	Establish action plans Report to DGCA.	States Regional Office	Action plan DP for DGCA	**CLOSED** States urged to submit action plans Reported to DGCA/43. 43rd DGCA Conference addressed this issue in action item 43/1- Resolution of Deficiencies

*** Note:** ICAO has established the following Strategic Objectives for the period 2005-2010:
A: Safety - *Enhance global civil aviation safety*; **B: Security** - *Enhance global civil aviation security*; **C: Environmental Protection** - *Minimize the adverse effect of global civil aviation on the environment*; **D: Efficiency** - *Enhance the efficiency of aviation operations*; **E: Continuity** - *Maintain the continuity of aviation operations;* **F: Rule of Law** - *Strengthen law governing international civil aviation.*

TBD = To be determined

Follow-up to APANPIRG/18 Conclusions/Decisions – Action Plan

version June 08

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/2 **A D**	**Non-provision of safety-related data by States**	That, as a result of the non-provision of safety-related data to approved regional safety monitoring agencies as required by APANPIRG Conclusion 16/4, Fiji, Lao PDR, Myanmar, Papua New Guinea and Tahiti be included in the APANPIRG List of Deficiencies in the ATM/AIS/SAR Fields in accordance with APANPIRG Conclusion 16/6.	Include concerned States in the Deficiency List	ICAO APAC Office	Updated List of Deficiencies	October 2007	COMPLETED– Included on List of Deficiencies for ATM/AIS/ SAR RASMAG/9 recommended Fiji, Lao PDR and Tahiti be removed from the list du adequate submission of safety data since last APANPIRG

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/3 **A D**	**Prevalence of LHDs from ATC Unit-to-ATC Unit Coordination Errors**	That, in noting the continued prevalence of RVSM Large Height Deviation (LHD) occurrences resulting from ATC Unit-to-ATC Unit coordination errors, as reported by RMAs assessing RVSM operations within Asia Pacific Region, the Regional Office:					State Letter AP115 issued, dated 19 October 2007
		a) draws to the attention of States that investigations into LHD should concentrate in this area, and	Invite States to investigate	ICAO APAC Office	State Letter	Dec.2007	COMPLETED
		b) highlight the APANPIRG recommendation that States work towards the implementation of compatible AIDC capabilities based on the Asia/Pacific AIDC ICD between ATC units as soon as possible.	Address the issue globally	ICAO HQ-ANB/ATM	Updated draft RMA Manual	February 2009	CLOSED - Agreed by ANC
			Invite States to implement	ICAO APAC Office	State letter	Dec.2007	COMPLETED

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/4 **A D**	**Consequences of Global RVSM Long Term Height Monitoring**	That, the Regional Office draw to the attention of the RVSM airspace safety monitoring agencies within the Asia Pacific Region the provisional global RVSM long-term height monitoring requirements recently proposed by the ICAO Separation and Airspace Safety Panel (ICAO SASP), and request that those agencies prepare a regional impact statement summarizing the estimated consequences for the Region, including consideration of numbers of airframes required to be monitored, for initial review by RASMAG/8 in late 2007.	Inform RMAs of long term height monitoring requirements and request they prepare impact statements	ICAO APAC Office	Report to RASAMAG	2009	Ongoing RASMAG/8 addressed these issues in detail and raised 6 Long Term Height Monitoring Actions Items. State letter issued on 31/1/08.
C 18/5 **D**	**Adopt Guidance Material for the Asia/Pacific Region ADS/CPDLC/ AIDC Ground Systems Procurement and Implementation**	That, the *Guidance Material for the Asia/Pacific Region ADS/CPDLC/AIDC Ground Systems Procurement and Implementation* as shown in **Appendix C** to the APANPIRG/18 Report on Agenda Item 3.2 be adopted and circulated as regional guidance material.	Circulate guidance material to States	ICAO APAC Office	State Letter	Dec.2007	COMPLETED State Letter AP108 dated 11 October 2007, on website

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/6 **A D**	**Establishment of the Japan RMA**	That, subject to review by RASMAG/8, JCAB be approved as an APANPIRG Regional Monitoring Agency (RMA) for the Fukuoka FIR.	Process approval	ICAO APAC Office	Report to RASMAG	Dec 2007. **Revised target date is March 2008**	COMPLETED RASMAG/8completed review, JCAB RMA approved, announced on website, State Letter AP019/08 dated 31 January circulated to APANPIRG members and Asia/Pacific RMAs.
C 18/7 **D**	**Conduct Regional ATFM Seminar**	That, noting the provisions of GPI- 6 *Air Traffic Flow Management* and the increasing numbers of actual and planned ATFM implementations occurring in the Asia/Pacific Region, the ICAO Asia/Pacific Regional Office conduct, with assistance from States experienced in ATFM, a 3-day Air Traffic Flow Management Seminar during 2008.	Conduct seminar	ICAO APAC Office/States with the experience of ATFM	Seminar	Apr. 2008. **revised target date is October 2008**	Ongoing ATFM Workshop scheduled in Fukuoka, Japan from 7-9 October 2008
C 18/8 **D**	**Adopt Version 3 Asia/Pacific AIDC ICD**	That, the Version 3 *Asia/Pacific Regional Interface Control Document for ATS Interfacility Ground/Ground Data Communications* as shown in **Appendix G** to the APANPIRG/18 Report on Agenda Item 3.2 be adopted and circulated as regional guidance material.	Circulate guidance material to the States	ICAO APAC Office	State Letter	Dec.2007	COMPLETED State Letter AP107 dated 11 October 2007, on website

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
D 18/9 **D**	**Dissolution of AIDC Review Task Force**	That, having completed the Version 3 of the Asia/Pacific AIDC ICD in accordance with the APANPIRG Decision 17/13, the AIDC Task Force be dissolved. Any residual tasks with respect to ATN/AMHS transition support be dealt with by the ATNICG and CNS/MET Sub Group of APANPIRG	Notify member states	ICAO APAC Office	Notification by letter	October 2007	COMPLETED AIDC Review task force dissolved.
C 18/10 **D**	**Clarification of intent of Annex 2 in relation to variations in true airspeed**	That, noting the importance of full ATC awareness of actual aircraft speed differentials in the application of reduced longitudinal separation and that a 5 percent variation in speed meant the difference between M.080 and M.084, ICAO be invited to:					CLOSED – work will be progressed by ICAO HQ- noted by ANC
		a) clarify the intent of paragraph 3.6.2.2 of Annex 2 – *Rules of the Air* in relation to the terminology "inadvertent changes"; and	Provide clarification	ICAO HQ-ANB/ATM	Appropriate provisions	June 2008	SASP addressing the issue.
		b) review the 5 percent parameter as applicable to variations in true airspeed described in paragraph 3.6.2.2 b) of Annex 2 to establish whether this parameter should be reduced in areas where reduced longitudinal separation standards were being applied.	Review the standard	ICAO HQ-ANB/ATM	Appropriate provisions ICAO Issue Form transmitted to HQ by Regional Office in early 2008	June 2008	SASP addressing the issue

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/11 **D**	**Endorsement of the Use of ICARD System**	That, so as to facilitate and enhance the management of the five-letter name-codes in the Asia and Pacific Region: a) States endorse the use of the ICAO Five-Letter Name Codes and Route Designators (ICARD) database, initially developed by the EUR/NAT Office and Euro control; and b) the Regional Office provide all necessary guidelines to facilitate the regional implementation of ICARD.	Endorse the use of the ICARD Provide guidelines	ICAO APAC Office/ States ICAO APAC Office	State letter Guidance Material	May2008 May2008	COMPLETED COMPLETED
C 18/12 **D**	**Assistance to States to improve AIS capability**	That, in follow up to the comprehensive survey on AIS conducted in the Asia/Pacific Region in 2006/2007, ICAO undertake a special implementation project during the second half of 2008 for a workshop/seminar to be held on AIS automation	Establish SIP Conduct SIP	ICAO HQ Regional Office, assisted by States	Submit proposal to the Council for its approval SIP completed	2008 2008/2009	COMPLETED, Council has approved a Seminar, to be scheduled for late 2008 ONGOING

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/13 **D**	**Amendment to Chapter 3 of *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region***	That, the amended Chapter 3 (OPADD) of the *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region* as shown in **Appendix J** to the APANPIRG/18 Report on Agenda Item 3.2 be adopted and circulated as regional guidance material.	Circulate amended Chapter 3 to the States	ICAO APAC Office	State Letter	Dec2008	COMPLETED State Letter AP127/07 (ATM) of 20 November 2007 and on website
C 18/14 **D**	**Review of the NOTAM format**	That, in light of various terminologies in common use for NOTAM, such as date-time of filing, date-time of origination, effective, applicable, period of validity, comes into force and the need for NOTAMC and NOTAMR to be explicit and unambiguous, ICAO be invited: a) to review and revise Annex 15 – *Aeronautical Information Services*, Appendix 6 - NOTAM Format, Instructions for the Completion of the NOTAM Format, Section 5 – Item B to provide that NOTAMC and NOTAMR shall have immediate effect and prohibit a NOTAMC and a NOTAMR with a future date-time coming into force; and b) to define the terminologies used for NOTAM in the Instructions for Completion.	Review the NOTAM format	ICAO HQ	Appropriate provision ICAO Issue Form transmitted to HQ by Regional Office in early 2008	2010	CLOSED Work will be progressed by ICAO HQ. ANC has supported and requested the Secretariat to process the issue form as a priority.

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/15	**Strategies to implement eTOD**	That, in light of the experiences encountered by States attempting to implement Annex 15 provisions on eTOD, ICAO be invited to:					
D		a) hold an eTOD Workshop in the Asia and Pacific Region during 2008;	conduct workshop	ICAO APAC Office	Workshop	2008/2009	ONGOING Council has agreed for seminar for conduct during 2008.
		b) make available the *Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information* (Doc 9881), as soon as possible; and	circulate guidelines to states	ICAO APAC Office	State letter	Nov 2008	CLOSED - Action by HQ.
		c) provide specific guidance on cost recovery and property rights of eTOD material	establish and provide guidelines	ICAO HQ	Specific guidelines	2010	CLOSED - Action by HQ-Noted that worldwide symposium on net-centric in June 08 will address this issue.

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/16 **D**	**State Non-Compliance with AIRAC notification periods**	That, in light of the longstanding concerns of APANPIRG in respect to the importance of regular and ongoing compliance by AIS service providers with Annex 15 – *Aeronautical Information Services* provisions on AIRAC notification periods, and in order to make stakeholders aware of the AIRAC system, the Regional Office urge States to: a) implement robust measures as soon as practicable to promulgate relevant information to aviation administrations, airport authorities, project managers, airspace planners, construction companies, etc, and b) specifically include this item in their safety oversight programmes.	Urge States to comply with Annex 15	ICAO APAC Office	State letter	Dec2007	COMPLETED State Letter AP103/07 (ATM) dated 10 October 2007
C 18/17 **D**	**JWG Review of Regional SAR Capability Matrix**	That, the Regional Office seeks the assistance of the United States in coordinating a review of the format of the Asia/Pacific SAR Capability Matrix by the ICAO-IMO Joint Working Group on SAR, with particular guidance sought in relation to COSPAS SARSAT capabilities including Local User Terminal and SAR Point of Contact	Liaise with USA	ICAO APAC Office ICAO APAC Office/United States	Email coordination between Regional Office and USA Revised format of the SAR Capability Matrix	**Revised target date is June 2008.** . Target date is July 2008	COMPLETED COMPLETED, ATM/ASI/SAR/SG/18 agreed to new format

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/18 **A D**	**Promulgate Recommendations of the ICAO February 2007 SAR Workshop**	That, the recommendations made by the ICAO SAR Workshop held at Bangkok, Thailand on 26 February - 2 March 2007, as shown in **Appendix M** to the APANPIRG/18 Report on Agenda Item 3.2, be promulgated regionally by the ICAO Asia/Pacific Regional Office and be taken into account by States and the Regional Office in considering their future SAR activities.	Promulgate the recommendations	ICAO APAC Office/ States	State letter	Nov2007	COMPLETED State Letter AP104/07 (ATM) dated 10 October 2007
C 18/19 **D**	**Registration of ELT Beacons**	That, States be requested to designate by March 2008 a registering agency for registering ELT Beacons, coded with the country code of the State and unique code of that beacon in a database as specified in paragraph 5.3.2.2 of Annex 10, Volume III and the guidance provided in Appendix I to Chapter 5 'Emergency Locator Transmitter Coding' of the Annex.	Urge States to comply with Annex 10	ICAO APAC Office States	State Letter	Dec 2007	COMPLETED State Letter AP102/07 (ATM) dated 10 October 2007

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/20 **D**	**Promote Relationships between APANPIRG, APMHSA and the ICAO-IMO Joint Working Group**	That, recognizing that APANPIRG, the Asia-Pacific Heads of Maritime Safety Agencies (APHMSA) and the ICAO-IMO Joint Working Group on SAR discuss common SAR matters of relevance to the Asia/Pacific Region, the Regional Office seek the assistance of the United States in coordinating the SAR reporting activities of APANPIRG with the other two groups on a reciprocal basis.	Liaise with the United States	ICAO APAC Office	Letter to USA	**Target date is June 2008**.	Closed The United States are members of APANPIRG, APMHSA and the ICAO-IMO Joint Working Group and indicated that they will provide a coordinating role for SAR activities between each group on an ongoing basis ~~Target date is revised to June 2008~~
D 18/21 **D**	**ATM/AIS/SAR Subject/Task List**	That, the ATM/AIS/SAR Subject/Task Lists as contained in **Appendices N and O** to the APANPIRG/18 Report on Agenda Item 3.2 be adopted as the current work programme for the ATM/AIS/SAR Sub-Group.	Notify sub group	ICAO APAC Office	Notification by letter to the sub group members	June 2008	COMPLETED
D 18/31 **D**	**Revision of the TOR and Subject/Tasks List of ADS-B Study and Implementation Task Force**	That, the revised Terms of Reference (TOR) and Subject/Tasks List of ADS-B Study and Implementation Task Force provided in **Appendix G** to the Report on Agenda Item 3.3 be adopted.	Notify the ADS-B SITF revised Terms of Reference and Tasks list	ICAO APAC Office/ADS-B SITF	Revised TOR and Subject/Tasks list of ADS-B Study and Implementation Task Force	April 2008	COMPLETED TOR and Subject/Tasks List reviewed by ADS-B SITF/7 held from 7 to 11 April, 2008

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/35 **D**	**Mandate Regional ADS-B Out Implementation**	That, That, States planning to deliver ADS-B based ATS services, implement requirements for ADS-B Out avionics equipage for aircraft operating in their airspace with a target date of 2010 *Note: The implementation would require aircraft equipped with avionics compliant with either* *a) Version 0ES as specified in Annex 10, Volume IV, Chapter 3, Paragraph 3.1.2.8.6 (up to and including Amendment 82 to Annex 10) and Chapter 2 of draft* Technical Provisions for Mode S Services and Extended Squitter *(ICAO Doc 9871) to be used till at least 2020. or* *b) Version 1ES as specified in Chapter 3 of draft* Technical Provision for Mode S Services and Extended Squitter *(ICAO Doc 9871) (Equivalent to DO260A)*	Urge the States to implement requirements for ADS-B Out avionics with target date of 2010	ICAO APAC Office	State Letter	December 2007 **Target date revised to March 2008**	Target date revised to March 08 as further guidance material being developed by the ADS-B SEA WG in Feb.08 Completed. State letter issued on 2 April 08
C 18/38 **D**	**Establishment of ADS-B Working Group-SEA**	That, a South-East Asia Sub-regional ADS-B Implementation Working Group be established by end 2007 to develop the terms of cooperation and an implementation plan for near-term ADS-B applications in the sub-region.	ADS-B SEA Working Group to be established	States concerned	Group established and first meeting conducted	December 2007	COMPLETED ADS-B SEA Working Group established. First meeting of the Group held in Nov. 07

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/49 **D**	**Developing guidance on the ATM requirements for MET services and facilities**	That, ICAO be invited to extend the guidance material in Doc 9377, *Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services*, to cover new requirements for MET services and facilities emerging from the Global ATM Operational Concept, Doc 9854 and the Global Air Navigation Plan, Doc 9750.	Co-ordinate with ICAO HQ for the amendments of Doc 9377 to include new requirements for MET services and facilities	~~ICAO APAC Office~~ ICAO HQ	Amendment of Doc 9377 ICAO Issue Form transmitted to HQ by Regional Office in early 2008	2008	ONGOING Survey was conducted and the result is being consolidated for submission to ICAO HQ for the appropriate action.
C 18/52 **D**	**Establishment of a regional Performance Based Navigation Task Force (PBN/TF)**	That, an Asia/Pacific PBN Task Force, with terms of reference as outlined in **Appendix A** to the APANPIRG/18 Report on Agenda Item 3.5, be established to develop a PBN implementation plan for the Asia/Pacific Region and address related regional PBN implementation issues.	Establish the PBN Task Force	ICAO APAC Office	PBN Task Force	Jan/2008	COMPLETED First Meeting of PBN Task Force held from 9-11 January 2008. Second meting held from 1-3 April 08. Third meeting scheduled 16-18 July 08.
C 18/53 **D**	**Development of State PBN Implementation Plans**	That, the Regional Office encourage States to begin development of their State PBN implementation plans in harmony with the development of the Asia/Pacific Regional PBN implementation plan being coordinated by the Asia/Pacific PBN Task Force for submission to APANPIRG/19 (2008).	Encourage States to develop State PBN implementation plan by 2009	ICAO APAC Office	State Letter based on regional PBN implementation plan to be developed by PBN task force	September 2008	ONGOING. PBN/TF is developing models for such plans.

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/54 **D**	**Globally harmonized SARPS and guidance material for PBN**	That, ICAO be invited to continue to ensure development and maintenance of globally harmonized PBN SARPs and guidance materials to keep pace with operational PBN implementation demands, including development of model documentation suitable for adaptation by State regulatory authorities in implementing State aircrew and airframe approval processes for PBN.	Develop globally harmonized PBN SARPs and guidance material.	ICAO HQ	Appropriate provisions and guidance material ICAO Issue Form transmitted to HQ by Regional Office in early 2008	~~TBD~~ July 2009	ONGOING
C 18/55 **D**	**Designation of contact person for PBN implementation**	That, by 31 December 2007, States designate a focal contact person responsible for performance based navigation implementation and provide details of the contact person to ICAO Asia/Pacific Regional Office accordingly.	Designate contact person for PBN implementation	States	List of contact persons	Dec2007	ONGOING State letter circulated on 3 October 2007.
D 18/56 **D**	**Revised Terms of Reference for RASMAG**	That, the revised Term of Reference for the Regional Airspace Safety Monitoring Advisory Group (RASMAG) provided in **Appendix B** of the APANPIRG/18 Report on Agenda Item 3.5 be adopted.	Advise RASMAG of amended TOR	ICAO APAC Office	Revised TOR for RASMAG	Dec2007	COMPLETED, reviewed by RASMAG/8 December 2007
D 18/57 **D**	**Dissolution of RASMC/TF**	That, there being no need for further activity for the foreseeable future on mechanisms for regional funding arrangements for Asia/Pacific airspace safety monitoring, the RASMC/TF be dissolved.	Notify members	ICAO APAC Office	Notification to member States	Oct 2007	COMPLETED State Letter AP109/07 (ATM) dated 16 October 2007

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/58 **D**	**Adoption of APANPIRG On-line Deficiency Data Base (follow-up of APANPIRG 17/53, ALLPIRG 5/14**	That, a) the APANPIRG Deficiency Data Base be adopted and linked to the ICAO APAC web site; and b) the Regional Office provide secured access to the on-line Deficiency Data Base to all CAAs and other authorities concerned within the ASIA/PAC States.	Establish on line database on APAC website	ICAO APAC Office	User name and pass word provided to States and other authorities concerned	December 2007	COMPLETED State letter circulated on 10 Oct 07
C 18/59 **D**	**Resolution of ATM and OPS Deficiencies in the South West Pacific Small Island Developing States (SIDS)**	That, in recognizing the safety implications of the long-standing ATM and OPS deficiencies in the South-West Pacific SIDS included in the APANPIRG Deficiency Data Base, ICAO, in coordination with the international organizations and regional bodies concerned, considers providing urgent assistance to these States in order to build their capacity to provide the required services in a sustainable and cost-efficient manner	Assist in establishment of TC project	ICAO HQ	TC Project	2008~~/2009~~	ONGOING - State letter to SIDS circulated on 22 January 08 to update the status of deficiencies identified. No response.

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/60	**Implementation aspects of the Regional Supplement to the Uniform Methodology for resolution of deficiencies.**	That, the Regional Office promulgates the amended Supplement to the Uniform Methodology as shown in the attachment and draws attention to the need to comply with the Supplement, in particular, with the following key implementation requirements: • Designation of a contact officer by all States to coordinate with the Regional Office matters related to deficiencies ; • Timely provision of corrective action plans by the States for all identified deficiencies • User organizations obligation to provide periodically information on identified or resolved deficiencies.	Notification to States	ICAO APAC Office	State letter and web site publication	Nov 2007	COMPLETED State letter issued on 1 October 2007. 10 States (China, HK, Fiji, Japan, Malaysia, Maldives, NZ, Singapore, Thailand & ROK) have designated their contact person.
D 18/61 **D**	**Dissolution of DRTF**	That, the DRTF, having completed its task of developing procedures and guidelines in the management of air navigation deficiencies, according to its Terms of Reference, be dissolved	Notify member states	ICAO APAC Office	Notification to Member states	October 2007	COMPLETED State letter issued on 24 Sept 07.

TBD = To be determined

Concl/ Dec No. --- Strategic Objective*	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Deliverable	Target date	Status as on June 08
C 18/62 **A D**	**Resolution of air navigation deficiencies**	That, a) States establish action plans with fixed target dates for resolution of safety related deficiencies and inform ICAO Regional Office b) States to consider utilizing the services of the ICAO Technical Cooperation Bureau for rectification of the deficiencies identified and c) States, financial institutions, industry and other partners be requested to provide funding support or kind to technical cooperation projects developed to rectify deficiencies identified.	Urge States to prepare action plan and consider utilizing the services of Technical Cooperation Bureau for the resolution of deficiencies.	ICAO APAC Office, States	State letter State's Action Plan to resolve deficiencies.	Jan 2008	COMPLETED. State letter issued on 10 October 07.

*** Note:** ICAO has established the following Strategic Objectives for the period 2005-2010:
A: Safety - *Enhance global civil aviation safety*; **B: Security** - *Enhance global civil aviation security*; **C: Environmental Protection** - *Minimize the adverse effect of global civil aviation on the environment*; **D: Efficiency** - *Enhance the efficiency of aviation operations*; **E: Continuity** - *Maintain the continuity of aviation operations;* **F: Rule of Law** - *Strengthen law governing international civil aviation.*

TBD = To be determined

Follow up action by ICAO on other items

Strategic Objective	APANPIRG/18 report ref page	Text of item	Follow up action	To be initiated by	Deliverable	Target date	status
	3.2.126	Common ICD for global implementation of AIDC		ICAO APAC office	ICAO to advice on suitable automated method of transferring planned and/or current aircraft data from one ANSP to another		CNS Section of HQ was informed and requested to provide clarification
	3.2.144	Communications performance associated with the provision of regional data link services	Further guidance on suitable mechanism that enforce adequate end to end system performance of satellite communications systems to meet current and future data link operational demands.	ICAO APAC office	Further guidance by ICAO		CNS Section of HQ was and informed and requested to provide further guidance Information Paper 17 to the ATM/AIS/SAR/SG meeting claries this situation , work is ongoing in a number of forums

TBD = To be determined

Strategic Objective	APANPIRG/18 report ref page	Text of item	Follow up action	To be initiated by	Deliverable	Target date	Status
	3.1.1	Amendment proposal to Basic ANP and FASID-AOP	Notify member states	ICAO APAC	State letter	30 Sept 07	Completed State letter issued on 26 Sept 07.

TBD = To be determined

AGENDA ITEM 3: REVIEW AND PROGRESS THE TASKS ASSIGNED TO THE ATM/AIS/SAR/SG BY APANPIRG

Agenda Item 3: Review and progress the tasks assigned to the ATM/AIS/SAR/SG by APANPIRG

Review of RVSM Task Force Meetings

3.1 The meeting noted the activities of the RVSM Task Force (RVSM/TF) in relation to the successful implementation of RVSM in the Chinese airspace and that a metric system has been retained in China for the RVSM operations. Since reporting to the ATM/AIS/SAR/SG/17 (July 2007, Bangkok), the RVSM/TF had met three times as follows:

a) 31 July – 3 August 2007, Bangkok, Thailand - RVSM/TF/31 (China RVSM implementation);

b) 18 - 21 September 2007, Beijing, China - RVSM/TF/32 (Go/No-Go decision for China RVSM); and

c) 9 – 11 April 2008, Hangzhou, China - RVSM/TF/33 (90 day Review of China RVSM)

3.2 RVSM/TF/32 reviewed the proposals by China on draft RVSM transition procedures and the support from the United States Federal Aviation Administration (FAA) in regard to the safety assessment and agreed to "Go" with RVSM in the Beijing, Guangzhou, Kunming, Lanzhou, Shanghai, Shenyang, Urumqi and Wuhan FIRs and the Sector 01 (airspace over the Hainan Island) of the Sanya FIR on 21 November 2007 as planned.

3.3 RVSM/TF/33 was informed that, following implementation, China again conducted the RVSM airspace risk assessment using a full traffic sample data from December 2007 to further examine the variation trend of risks after the transition. The post-implementation assessment demonstrated that the target level of safety continued to be satisfied.

3.4 An issue regarding 100 feet misalignment errors potentially occurring in transition between the two FLOS in use was referred to RASMAG/9 for review. Concerns were raised in relation to the ad-hoc use of lateral offset procedures within radar airspace and China was requested to clarify and publish the procedures being used by China, whilst taking into consideration the related provisions of the *Procedures for Air Navigation Services* (PANS-ATM, Doc 4444).

3.5 The meeting reviewed the current RVSM implementation status in Asia and Pacific Region and recognized that RVSM has now been very widely implemented, as shown in the table in **Appendix A** to the Report on Agenda Item 3. As virtually all airspaces of the Asia/Pacific Region had now implemented RVSM and that the work of the RVSM/TF was very close to completion, the meeting considered whether the RVSM/TF should be dissolved, to take effect after the 12-month review of China RVSM implementation in December 2008, and any residual matters be allocated to the respective ATS Coordination groups and ATM/AIS/SAR Sub-Group for action. Implementation of RVSM in the remaining Pyongyang and Ulaanbaatar FIRs, when scheduled, could be capably handled by the States directly concerned, with coordination support from the Regional Office and use of Special Coordination Meetings where necessary.

3.6 The meeting recalled that the formation of the Asia/Pacific RVSM Implementation Task Force arose as a result of Decision 9/4 adopted by APANPIRG/9 (August 1998) which, in addressing an output of the Third Asia/Pacific Regional Air Navigation Meeting (RAN/3, April-May 1993), called for the establishment of an ICAO RVSM Implementation Task Force to progress RVSM implementation in the Pacific and assist work which had already commenced under the auspices of a combined ISPACG & IPACG work effort. Conclusion 9/3, adopted at the same time, required actions

to establish an RVSM implementation schedule for the Asia region, in addition to the programme for the Pacific region.

3.7 The first meeting of the ICAO RVSM/TF was called RVSM/TF/2 on the basis that the ISPACG/IPACG RVSM/TF had already held a task force meeting during 1997. The ICAO RVSM/TF/2 meeting was held in Los Angeles, United States, from 1-5 February 1999. As a result of a large number of full task force meetings, special coordination meetings and associated work activities, the RVSM/TF has been highly successful in achieving the widespread and safe implementation of RVSM throughout virtually all airspaces of the Asia/Pacific Region.

3.8 The meeting commended the RVSM/TF for the willing and capable service over more than 10 years and the very beneficial outcomes that had resulted from this work. The efficiency and environmental benefits resulting from use of RVSM were well known. Recognising that the FAA had been instrumental, through the ISPACG and IPACG forums, for the very early steps towards RVSM in the Pacific, the meeting thanked the United States for their considerable investment in supporting extensive and long term commitments to the implementation of RVSM across the region.

3.9 The meeting recognised that the RVSM/TF/34 meeting planned for December 2008 to conduct the one year review of the RVSM implementation in China is the sole remaining scheduled activity for the RVSM/TF. Accordingly, the meeting invited APANPIRG/19 to consider the following draft Decision:

Draft Decision SG/18/1 – Dissolution of the RVSM/TF

That, following the widespread and safe implementation of RVSM throughout the Asia/Pacific Region over a 10 year period, the Asia/Pacific RVSM Implementation Task Force (RVSM/TF) be dissolved, with effect from the close of the RVSM/TF/34 meeting (one year review of China RVSM) in late 2008, and any residual work items be allocated to the ATM/AIS/SAR Sub Group.

Note: *In dissolving the RVSM/TF, APANPIRG places on the record its highest commendation and appreciation to all parties associated with the RVSM/TF (particularly the FAA) for the continuous implementation of RVSM and the very positive and quantifiable beneficial effects on safety, efficiency and the environment that have resulted directly from the work of the RVSM/TF.*

ADS/CPDLC Implementation in Ujung Pandang FIR

3.10 The meeting considered information from Indonesia which described how Indonesia had installed ADS/CPDLC in Ujung Pandang ACC to overcome limited capability in radar surveillance and VHF-voice DCPC in eastern areas of Indonesia, and to harmonize ATS for the international flight operations in between Ujung Pandang FIR and Brisbane FIR.

3.11 The trial operations of ADS/CPDLC in Ujung Pandang FIR will be effected from 3 July – 3 October 2008 particularly for the ATS routes A461, R340/R590, B472, B473, B583, B584 and B462. The meeting noted that international flights involved in the trial and operating on these routes would use CPDLC for main communication and VHF voice communication for back up. Non data link capable flights would be managed in the same way as they were today but operators were encouraged to make maximum use of datalink to enable full operational testing of the ground systems.

3.12 The data link activity would be supported through the expanded scope of the FIT-BOB mechanism, as agreed during previous FIT-BOB meetings, and problem reports should be submitted to the BOB-CRA (Boeing) in accordance with the provisions of the FANS Operations Manual.

Ad Hoc Working Group on Global Operational Data Link Document

3.13 The meeting noted that the NAT and ASIA PAC have agreed to develop a global operational data link document to align and harmonize the guidance material and procedures for data link operations that can be used within the ASIA PAC and the NAT, as well as other regions of the world. Terms of Reference and Points-of-contact (POCs), as shown in **Appendix B** to the Report on Agenda Item 3, have been identified to serve an Ad-Hoc Working Group to produce a Global Operational Data Link Document (GOLD) targeted for completion by the end of 2008.

3.14 The meeting recognized the initiatives taken so far by both the Asia/Pacific and North Atlantic regions, in coordination with the ICAO Regional Offices in Bangkok, Paris and ICAO HQ in Montreal, to work towards a single, globally applicable procedures document for FANS data link operations; and endorsed the following draft Conclusion:

Draft Conclusion SG/18/2 – Support for Ad-Hoc GOLD Working Group

That, recognizing the many benefits to be gained from the global application of harmonized FANS data link operational procedures, APANPIRG supports the work being undertaken under the auspices of the Ad-Hoc GOLD Working Group to produce a FANS Global Operational Data Link document (GOLD) and invites the Asia/Pacific Regional Office to act as the regional focal point for the Ad-Hoc GOLD Working Group.

Traffic Movements and GNE Reports in South China Sea

3.15 The meeting noted the report from Singapore on the monitoring of Gross Navigational Errors (GNEs) for flights operating in the designated monitoring areas, as well as the number of flight movements in the South China Sea area.

3.16 In assessing the navigation errors there were six appropriate areas at which the required monitoring was undertaken and traffic figures were recorded during the period June 2007 – May 2008, as follows:

a) DULOP and DUMOL on M771, total traffic movements 27750
b) AKOTA and AVMUP on L625, total traffic movements 7460
c) LULBU and LEGED on N884, total traffic movements 3885
d) MELAS and MABLI on N892 total traffic movements 10987
e) ESPOB and ENREP on L642, total traffic movements 26465
f) TEGID and BOBOB on M767, total traffic movements 9779

3.17 Significantly, there had been no reports of GNE in the monitoring area during the period under review. Two lateral errors were reported ATS Route L625 in November 2007 and December 2007, respectively, however these occurred outside the designated monitoring areas. Both errors had resulted from the same airline and were traced to pilot error in FMS data entry on first occasion and weather deviation without an ATC clearance on the second occasion.

Bangkok ATFMU Update

3.18 The meeting noted the positive outcomes from the post implementation review of the Bay of Bengal ATFM implementation, as described in Agenda Item 7. The meeting reviewed information from Thailand detailing updates to the implementation of ATFM in the Bay of Bengal and South Asia for westbound aircraft transiting the Kabul FIR during the night time peak traffic period (2000-2359UTC). It was noted that traffic demand through the Kabul FIR has been growing at the annual rate of 21% since operational trials commenced on 24 July 2006.

3.19 Recognizing demand for more traffic through the Kabul FIR, there have been initiatives under the auspices of the ATFM/TF to implement new routings through the Kabul and Lahore FIRs, namely SERKA-SOKAM and SERKA-PAROD routings, as well as SAMAR-LAJAK, and BUTOP-JHANG.

3.20 AEROTHAI has also commenced initiatives to develop software updates to the Bay of Bengal Cooperative ATFM (BOBCAT) system scheduled to be completed by August 2008. Details of the software update along with proposed User Interface will be discussed at the ATFM/TF/12 meeting to be held in Cairo, Egypt in July 2008.

Draft ATFM Communication Manual for the Asia/Pacific Region

3.21 The Japan Civil Aviation Bureau (JCAB) and the United States Federal Aviation Administration (FAA) presented a copy of the *Interim Guideline for Air Traffic Flow Management (ATFM) Communication* that was in current usage between the two States to APANPIRG/18, with a recommendation to consider accepting this guideline as the basis for ATFM communication throughout the Asia/Pacific regions. APANPIRG/18 supported this initiative, and encouraged Japan and the United States to continue this work and present the documentation to the ATM/AIS/SAR/SG/18 meeting in 2008 in accordance with the established procedure of APANPIRG.

3.22 In the meantime, the *Interim Guideline* was reviewed by the Bay of Bengal ATFM Task Force (ATFM/TF) as part of the ATFM/TF/11 meeting proceedings in November 2007. A number of issues were identified that needed to be addressed before the material would be ready to advance to the status of regional guidance material. The FAA and JCAB have carefully considered the comments and questions raised by the ATFM/TF and revised the document accordingly.

3.23 The most recent draft of the now renamed *ATFM Communication Manual for the Asia Pacific Region* is provided at **Appendix C** to the report on Agenda Item 3. The meeting reviewed the draft *ATFM Communication Manual* and encouraged States to provide comments to the ICAO Regional Office before the end of August 2008. This would enable additional development of the draft document in time for further examination during the ATFM Seminar/Workshop to be held 7-9 October 2008. The meeting noted that the draft will also be forwarded to ICAO Headquarters for review and consideration in their ATFM phraseology development activities.

ATFM Seminar/Workshop

3.24 In coordination with Japan, the Regional Office has scheduled a 3 day Regional ATFM Seminar from 7 – 9 October 2008 in Fukuoka, to address APANPIRG Conclusion 18/7. Preliminary coordination for the conduct of the Seminar has commenced and venue bookings have been made in Fukuoka, Japan for the three day period Tuesday 7 October until Thursday 9 October, 2008.

3.25 The initial coordination has concluded that one of the most important outputs of the activity should be some conclusions or recommendations as to how to best progress ATFM matters for the Asia/Pacific Region. Accordingly, recognizing that a Seminar is generally considered to be essentially an exchange of information, the activity will include a Workshop component on the last day, following the Seminar style presentations. Consequently, the event has been renamed as the "ATFM Seminar/Workshop".

3.26 The meeting recognized that, ideally, participants at the Seminar/Workshop would develop a shared appreciation of the broader context of ATFM as a logical extension of the provision of basic ATC - as provided in high traffic/ high technology environments, on the one hand, and in low technology circumstances on the other hand. Existing ATFM issues and capabilities in the Asia Pacific region could be established by the sharing of current traffic management experiences, issues and lessons learnt by regional providers.

3.27 The Workshop component could be tasked with identifying and recommending appropriate regional objectives, for example:

a) Development of a high level ATFM Concept of Operations for the Asia/Pacific Region,

b) Enhancement of the ATFM Communications document referred to above to advance it to a regional guidance material,

c) Recognizing the necessity for accurate data assessment, develop mechanisms for regional data gathering, collation and sharing requirements, and

d) Review activities of the Bay of Bengal ATFM Task Force and consider variations to its Terms of Reference.

3.28 Keeping the above aspects in mind, the United States would assist the Regional Office by leading a small coordination group, working by correspondence, to update the draft programme that had been prepared by the Regional Office – as shown in **Appendix D** to the Report on Agenda Item 3. In accordance with APANPIRG Conclusion 18/7, assistance is sought from States with experience in ATFM to provide appropriate expert presentations during the Seminar/Workshop

Search and Rescue (SAR) Matters

Phasing-out of 121.5 MHz Satellite Alerting Services

3.29 The meeting was informed in relation to the COSPAS – SARSAT decision to phase out the satellite alerting services on 121.5 and 243 MHz from 1 February 2009. Subsequent to February 2009, satellite alerting service will be available only to 406 MHz Emergency Locator Transmitter (ELT) equipped aircraft. Regional Office State Letter Ref.: T 3/11.4 – AP041/07 (ATM), dated 18 May 2007, was transmitted highlighting the technical issues involved.

3.30 It has come to Australia's and New Zealand's attention, through their role as the Mission Control Centre for COSPAS-SARSAT, that there are problems occurring in the South Pacific in regard to knowledge about the coming shutdown of satellite detection of 121.5 MHz beacons in February 2009, the need for organisations and individuals to change to 406 MHz beacons and, very significantly, a lack of knowledge on how to correctly encode and register 406 MHz distress beacons. In order to assist with the training and education of the South Pacific parties involved, the Australian Maritime Safety Authority and Maritime New Zealand have created an informal briefing newsletter, shown as **Appendix E** to the Report on Agenda Item 3.

SAR Capability Matrix & List of SAR Agreements

3.31 The meeting reviewed and updated the APANPIRG list of SAR Agreements and the SAR Capability Matrix Table as presented in **Appendices F** and **G** to the Report on Agenda Item 3 respectively. Viet Nam advised the meeting that their entry in the last column of the SAR Matrix be upgraded to "D". The meeting also adopted a date order sorting for the SAR agreements for ease of reference. The Secretariat thanked States for the input received during the meeting and would ensure that these updates were entered into the tables prior to the APANPIRG/19 meeting in September 2008.

3.32 Viet Nam requested that those States concerned with the SAR agreements with Viet Nam consider working with Viet Nam to revise the current agreements. Viet Nam also suggested that a paper be prepared that shows the States area of responsibility for Cospas-Sarsat areas.

Review of format of SAR Capability Matrix

3.33 The meeting considered follow up work to APANPIRG Conclusion 18/17 conducted by the United States regarding a review of the format of the Asia/Pacific SAR Capability Matrix by the ICAO/IMO Joint Working Group on SAR. As a result of this work, the meeting was informed that during 2008 the ICAO Mexico Regional Office adopted the APAC model SAR Capability Matrix for use by the Eastern Caribbean States and Territories.

3.34 The meeting accepted the recommendation made by the ICAO/IMO Joint Working Group on SAR that the last column of the State SAR Capability Matrix be renamed to "Cospas-Sarsat Distress Alerts" and did not consider that further refinement to the Matrix was necessary. In thanking the Joint Working Group and the United States for coordinating and arranging this positive outcome, the meeting amended the Matrix format accordingly and formulated the following draft Conclusion.

Draft Conclusion SG/18/3 – Update SAR Matrix including guidance material

That the updated format for the SAR Capability Matrix Table and explanatory text shown in Appendix G to the ATM/AIS/SAR/SG/18 Report on Agenda Item 3 be adopted and the explanatory text be included as a perpetual attachment to the SAR Capability Matrix, to serve as guidance to States when filling in the Matrix.

Next meeting of ICAO/IMO Joint Working Group on SAR

3.35 The meeting noted that the next meeting of the ICAO/IMO JWG on SAR would be held in Canberra, Australia from 29 September to 3 October 2008 and encouraged participation of the Regional Office and State aeronautical SAR authorities in this meeting as a means to discuss specific Asia/Pacific SAR issues.

ICAO SAR Seminar in conjunction with Hong Kong China SAREX – October 2008.

3.36 The meeting was informed that planning is taking place for an ICAO SAR Seminar to be held in conjunction with the Hong Kong China International SAREX during October 2008. It is anticipated that the Seminar will be held over a day and a half, commencing from Tuesday 28 October, and lead directly into the Hong Kong International SAREX 2008 commencing on the afternoon of Wednesday 29th October and concluding late on Thursday, 30th October.

Regional Special Implementation Project for AIS

3.37 The 18th meeting of Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/18, September 2007) considered ways to assist States to improve their AIS capability and adopted Conclusion 18/12 in this respect. APANPIRG/18 also adopted Conclusion 18/15 with regard assisting States in implementing electronic terrain and obstacle data (eTOD).

3.38 Recognizing the overlap between the workshop on automation and the workshop on eTOD called for by the respective Conclusions, the Regional Office prepared a Special Implementation project (SIP) submission for a joint workshop, for consideration by the Council of ICAO. Arising from the proposals, the Council approved a SIP for an AIS Seminar/Workshop to be conducted during 2008, details of which are shown in **Appendix H** to the Report on Agenda Item 3.

3.39 Planning in terms of the conduct of the SIP is not far advanced, however it is envisaged that the AIS Workshop would be held in late 2008 or early 2009. The Sub-Group discussed the way forward for the workshop/seminar and encouraged States to provide information to the Regional Office in regard to the potential availability of AIS technical staff to assist with the conduct of the SIP and/or a State to host the SIP.

Update on the Development of the ICAO EUR/NAT Regional Database for the Five-Letter Name-codes Allocations

3.40 The meeting was provided with an update on the ICAO Five-Letter Name-Codes and Route Designators Database (ICARD). APANPIRG/18 had recognized the considerable benefits of using the ICARD system and, under Conclusion 18/11, endorsed the regional use of ICARD and encouraged all States in Asia/Pacific Region to join the operation at the earliest opportunity.

3.41 The meeting was informed that the initial trial phase of implementation of ICARD with the nominated States of Asia and Pacific Region has been successfully completed. Accordingly, all other States of the Region are now invited by the Regional Office to register in the ICARD system and to start using it. The meeting urged all States in the Asia and Pacific Region to take the necessary action to implement the widespread use of the ICARD system. States should contact the Regional Office, who will provide guidance and assistance in this respect.

The Implementation of 30 NM and 50 NM Longitudinal Separations based on ADS in the Fukuoka FIR

3.42 The meeting noted an information paper from Japan describing the application of the 50 NM longitudinal separations based on ADS to the whole airspace in the Fukuoka Flight Information Region (FIR). In the next stage JCAB has considered conducting a pre-implement safety assessment for ADS 30NM longitudinal separations, to establish RNP 4 operational approval and to modify the software of oceanic ATC system. Although ICAO PANS-ATM provisions indicate that the maximum interval of ADS period reports for RNP 4 is 14 minutes, the JCAB safety case for 30NM longitudinal implementation has concluded that a reporting interval of 10 minutes is necessary because of the heavy traffic density on the north Pacific routes (NOPAC). JCAB announced their intention to start trial operations of 30 NM longitudinal separation with 10 minutes interval periodic reporting from August 2008. The meeting noted that concern has been raised about network load of satellite data link system because of high rates of periodic reports.

RVSM IMPLEMENTATION STATUS IN THE ASIA/PACIFIC REGION

(last updated 27 June 2008)

FIRs	RVSM Implementation Date	Comments
Anchorage Arctic	24 Feb 2000	Implemented
Anchorage Continental	24 Feb 2000	Implemented
Anchorage Oceanic	24 Feb 2000	Implemented
Auckland Oceanic	24 Feb 2000	Implemented
Bali	31 Oct 2002	Implemented
Bangkok	21 Feb 2002	Implemented on specific routes on 21 Feb 2002. Whole FIR on 27 Nov 2003.
Beijing	21 Nov 2007	Implemented
Brisbane	24 Feb 2000	Implemented in the Oceanic East of Australia on 24 Feb 2000 - Remainder of FIR on 1 Nov 2001.
Calcutta	27 Nov 2003	Implemented
Chennai	27 Nov 2003	Implemented
Colombo	27 Nov 2003	Implemented
Delhi	27 Nov 2003	Implemented
Dhaka	27 Nov 2003	Implemented
Guangzhou	21 Nov 2007	Implemented
Fukuoka	24 Feb 2000	Implemented over the Pacific Oceanic on 24 Feb 2000. Remainder on 29 September 2005.
Hanoi	31 Oct 2002	Implemented
Ho Chi Minh	21 Feb 2002	Implemented
Hong Kong	31 Oct 2002	Implemented
Honiara	24 Feb 2000	Implemented
Incheon	29 Sep 2005	Implemented
Jakarta	31 Oct 2002	Implemented
Karachi	27 Nov 2003	Implemented
Kathmandu	27 Nov 2003	Implemented
Kota Kinabalu	21 Feb 2002	Implemented
Kuala Lumpur	21 Feb 2002	Implemented in the eastern part on 21 Feb 2002. Western part on 27 November 2003.

FIRs	RVSM Implementation Date	Comments
Kunming	21 Nov 2007	Implemented
Lahore	27 Nov 2003	Implemented
Lanzhou	21 Nov 2007	Implemented
Male	27 Nov 2003	Implemented
Manila	21 Feb 2002	Implemented
Melbourne	1 Nov 2001	Implemented
Mumbai	27 Nov 2003	Implemented
Nadi	24 Feb 2000	Implemented
Nauru	24 Feb 2000	Implemented
New Zealand (Domestic)	13 July 2000	Implemented
Oakland Oceanic	24 Feb 2000	Implemented
Phnom Penh	21 Feb 2002	Implemented
Port Moresby	13 Apr 2000	Implemented
Pyongyang		
Sanya	31 Oct 2002	Implemented on N892 on 21 February 2002. Whole FIR on 21 Nov 2007.
Shanghai	21 Nov 2007	Implemented
Shenyang	21 Nov 2007	Implemented
Singapore	21 Feb 2002	Implemented
Tahiti	24 Feb 2000	Implemented
Taibei	21 Feb 2002	Implemented
Ujung Pandang	31 Oct 2002	Implemented
Ulaanbaatar		
Urumqi	21 Nov 2007	Implemented
Vientiane	31 Oct 2002	Implemented
Wuhan	21 Nov 2007	Implemented
Yangon	27 Nov 2003	Implemented

—END—

GOLD Ad Hoc WG – WP/01
2-Jun-08

Ad Hoc Working Group on Global Operational Data Link Document (GOLD)

Work Program, Terms of Reference and Working Practices

Summary

This paper provides the background on establishing an Ad Hoc Working Group to develop a global operational data link document (GOLD). It provides the work program, terms of reference and working practices for the group. This paper will be updated during the course of the group's work, as necessary.

1 Introduction

1.1 The North Atlantic (NAT) Region and the Asia-Pacific Region (ASIA PAC) maintain separate documents within each region to standardize on procedures for the future air navigation system (FANS) data link services. The NAT maintains Guidance Material for ATS Data Link Services in North Atlantic Airspace, currently at version 17, dated June 2008. The guidance material has been officially adopted by 6 flight information regions (FIRs) throughout the NAT. The ASIA PAC maintains the FANS-1/A Operations Manual (FOM), currently at version 5.0, dated August 2007. The FOM has been officially adopted by 47 FIRs throughout the ASIA PAC, including Middle East and North Africa FIRs .

1.2 Through various regional forums, the NAT and ASIA PAC have agreed to develop a global operational data link document to "link" the guidance material and procedures for data link operations that can be used within the ASIA PAC and the NAT, as well as other regions of the world. Points-of-contact (POCs) have been identified to serve on an Ad Hoc Working Group to produce a global operational data link document (GOLD) targeted for completion by the end of 2008. The POC list will be updated as it becomes necessary to coordinate with other regions.

2 Establishing the GOLD Ad Hoc Working Group

2.1 The following meetings endorsed the work and provided POCs to establish an Ad Hoc Working Group to develop a global operational data link document (GOLD):

a) Meeting Report of the 15th meeting of the ISPACG FANS Interoperability Team (FIT/15), Papeete, Polynésie Française, 11th – 12th March 2008, (Refer to paragraph 5.0)

b) Summary of Discussion of the Twenty Second Meeting of the Informal South Pacific Air Traffic Services Coordinating Group (ISPACG/22), Papeete, Tahiti, 12-14 March 2008, (Refer to paragraphs 3.9.3, 3.9.4, and 3.9.6).

c) Summary of Discussions of the North Atlantic Future Air Navigation Systems Implementation Group (NAT FIG), Seventeenth Meeting, Ayr, 21 to –25 April 2008, (Refer to paragraph 5.0).

d) Summary of Discussions of the NAT Implementation Management Group Thirty Second Meeting (NAT IMG/32), Limerick, Ireland, 13 – 16 May 2008, (Refer to paragraphs 2.5, and 2.6).

e) Summary of Discussions of the Twenty-Seventh Meeting of the Informal Pacific Air Traffic Control Coordinating Group (IPACG/27), Tokyo, Japan, 5-9 November 2007, (Refer to paragraphs 9.1 and 9.2).

2.2 The United States (FAA) has accepted the responsibility to coordinate the group's activities across regions via the GOLD Coordinator.

2.3 The following POCs have been identified:

Name	Surname	Representation	Telephone	eMail
Chris	Dalton	ICAO Montreal – International coordinator	+1-514-954-8219, ext 6710	cdalton@icao.int
Norm	Dimock	NAT FIG – North Atlantic coordinator		dimockn@navcanada.ca
Hiroshi	Inoguchi	JCAB – IPACG coordinator	+81-3-5253-8739	inoguchi-h2hh@mlit.go.jp
Tom	Kraft	FAA – GOLD Coordinator	+1-202-369-2168	tom.kraft@faa.gov
Paul	Radford	ANZ – ISPACG coordinator via Data Link Working Group	+64-213-34806	paul.radford@airways.co.nz
Andrew	Tiede	ICAO Bangkok – Asia-Pacific coordinator	+66-2-5378189 ext 152 Mob: +66-087-1240875	atiede@bangkok.icao.int
Jacques	Vanier	ICAO Paris – North Atlantic coordinator		jvanier@paris.icao.int

3 Work program and terms of reference

3.1 The GOLD Ad Hoc Working Group will prepare a global operational data link document that:

a) takes account of ICAO provisions;

b) where possible, refers to RTCA DO-306/EUROCAE ED-122, Safety and Performance Standard for Air Traffic Data Link Services in Oceanic and Remote Airspace (Oceanic SPR Standard);

c) considers the FANS Operations Manual in Asia Pacific Airspace;

d) considers the Guidance Material for ATS Data Link Services in North Atlantic Airspace;

e) provides performance requirements for new means of communication for intervention as well as for surveillance;

f) includes guidelines and requirements for the application of the required communication performance (RCP) type(s) to support regional planning and implementation initiatives;

g) includes guidelines and requirements for aircraft data link equipage, aircraft operator eligibility, procedures and air traffic service provision;

h) includes guidelines and requirements for post-implementation monitoring;

i) is globally adoptable;

j) identifies regional differences only as absolutely necessary; and

k) enables planning and implementation regional groups to adopt the GOLD.

3.2 The GOLD is targeted to be complete by the end of 2008.

3.3 After the group has completed the GOLD, the group will consider how it will affect regional and other (e.g., ICAO and RTCA/EUROCAE) documentation. The POCs intend to provide recommendations to the appropriate bodies within their respective region and/or organization for further action.

4 Working practices

4.1 The work will generally be conducted via email and teleconferences/net meetings. Face-to-face meetings may be held, but only as deemed necessary and agreed by the members of the GOLD Ad Hoc Working Group.

4.2 The POCs identified in paragraph 2.3, will

a) participate in developing material for the GOLD;

b) coordinate within their respective region and/or organization any actions from the GOLD Ad Hoc Working Group, such as requests for draft GOLD review and comment;

c) participate in resolving comments received from reviews of the GOLD;

d) coordinate within their region and/or organization to identify and resolve cross-regional differences;

e) notify the group of any formal change activity on regional documents under review by the GOLD Ad Hoc Working Group;

f) provide email addresses for broader distribution of materials prepared by the GOLD Ad Hoc Working Group; and

g) participate in teleconferences/net meetings, as necessary.

4.3 The GOLD Coordinator will capture the results of the work using the following:

a) *GOLD master comments* to track the status of issues, changes, and resolutions (See form and instructions for use at Appendix A of this paper);

b) *GOLD draft versions* (multiple, as necessary), consistent with the resolutions provided in the master comment matrix;

c) *results of comparative assessments* among the different documents, i.e., FOM, NAT Guidance Material, DO-306/ED-122, and the GOLD, as necessary; and

d) *other documents*, such as action item lists and teleconference/net meeting summaries, on an as needed basis.

4.4 The work will start with the Asia-Pacific FANS 1/A Operations Manual, version 5.0, first aligning it with DO-306/ED-122, and then taking into account the North Atlantic Guidance Material for ATS Data Link Services, version 17.

4.5 If suggestions to improve DO-306/ED-122 are identified during the course of this work, they will be tracked in a separate document for further disposition upon completion of the terms of reference.

5 Action

5.1 The Group is invited to:

a) agree to the work program, terms of reference and working practices as outlined in this paper, or

b) provide to the GOLD Ad Hoc Working Group forum comments and suggested changes to this paper.

Appendix A: Comment matrix form and instructions.

COMMENTS DUE NO LATER THAN [INSERT DATE HERE by GOLD Master Comments Coordinator].

Legend for Cat Column:

E Editorial
C Confusing, clarification, erroneous information, inconsistency, or invalid argument
A Additional material
S Serious – resolution of comment requires special attention

[To be completed by comment author(s). The GOLD master comment matrix will list all that submitted comments.]

Name	Represenatation	Telephone	eMail

Paragraph reference	Comment Number	Comment Author	Description of comment and proposed resolution	Cat	Resolution Status	Status
[Completed by comment author. Always use paragraph reference, then table or figure number, if applicable. Comment matrix is sorted by this column]	[Completed by coordinator of the GOLD master comments]	[Comment author enters their name]	[this column used exclusively by the comment author to provide rationale for the change together with suggested change. Two subheadings are provided to encourage comment author to provide both the argument/reason AND the change] **COMMENT:** **SUGGESTED CHANGE TO DOCUMENT:**	[Optional, see legend]	[Reserved for any GOLD Ad Hoc Working Group point-of-contact. POCs should precede their entry with date when entry was made followed by initials in bold text, e.g., **25-May-08-TK -** . All entries should be placed sequentially starting at the top of the cell and moving downward. When resolution is complete, the last entry will indicate resolution complete.]	[Used by coordinator. A "C" is entered to signify when the change in the resolution status has been incorporated into the GOLD engineering version. As the comment matrix is worked, it will be resorted so that the closed comments appear at the end.]

-END-

DRAFT

Air Traffic Flow Management (ATFM) Communication Manual for the Asia Pacific Region

Version 1.0

May 2008

FOREWORD

Centralized air traffic flow management (ATFM) facilities are best able to communicate their national system's ability to accept traffic from adjacent international air traffic service (ATS) providers. As coordination and collaboration efforts intensify between the countries, common procedures and communication are essential. Once procedures are defined, a key element in removing language barriers is establishing common terms and phrases. Terminology and phraseology differences in ATFM could be a potential source of confusion during communications between international ATFM facilities.

Common terminology is an essential element in exchanging definitive, clear, and concise communication between international ATFM units. Likewise, the phraseology should follow a technical pattern for the exchange of standardized and harmonized messages. The terminology and phraseology presented are not intended to be a requirement for ATFM communications, but may be used as a guideline for the exchange of ATFM messages.

TABLE OF CONTENTS

1. General

1.1 The primary goal of these guidelines is to develop terminology and phraseology for the exchange of ATFM messages between units providing ATFM services. The terminology and phraseology contained herein are intended to both reflect the current use of plain language and provide a basis for standardization and harmonization.

1.2 Although there are various plain language words and phrases in use today by ATFM service providers, these words and phrases can be organized into a modular and structured method of delivery to ensure communication harmonization and reduce the incidence of misunderstanding between units providing ATFM service.

1.3 It is not the intent of these guidelines to provide detailed information on ATFM concepts, procedures, and initiatives; however, since not all readers may be familiar with ATFM terms used in the examples, a brief description of ATFM initiatives is provided at Appendix 1. The list is not all-inclusive and does not preclude the innovation and application of other procedures that will result in improved service.

1.4 These guidelines include the concept of modular and structured ATFM messages and define an ATFM message's components as who, what, where, when and why. These five components are described as follows:

a. Who: The ATFM service unit being contacted followed by the ATFM service unit that is initiating the contact.

b. What: The ATFM objective to be achieved.

c. Where: The location of the ATFM objective to be achieved.

d. When: The time and/or duration of the ATFM objective to be achieved.

e. Why: The reason for the ATFM objective.

1.5 There is no module regarding “how” the ATFM restrictions should be achieved by the counterpart ATFM service provider. It is the counterpart’s responsibility how they fulfill the requested ATFM restrictions within their airspace. However, the center being asked for the ATFM restrictions may collaborate with the originating center on the type and method of ATFM measure application. Generally speaking, ATFM service providers resolve demand-capacity related constraints by initiating national ATFM initiatives first. Therefore, ATFM restrictions requested by an adjacent international ATFM facility should be considered highly necessary. Therefore, once information is exchanged regarding an ATFM restriction and the acceptance is expressed, it is considered MANDATORY. It should be noted that a critical situation could require acceptance of an ATFM restriction without allowing any options for the requested facility.

1.6 Below are the examples of possible ATFM messages:

- “FAA COMMAND CENTER, THIS IS FUKUOKA ATMC … REQUIRE 100 MILES IN TRAIL REGARDLESS OF FLIGHT LEVEL ON R220, R580 AND ALL PACOTS TRACKS FOR TRAFFIC LANDING NARITA ESTIMATING FIR BOUNDARY FROM 0100 UTC UNTIL 0500 UTC DUE TO SEVERE WEATHER”.

- "FUKUOKA ATMC, THIS IS FAA COMMAND CENTER… CAPACITY RESTRICTION: LOS ANGELES HAS STARTED FLOW RESTRICTIONS FOR ALL AIRCRAFT LANDING LOS ANGELES DUE TO EARTHQUAKE. APPROACH HAS REQUESTED GROUND STOPS FOR ARRIVALS UNTIL FURTHER NOTICE".

2. ATFM Message Components

2.1 The use of a modular and structured ATFM message provides for consistent ATFM message design and delivery. Each of the ATFM message's five components can contain plain language elements that when combined provide a complete ATFM message. The harmonization achieved lies in the delivery of an ATFM message that has all of the required components in a structured format while making allowances for different plain language elements. This is of particular benefit for ATFM service providers that use different ATFM terminology or for non-native English speaking ATFM service providers.

2.2 As the modular and structured ATFM message may contain several different elements of plain language, this section will examine each of the five components and detail some of the possible plain language words and phrases that are in use today.

2.3 **WHO**: The **who** component identifies the ATFM service unit being contacted followed by the ATFM service unit that is initiating the contact. ATFM units will be addressed by name until ICAO Annex 10 is amended accordingly. Examples of the who component:

- "FUKUOKA ATMC, THIS IS FAA COMMAND CENTER…"
- "FAA COMMAND CENTER, THIS IS FUKUOKA ATMC…"

2.4 **WHAT**: The **what** component identifies the ATFM objective to be achieved. The **what** component may also be used to provide ATFM information. Objectives include but are not limited to:

a) REQUIRE (number) MILES (or MINUTES) IN TRAIL AT THE SAME FLIGHT LEVEL;
b) REQUEST (number) MILES (or MINUTES) IN TRAIL REGARDLESS OF FLIGHT LEVEL;
c) REQUEST A RATE OF (number) AIRCRAFT PER HOUR;
d) FLIGHT LEVELS (number) AND (number) NOT AVAILABLE;
e) ONLY FLIGHT LEVELS (number), (number) AND (number) ARE AVAILABLE;
f) (route/airport/airspace) NOT AVAILABLE DUE (reason) ALTERNATIVE[S] IS/ARE (routes/airports).

2.5 **WHERE**: The **where** component represents the location of the ATFM objective to be achieved. It is often preceded by a modifying clause, indicating what aircraft or traffic the restriction will apply to. The modifying clause and the location combination are used to construct there where component.

Examples of location:

- "…AT NIPPI…"
- "…ON A337…"
- "…WESTBOUND ON PACOTS TRACK CHARLIE…"
- "…INBOUND ON G344…"
- "…ON PACOTS TRACK 2 LANDING SAN FRANCISCO AIRPORT…"
- "…ABOVE FLIGHT LEVEL 300…"

Examples of what aircraft or traffic are included:

- "…FOR ALL AIRCRAFT…"
- "…FOR TRAFFIC FASTER THAN 300 KNOTS…"
- "…FOR HEAVY AIRCRAFT…"
- "…FOR TRAFFIC LANDING…"
- "…FOR AIRCRAFT DEPARTING…"
- "…FOR TRAFFIC OVERFLYING…"
- "…FOR AIRCRAFT PASSING…"

2.6 **WHEN**: The **when** component represents the time and/or duration of the ATFM objective to be achieved:

[FROM (time)] UNTIL (time).

Examples of time/duration:

- "…FROM 0300 UTC UNTIL 0600 UTC…"
- "…FROM NOW UNTIL 0600 UTC…"
- "…FROM 2300 UTC UNTIL FURTHER NOTICE…"
- "…UNTIL FURTHER NOTICE…"

2.7 **WHY**: The **why** component represents the reason for the ATFM objective:

a) DUE TO (reason);
b) FOR (reason).

Examples of reasons:

- "…DUE TO RUNWAY CLOSURE"
- "…FOR (SEVERE) WEATHER"
- "…DUE TO COMMUNICATION FAILURE"
- "…DUE TO (significant event/natural disturbance such as FIRE or VOLCANIC ASH)"
- "…FOR STATE AIRCRAFT ACTIVITY"
- "…DUE TO EQUIPMENT OUTAGE"
- "…FOR EMERGENCY"
- "…DUE TO ATFM INITIATIVES IN (location)"

3. ATFM Message Types

3.1 **Information to be shared prior to invoking the ATFM restrictions**: The information-sharing should be facilitated not only during the actual flow control but also (and more importantly) well prior to invoking the ATFM restrictions when the possibility of flow control arises. The following phrases will make clear the distinction between the ATFM messages and the information provided for situation awareness:

a) POSSIBLE TRAFFIC FLOW RESTRICTIONS;
b) CAPACITY RELATED INFORMATION.

Examples of messages sent prior to invoking ATFM restrictions follow:

- "FAA COMMAND CENTER, THIS IS FUKUOKA ATMC… **POSSIBLE TRAFFIC FLOW RESTRICTIONS**… NARITA AIRPORT HAS CLOSED ONE RUNWAY AND STARTED SNOW REMOVAL".
- "FAA COMMAND CENTER, THIS IS FUKUOKA ATMC… **CAPACITY RELATED INFORMATION**…NARITA AIRPORT HAS ENTERED THE STORM ZONE OF THE TYPHOON".

3.2 **ATFM Initiative Message**: ATFM initiatives communicate air traffic flow restrictions/objectives from one air traffic service provider to another. They follow the five component structure described earlier:

a. Who: The ATFM service unit being contacted followed by the ATFM service unit that is initiating the contact.

b. What: The ATFM objective to be achieved.

c. Where: The location of the ATFM objective to be achieved.

d. When: The time and/or duration of the ATFM objective to be achieved.

e. Why: The reason for the ATFM objective.

Examples of ATFM initiatives follow:

- "FUKUOKA ATMC, THIS IS FAA COMMAND CENTER … REQUIRE 30 MINUTES IN TRAIL AT THE SAME FLIGHT LEVEL FOR ALL AIRCRAFT LANDING CHICAGO FROM 0800 UTC UNTIL FURTHER NOTICE DUE TO STATE AIRCRAFT ACTIVITIES".
- "FAA COMMAND CENTER, THIS IS FUKUOKA ATMC… FL350 AND BELOW NOT AVAILABLE FOR AIRCRAFT OVERFLYING JAPANESE DOMESTIC AIRSPACE UNTIL 0900 UTC DUE TO EMERGENCY".

3.3 **Reply to ATFM Initiative Message**: The following phrases will be used for replying to ATFM initiative messages:

a) ACCEPT (initiative);
b) AGREED TO (initiative);
c) (initiative) IS ACCEPTABLE [DEPENDS ON THE DEMAND] (other pertinent information, if any);
d) UNABLE (initiative) [DUE (reason)] (alternative proposed).

Examples of replying to ATFM initiatives follow:

- "AGREED TO 30 MINUTES IN TRAIL AT THE SAME FLIGHT LEVEL ON PACOTS TRACKS 2 AND 3 FROM 1000 UTC UNTIL 1500 UTC".
- "UNABLE TO ACCEPT THE RESTRICTION FROM 1430 UTC DUE TO TRAFFIC VOLUME ON A590 UNTIL 1530 UTC".

3.4 **Coordination of aircraft exempted from ATFM initiatives**: The following phrases will be used for the coordination of aircraft which are exempt from ATFM restrictions:

a) REQUEST EXEMPTION FROM ATFM;
b) COORDINATION OF ATFM EXEMPTION.

3.5 The following types of aircraft may be exempted from ATFM restrictions:

- Aircraft in a state of emergency
- Aircraft engaged in search and rescue missions
- Aircraft operating for humanitarian reasons
- Aircraft carrying the head of State or distinguished visitors of State
- Aircraft carrying a patient who needs urgent medical treatment

Examples of messages requesting ATFM exemption follow:

- "FUKUOKA ATMC, THIS IS FAA COMMAND CENTER… **REQUEST EXEMPTION FROM ATFM**…UAL123 IS CARRYING A PATIENT WHO NEEDS URGENT MEDICAL TREATMENT".
  "UAL123…EXEMPTION APPROVED".
- "FAA COMMAND CENTER, THIS IS FUKUOKA ATMC… **COORDINATION OF ATFM EXEMPTION**… JA501A IS OPERATING SEARCH AND RESCUE MISSIONS".

3.6 **Information for the next coordination**: If it is possible and appropriate, the expected time of next coordination will be forwarded with the ATFM messages:

I WILL CALL YOU AT (time) FOR FURTHER COORDINATION.

An example of a message with information for the next coordination follows:

- "FUKUOKA ATMC, THIS IS FAA COMMAND CENTER… REQUIRE 30 MINUTES IN TRAIL REGARDLESS OF FLIGHT LEVEL FOR ALL AIRCRAFT ON PACOTS TRACK 8 FROM 1000 UTC UNTIL FURTHER NOTICE DUE TO MILITARY ACTIVITY. I WILL CALL YOU AGAIN AT 1100 UTC FOR FURTHER COORDINATION".

3.7 **Amendment:** The amendment of an ATFM message should be structured as the initial message and include similar elements but with additional modifiers. These modifiers may include:

a) CHANGE
b) AMEND
c) REDUCE
d) INCREASE
e) DECREASE

3.8 Amendment messages should also identify which message is being amended, as several restrictions could be in place at one time. Examples of ATFM amendment messages follow:

- "FAA COMMAND CENTER, THIS IS FUKUOKA ATMC… WE HAVE **CHANGED** THE RESTRICTION ON TRAFFIC FLYING PACOTS TRACKS CHARLIE, ECHO AND FOXTROT FOR NARITA AIRPORT. WE NOW NEED 20 MINUTES IN TRAIL AT THE SAME FLIGHT LEVEL ON PACOTS TRACKS CHARLIE, ECHO AND FOXTROT FOR TRAFFIC LANDING NARITA FROM NOW UNTIL 0900 UTC".
- "FUKUOKA ATMC, THIS IS FAA COMMAND CENTER…WE HAVE **INCREASED** THE INBOUND RATE FROM 5 AIRCRAFT PER HOUR TO 10 AIRCRAFT PER HOUR FOR TRAFFIC BEYOND OAKLAND FIR UNTIL FURTHER NOTICE".

3.9 **Cancellation**: The cancellation of an ATFM message should be structured the same as the initial message and include similar elements but also contain a canceling word or phrase. It is normally not necessary to state the reason for the cancellation. A canceling word or phrase may include:

a) CANCEL
b) RESUME
c) RESUME NORMAL
d) RELEASE

3.10 Cancellation messages should also identify which message is being cancelled, as several restrictions could be in place at one time. An example of an ATFM cancellation message follows:

- "FAA COMMAND CENTER, THIS IS FUKUOKA ATMC… **CANCEL** THE RESTRICTION ON TRAFFIC BEYOND THE FUKUOKA FIR AT THIS TIME. **RESUME NORMAL** TRAFFIC FLOW".

4. Active Listening

4.1 Because of the variety of ATFM information that may be exchanged, and the lack of a full set of standardized phraseology, **active listening** is encouraged. Active listening is a structured form of listening and responding that focuses the attention on the speaker. The listener must take care to attend to the speaker fully, and then repeats, in the listener's own words, what he or she thinks the speaker has said. The listener does not have to agree with the speaker; he or she must simply state what they think the speaker said. This enables the speaker to find out whether the listener really understood. If the listener did not, the speaker can explain further. Once the speaker and listener are clear as to the message, the listener should respond with agreement, acceptance or disagreement.

4.2 Active listening has several benefits. First, it forces people to listen attentively to others. Second, it avoids misunderstandings, as people have to confirm that they do really understand what another person has said.

5. Abbreviations

5.1 Appendix 2 provides a sample list of abbreviations used that are not defined in the ICAO Doc. 8400 (PANS-ABC). Neighboring ATFM facilities may wish to develop a similar list of abbreviations which are frequently used in ATFM communication, and include them in a letter of agreement. There is no requirement to develop such a list.

DESCRIPTION OF AIR TRAFFIC FLOW MANAGEMENT INITIATIVES

The following list contains the ATFM initiatives presently conducted by U.S. FAA. It is not all-inclusive and does not preclude the innovation and application of other procedures that will result in improved service.

Name	Description
Airborne holding	Planned holding of aircraft may be utilized. This is normally done when the operating environment supports holding and the weather conditions are expected to improve shortly; this ensures aircraft are available to fill the capacity at the airport.
Altitude	Utilized to segregate different flows of traffic, or to distribute the number of aircraft requesting access to a specified geographic region. **a. Capping**: Term to indicate aircraft will be cleared to an altitude lower than their requested altitude until they are clear of a particular airspace. Capping may apply to the initial segment of the flight or for the entire flight. **b. Tunneling**: Term to indicate traffic will be descended prior to the normal descent point at the arrival airport to remain clear of an airspace situation; e.g., holding.
Fix balancing	Assigning an aircraft a fix other than that in the filed flight plan in the arrival or departure phase of flight to equitably distribute demand.
Ground delay programs (GDP)	Aircraft are held on the ground in order prior to departure to manage capacity and demand at a specific location, by assigning arrival slots. The purpose of the program is to limit airborne holding.
Ground stops (GS)	GS is a process that requires aircraft that meet specific criteria to remain on the ground. Since this is one of the most restrictive methods of traffic management, alternative initiatives should be explored and implemented if appropriate. GSs should be used: **a.** In severely reduced capacity situations (below most user arrival minimums, airport/runway closed for snow removal, or aircraft accidents/incidents); **b**. To preclude extended periods of airborne holding; **c**. To preclude sector/center reaching near saturation levels or airport grid lock; **d**. In the event a facility is unable or partially unable to provide ATC services due to unforeseen circumstances; and **e**. When routings are unavailable due to severe weather or catastrophic events.
Miles-in-trail (MIT)	The number of miles required between aircraft that meet a specific criteria. The criteria may be separation, airport, fix, altitude, sector, or route specific. MIT are used to apportion traffic into manageable flows, as well as to provide space for additional traffic (merging or departing) to enter the flow of traffic.
Minutes-in-trail (MINIT)	The number of minutes required between successive aircraft. It is normally used in a non-radar environment, or when transitioning to a non-radar environment, or when additional spacing is required due to aircraft deviating around weather.
Reroutes	Reroutes are ATC routings other than the filed flight plan. They are issued to: **a.** Ensure aircraft operate with the "flow" of traffic. **b.** Remain clear of special use airspace. **c.** Avoid congested airspace. **d.** Avoid areas of known weather where aircraft are deviating or refusing to fly.

Name	Description
Sequencing programs	These programs are designed to achieve a specified interval between aircraft; they may be software generated or determined by ATFM personnel. Different types of programs accommodate different phases of flight. **1. Departure Sequencing Program (DSP)** - Assigns a departure time to achieve a constant flow of traffic over a common point. Normally, this involves departures from multiple airports. **2. En route Sequencing Program (ESP)** - Assigns a departure time that will facilitate integration in the en route stream. **3. Arrival Sequencing Program (ASP)** - Assigns fix crossing times to aircraft destined to the same airport.

Appendix 2

SAMPLE TABLE OF ABBREVIATIONS

The abbreviations listed here are those used by the ATCSCC and ATMC respectively that are not defined in the ICAO Doc. 8400 (PANS-ABC), and are provided only as an example. The shaded abbreviations are considered to be the common terms between the two centers. The asterisk shows verbatim difference in the original collocation but the abbreviation still indicates the common object. The non-common abbreviations are deemed inappropriate for the inter-facility ATFM communication between ATCSCC and ATMC.

	ATCSCC	ATMC
AAR	Airport Acceptance Rate	
ACID	Aircraft Identification	
ADL	Aggregate Demand List	
ADR	Airport Departure Rate	
ADZY	Advisory	
AIM	Aeronautical Information Manual	
ALTRV	Altitude Reservation	Altitude Reservation
ANP	Air Navigation Plan	
AOA	Office of the Administrator	
AOC	Airline Operations Center	
AP	Air Patrol	
APREQ	Approval Request	Approval Request
APVL	Approval	Approval
ARO	Airport Reservation Office	
ARTCC	Air Route Traffic Control Center	Air Route Traffic Control Center
ASM		Airspace Management
AT	Air Traffic	
ATCSCC	Air Traffic Control System Command Center	Air Traffic Control System Command Center
ATMC	Air Traffic Management Center	Air Traffic Management Center
ATMetC		Air Traffic Meteorological Center
ATO	Air Traffic Operations Program	
AUTODIN	Automatic Digital Network	
CARF	Central Altitude Reservation Function	
CCFP	Collaborative Convective Forecast Product	
CCWSU	Command Center Weather Service Unit	
CDM	Collaborative Decision Making	Collaborative Decision Making
CDR	Coded Departure Route(s)	Conditional Route
CDR	Continuous Data Recording	
CDT	Controlled Departure Time	
CFR	Code of Federal Regulations (formerly FAR)	
CIWS	Corridor Integrated Weather System	

	ATCSCC	ATMC
COMSEC	Communications Security System	
CR	Collaborative Routing	
CT	Select Flights Ground Delay Program	
CTA	Controlled Time of Arrival	
CTAS-TMA	Center TRACON Automation System Traffic Management Advisor	
CVRS	Computerized Voice Reservation System	
CWA	Central Weather Advisory	
CWSU	Center Weather Service Unit	
DARC	Direct Access Radar Channel	
DCCWU	ATCSCC Weather Unit	
DOTS	Dynamic Ocean Track System	Dynamic Ocean Track System
DP	Departure Procedure	
DSP	Departure Sequencing Program	
EDCT	Expected Departure Clearance Time	Expected Departure Clearance Time
EFAS	Enroute Flight Advisory Service	
EFTO	Encrypt For Transmission Only	
EOF	Emergency Operations Facility	
EOR	Emergency Operations Room	
EPS	Engineered Performance Standards	
ESCAT	Emergency Security Control of Air Traffic	
ETE	Estimated Time Enroute	Estimated Time Enroute
ETMS	Enhanced Traffic Management System	
EUCARF	European Central Altitude Reservation Facility	
FA	General Ground Delay Program	
FAA	Federal Aviation Administration	Federal Aviation Administration
FADT	Fuel Advisory Delay Time	
FCA	Flow Constrained Area	
FDMS		Flight Data Management System
FDPS		Flight Data Processing Section
FEA	Flow Evaluation Area	
FP	Flight Plan	
FPL	Full Performance Level	
GA	General Aviation	
GAAP	General Aviation Airport Program	
GDP	Ground Delay Program	
GS	Ground Stop	
HARS	High Altitude Route System	
HDTA	High Density Traffic Airport	

	ATCSCC	ATMC
IFCN	Interfacility Communication Network	
IFPFP	Individual Flight Plan From this Point	Individual Flight Plan From this Point
IFSS	International Flight Service Station	
INATS	Interruption of Air Traffic Service	
JCAB	Japan Civil Aviation Bureau	Japan Civil Aviation Bureau
LAA	Local Airport Advisory	
LADP	Local Airport Deicing Plan	
LOA	Letter of Agreement	Letter of Agreement
MAP	Monitor Alert Parameter	
MARSA	Military Assumes Responsibility for Separation of Aircraft	Military Assumes Responsibility for Separation of Aircraft
MEL	Minimum Equipment List	
MINIT	Minutes in Trail	
MIT	Miles in Trail	
MOS	Military Operations Specialist	
MTSAT	Multi-functional Transport Satellite	Multi-functional Transport Satellite
MVFR	Marginal Visual Flight Rules	
NADIN	National Airspace Data Interchange Network	
NAS	National Airspace System	
NAVAID*	Navigational Aid	Navigation Aid
NFDC	National Flight Data Center	
NMCC	National Maintenance Coordination Center	
NOAA	National Oceanic and Atmospheric Administration	
NOM	National Operations Manager	
NOPAC	North Pacific	North Pacific
NOS	National Oceanographic Service	
NRP	National Route Program	
NTMO	National Traffic Management Officer	
NWS	National Weather Service	
OAG	Official Airline Guide	
ODP		Oceanic Air Traffic Control Data Processing System
OPSNET	Operations Network	
OTG		Oceanic Track Generator
OTR		Oceanic Transition Route
PACMARF*	Pacific Military Altitude Reservation Facility	Pacific Military Altitude Reservation Function
PACOTS	Pacific Organized Track System	Pacific Organized Track System
PMTC	Pacific Missile Test Center	
PO	Plan of Operation	

	ATCSCC	ATMC
Pref Route	Preferential Route	
PT	Planning Team	
RA	Route Advisory	
RAA	Remote Airport Advisory	
ROT	Runway Occupancy Time	
SAA	Special Activity Airspace	
SOP	Standard Operating Procedure	
STMP	Special Traffic Management Program	
SUA	Special Use Airspace	
SVRW	Severe Weather	
SWAP	Severe Weather Avoidance Program	
TEC	Tower-Enroute Control	
TELCON	Telephone Conference	
TFM	Traffic Flow Management	
TIS	Traffic Information System	
TMC	Traffic Management Coordinator	Traffic Management Coordinator
TMCIC	Traffic Management Coordinator in Charge	
TMI	Traffic Management Initiative	
TMU	Traffic Management Unit	Traffic Management Unit
TSTM	Thunderstorm	
WSO	Weather Service Office	

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ICAO ASIA/PACIFIC SEMINAR/WORKSHOP
AIR TRAFFIC FLOW MANAGEMENT

(Fukuoka, Japan, 7-9 October 2008)

PROGRAMME

TUESDAY, 7th October 2008		
TIME	**TITLE AND SUMMARY**	**SPEAKER & ORGANIZATION**
0915-1000	Registration of Delegates	
1000-1030	Opening of the Seminar/Workshop, Administration, Introduction of Delegates.	Moderators: Mr. Andrew Tiede - ICAO Regional Officer ATM, Asia/Pacific Office Mr. XXXX, JCAB
1030 - 1100	**Coffee/Tea**	Sponsored by JCAB?
1100-1145	ICAO ATFM Provisions & APANPIRG Key Priorities	Mr. Andrew Tiede - ICAO
ATFM in the Asia Pacific Region today		
1145-1215	Air Traffic Management Centre Fukuoka	JCAB
1215-1245	Air Traffic Flow Management Unit, Bangkok	AEROTHAI
1245 - 1345	**Lunch**	Sponsored by JCAB?
1345-1430	Air Traffic Flow Management in Australia	Airservices Australia
1430-1500	Air Traffic Flow Management in China	Air Traffic Management Bureau of CAAC
1500-1530	Air Traffic Flow Management – the Customer's Perspective	IATA
1530 - 1600	**Coffee/Tea**	Sponsored by JCAB?
1600-1630	*Presentation*	
1630-1700	Questions and Answers Panel session	All Speakers from the day

ICAO AIR TRAFFIC FLOW MANAGEMENT SEMINAR/WORKSHOP – DAY 2

WEDNESDAY, 8th October 2008		
TIME	**TITLE AND SUMMARY**	**SPEAKER & ORGANIZATION**
0945 - 1000	Opening Remarks Day 2	Andrew Tiede - ICAO
ATFM in other Regions		
1000-1030	CCFMEX	SEANAM
1030 - 1100	**Coffee/Tea**	Sponsored by JCAB?
1100-1200	EUROCONTROL Central Flow Management Unit	EUROCONTROL
1200 -1300	Overview of Regional ATFM initiatives in North America, Caribbean and South America (CONOPS, Data Exchange, ATFM TF etc)	FAA
1300 - 1400	**Lunch**	Sponsored by JCAB?
1400-1430	National Operations Centre	NAV CANADA
1430-1500	*Presentation*	
1500-1530	*Presentation*	
1530 - 1600	**Coffee/Tea**	Sponsored by JCAB?
1600-1630	Implementation of ATFM – the first steps	FAA
1630-1700	Questions and Answers Panel session	All Speakers from the day

ICAO ASIA/PACIFIC ATFM SEMINAR/WORKSHOP – DAY 3

THURSDAY, 9th October 2008		
TOPIC ID, TIME	**TITLE AND SUMMARY**	**SPEAKER & ORGANIZATION**
0900-1000	*Travel to Fukuoka ATMC*	*Surface transport arrangements from Hotel to Fukuoka ATMC by JCAB*
Where does Asia Pacific go from here?		
1000 - 1030	The Bay of Bengal long range ATFM implementation – Lessons from the ATFM Task Force. A Regional Office perspective	Mr. Andrew Tiede - ICAO Regional Officer ATM, Asia/Pacific Office
1030-1100	ATFM Workshop - Part 1 Guidance Materials – Recommendation and Update	Moderators: Mr. Andrew Tiede – ICAO Ms XXXXX etc
1100 - 1130	**Coffee/Tea**	Sponsored by JCAB?
1130-1215	ATFM Workshop - Part 2 Proposals for Consideration by APANPIRG	Moderators: Mr. Andrew Tiede – ICAO Ms XXXXX etc
1215-1245	Summary and Closing of ICAO Asia/Pacific ATFM Seminar/Workshop	
1245 - 1430	**Lunch**	Sponsored by JCAB
1430-1630	Visit to ATFM and ATC facilities at the Fukuoka Air Traffic Management Centre	Hosted by Fukuoka ATMC
1630 onwards	Return to Hotel	*Transport arrangements from Fukuoka ATMC to Hotel by JCAB*

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Cospas-Sarsat Distress Beacons

South Pacific Newsletter

1. Phase-out of 121.5 MHz Satellite Processing on 1 February 2009

In October 2000 the International Cospas-Sarsat Program, announced at its 25th Council Session held in London, UK that it plans to terminate satellite processing of distress signals from 121.5 and 243 MHz distress beacons on February 1, 2009. All mariners, aviators, and individuals using distress beacons on those frequencies will need to switch to those operating on the newer, more reliable, digital 406 MHz frequency if they want to be detected by satellites.

The decision to stop satellite processing of 121.5 / 243 MHz signals is due to problems in this frequency band, which inundate search and rescue authorities with poor accuracy and numerous false alerts, adversely impacting the effectiveness of lifesaving services. The 406 MHz beacons provide search and rescue agencies with more reliable and complete information to do their job more efficiently and effectively.

The Cospas-Sarsat Program made the decision to terminate 121.5/243 MHz satellite alerting services, in part, in response to guidance from the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO). These two agencies of the United Nations are responsible for regulating the safety on international transits of ships and aircraft, respectively, and handling international standards and plans for maritime and aviation search and rescue.

2. 406 MHz Beacons

The Cospas-Sarsat System provides alerting services for the following types of beacons:

- Emergency Locator Transmitters (ELTs) for aviation use
- Emergency Position-Indicating Radiobeacons (EPIRBs) for maritime use
- Personal Locator Beacons (PLBs) for applications which are neither aviation or maritime

Cospas-Sarsat Distress Beacons

406 MHz beacons have a built-in, low-power homing beacon that transmits on 121.5 MHz. This allows rescue forces to home in on a beacon once the 406 MHz satellite system has gotten them "in the ballpark" (about 2-3 miles). Some beacons transmit a GPS-encoded position, which dramatically improves the location accuracy down to the 100-meter level…that's roughly the size of a football field!

Geostationary satellites can instantly detect beacon signals. This means that even a brief inadvertent signal can generate a false alert. Make sure that when you test your beacon that you follow the manufacturer's recommendations carefully. Tests by beacon owners should only be done in the beacon's "self-test" mode.

	EPIRBS are for use in maritime applications. They transmit a digital identification code on 406 MHz and a low-power "homing" signal on 121.5 MHz.

Cospas-Sarsat Distress Beacons

	ELTs were intended for use on the 121.5 MHz frequency to alert aircraft flying overhead. Presently, most aircraft operators are mandated to carry an ELT and have the option to choose between either a 121.5 MHz ELT or a 406 MHz ELT. Australia will require all aircraft to carry 406 MHz ELTs from 1 Feb 2009.
	PLBs are portable units that operate much the same as EPIRBs or ELTs. These beacons are designed to be carried by an individual person instead of on a boat or aircraft. Unlike ELTs and some EPIRBs, they can only be activated manually.

3. Registration of 406 MHz Beacons

It is crucial that 406 MHz distress beacons be registered in recognized beacon registration databases, which will be accessible to search and rescue authorities at all times. The information contained in these databases concerning the beacon, its owner, and the vehicle/vessel on which the beacon is mounted is vital for the effective use of Search and Rescue resources. The proper registration of a beacon could make the difference between success and failure of a search and rescue mission.

All beacons are coded with an International Telecommunication Union (ITU) assigned 3-digit country code eg. Fiji has been assigned the code 520. These codes, called the maritime identification digit (MID), can be obtained from the ITU web site at: http://www.itu.int/cgi-bin/htsh/glad/cga_mids.sh?lng=E

Cospas-Sarsat Distress Beacons

Beacons should be coded with the MID of the country maintaining the beacon registration database. However a country may choose to register their country-coded beacons in the International 406 MHz Beacon Registration Database (IBRD) the procedure and details of which are provided below. This information should be provided to IMO, ICAO and Cospas-Sarsat.

Process for Registering a Beacon in the Cospas-Sarsat International 406 MHz Beacon Registration Database (IBRD)

Your country may have elected to allow you to directly register your beacon in the International 406 MHz Beacon Registration Database (IBRD), available online and free of charge at www.406registration.com. It provides capability to register 406 MHz distress beacons and has extensive online help capabilities.

Individual beacon owners may register their beacons and select their own passwords during the registration process if this use of the IBRD has been allowed by their national Administration.

You will need the following information to register a beacon:

- Beacon Hexadecimal Identification (15 Hexadecimal characters)
- Owner name and phone number
- Emergency contact name and phone number
- Vehicle type (selectable from a menu)
- Vehicle name, MMSI, call sign or identification number (except for PLBs).

Administration User Accounts

The IBRD is freely available to users with no access to national registration facilities and to Administrations who wish to avail themselves of the facility to make their national beacon registration data more available to SAR services.

SAR Services and others wishing to query the IBRD will require passwords issued by the Cospas-Sarsat Secretariat. In order to acquire appropriate passwords to access the IBRD, National Administrations should:

- designate a National IBRD Point of Contact, and
- request that the Cospas-Sarsat Secretariat allocate user identifications and passwords to their National IBRD Point of Contact.

The password and user identification request must be provided in writing to the Database Administrator (i.e. the Cospas-Sarsat Secretariat) and must carry the signature of the Cospas-Sarsat/IMO/ICAO Representative of the Administration. A letter template can be obtained from:
http://www.cospas-sarsat.org/DocumentsDSeries/IBRDTemplateLetter.doc

Cospas-Sarsat Distress Beacons

4. More Information

Further information on the phase-out of 121.5 MHz satellite processing and beacon coding and registration can be obtained from the web sites provided below.

- Cospas-Sarsat
  http://www.cospas-sarsat.org/
  www.406registration.com
  http://www.cospas-sarsat.org/DocumentsDSeries/IBRDTemplateLetter.doc

- ITU
  http://www.itu.int/cgi-bin/htsh/glad/cga_mids.sh?lng=E

- Australian Maritime Safety Authority
  http://beacons.amsa.gov.au/index.asp

- Maritime New Zealand
  http://www.maritimenz.govt.nz/SAR/about_beacons.asp

- USA NOAA Satellite and Information Service
  http://www.sarsat.noaa.gov/

- End of Document -

STATE SAR AGREEMENTS

(last updated 27 June 2008)

ID NO.	DATE	STATES	REMARKS
1	14 April 1972	ASEAN States - Indonesia, Malaysia, Philippines, Singapore and Thailand	Multilateral agreement for the facilitation of search for aircraft in distress and rescue of survivors of aircraft accidents
2	March 1997	Viet Nam - ASEAN	Viet Nam signed instrument of accession to 1972 ASEAN Agreement (as above)
3	June 1982	Indonesia / Singapore	
4	11 August 1984	Malaysia / Singapore	
5	29 August 1985	Malaysia / Indonesia	
6	September 1985	Singapore / Thailand	Updated July 1996
7	9 September 1985	Malaysia / Thailand	
8	9 December 1985	Malaysia / Philippines	
9	August 1986	Indonesia / Philippines	
10	1986	United States / Japan	
11	1988	United States / Indonesia	
12	1990	Indonesia / Papua New Guinea	JBC MOU signed
13	November 1990	Australia / Indonesia	Updated 5 April 2004
14	July 1996	Philippines / Singapore	
15	July 1996	Viet Nam / Singapore	
16	September 1996	Viet Nam / Philippines	
17	16 December 1998	Malaysia / Brunei Darussalam	
18	1998	Lao PDR / Vietnam	LOA for provision of assistance
19	February 1999	Cambodia / Viet Nam	
20	February 2001	Australia / Papua New Guinea	
21	September 2002	New Caledonia / New Zealand	
22	November 2002	United States / Republic of Palau	

ID NO.	DATE	STATES	REMARKS
23	2003	United States / New Zealand	
24	notified 2003	United States / Marshall Islands	
25	notified 2003	United States / Micronesia	
26	notified 2003	United States / China	
27	June 2005	Tonga / New Zealand	
28	notified 2005	New Zealand / Australia	
29	notified 2005	New Zealand / Samoa	
30	April 2006	Australia / Maldives	Letter of Arrangement
31	notified July 2006	Indonesia / United States	Agreement on the Coordination of SAR Services
32	notified July 2007	New Zealand / Cook Islands,	
33	notified July 2007	New Zealand/Chile	Final draft agreement being considered by authorities in Chile
34	notified July 2007	New Zealand/Niue	No requirement for separate SAR agreement, covered under Government to Government aid agreement
35	notified July 2007	New Zealand/Tahiti French Polynesia	Final draft agreement being considered by authorities in Tahiti
36	notified July 2007	New Zealand/Tokelau	No requirement for separate SAR agreement, covered under Government to Government aid agreement

*ATM/AIS/SAR/SG/18 re-ordered the List by date, any additional updated entries by ATM/AIS/SAR/SG/18 in bold type,

Analysis of SAR Capability of ICAO States in the ASIA/PAC Region

	Training	Alerting	Legislative	SAR committee	Agreements	Relationships	Communications	Quality Control	Civil/Military	Resources	SAREX	Library	Computerisation	SAR programme	Supply dropping	Special equipment	SAR aircraft	Navigation	ELTs	Cospas-Sarsat Distr
Australia	E	E	E	E	E	C	E	E	E	E	E	E	E	E	E	E	E	C	E	
Bangladesh	B	C	D	A	A	C	C	A	D	A	A	C	A	A	C	C	D	A	D	C
Bhutan																				
Brunei	E	E	E	E	E	E	E	E	E	E	E	E	E	E	D	D	E	E	E	A
Cambodia	B	B	B	B	B	B	C	A	B	B	A	C	A	A	A	A	B	A	A	A
China	E	E	E	E	E	E	D	D	E	D	D	C	B	A	E	E	E	E	E	A
Cook Islands	A	B	B	A	A	C	C	C	B	A	B	A	A	A	A	B	B	A	E	A
DPR Korea	B	D	B	D	A	B	D	D	D	C	B	A	A	A	B	A	C	C	A	A
Fiji	B	C	C	C	C	C	C	B	D	C	D	C	A	C	B	A	C	C	C	A
French Polynesia	C	D	D	D	C	D	E	A	E	C	C	B	A	A	E	D	E	E	E	A
Hong Kong, China	E	E	E	E	D	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
India	D	C	C	B	B	C	C	A	C	C	C	C	C	D	D	D	C	A	B	E
Indonesia	E	D	E	E	E	D	D	D	E	D	E	D	D	D	C	D	D	D	D	E
Japan	E	E	E	E	D	E	E	E	E	E	E	E	D	E	E	E	E	E	E	E
Kiribati																				
Lao PDR	B	A	B	B	B	A	B	A	B	B	A	C	A	A	A	A	A	A	A	A
Macau, China	E					E	E				E						E			
Malaysia	E	E	C	E	D	E	E	E	E	E	E	D	E	E	E	D	E	E	E	B
Maldives	B	A	A	A	A	A	A	A	D	A	C	A	A	A	A	A	A	A	A	A
Marshall Islands																				
Micronesia	C	B		A	A	B	C					A		B	B					
Mongolia	A	C	C	A	B	B	B	A	B	B	B	C	B	B	A	A	A	A	B	A
Myanmar	B	A	B	C	A	D	C	C	D	A	A	A	A	A	C	A	D	C	A	A
Nauru																				
Nepal	D	D	C	B	A	C	C	B	D	B	A	B	A	D	D	C	D	D	D	B
New Caledonia	C	D	D	D	C	D	E	A	E	C	C	B	A	A	E	D	E	E	E	E
New Zealand	E	E	E	E	A	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Pakistan	C	C	D	D	A	D	D	C	D	C	A	A	A	A	D	A	D	D	C	E
Palau																				
Papua New Guinea	D	E	D	C	D	D	C	C	D	C	C	D	C	C	C	A	A	A	E	A
Philippines	D	C	E	D	D	C	D	D	E	C	C	C	C	C	C	B	C	E	C	A
Rep. of Korea	C	C	C	C	C	D	E	E	E	E	C	A	D	E	D	E	E	E	E	E
Samoa																				
Solomon Islands																				
Singapore	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sri Lanka	D	A	C	D	B	C	C	D	E	D	B	C	A	A	D	D	C	A	C	A
Thailand	E	E	E	E	D	E	E	E	E	E	E	D	D	D	E	E	E	E	E	E
Timor Leste																				
Tonga	C	B	A	A	B	C	C	A	D	A	A	A	A	A	A	A	C	A	E	A
United States	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Vanuatu																				
Viet Nam	D	D	D	E	D	D	D	C	E	D	C	C	B	C	C	D	D	C	D	**D**

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Categorisations:	
A = Not implemented	D = Meets Annex 12 requirements in most areas
B = Initial implementation	E = Fully meets Annex 12 requirements
C = Meets Annex 12 requirements in some areas	Blank = No response

APANPIRG State SAR Capability Matrix

Guidance to complete the Matrix

1. **Training**
   - The appropriate level and type of training for SAR coordinator, SAR mission coordinator, on-scene coordinator, and operational facilities. (IAMSAR Manual Vol. 1, Chapter 3)

2. **Alerting**
   - Fast and reliable means for the rescue coordination center to receive distress alerts. (IAMSAR Manual Vol. 1, Chapter 2)

3. **Legislative**
   - Statutes and related provisions that establish a legal foundation for establishing a SAR organization and its resources, policies, and procedures. (IAMSAR Manual Vol. I, Chapter 1)

4. **SAR committee**
   - Typically established under a national SAR plan, the SAR coordinating committee is comprised of SAR system stakeholders. (IAMSAR Manual Vol. 1, Chapter 6 and Appendix J)

5. **Agreements**
   - States should enter into agreements with neighboring States to strengthen SAR cooperation and coordination. (Chapter 3 – *Cooperation*, in both Annex 12 – Search and Rescue, and the International Convention on Maritime SAR)

6. **Relationships**
   - Close cooperation between services and organizations which may contribute to improving SAR service in areas such as operations, planning, training, exercises and research and development.

7. **Communications**
   - Communication capability for receipt of distress alerts and operational coordination among the SAR mission coordinator, the on-scene coordinator and SAR facilities. (IAMSAR Manual Vol. 1, Chapter 3)

8. **Quality Control**
   - Procedures to focus on improving the quality of SAR services so as to improve results and reduce costs. (IAMSAR Manual Vol. 1, Chapter 6)

9. **Civil/Military**
   - Close cooperation between the various civilian and military organizations.

10. **Resources**
    - The primary operational facilities made available to the national SAR system by various authorities and arrangements with others. (IAMSAR Manual Vol. 1, Chapter 5 and Appendix C)

11. SAR Exercise

- Exercise to test and improve operational plans, provide learning experience and improve liaison and coordination skills. (IAMSAR Manual Vol. 1, Chapter 3; Annex 12, and Annex 14 regarding Airport Emergency Plan)

12. Library

- Quick access to the applicable international, national, and agency SAR publications that provide standards, policy, procedures and guidance.

13. Computerization

- Use of or access to output of various computer resources including databases, computer aids for SAR system management, search planning software, etc. (IAMSAR Manual Vol. 1, Chapter 2)

14. SAR programme

- National structure to establish, manage and support the provision and coordination of SAR services. (IAMSAR Manual Vol. 1, Chapter 1)

15. Supply dropping

- Supplies and survival equipment carried by air and maritime SAR facilities to aid survivors and facilitate their rescue, as appropriate. (IAMSAR Manual Vol. 1, Chapter 2 and Appendix B)

16. Special equipment

- Equipment created for specific rescue scenarios (such as mountain or desert rescue) and equipment typically carried on designated SAR units to support coordination and locating functions as well as special supplies and survival equipment to aid survivors and facilitate their rescue. (IAMSAR Manual Vol. 1, Chapter 2 and 4)

17. SAR aircraft

- An aircraft provided with specialized equipment suitable for the efficient conduct of SAR missions (Annex 12, Chapter 2 - *Organization*)

18. Navigation

- Suitable means provided within the SAR region to determine position, and the responding SAR facilities have the appropriate equipment on board to determine their position in the SAR region they are likely to operate. (IAMSAR Manual Vol. 1, Chapter 2)

19. Emergency Locator Transmitter (ELT)

- National regulations for carriage of ELTs, and arrangements for registration of the 406 MHz beacon and rapid access to the beacon registration database. (Annex 6 – Operation of Aircraft and Annex 10 - Aeronautical Telecommunications; and IAMSAR Manual Vol. 1, Chapter 4)

20. Cospas-Sarsat Distress Alerts

- A SAR Point of Contact (SPOC) designated for receipt of Cospas-Sarsat distress data, and arrangements for efficient routing of the distress data to the appropriate SAR authority (the aeronautical emergency locator transmitter ELT), maritime emergency position-indicating beacon (EPIRB), and personal locator beacon (PLB)). (Annex 12, paragraph 3.2.5 and Section 2.4; and, IAMSAR Manual Vol. 1, Chapter 4)

AERONAUTICAL INFORMATION SERVICES SEMINAR/WORKSHOP SPECIAL IMPLEMENTATION PROJECT FOR THE ASIA/PACIFIC REGION

SUMMARY

Project: Conduct a combined workshop/seminar for States in the Asia/Pacific Region to address issues related to aeronautical information services (AIS) automation and electronic terrain and obstacle data (eTOD) implementation.

Objective: To ensure that all concerned States of the Asia/Pacific Region have up-to-date information enabling the set-up of proper mechanisms to ensure the improvement of AIS capability towards automation and to demonstrate to States methodologies to draw up an action plan with a view to meeting the implementation of eTOD timeline of November 2008, as required by Annex 15 — *Aeronautical Information Services*.

Strategic Objectives: A7 and D1

Performance measurement: Widespread participation of Asia/Pacific States at the workshop/seminar and provision of an information package to participants demonstrating, *inter alia*, methodologies to prepare action plans for eTOD implementation.

1. NEED FOR THE PROJECT

1.1 Planning for the improvement of AIS automation and implementation of eTOD is being carried out within the framework of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) AIS Implementation Task Force, which was reactivated by APANPIRG/14 (August 2003, Bangkok) under Conclusion 14/8. Progress has been slow regarding planning for the improvement of AIS capability and the implementation of eTOD in the Asia/Pacific Region, due in part to a lack of full understanding of AIS automation and eTOD provisions.

1.2 With a view to drawing the attention of States concerned to their responsibilities and requirements, APANPIRG/18 formulated Conclusions 18/12 – *Assistance to States to improve AIS capability* and 18/15 – *Strategies to implement eTOD*. ICAO has been invited to explore the possibility of assisting States in the Asia/Pacific Region through a special implementation project to train personnel involved with the improvement of the AIS automation and the implementation of eTOD for the regional implementation in November 2008.

2. SCOPE OF THE PROJECT

2.1 It is proposed that, during the latter half of 2008, a two-day visit be paid to a State identified as needing assistance with AIS matters, immediately followed by the seminar/workshop conducted in the State.

2.2 The objective of the visit would be to identify problem areas and to ensure that the identified State in the Asia/Pacific Region has set up a proper mechanism to ensure the improvement of AIS automation and the implementation of eTOD in November 2008. The objective of the seminar/workshop would be to assist States generally to better understand automation and eTOD provisions and have the ability to draw up an action plan with a view to meeting the implementation timelines that have been set.

3. DURATION OF THE PROJECT

3.1 The five-day project would begin not later than the third quarter of 2008.

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AGENDA ITEM 4: CONSIDER PROBLEMS AND MAKE SPECIFIC RECOMMENDATIONS CONCERNING THE PROVISION OF ATM/AIS/SAR IN THE ASIA/PACIFIC REGION

Agenda Item 4: Consider problems and make specific recommendations concerning the provision of ATM/AIS/SAR in the Asia/Pacific Region

Review of the Recommendations of the 44th Conference of Directors General of Civil Aviation Asia and Pacific Regions

4.1 The meeting was informed of the outcomes of the 44th Conference of Directors General of Civil Aviation (DGCAs), Asia and Pacific Region which was hosted by the General Administration of Civil Aviation of China and was held in Xi'an, China, during October 2007. The Conference was attended by 231 delegates from 35 States/Administrations and 5 International Organizations.

4.2 The meeting reviewed the action items agreed to by the DGCA/44 relating to the work programme of the Sub-Group in the fields of ATM/AIS/SAR as follows:

Action Item 44/1	Resolution of Deficiencies;
Action Item 44/2	Safety Management Systems (SMS);
Action Item 44/6	Implementation of Performance Based Navigation (PBN);
Action Item 44/7	Language Proficiency;
Action Item 44/8	2008 Olympic Games: and
Action Item 44/14	Management of Aviation's Environmental Impacts

4.3 The meeting agreed that Items 44/1, 44/2, 44/6 and 44/8 were already covered by the work of the Sub-Group and APANPIRG. The meeting supported the initiatives in Items 44/7 and 44/14 and urged States to review and comply with the Recommendations of the 44th DGCAs Conference.

Implementation of RVSM in Africa

4.4 The meeting noted that AFI region intends to implement RVSM on 25 September, 2008 and that a Go/No Go decision will be taken during the week commencing July 21, 2008. Asia/Pacific FIRs that have borders with AFI region FIRs were requested to take appropriate action to ensure a safe implementation if a "Go" decision is taken in July by the AFI RVSM Task Force.

4.5 Australia, India and the Maldives, with FIRs neighbouring the AFI Region, were requested to confirm to the Asia/Pacific Regional Office their awareness of the RVSM implementation and also confirm that arrangements will be in place such that the planned September 2008 implementation date can be met. Maldives was not represented at the meeting, so the Regional Office would conduct follow up coordination by correspondence. Both Australia and India confirmed their awareness of the AFI RVSM implementation and their intention to have planned arrangements in place to support this implementation. However, India indicated that, to their present knowledge, as yet there has been no coordination from the AFI RVSM Task Force or affected African States with India in relation to moving these matters forward and no invitation or other communication had been received to the Go/No Go meeting in late July.

4.6 The Secretariat would relay this concern to the ICAO HQ Coordinator of the AFI RVSM Task Force and suggest that direct coordination be established between the affected States for the purposes of updating operational Letters of Agreement.

Review of the Asia and Pacific ATS Route Catalogue

4.7 The meeting noted that the *Asia/Pacific ATS Route Catalogue* Version 5 will soon be available from the ICAO Asia and Pacific Office web site (http://www.icao.int/apac/) under the menu "eDocuments". On-going updates had been undertaken by the Regional Office based on the information made available by States and airspace users. The Secretariat encouraged all States and international organisations to review the ATS Route Catalogue regularly in accordance with APANPIRG Conclusion 16/10, take action on the route requests in the Catalogue and provide updated information to the Regional Office regularly for inclusion in the Catalogue.

Review of AIS Implementation Task Force (AITF/3)

4.8 The meeting reviewed the report of the third meeting of the AIS Implementation Task Force (AITF/3, June 20008) and agreed that the Terms of Reference of the Task Force be amended as follows and the name of the Task Force be changed to the Aeronautical Information Services – Aeronautical Information Management (AIM) Implementation Task Force (AAITF).

TERMS OF REFERENCE OF THE AIS-AIM IMPLEMENTATION TASK FORCE (AAITF)

The objectives of the Task Force are to:

a) study means of aeronautical data management by civil aviation authorities and/or ATS providers in other regions including the aeronautical information exchange model (AIXM) and the electronic AIP (eAIP), and consider the feasibility in making use of these methods/models in the Asia/Pacific Region;

b) examine the means of aeronautical data exchange used in other regions and application in the Asia/Pacific Region, and based on a), develop guidance material for operation of data management systems;

c) assist States to implement Quality Systems for aeronautical information in an expeditious manner;

d) develop training material and conduct workshops on the Guidance Manual for AIS in the Asia/Pacific Region;

e) develop guidance material for Static Data Procedures and the AIS Automation Plan;

f) review and update the Guidance Manual taking into account amendments to ICAO SARPs, guidance material; ~~and~~

g) monitor and review technical and operating developments in the AIS field especially in the area of automation and database management~~.~~;and

h) monitor the transition from AIS to AIM, and in particular monitor development of the replacement Annexes 4 & 15 and guidance documents under development by ICAO.

To achieve the above objectives, the Task Force shall consider:

a) results of the ICAO ~~Aeronautical Data Model Study Group (ADMSG)~~ Aeronautical Information Services-Aeronautical Information Management Study Group (AIS-AIMSG);

b) amendments to Annex 4, Annex 15, the AIS Manual (Doc 8126), and the Aeronautical Chart Manual (Doc 8697); and

c) revisions to the EUROCONTROL Operating Procedures for AIS Dynamic Data (OPADD)~~;~~.

The Task Force will report to the ATM/AIS/SAR Sub-Group of APANPIRG

(Adopted by the 14th meeting of Asia/Pacific Air Navigation Planning and Implementation Regional Group, 2003, and amended by the 18th meeting of the ATM/AIS/SAR/SG, 2008)

4.9 It was reported that the Air Navigation Commission (ANC) had agreed, in view of the complexity of the issues involved in the transition from AIS to AIM, that a new study group be established to assist the Secretariat in progressing the work programme. The ANC had named the new study group as the Aeronautical Information Services – Aeronautical Information Management Study Group (AIS-AIMSG) to indicate its involvement with the transition from AIS to AIM and so as not to cause confusion with the existing Accident Investigation Methodology Study Group (AIMSG).

4.10 Australia also provided some proposed actions (and "tools" in the form of draft letters) that might assist States in their endeavours to eliminate the AIS-related deficiencies. It was agreed that the draft letters would be useful tools in this respect in attracting remedial action to improve the AIS outcomes in their States, and in particular, adherence to the AIRAC notification in the Action Plan number 6.

4.11 AITF/3 reviewed Euro Operating Procedures for AIS Dynamic Data (OPADD) Edition 2.1 and formulated a recommendation that Edition 2.1 be adopted. In considering this matter, the Sub-Group recognized that Euro OPADD Edition 2.0 had been previously been adopted as regional guidance material under the terms of APANPIRG Conclusion 18/13 and that the Edition 2.1 was an updating amendment to the Edition 2.0. Accordingly, the meeting agreed with the AITF/3 recommendation and requested that the Secretariat take action to update Chapter 3 (OPADD) of the *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region* with the Edition 2.1.

Preventive Measures against Runway Incursions in Japan

4.12 The meeting reviewed a paper from Japan on preventive measures being developed to prevent runway incursions in Japan. Hong Kong, China provided information in relation to their activities in this regard and requested that they be kept up to date with information from Japan. It was agreed that there was a need by States to address this issue in an expeditious manner. The Secretariat re-distributed the ICAO Runway Safety Tool Kit on CD-ROM.

4.13 The meeting was advised that Asia/Pacific COSCAPs are liaising with the United States Federal Aviation Administration (FAA) for support to conduct a runway safety seminar in the region and the United States anticipated that the FAA would be in a position to offer support in presenting such a seminar. Hong Kong China and Japan also indicated that they expected to be in a position to support a runway safety seminar/workshop during 2009. This event will be open to all States regionally. The meeting formulated the following draft Conclusion.

Draft Conclusion SG/18/4 – Conduct regional runway safety seminar/workshop

That, noting the critical nature and persistent occurrence of runway incursions, the ICAO Asia/Pacific Regional Office, with assistance from States experienced in runway safety management and in conjunction with the COSCAPS of South Asia, South East Asia and North Asia, conduct a 3-day runway safety seminar/workshop during 2009.

Fuel Savings through lifting of Speed Restrictions for SIDs

4.14 A paper from IATA detailed the significant costs incurred if speed restrictions on SIDs are applied, in particular the widespread application of 250 knots below 10 000 feet. They requested that those airports in the Asia/Pacific Region which impose the speed restrictions on the SIDs systematically review these to examine if restrictions are still needed. IATA would assist by asking member airlines to fly the departures in a simulator to validate the results.

4.15 The meeting noted that in Appendix 4 to Annex 11 speed limitations of 250 kt below 10 000 ft AMSL are required for certain airspace classes. In addition, the meeting noted advice that speed restrictions are imposed in SID design for obstacle clearance requirements, and are used to regulate air traffic in terminal areas with different aircraft types and also where the same aircraft type fly at different speeds. Lifting speed restrictions in the latter case may necessitate an increase in the departure interval to ensure that minimum separation is maintained. The meeting agreed that States should be encouraged to review SIDs on a case by case basis with a view to lifting speed restrictions where appropriate and in accordance with the aforementioned relevant design and airspace management requirements.

Results of IATA, IFALPA and OPMET/M TF Team regarding TAF in VOLMET Survey

4.16 The meeting reviewed the results of the TAF in VOLMET Survey and noted the results indicate an overwhelming response for the continuing requirement of TAF in VOLMET broadcasts. Accordingly, the meeting supported the requirement that the TAF be retained in VOLMET broadcasts where it is currently in operation.

4.17 The meeting also noted the IFALPA view that a TAF validity of less than 12 hours or even 9 hours or less is required by pilots, and that the longer 30 hour TAF proposed in the Annex 3 amendment effective November 2008 will be primarily used for flight planning. The meeting recognized that the need for a shorter duration TAF to meet the needs of short haul operations in the Pacific region in particular would be discussed at the CNS/MET Sub Group meeting, with the objective of identifying a regional requirement.

30-Hour TAF – Timetable for Regional Implementation

4.18 The meeting noted the OPMET/M TF suggested Asia/Pacific implementation plan for new TAF provision.

Volcanic Ash Simulation Exercises in the EUR/NAT Region

4.19 Information was presented to the meeting concerning the exercise held by the EUR/NAT Region in February 2008 to test and validate contingency plans in the EUR and NAT regions and to improve the response to volcanic eruptions and volcanic ash clouds. The exercise required coordination and cooperation between MET offices including MWOs, VAACs London and Toulouse, airline operators, ANSPs and CFMU.

4.20 SIGMET WV tests in the Asia and Pacific Region are conducted by MET units only including VAACs and WMOs. The objective of the tests is to find out the availability of the SIGMET data and status of format compliance of SIGMET data. Some testing messages were sent to ATCCs for information. The Asia/Pacific exercises have not involved the participation of ATM and airlines personnel.

4.21 The meeting noted the previous discussions in APANPIRG meetings about the development of contingency plans for volcanic ash events and that previous APANIRG Conclusions drew attention to ASHTAM and development of a standard message format for volcano observatories participating in IAVW.

Updates on ATM/AIS/SAR Activities in Viet Nam

4.22 The meeting noted information from Viet Nam detailing the extensive range of activities carried out during 2007/8 and civil aviation developments in Viet Nam. Areas covered included regulations; guidance material and manuals; ATS routes and operations; AIS and SAR; and corrective action for deficiencies.

New Air Traffic Control Centre (ATCC) in Hong Kong

4.23 The meeting was informed that to ensure the provision of a consistently high standard of air navigation services within the Hong Kong FIR, the Civil Aviation Department of Hong Kong (CAD) has initiated a plan to replace the ATC system. A new ATCC is also planned to be commissioned by end of 2012 to accommodate the new ATC system.

4.24 The meeting noted that, considering the scale and extent of the changes, CAD will impose a 12-month moratorium, spanning 6 months before and after the commissioning of the new ATCC, during which changes in ATC procedures and the airspace arrangements within the Hong Kong FIR will be frozen. Minor changes to the procedures will be accommodated only if considered absolutely necessary.

FAA Evaluation of the Effectiveness of the Current Airspace/Route Structures and Oakland Air Route Traffic Control Center (ARTCC) Air Traffic Service (ATS) Route Realignment Update

4.25 The meeting noted that in support of ICAO's efforts to reduce operator costs and ecological impacts due to aircraft engine emissions, the FAA continues to undertake efforts to identify areas where airspace efficiency can be improved. As informed to the ATM/AIS/SAR/SG/17 meeting last year, Oakland Air Route Traffic Control Center (ARTCC) evaluated its current ATS route structure and determined that efficiencies could be gained by realigning the airways. A number of ATS route improvements had been identified for action during 2007/2008. The meeting noted the FAA activities to enhance efficiency and improve the effectiveness of the current airspace/route structures. These efficiency measures include User Preferred Routes (UPR), Dynamic Airborne Reroutes, a flexible route system, and tailored arrivals. The FAA is working with other ANSPs in the Pacific to increase the use of these measures as appropriate.

4.26 Already largely completed, the overall Oakland ATS Route Restructure is projected to save 330,000 flying miles a year. That equates to a savings of 3.6 million kg of fuel and 10.8 million kg of CO_2 emissions annually. Recognizing the beneficial outcomes achieved in a short time frame, the meeting congratulated the United States on these extensive airspace and route enhancements. The meeting recognized that even small improvements were worth pursuing and urged States to follow the example set by the United States.

Satellite Data Communications Performance in Oceanic and Remote Regions and the work of the FANS Satcom Improvement Team (FANS SIT)

4.27 The meeting noted the need to promote regional and global activities to improve service reliability and availability of satellite data communications in order to satisfy steadily increasing demand for data link services.

4.28 The United States presented information on satellite data communications performance and the work of the FANS Satcom Improvement Team (FANS SIT) to raise awareness among Sub-Group members of the important global issues affecting the availability of satellite data link services. In response to continuing stakeholder concerns about SATCOM data link performance, Inmarsat instigated formation of the FANS SATCOM Improvements Team (FSIT). Government and industry stakeholders were invited to contribute to assessing viable short, medium and long term changes to the system to improve both FANS and airline operations center (AOC) SATCOM data link network performance. Stakeholders represented at this group include FAA, Inmarsat, ARINC, SITA, Continental, British Airways, Boeing, Airbus, Japan Civil Aviation Bureau (JCAB), T & T, SED, SPCI, Honeywell, Rockwell Collins, Stratos, Vizada, IATA, Airways New Zealand, Airservices Australia, NavCanada and ICAO.

4.29 At FSIT/4 (2-3 June 2008) key points discussed by the group were; evolved performance requirements, including outages and latency; improved end-to-end monitoring; and, GES software upgrades, including availability through automated redundant architecture. The FSIT also explored solutions to performance goals including redundancy between GES, improved reliability in GES/network and capacity planning.

4.30 Critically, FSIT/4 concluded that, with funding, the targeted RCP for 30/30 NM operations could be achieved subject to airlines implementing a no cost software change in parallel with enhancements to the ground infrastructure. The estimated total funding needed for all the improvements is between $15-20M to cover; ground infrastructure changes and provision of service bulletin by Honeywell and Rockwell/Collins (and endorsed by Boeing and Airbus) for software upgrades to the satcom avionics. Cost estimates from all parties have been solicited to confirm/refine the total.

4.31 Finally, FSIT/4 came to consensus that without the necessary funding, work for the upgrades to meet RCP 30/30 performance requirements cannot proceed and as such, if funds were unavailable, FSIT had no need to continue.

4.32 The Sub-Group recognized that the non-availability of satellite based communications and surveillance including CPDLC and ADS-C would make it impossible to implement reduced lateral and longitudinal separations, meaning that the Asia/Pacific region would be reliant on 10 minute longitudinal separations indefinitely. Accordingly, the meeting agreed that early identification of funding sources was critical to the continued implementations of data link based reduced separations across the globe and requested that the CNS/MET/SG, as the region's specialist technical group, consider the matter holistically and provide appropriate guidance to APANPIRG to assist resolution.

IATA Vision for 2015 for Operational Improvements in the Asia Pacific Region

4.33 The meeting noted an information paper by IATA which outlined IATA's vision for operational improvements in the Asia Pacific region up to 2015. The vision emphasizes improvements in ATM and operational procedures; focusing on six primary traffic flows in the region, as indicated below:

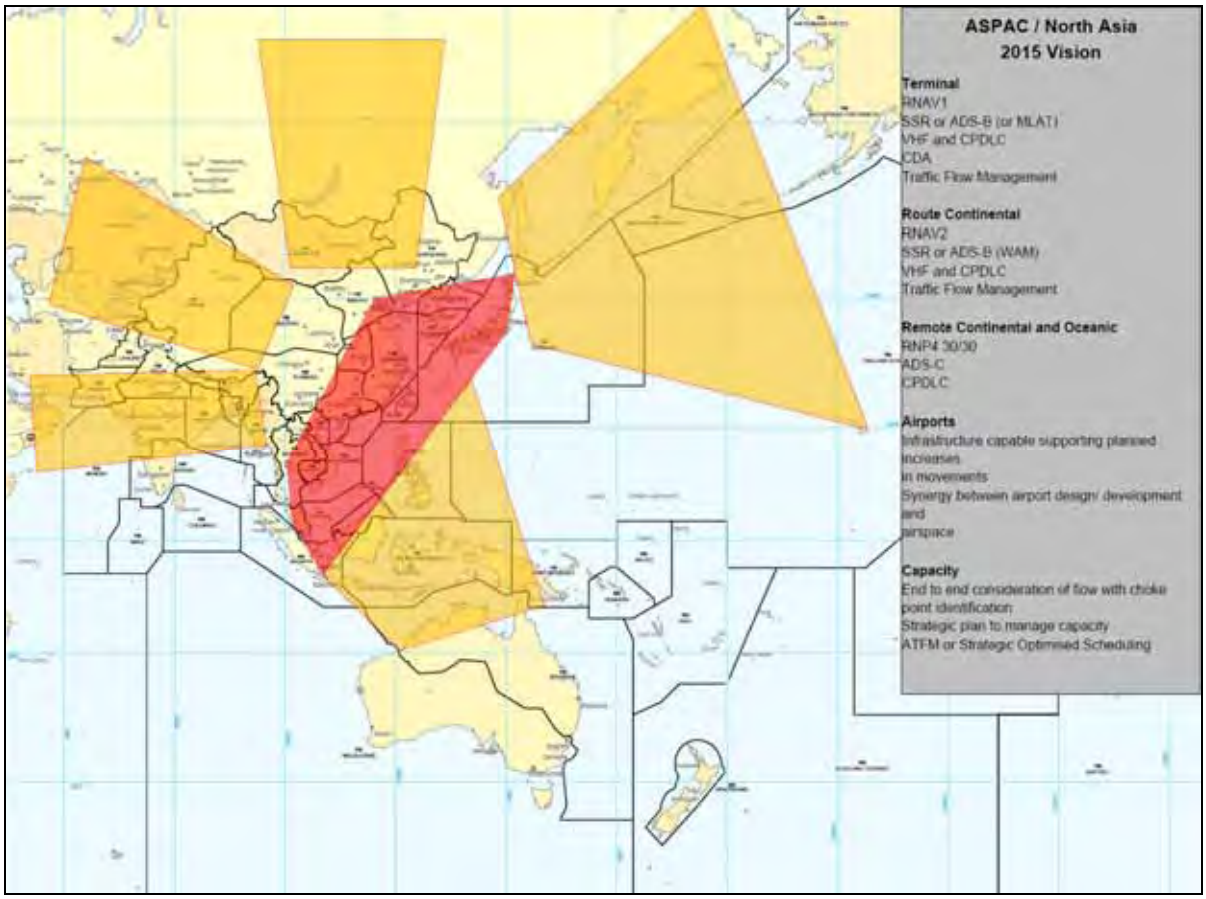

Figure 1: IATA 'Vision 2015' - major traffic flows for Asia/Pacific region

4.34 The meeting was informed that the key to IATA's 'Vision 2015' is for end-to-end planning and coordination of traffic flow through the primary traffic flows. IATA considers that improvement in the route structure in the cruise phase is critical to ensure greater capacity, together with improving terminal airspace design, and reducing ATM procedures and airport capacity limitations. IATA intents to submit a working paper to APANPIRG/19 containing action plans and timelines for a review of airports, airspace, route structure and ATM procedures.

4.35 The meeting noted that many of the items in the proposed IATA vision are already contained in the work programmes of several existing regional Task Forces and suggested IATA should take care to avoid duplication of initiatives and indicate a priority order for the identified improvements.

AGENDA ITEM 5: REVIEW OF ATS COORDINATION GROUP MEETINGS

Agenda Item 5: Review of ATS coordination group meetings

Update on activities of ATS Coordination Groups in the Asia/Pacific Region

5.1 The meeting was updated on the activities since the ATS/AIS/SAR/SG/17 (July 2007) of the ICAO and State ATS Coordination Groups that contribute to the work of APANPIRG. The following sub-regional ATS Coordination Group meetings were held:

ICAO ATS Coordination Groups

a) 25 – 27 September 2007, Singapore Aviation Academy, Singapore

Special Coordination Meeting for the Implementation of Reduced Horizontal Separation Based on RNP 10 Operations on ATS Routes L642 and M771

b) 30 October-2 November 2007 ICAO Asia/Pacific Office, Bangkok, Thailand

Third meeting of the Western Pacific/South China Sea RVSM Scrutiny Group (WPAC/SCS RSG/3)

c) 21 – 25 January 2008 ICAO Asia/Pacific Office, Bangkok, Thailand

Combined Nineteenth Meeting of the Bay of Bengal ATS Coordination Group Meeting (BBACG/18) and Ninth Meeting of the FANS Implementation Team, Bay of Bengal (FIT-BOB/9)

d) 30 January – 1 February 2008, Fukuoka, Japan

Seventh meeting of the FANS Implementation Team, South-East Asia (FIT-SEA/7)

e) 26 – 29 February 2008 ICAO Asia/Pacific Office, Bangkok, Thailand

Fourth meeting of the Western Pacific/South China Sea RVSM Scrutiny Group (WPAC/SCS RSG/4)

f) 4 – 7 March 2008, Singapore Aviation Academy, Singapore

Second meeting of South-East Asia RNP Implementation Task Force (RNP-SEA/TF/2)

g) 18 – 19 March 2008 ICAO Asia/Pacific Office, Bangkok, Thailand

Second Meeting of the Trans-Regional Airspace and Supporting ATM Systems Steering Group (TRASAS/2)

h) 20 – 23 May 2008 ICAO Asia/Pacific Office, Bangkok, Thailand

Combined Fifteenth Meeting of the South-East Asia ATS Coordination Group (SEACG/15) and the Eighth Meeting of the FANS Implementation Team, South-East Asia (FIT-SEA/8)

i) 4 – 6 June 2008, ICAO Asia/Pacific Office, Bangkok, Thailand

Third meeting of South-East Asia RNP Implementation Task Force (RNP-SEA/TF/3)

State ATS Coordination Groups

a) 5 − 9 November, 2007, Tokyo, Japan

Combined Twenty-seventh Meeting of the Informal Pacific Air Traffic Control (ATC) Coordinating Group and Fourteenth Meeting of the FANS Interoperability Team (IPACG 27/FIT 14)

b) 15th to 16th January 2008 Dubai UAE

Second meeting of the Arabian Sea/Indian Ocean ATS Coordination Group (ASIOACG/2)

c) 10 -14 March 2008 Papeete Tahiti

Twenty second meeting of the Informal South Pacific Air Traffic Services Coordinating Group (ISPACG) and Fifteenth Meeting of the FANS Interoperability Team (ISPACG 27/FIT 15)

Summary of the Second Meeting of the Trans-Regional Airspace and Supporting ATM Systems Steering Group

5.2 The meeting reviewed the outcomes of the second meeting of the Trans-Regional Airspace and Supporting ATM Systems Steering Group (TRASAS/2).

5.3 TRASAS/2 noted the activities of the following forums: the related Planning and Implementation Regional Groups (PIRGs) and the NAT SPG Special 2007 meetings; the First Meeting of the Asia/Pacific Performance Based Navigation Task Force; the 32nd meeting of the RVSM Implementation Task Force regarding the implementation of RVSM in the Chinese airspace; the GREPECAS/14 Meeting; the 5th Special ATS Coordination Meeting – China, Mongolia, Russian Federation and IATA (CMRI/5); and the 4th Meeting of the Cross-Polar Working Group (CPWG/4). An update was also received on the implementation of an internet based automated flow management tool (BOBCAT – Bay of Bengal Cooperative ATFM System), and on the progress of regional partnerships for increasing efficiency and reduction of greenhouse gas emissions in aviation.

5.4 TRASAS/2 noted the progress on Data Link Harmonization activities in the European (EUR) and North Atlantic (NAT) Regions, and agreed to invite APANPIRG/19 to consider a draft Conclusion as follows:

Draft Conclusion TRASAS/2 - 1 – Data Link Harmonization Strategy

That the APANPIRG be invited to consider amending the Strategy for Implementation of the Air-Ground Data Link in the Asia/Pacific Region to include the Data Link Harmonization Strategy endorsed by EANPG and NATSPG.

5.5 However, in light of subsequent developments advised to the Sub Group by the ICAO Secretariat, the meeting considered that it would be premature to endorse the draft Conclusion above, but recommended that APANPIRG should promulgate clear 'in-principle' support for global data link harmonization in terms of the following text:

> *That, noting the developmental work being coordinated by the ICAO Secretariat in terms of a global harmonization strategy for ADS-C and CPDLC data link operations, APANPIRG fully supports the principle of global converge of data link evolutions to properly support seamless ATS provision across global FIR boundaries. In this context, APANPIRG gives in-principle support to the draft Data Link Harmonization Strategy shown at* ***Appendix A*** *to the ATM/AIS/SAR/SG/18 Report on Agenda Item 4, recognizing that amendment to the draft strategy is likely under the guidance of the OPLINK Panel.*

5.6 The TRASAS/2 meeting had considered RNP Implementation Plans for Cross-Polar and Trans-East Operations and agreed on the following Conclusion:

TRASAS Conclusion 2/2 – RNP for Cross-Polar and Trans-East Operations

That all PIRGs concerned be invited to consider actions that will harmonize the application of separation standards and a means to achieve:

a) implementation of the RNP 10 provisions in the airspaces covering the Cross-Polar and Trans-East routes/operations as a short-term/medium-term action;

b) implementation of the RNP 4 provisions in the same airspaces as described above, as a medium-term/long-term improvement; and

c) amend, as appropriate, the provisions of Regional Supplementary Procedures and the Regional Air Navigation Plans.

5.7 The meeting considered that these initiatives fitted well with the PBN Implementation Plans that were being prepared by the PBN/TF and requested that the Secretariat make the PBN/TF aware of this recommendation from TRASAS in order that it could be properly considered as part of the Regional PBN Implementation Plan.

5.8 The meeting noted the two further Conclusions on Improved Surveillance and Communications in the Northern Airspace and Airspace of Unassigned Responsibility over the Arctic Ocean formulated by TRASAS/2

5.9 The Sub-Group also noted that the next meeting of TRASAS had been tentatively scheduled at the ICAO Regional Office in Mexico City, from 17 – 18 March, 2009.

Summary Report of the Nineteenth Meeting of the Bay of Bengal ATS Coordination Meeting

5.10 The meeting reviewed the summary report of the Nineteenth Meeting of the Bay of Bengal ATS Coordination Group Meeting (BBACG/19) and noted the following points:

a) BBACG reviewed and noted relevant parts of the reports of the APANPIRG/18, 44th DGCA, RASMAG/9, and ATFM/TF/11. It was disappointing that funding difficulties with Bay of Bengal CRA continue to delay provision of CRA services to assist datalink service implementation, the delay period now exceeds 5 years,

b) BBACG/19 and FIT-BOB/9 agreed to accelerate planning for implementation of 50NM longitudinal separation widely in the Bay of Bengal using CPDLC communications with target date 2009,

c) Australia, Indonesia and Sri Lanka agreed to use the opportunity provided by the reduction of longitudinal separation to 10 minutes MNT in the Colombo FIR to review route requirements with the objective of implementing RNP10 routes as widely as possible,

d) BBACG/19 was alerted to the need identified by the ATFM/TF for a 'BOBCAT Scrutiny Group' to be formed to provide long term oversight of ATFM operations,

e) BBACG agreed to assist ASIOACG to work towards establishing Indian Ocean UPRs between Southern Africa and Southeast Asia. Australia would develop Operational Concept which identifies Operators; City Pairs; & Aircraft types for interim application,

f) The meeting considered that there was an urgent need for an ATS routes meeting to be conducted between, at the least, Afghanistan, India, Iran, Kazakhstan, Pakistan, Uzbekistan, ICAO and IATA. The meeting requested that the Regional Office commence coordination in this regard with the ICAO EUR and MID Offices, and

g) States were urged to take action in accordance with APANPIRG/17 Conclusion 17/11 to adapt the model provided by the Indonesian Contingency Plan for regional use. Copies of the plans can be obtained from the website of the ICAO Asia and Pacific Office at http://www.bangkok.icao.int/ under the 'APAC eDocuments' menu

Summary Report of the Ninth FANS Implementation Team Bay of Bengal

5.11 The meeting reviewed the report of the FIT-BOB/9 which addressed the matters summarized below:

FIT/BOB Central Reporting Agency (CRA) Funding

5.12 The meeting recalled that the BBACG and FIT-BOB had previously recognized that the establishment and funding of a CRA was essential to enable States to meet the Annex 11 safety monitoring provisions required to implement ADS and CPDLC systems. The meeting recognized that the CRA analysis would comprise a significant and critical component of the safety assessment in the context of implementing ADS/CPDLC. As the CRA analysis and ongoing CRA monitoring capability was not available to the FIT-BOB, relevant safety assessments could not be completed.

5.13 The meeting noted with disappointment that the matters in relation to the funding of CRA services had still not been resolved and therefore CRA services were still not available to the FIT/BOB. The delays to the provision of CRA services were extensive and now exceeded five years. The meeting considered that this situation was extremely regrettable as the many benefits available from data link operations were not yet able to be realized.

5.14 However, when considering actions in this regard, the meeting noted advice that there is an expectation that the legal contractual documents between IATA and India, and IATA and Boeing, will be concluded before the ASIOACG in July 2008. Accordingly, the meeting did not propose specific additional actions to be taken.

Review of Bay of Bengal ADS/CPDLC Operational Trial

5.15 The meeting noted the intention of Indonesia and Malaysia to commence operational trials during the second and third quarters, respectively, of 2008 and the availability of H24 datalink services from Sri Lanka for the Colombo FIR.

Review Arabian Sea ADS/CPDLC Operational Trial

5.16 India, although not present at the BBACG/19 & FIT-BOB/9 meetings, had informed the ASIOACG/2 meeting that the Mumbai ACC was currently providing CPDLC services for 17 hours per day and that plans for an increase to H24 were under consideration. India had also confirmed that the ADSC/CPDLC services would need to undergo a safety assessment and be assessed by the BOB-CRA before any reduction in longitudinal separation to 50NM could be achieved.

Data Link Guidance Materials

5.17 RASMAG had prepared the *Guidance Material for the Asia/Pacific Region ADS/CPDLC/AIDC Ground Systems Procurement and Implementation*, which was adopted under APANPIRG Conclusion 18/5 as regional guidance material. Copies of the Guidance Material are available from the website of the ICAO Asia/Pacific Office at http://www.bangkok.icao.int/ under the "APAC e-Documents" menu.

5.18 Version 5 of the *FANS 1/A Operations Manual* (FOM) was published effective August 2007. APANPIRG/15 (August 2004) agreed under Conclusion 15/7 that the FOM should be used as a basis to operate ADS and CPDLC in the Asia and Pacific Region with aircraft equipped with the FANS-1/A systems.

5.19 The *Guidance Material for End-to-End Safety and Performance Monitoring of Air Traffic Service (ATS) Data Link Systems in the Asia/Pacific Region*, adopted by APANPIRG/16 under Conclusion 16/20, was updated by RASMAG in 2007 and is available from the website of the ICAO Asia/Pacific Regional Office at http://www.bangkok.icao.int/ under the "APAC eDocuments" menu.

Report of the Eleventh Meeting of the Air Traffic Flow Management Task Force

5.20 The meeting reviewed the report of the Eleventh Meeting of the Air Traffic Flow Management Task Force (ATFM/TF/11). This meeting was a post implementation review of the long range international ATFM procedures across the Bay of Bengal and South Asia which were implemented during July 2007.

5.21 In completing the post-implementation review, the meeting was in full agreement that the implementation of ATFM procedures across the Bay of Bengal and South Asia had been a success. The following benefits, amongst others, have been demonstrated:

a) ATFM aircraft now depart on their allocated wheels-up time in an orderly fashion which lessens overall ground delay and ensures remaining ground delays are absorbed with engines off;

b) There is an orderly entry into the Afghanistan airspace with more even distribution of aircraft across the four available ATS routes;

c) Preferred optimal flight level allocation is achieved more often and more reliably;

d) The number of reroutes around Afghanistan, which often resulted in expensive technical stops, have been virtually eliminated;

e) Many benefits have been reported by enroute ANSPs, characterized by orderly traffic sequences resulting in greatly reduced ATC workload; and

f) Based on information supplied from IATA and their member airlines during mid 2007, the overall fuel savings for aircraft using ATFM procedures during this nightly four-hour period of operation is approximately 12 million kilograms of fuel per year, resulting in very worthwhile savings in direct operating costs. These fuel savings also equate to a direct reduction in carbon emissions of more than 50 million kilograms per year.

5.22 The meeting supported the work and initiatives taken by the ATFM to progress implementation of long range international ATFM procedures, and to deal with operational matters necessary to improve the efficiency of operations and enhance safety.

Review of the Report of the Fifteenth Meeting of the South-East Asia ATS Coordination Group

5.23 The meeting reviewed the report of the fifteenth meeting of the South-East Asia ATS Co-ordination Group (SEACG/15).

5.24 SEACG/15 had reviewed the actions being taken by RNP-SEA/TF noting that the route restructure with the implementation of RNP 10 would not be introduced as the current 60 NM spacing between trunk routes would allow additional routes to be established between the existing routes when the next step of RNP 4 was introduced.

5.25 SEACG/15 noted a comprehensive review of the activities undertaken by Viet Nam, covering regulations and audits; ATS routes and operations; coordination between area control centers (ACCs); proposals for revising and implementing routes in the area; and 40 NM radar spacing on ATS route A1 between Bangkok and Hong Kong.

5.26 Thailand presented the outcomes of the Second Meeting of Air Traffic Services Coordination Meeting between Bangkok, Ho Chi Minh, Phnom Penh, and Vientiane ACCs to improve the ATS coordination procedures amongst the four ACCs. Thailand and Lao PDR had reached an agreement in transferring the ATS responsibility for the southern part of the Vientiane FIR back to Lao PDR, which would take place on 3 July 2008. Thailand reported on 40 NM radar spacing

of the some major routes; establishment of ATS route R345; realignment of ATS route R588 and consequent proposal of amendment to the Basic Air Navigation Plan (BANP). Thailand advised of actions taken to attempt to remove R345 and G473 from the ICAO Asia and Pacific Deficiency List.

5.27 Singapore informed SEACG/15 of the revised Operational Letter of Agreement (LOA) for monitoring of aircraft gross navigation errors (GNE) in the South China Sea area and the collection of data for the conduct of safety assessment to implement 50 NM/50 NM and 30 NM/30 NM reduced horizontal separations in the South China Sea area. SEACG/15 noted that the amended Operational LOA had been accepted by the Regional Airspace Safety Monitoring Advisory Group (RASMAG) and States concerned, and would be signed during the ATM/AIS/SAR/SG/18 – Agenda Item 10 to this Report refers..

5.28 IATA drew the attention of SEACG/15 to incorrect email addresses and telephone numbers in the APANPIRG list of 'Safety Contact Officers'. SEACG/15 updated part of the list but States were requested to make sure all details on the list were accurate.

5.29 The SEACG/15 meeting noted that RNAV route M772 was established exclusively for aircraft operating from Jakarta to Hong Kong and beyond. The flight level allocation on M772 was limited to FL 310 and FL 390 only. Singapore reported to SEACG/15 that aircraft for other destinations were using this route resulting in traffic bunching. As Indonesia and the Philippines were not present at SEACG/15, the matter was referred to the ATM/AIS/SAR/SG/18 meeting for resolution.

5.30 The Sub Group recalled that the circumstances surrounding the implementation of M772 were agreed during the ICAO Special Coordination Meeting (SCM) held in Manila in August, 2004. In particular, the model AIP Supplement prepared by the SCM included the restriction ***"Aircraft on M772 are restricted to aircraft operating via Jakarta bound for Hong Kong and beyond***". The SCM had agreed that the restriction was necessary on the basis that, in the Manila FIR, a considerable portion of M772 was outside radar and VHF radio coverage and crossed a number of other routes.

5.31 As a result of the discussions on this matter during the Sub Group, Indonesia and the Philippines undertook to follow-up the matter within their authorities to enforce restricted access to the route to the aforementioned destinations. Particularly, Indonesia agreed that the city pair restriction would be published in Indonesia AIP, in accordance with the outcomes of the August 2004 ICAO SCM.

5.32 Philippines advised the ATM/AIS/SAR/SG meeting that implementation of enhanced CNS systems will commence in 2009, with full commissioning in 2013. The meeting requested that the Philippines prepare an information paper for APANPIRG/19 in order to fully describe the planned project and implementation sequence. The Sub group concluded that this project regrettably does not include ADS-C and CPDLC. As the Manila FIR is the last integral part for the seamless FANS data link operations in the entire South China Sea area, the meeting agreed with the draft recommendation proposed by SEACG & FIT-SEA urging the Philippines to take appropriate steps for data link services to be provided in the Manila FIR. The meeting developed the following draft conclusion to be considered by APANPIRG/19 in September**:**

Draft Conclusion SG/18/5 – Data Link Implementation in the Manila Flight Information Region (FIR)

That, to enable the early realization of the full benefit of data link operation and the implementation of reduced lateral and longitudinal separations throughout the South China Sea airspace, the Philippines be invited to expedite implementing ADS-C and CPDLC data link services in the Manila FIR as soon as possible.

Summary of Fans Implementation Team, South East Asia

5.33 The meeting noted that the FIT-SEA of South-East Asia ATS Coordination Group (SEACG) held the following meetings:

a) FIT-SEA/7 - 30 January to 1 February 2008; and
b) FIT-SEA/8 - 20 June 2008 (combined with SEACG/15)

5.34 The meeting noted the following highlights of the work of FIT-SEA:

a) Viet Nam conducted the ADS/CPDLC Phase 2 trial on six oceanic RNAV routes of L625, L628, M765, M768, N500 and N892 in the Ho Chi Minh FIR. Satisfactory trial performance meant that regular operations could commence on 10 April 2008 as proposed;

b) The system performance in Singapore and Viet Nam satisfied the FOM criteria in all elements, but the CPDLC downlink performance in Viet Nam only marginally met the criteria although it indicated a trend of gradual improvement from July to December 2007 Viet Nam advised that after experiencing some network problems, additional work was commenced to improve the performance of downlink with their DSP and would be completed before April 2008;

c) FIT-SEA/7 noted that IPACG FIT had agreed in principle to dissolve itself provided that:

- 30/30 is implemented with a seamless transfer between Japan and the United States, and its safe and stable operation is confirmed for a significant period that is agreed upon by parties concerned, thus completing FIT's last major goal,
- the CRA/CRA Supporting Agency functions of data collection and problem analysis are transferred to some other body or office, and sustained as an integral part of IPACG's operation; and
- a carefully detailed FIT workload analysis is presented for transfer as needed to ensure continued service to the user community.

d) FIT-SEA/7 recognized that the Manila FIR was the last integral part for the seamless data link operations in the entire South China Sea area and formulated a draft recommendation for consideration by SEACG/15 in May 2008, urging the Philippines to take appropriate steps for data link services to be provided in the Manila FIR as soon as possible.

e) Viet Nam reported to FIT-SEA/8 that the regular operation had been satisfactory and expressed that they were looking forward to further cooperation, support and assistance from Japan for their CRA services, Singapore, ICAO, IATA and others concerned for the ADS/CPDLC operations in the Ho Chi Minh FIR.

5.35 The meeting commended the excellent work undertaken by FIT-SEA in a short time period to swiftly progress implementation of data link services in the South China Sea area to improve the efficiency of operations and enhance safety.

South East Asia Required Navigation Performance (RNP) Implementation Task Force

5.36 It was noted that due to resource limitations at the Regional Office, Singapore undertook to coordinate arrangements to establish the Task Force during 2006 and has been assisting the Regional Office in operating the meetings. The following meetings have been held:

a) 25 to 27 September 2007 at Singapore Aviation Academy – SCM/RNP 10;

b) 4 to 7 March 2008 at Singapore Aviation Academy – RNP-SEA/TF/2; and

c) 4 to 6 June 2008 at the Regional Office, Bangkok, Thailand – RNP-SEA/TF/3 (Go/No-Go meeting).

5.37 The Sub-Group noted the following points from the meetings:

SCM/RNP 10

a) all States present were ready and supported the implementation of RNP 10 50NM/50NM separation standards on L642 and M771;

b) agreed target implementation date of 3 July 2008 by States concerned subject to the conduct of the safety assessment;

c) engagement of a safety assessment expert by Singapore to assist in the completion of the safety assessment so that the implementation of RNP10 50/50NM horizontal separation would not be delayed;

d) Proposal Amendment to ICAO Doc 7030 captured in Appendix D of the Special Coordination Meeting report with regards to the implementation of RNP 10 operations on L642 and M771.

RNP-SEA/TF/2

a) Amended Terms of Reference to include: '*Ensure the conduct of Annex 11 compliant pre-implementation safety assessments and make arrangements for States to conduct ongoing post implementation safety monitoring in accordance with ICAO provisions'*

b) Singapore to undertake provision of the safety monitoring services for reduced horizontal separation in the South China Sea area

c) preliminary finding that TLS would be satisfied must be confirmed using additional data

d) ATS route re-alignment would be not be considered for the implementation of RNP10 (50/50NM) separations. The current spacing of 60 NM between the trunk routes would be kept as it is until the next step of RNP 4 is introduced

RNP-SEA/TF/3 (Go/No Go Meeting)

a) The meeting reviewed the safety assessment documentation and agreed that the assumptions made were reasonable. The meeting also agreed that the safety assessment was robust and the safety assessment supports the implementation of RNP10 (50/50NM) horizontal separation on L642 and M771.

b) The meeting noted that Singapore had adopted the title *"South East Asia Safety Monitoring Agency"* (SEASMA) as the name for the SMA

c) The meeting agreed to a 'Go" decision for the implementation of RNP10 (50 NM/50 NM) reduced horizontal separation on L642 and M771 at 2100 UTC, 2 July 2008 as planned.

5.38 The meeting was pleased to note and support the work and initiatives taken by the RNP-SEA/TF to progress the implementation of reduced horizontal separations which is necessary to enhance safety, increase capacity and improve the efficiency of operations in the South China Sea area.

5.39 The meeting noted that, subject to implementation of ADS-C and CPDLC in the Manila FIR, RNP 10 could be introduced on other routes in the sub region. Other capacity enhancement initiatives will be discussed at the next Task Force meeting.

Western Pacific/South China RVSM Scrutiny Group

5.40 The meeting recalled that the Scrutiny Group was formed to address the continued exceedance of the target level of safety in the western Pacific/South China RVSM and reviewed the outcomes of WPAC/SCS RSG/4, noting that the WPAC/SCS RSG reviewed and considered issues related to the following matters: safety oversight including safety assessments for RVSM and horizontal separation, non submission of large height deviation (LHD) data, analysis of LHD, FLAS developments, and development of the model AIP Supplement for FLOS/FLAS Implementation.

5.41 The following significant issues were identified and were being progressed by the WPAC/SCS RSG:

a) that the target level of safety (TLS) has now been met for WPAC/SCS area as a direct result of the work of the Scrutiny Group;

b) work actively continues in terms of identifying the reasons for LHDs and implementing solutions;

c) as a result of the implementation of RVSM in China, a number of the RVSM transition requirements in FIRs neighboring the Bangkok FIR were eliminated which had improved ATC capability and flexibility;

d) Indonesia will make FL290 and FL300 available as part of the RVSM level band in Indonesian airspace from early July 2008;

e) agreement for the implementation of revised flight level arrangements in the WPAC/SCS area has been reached, along with some supporting changes to ATS routes;

f) the model AIP Supplement for implementation of the new flight level arrangements has been adopted by WPAC/SCS RSG/4; and

g) implementation of revised flight level arrangements in the WPAC/SCS area will occur on 2 July at 2100 UTC

5.42 The meeting noted the very positive outcomes of the Scrutiny Group which were evident in the improved safety performance being demonstrated. The implementation of the new flight level arrangements in early July was expected to bring additional improvements to safety performance. The meeting considered that these outcomes had been achieved in an exceptionally short time frame, given their complexity and the number of parties' involved in the coordination process. This was a tribute to the performance of all members of the Scrutiny Group and demonstrated the effectiveness of the Scrutiny Group mechanism in providing a 'core team' focused approach to address a specific problem.

5.43 Indonesia advised the meeting about ongoing liaison with the Philippines and Oakland to smooth the complex intersection of their shared FIR boundary to reduce coordination across the boundaries. The meeting encouraged the three States to address the matter as soon as possible in a side meeting and submit an appropriate amendment proposal to the Regional Office for action.

State ATS Coordination Groups

The 22nd meeting of the Informal South Pacific Air Traffic Services Co-ordinating Group (ISPACG)

5.44 The Twenty second meeting of the Informal South Pacific Air Traffic Services Coordinating Group (ISPACG) and Fifteenth Meeting of the FANS Interoperability Team (ISPACG 27/FIT 15) was held in March 2008. The meeting was provided with descriptions of ongoing activities and future plans within the ISPACG as summarized below.

a) User Preferred Routes (UPRs) were being introduced between New Zealand and Japan, with a paper trial proposed between Japan and Sydney/Brisbane/Cairns. Airservices also announced that coordination of block levels via aeronautical inter-facility data communications (AIDC) are now available with YMMM, NZZO, KZAK, and with NFFF.

b) SEAC Tahiti procurement of a new off the shelf air traffic management (ATM) system called "TIARE" was progressing and would be operational by the end of 2008. "CARTOUM" is a new VHF/HF communications system being deployed that will be operational in 2009. SEAC reported that it is aggressively working to make Dynamic Airborne Reroute Programs (DARPs) available within the Tahiti FIR from mid 2009, radar services (including safety nets) from July 2009, and a reduction of oceanic en-route separation minima in 2009-2010.

c) Airports Fiji Ltd. reported two major projects: Automatic Dependent Surveillance Broadcast (ADS-B) / ATM Equipment Replacement Project and the Automated Message Handling System (AMHS) Project that includes an Aeronautical Information System (AIS) system. Both projects are due for implementation in the first quarter of 2009.

d) FAA reported that a study indicated that flexible laterally separated tracks are more fuel efficient than fixed tracks, and paper trials will commence in April 2008. The FAA has conducted HF Data link trials on 2 Hawaiian Airlines flights and is sponsoring Iridium trials. FAA will conduct a risk collision model on 50NM longitudinal separation in the Anchorage FIR

e) Papua New Guinea Air Services Ltd. announced a major restructuring over the last 6 months in the former Civil Aviation of Papua New Guinea (now PNG ASL).

f) Airways New Zealand reported a six month operational trial using FMC Way Point Reporting with the SATCOM equipped ANZ A320 fleet on 31 March 2008. Full AIDC Version 2 is operational with Oakland (including block levels), as well as partial implementation of block level capability with Brisbane. UPRs have been implemented on South American routes with LAN Chile to/from Santiago. Optimum Arrival Trials have evaluated continuous descent arrivals with selected B744 aircraft from April to June 2007, and determined that savings are available.

g) Oceanic airspace is the main re-entry point for the world's space debris. The coordination of debris re-entry in oceanic airspace has created problems in the past for air traffic and Air Navigation Service Providers (ANSPs) in the region. The general consensus was that this is an important issue which affects everyone and needs a uniform approach, and will continue to be addressed by ISPACG participants.

<u>27th and 28th Meeting of the Informal Pacific Air Traffic Control (ATC) Coordinating Group (IPACG/27 & IPACG/28)</u>

5.45 The meeting was provided with summaries of the agreements reached at the Twenty-seventh Meeting of the Informal Pacific Air Traffic Control (ATC) Coordinating Group and the Fourteenth Meeting of the Future Air Navigation System (FANS) Interoperability Team (IPACG 27/FIT 14, November 2007) that met in Tokyo, Japan and the IPACG 28/FIT 15 (May 2008) that met in Las Vegas, United States.

a) an air traffic flow management (ATFM) data exchange agreement was signed between the JCAB and FAA. Current plans are to complete all work to start actual data exchange by March 2011.

b) Fukuoka ATMC and Oakland ARTCC began a trial utilizing 50 NM longitudinal separation to aircraft crossing their common boundary between Asia and Hawaii on 13 March 2008.Current ADS-Contract (ADS-C) trials between Fukuoka and Oakland will be expanded to the remainder of the PACOTS routes (both eastbound and westbound), including the operational trial of User Preferred Routes (UPRs) between Asia and Hawaii. The target date for this trial is mid June 2008.

c) Results of a pre-implementation safety assessment of 30NM longitudinal separation in Fukuoka airspace indicated that the ADS periodic reporting interval of 14 minutes would not meet the TLS set by APANPIRG. JCAB concluded that a 10 minute interval of ADS periodic reporting will be applied when implementing 30 NM, in a phased manner, beginning in August 2008 in Fukuoka FIR. The FAA stated that its studies in support of 30/30 implementation in US airspace concluded that a 14 minute reporting rate was sufficient.

d) Through the coordinated efforts of Fukuoka ATMC, ARINC, Jeppesen, Guam Center and Radar Approach Control (CERAP) and Oakland Center, the monumental undertaking to realign 13 ATS routes and establish a new route (M756) was completed on 30 August 2007. The Honolulu Control Facility boundary adjustment occurred on 10 April 2008. The realignment of the South Pacific ATS Routes is estimated to save 1,210,000kg of fuel (3,823,600kg of CO_2) annually.

e) JCAB and FAA agreed to conduct a DARP trial on Tracks 14/15 within Oakland's FIR, and based on the results, possibly agree to implement DARP throughout the Central Pacific. A target start date will be coordinated by Oakland Center and outcomes will be coordinated with JCAB and IPACG.

f) The Fukuoka ATMC and FAA Air Traffic Control System Command Center (ATCSCC) agreed to work together on the establishment of routine and regular operational teleconferences to improve communication and collaboration between the two facilities.

g) The FAA presented an update on the Asia and South Pacific Initiative to Reduce Emissions (ASPIRE) Partnership, and how the FAA and JCAB could begin working together to expand the objectives of ASPIRE to the North Pacific.

<u>The Second Meeting of the Arabian Sea/Indian Ocean ATS Coordination Group (ASIOACG/2)</u>

5.46 The meeting reviewed a report of the Second meeting of the Arabian Sea/Indian Ocean ATS Coordination Group (ASIOACG/2) held in Dubai UAE from 15th to 16th January 2008, with highlights as follows:

a) Australia reported on 30/30 implementation plans in Indian Ocean, ADS-B and ADS-C/CPDLC Datalink Services;

b) Maldives confirmed that PBN-based TMA Procedures for Male International Airport were introduced during 2005;

c) Mauritius and Melbourne ACCs had implemented AIDC messaging in 2006;

d) A total of 6 new Airports would be open in the Sultanate of Oman by the year 2010;

e) Seychelles advised that plans to introduce ADS-B and ADS-C/CPDLC Datalink Communications in 2009 and 2010 respectively. It was likely that the 50NM Longitudinal Separation standard would be introduced in 2012. PBN-based TMA Procedures will be introduced in April 2008.

f) Sri Lanka had implemented H24 ADS-C/CPDLC Datalink Communications throughout the Colombo FIR in 2006.

g) Establishment of a small working group to review the requirements for continuation of the FLAS which currently exists between the Muscat and Mumbai FIRs

5.47 It was noted that the ASIOACG proposed an Indian Ocean/Arabian Sea Route Review Working Group to review the existing and future ATS Route structures in the Southern Indian Ocean; the central Indian Ocean; and the Arabian Sea oceanic airspace. The meeting recommended that this should be formalised and that there were three ICAO Regions involved; and stressed the importance of securing the support of both APANPIRG and MIDANPIRG for this Working Group.

ATM/AIS/SAR Related Activities of the Regional Office

5.48 An Information Paper was tabled on the ATM/AIS/SAR related activities of the Regional Office summarizing the many ATM, AIS and SAR related working groups in the Asia/Pacific Region with which the ICAO Asia/Pacific Regional Office has an involvement. The paper highlighted APANPIRG as the regional planning and implementation body and the need for all related groups to avoid duplications of effort by ensuring the close coordination of their respective work programmes.

5.49 The meeting reviewed the information, noted the need to undertake close coordination to avoid duplications of effort between various groups, and undertook to plan and implement air navigation requirements under the aegis of APANPIRG wherever appropriate.

FINAL DRAFT

Data Link Harmonization Strategy — ADS-C and CPDLC

- Any additional aircraft implementation of automatic dependent surveillance — contract (ADS-C) should either;

    i) utilise without change the existing DO-258A/ED-100A[1] (FANS-1/A) ADS-C, or

    ii) move to the full implementation of the internationally agreed common technical definition that will be defined based on relevant provisions and guidance material (*Manual of Air Traffic Services Data Link Applications* (Doc 9694)) developed by ICAO and its technical bodies

    Partial or divergent aircraft data link evolutions should not be pursued, as they will continue to promote divergent paths to the detriment to the broader community. Interim steps or phases toward full implementation of the common technical definition in ground systems should only be pursued on a regional basis, after coordination between all States concerned.

- Any additional aircraft implementation of controller-pilot data link communications (CPDLC) should either;

    i) utilise without change the existing DO-258A/ED-100A (FANS-1/A) or DO-280B/ED-110B[2] (ATN) CPDLC for ACM/ACL/AMC[3] data link services, or

    ii) move to the full implementation of the internationally agreed common technical definition, based on *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444), and other operational material as appropriate

    Partial or divergent aircraft data link evolutions that result in excluding messages from aircraft systems should not be pursued, as they will continue to promote divergent paths to the detriment to the broader community. Interim steps or phases toward full implementation of the common technical definition in ground systems should only be pursued on a regional basis, after coordination between all States concerned.

- Harmonization of operational procedures for implementation of the above packages is considered essential. States, planning and implementation regional groups (PIRGs), ANS providers and other ATS coordinating groups should adopt common procedures to support seamless ATS provision across flight information region (FIR) boundaries, rather than each State or Region developing and promulgating unique procedures for common functions.

[1] *RTCA/EUROCAE Interoperability Requirements for ATS Applications Using ARINC 622 Data Communications*
(FANS 1/A INTEROP Standard)
[2] *RTCA/EUROCAE Interoperability Requirements Standard For ATN Baseline 1 (ATN B1 INTEROP Standard)*
[3] Air traffic control communications management/Air traffic control clearances and information/Air traffic control microphone check

AGENDA ITEM 6: REVIEW PROGRESS OF THE REGONAL AIRSPACE SAFETY MONITORING ADVISORY GROUP (RASMAG)

Agenda Item 6: Review progress of the Regional Airspace Safety Monitoring Advisory Group (RASMAG)

Asia/Pacific RVSM Safety Assessments

6.1 The meeting reviewed a summary of the most up to date safety assessments of RVSM operations in the widespread airspaces of the Asia/Pacific Region, as prepared by the Asia/Pacific RVSM Regional Monitoring Agencies (RMAs) and reviewed by the Ninth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/9, 26-30 May 2008).

6.2 There are four "APANPIRG Approved" RMAs providing services in the region, as described below, and the China RMA has also been recommended by RASMAG for APANPIRG approval;

- The Pacific Approvals Registry and Monitoring Organization (PARMO), operated by the United States FAA,
- The Monitoring Agency for the Asia Region (MAAR), operated by Aeronautical Radio of Thailand (AEROTHAI),
- The Australian Airspace Monitoring Agency (AAMA), operated by Airservices Australia, and
- The JCAB RMA, operated by the Japan Civil Aviation Bureau.

6.3 The meeting noted the following points:

a) With the exception of the Pyongyang and Ulaanbataar FIRs, RVSM has been implemented throughout the Asia/Pacific region.

b) RVSM safety monitoring in Asia/Pacific is undertaken as a regional programme in accordance with Annex 11 requirements.

c) In general terms, the regional Target Level of Safety (TLS) for RVSM operations is being widely satisfied across the Asia/Pacific Region.

d) However, the regional TLS is not being satisfied in Australian Domestic & Indian Ocean airspace and the Fukuoka FIR. Active investigation and remediation by affected States is ongoing.

e) RASMAG has concerns in relation to probable under reporting of Large Height Deviations in the Bay of Bengal airspace. The Sub Group reminded the States involved of the need to strengthen their incident reporting systems.

f) Persistent examples of non RVSM approved flights 'incorrectly' filing flight plans showing RVSM approval have been identified through the work of the PARMO and AAMA. As this leads ATC to incorrectly apply the reduced separation minima, State regulatory intervention is necessary.

g) The Western Pacific/South China Sea airspace now satisfies the TLS, this is due to the focused efforts of the WPAC/SCS RVSM Scrutiny Group over the past 18 months.

h) The single biggest issue leading to Large Height Deviations in the Asia/Pacific RVSM operational environment is that of errors in the ATC Unit-to-ATC Unit coordination interface. The recent global RMAs meeting (May 2008) highlighted that this was also a global problem.

Report on activities of the RASMAG

6.4 The meeting reviewed the general activities of the Regional Airspace Safety Monitoring Advisory Group of APANPIRG (RASMAG) since the last meeting of the Sub-Group in July 2007. The RASMAG had conducted two meetings as follows:

a) RASMAG/8 10-14 December, 2007 and
b) RASMAG/9 26-30 May, 2008.

Outcomes of Global RMA meeting

6.5 A meeting of Global RVSM Regional Monitoring Agencies (RMAs) was held in conjunction with the SASP/WG/WHL/13 meeting in Montreal, Canada from 13-15 May, 2008. Representatives from each of the 11 Global RMAs, of which 5 serve the Asia/Pacific RVSM airspace, attended the meeting. The purpose of the meeting was to provide an opportunity for RMAs globally to arrive at a common understanding on the part of all agencies of the tasks and responsibilities of such agencies.

6.6 A status report was given by all RMAs in relation to their areas of responsibility, problems being experienced and future plans. In line with the experiences of the Asia/Pacific RMAs, other RMAs reported disproportionately high numbers of Large Height Deviations (LHDs) resulting from errors in ATC-to-ATC coordination.

6.7 The meeting agreed to finalize the draft RMA Manual by October 2008, for submission to ICAO, with the objective of publishing the Manual by February 2009. The meeting agreed to include additional details in the RMA Manual regarding the establishment, composition and methodology of a Scrutiny Group and recommended a re-evaluation of the LHD reporting form.

6.8 The Global RMA meeting discussed accounting for errors in risk calculations that may not be specific to RVSM. In considering this issue, RASMAG/9 considered that risk due to ‘all causes’ should be considered and adopted this approach for application by all Asia/Pacific RMAs, noting that it was the long standing methodology in use by Asia/Pacific RMAs in any case.

Review of RVSM/TF/33

6.9 Following implementation of RVSM in China in late November 2007, the RVSM/TF/33 meeting conducted the 90 day post implementation review during April 2008. RASMAG/9 noted a number of important points, including the many actions taken by China to ensure a smooth implementation, the post implementation safety assessment demonstrated that the TLS was satisfied and amendments to the Regional Supplementary Procedures (Doc 7030) had been approved by ICAO to show all the Chinese FIRs as available for RVSM operations.

Review of WPAC/SCS RSG/4

6.10 RASMAG/9 was very pleased to note the continued improvements in RVSM safety performance of the WPAC/SCS airspace and that the target level of safety (TLS) was being reliably satisfied. RASMAG/9 remarked on the very positive outcomes of the Scrutiny Group which were evident in the significantly improved safety performance being demonstrated.

6.11 Noting that as the Terms of Reference for the Scrutiny Group were likely to have been fully completed following the 90-day review scheduled in October 2008, RASMAG/9 recognized that it was likely that the Scrutiny Group would be disbanded by APANPIRG during 2009. It was regrettable that such a high performing group could not be redirected to address other focus areas in regional operations and RASMAG agreed to further discuss this prospect during the December meeting, with the objective of suggesting to APANPIRG that the Scrutiny Group be retained and re-tasked.

China – RASMAG Recommendation as APANPIRG RMA

6.12 Recognizing that it would be impractical for an RMA outside China to assume responsibility for such a large airspace as the sovereign Chinese RVSM airspace, as part of their programme to support implementation of RVSM during 2007 China had made significant steps towards establishing the China RMA to take on the long-term airspace monitoring and safety assessment responsibilities. It was evident to RASMAG/9 that the performance of the China RMA was adequately demonstrated and documented against the provisions of Annex 11, the RVSM Manual and the draft RMA Manual.

6.13 RASMAG/9 considered that the China RMA had capably met all the requirements imposed by RASMAG in regard to demonstrating performance as an Asia/Pacific RMA and was very pleased to recommend to APANPIRG/19 that the China RMA be endorsed as an Asia/Pacific RMA, RASMAG prepared the following draft Conclusion in this respect:

Draft Conclusion RASMAG 9/1 – Approval of China RMA as Asia Pacific RMA

That, having met all requirements established by the Regional Airspace Safety Monitoring Advisory Group (RASMAG), the China RMA be approved as an APANPIRG Asia/Pacific RVSM Regional Monitoring Agency with responsibility for all sovereign RVSM airspaces in China.

6.14 The United States briefed the Sub Group about the interactions between the USA and China in which the FAA provided training and assistance to China with their preparations to undertake the RMA functions. China had shown commitment and capability to undertake these functions and the United States joined with the Sub group in supporting the above draft Conclusion.

Australia - provision of RMA services for Port Moresby, Honiara, Nauru, Jakarta and Ujung Pandang FIRs

6.15 Australia presented RASMAG/8 and RASMAG/9 with details of an Australian initiated programme aimed at fostering and promoting aviation safety and operational efficiency in the Indonesian and Papua New Guinea region, including Timor Leste.

6.16 As a result of this cooperative program, AAMA identified an opportunity to directly assist Papua New Guinea to enhance its safety management system to, amongst other things, enable the responsible RMA to undertake the necessary RVSM safety assessment reporting. Subsequent

coordination between PARMO and AAMA resulted in RASMAG endorsing a change that transferred RMA responsibility for Moresby FIR from PARMO to AAMA.

6.17 Additionally, the transfer of RMA responsibility for the Nauru and Honiara FIR from PARMO to AAMA, and for the Jakarta and Ujung Pandang FIRs from MAAR to AAMA was endorsed by RASMAG.

Guidance Material

6.18 Discussions during RASMAG/9 recognized the need for additional material to be included in the *SMA Handbook* and requested the drafting team to continue work on the document with the objective of enabling RASMAG/10 (December 2008) to endorse a final version.

6.19 RASMAG/9 also adopted amendments to the *Guidance Material for End-To-End Safety and Performance Monitoring of Air Traffic Service (ATS) Datalink Systems in the Asia/Pacific Region* and to *Guidance Material for The Asia/Pacific Region for ADS/CPLDC/AIDC Ground Systems Procurement and Implementation* and updated and promulgated the *RASMAG List of Competent Airspace Safety Monitoring Organizations* (**Appendix A** to the Report on Agenda Item 6 refers).

Global Long Term Height Monitoring

6.20 APANPIRG/18 (September 2007) had recognised that the pending implementation of global long term monitoring requirements for airframes used in RVSM operations would have significant impacts in the way regional monitoring was managed, including the need for widespread regional height monitoring infrastructure capability to be made available. Under the terms of Conclusion 18/4, APANPIRG had tasked Asia/Pacific RMAs in conjunction with RASMAG to prepare a regional impact statement summarizing the estimated consequences for the Region, including consideration of the numbers of airframes required to be monitored.

6.21 RASMAG/8 had commenced work in this regard, identifying six Long Term Height Monitoring (LTHM) Actions (see **Appendix B** to the Report on Agenda Item 6) which had subsequently been circulated by ICAO State Letter (Ref: T3/10.1.17 – AP018/08 ATM) during January 2008.

6.22 Noting that the pending global monitoring provisions would be in the form of an Annex 6 Standard, and therefore the responsibility of States rather than RMAs to implement, RASMAG/9 recognised the excellent assistance that RMAs would be able to provide to the respective States associated with each RMA. However, a number of the LTHM Actions promulgated by RASMAG/8 had a common focus in attempting to strengthen the coordination relationships between the RMAs and their associated States. The need to include this type of initiative in the RASMAG LTHM Actions arose out of the long experience by RMAs of the coordination difficulties with States. This was also evidenced by the continued problems with States providing timely and accurate safety data for use by RMAs in regional safety assessments –as required by a number of related APANPIRG Conclusions.

6.23 The Sub-Group noted and supported RASMAG/9, agreeing that effective coordination arrangements between States and RMAs was a very critical first step and supporting the RASMAG draft Conclusion as follows:

Draft Conclusion RASMAG 9/2 – Enhanced communications between States and RVSM RMAs

That, noting the pending Annex 6 provisions for the global long term monitoring of airframes used in RVSM operations and the critical role of Asia/Pacific RVSM Regional Monitoring Agencies (RMAs) in monitoring the safety of RVSM operations, the Regional Office draw the attention of States to the Long Term Height Monitoring Actions promulgated by RASMAG. In particular, States are encouraged to immediately strengthen relationships with their respective RMAs to ensure that information in relation to RVSM approval status is continuously available to RMAs.

IATA – Management of 100 foot Operational Errors

6.24 IATA drew the attention of RASMAG/9 to the fact that following the implementation of RVSM in China using a unique FLOS, operational errors between a Chinese FIR and an adjacent FIR applying the traditional ICAO RVSM FLOS could result in the aircraft being misaligned by 100 feet. For example, an aircraft that was required to transition to FL331 from FL330 (or vice versa) but failed to do so would be misaligned by plus (or minus) 100 feet. RASMAG agreed that further study was required to ascertain whether operational errors arising as a result of the 100 feet misalignment between the feet based flight level orientation scheme and the metric scheme adopted in China should be considered as part of the RVSM safety assessment.

Review of APANPIRG Conclusion 16/9

6.25 During August 2005, in response to a number of persistent safety issues, APANPIRG/16 was informed that States were having difficulties implementing Annex 11 compliant safety management systems, adopting the following Conclusion:

Conclusion 16/19 – Study of States' preparedness to implement safety management systems

That, a study of States' preparedness to implement ICAO safety management systems in accordance with Annex 11 be undertaken by the Asia/Pacific Regional Office in conjunction with the ATS coordination groups and RASMAG by the first quarter of 2006, and a plan of action developed to be reported to APANPIRG/17 in September 2006.

6.26 RASMAG/9 was informed that although the Conclusion was raised in 2005 for action, resource limitations at the Regional Office mean that the survey has not yet been carried out. However, since the Conclusion was raised ATS safety management matters have been progressed in other ways. In September 2006, two SMS courses of 35 participants each were conducted at the Regional Office, additionally the Regional Office conducted a SIP during September 2006 on ATS Safety Management System Training, with the objective of assisting States to meet obligations for ATS safety management.

6.27 ATS safety work has also continued in various regional forums including RASMAG, resulting in valuable improvements in terms of the horizontal and vertical safety management issues. Also of significance is the increased tempo of the ICAO USOAP audit programme, with a large number of audits already completed in Asia/Pacific region and more audits scheduled. Annex 11 SMS is one of the areas assessed by the USOAP audits and the State Corrective Action Plans required under the audit programme are an effective way of ensuring that the attention of States is drawn to the implementation of ATS safety management systems.

6.28 Accordingly, on the basis that ATS safety management work was progressing consistently in a number of other forums around the region, RASMAG/9 considered that Conclusion 16/9 had been overtaken by events and agreed to recommend to APANPIRG/19 that the Conclusion be closed.

Establishment of Singapore SMA – SEASMA

6.29 RASMAG/9 recalled that the absence of Safety Monitoring Agency (SMA) services to provide horizontal monitoring and assessment capability had been an impediment to the smooth implementation of reduced horizontal separations in the region. Also, the recent work on the ICAO PBN Concept and establishment of the Asia/Pacific PBN Implementation Task Force was expected to lead to widespread implementations of 50/50NM and 30/30NM horizontal separations and SMA capability was considered essential in implementing and operating these reduced horizontal separations.

6.30 Singapore committed to establishing an SMA for the South China Sea, with the objective of providing full SMA services from 1 July 2008. Singapore has adopted the title *"South East Asia Safety Monitoring Agency" (SEASMA)* as the name for the SMA.

SMA – Matters for clarification

6.31 RASMAG/9 engaged in extensive discussions relating to the roles and functions of SMA. The meeting recognized that there were a number of areas that required clarification, covering both the administrative and technical aspects of an SMA. Given the accelerated work programme of the Asia/Pacific PBN Task Force and the preparations being made by Singapore and Japan to provide SMA capability in addition to Australia and the United States, many of these issues required urgent clarification.

6.32 RASMAG/9 agreed that further discussion, including consideration of APANPIRG Decision 16/1, of the SMA administrative and technical issues was necessary and that work should proceed off-line in such a manner that RASMAG/10 in December 2008 could be fully informed and enabled to make appropriate decisions.

Implementation of 50NM/50NM Separation on L642 and M771

6.33 Singapore provided information on the progress by the South-East Asia RNP Implementation Task Force (RNP-SEA/TF) towards implementing RNP 10 (PBN RNAV 10) based 50NM lateral/50NM longitudinal separation of ATS routes L642 and M771 in the South China Sea.

6.34 The pre-implementation safety assessment shows the risk associated with the 50-NM lateral separation standard is estimated, with high statistical confidence, to be in compliance with the Regional Target Level of Safety (TLS). Examination of the risk associated with the 50-NM longitudinal separation standard also indicates that the TLS is satisfied. RASMAG confirmed that from the aspect of the safety assessment, there was no impediment to the implementation of 50NM/50NM as planned in early July 2008.

PBN Task Force – FPO & Assistance with Safety Documentation

6.35 RASMAG/9 studied the outcomes of the PBN/TF/1 and PBN/TF/2 meetings, held in January and April 2008 respectively, noting the excellent progress that was being made toward the drafting of regional and State PBN implementation plans.

6.36 The meeting noted that the PBN/TF had identified a number of issues to be addressed in progressing PBN implementations regionally and had highlighted a number of instrument procedure design-related issues and problems faced by States. In order to address these issues the Secretariat had advanced a proposal for the formation of an ICAO Asia Pacific Flight Procedure Office (FPO) to address some of the issues identified by the PBN.

6.37 RASMAG/9 noted that the need for appropriate safety monitoring and assessment had been identified and some preliminary text included in the draft Regional Implementation Plan that had been prepared by the PBN/TF. The meeting agreed that it would be appropriate for RASMAG to assist the PBN/TF with the drafting of this component and agreed to form a small drafting group to provide an advanced draft of the safety related material by end June 2008.

Inverse correlation between ATC-to-ATC coordination errors and automated messaging

6.38 Previous RASMAG meetings had continually noted that the category of Large Height Deviation that contributes the most to the operational risk estimates are errors in transfer of control from one ATC unit to the adjacent ATC unit (Category E). The USA and Australia presented RASMAG/9 with research that demonstrates that ATC coordination errors are much more prevalent along those FIR boundaries where AIDC messaging is not available. . RASMAG considered that if AIDC capabilities were implemented between all FIRs in the Asia/Pacific region, this would have an immediate positive benefit in terms of reduced ATC-to-ATC coordination errors and strongly encouraged States to consider accelerating AIDC implementation planning in order to achieve the direct safety benefits that would result.

Use of ADS-B data for monitoring Altimetry System Error (ASE)

6.39 In airspace where RVSM is applied, the importance of accurate aircraft height-keeping is magnified. ASE is not detectible in routine operations; specialized measurement equipment is necessary to independently measure the errors. The United States provided information to RASMAG/9 in relation to the progress in attempts to use the aircraft geometric height data obtained from Automatic Dependent Surveillance – Broadcast (ADS-B) messages as one method of monitoring RVSM height keeping performance.

6.40 Following presentations from Australia and United States the meeting discussed some of the likely benefits for the region if ADS-B and/or Multilateration was an accepted method for height monitoring. The United States suggested that they would be willing to assist directly with the analyses being undertaken by Australia. As a result, the meeting strongly supported further research taking place, and for the Asia/Pacific RMAs to cooperatively support this work.

Deficiencies List

6.41 RASMAG/9 recalled that APANPIRG/18 had raised the following Conclusion:

Conclusion 18/2 – Non-Provision of Safety-Related Data by States

That, as a result of the non-provision of safety related data to approved regional safety monitoring agencies as required by APANPIRG Conclusion 16/4, Fiji, Lao PDR, Myanmar, Papua New Guinea and Tahiti be included in the APANPIRG List of Deficiencies in the ATM/AIS/SAR Fields in accordance with APANPIRG Conclusion 16/6.

6.42 In reviewing this situation, RASMAG/9 was pleased to note that Fiji, Lao PDR and Tahiti had provided appropriate TSD for December 2007 and had established a reliable record of providing the monthly LHD reports, including 'NIL' reports, to Asia/Pacific RMAs as required by APANPIRG Conclusion 16/4. Accordingly, RASMAG/9 recommends to APANPIRG/19 that Fiji, Lao PDR and Tahiti be removed from the APANPIRG list of deficiencies in the ATM/AIS/SAR fields.

6.43 Regrettably, RASMAG/9 noted that there was no change in the circumstances for Myanmar, and recommended retention on the deficiency list. Australia was working closely with Papua New Guinea, as highlighted previously in this report, and it was anticipated that the safety data problems would be overcome as a result of this relationship. Unfortunately, data provision from Bangladesh, Philippines and Sri Lanka had ceased recently. RMAs and the Regional Office would attempt to follow up to obtain the required data however, in the absence of improvement, RASMAG would be obliged to recommend to APANPIRG in 2009 that these States be included on the list.

APANPIRG Safety Data Submission Requirements

6.44 The meeting reviewed APANPIRG's requirements for the submission of safety related data and presenting a copy of a recent RASMAG/9 information paper that demonstrates how the annual December Traffic Sample Data submitted by States is used to analyze airspace characteristics.

6.45 The Sub Group took note of how the safety data is used and recognized that the Asia/Pacific region is well positioned to take full advantage of these established arrangements in implementing reduced separations widely across the region.

APANPIRG Asia/Pacific Airspace Safety Monitoring

RASMAG LIST OF COMPETENT AIRSPACE SAFETY MONITORING ORGANIZATIONS

The Regional Airspace Safety Monitoring Advisory Group of APANPIRG (RASMAG) is required by its terms of reference to recommend and facilitate the implementation of airspace safety monitoring and performance assessment services and to review and recommend on the competency and compatibility of airspace monitoring organizations. In order to assist in addressing these requirements, RASMAG updates and distributes the following list of competent airspace safety monitoring organizations for use by States requiring airspace safety monitoring services. In the context of the list, abbreviations have meanings as follows:

- RMA – Regional Monitoring Agency – safety assessment and monitoring in the vertical plane (i.e. RVSM);
- SMA – Safety Monitoring Agency – safety assessment and monitoring in the horizontal plane (i.e. RHSM, RNAV10, RNP4);
- CRA – Central Reporting Agency – technical performance of data link systems (i.e. ADS/CPDLC); and
- FIT – FANS 1/A Interoperability/Implementation Team – parent body to a CRA.

(last updated 30 May 2008)

Organisation *(including contact officer)*	State	Competency	Status	Airspace assessed (FIRs)
Australian Airspace Monitoring Agency (AAMA) - Airservices Australia Mr Robert Butcher Manager Human Factors and Analysis Safety Management Group Email: robert.butcher@airservicesaustralia.com	Australia	APANPIRG RMA	Current	Brisbane, Honiara, Jakarta, Melbourne, Nauru, Port Moresby and Ujung Pandang FIRs.
		SMA	Current	Brisbane, Melbourne FIRs.

Organisation *(including contact officer)*	State	Competency	Status	Airspace assessed (FIRs)
China RMA - Air Traffic Management Bureau, (ATMB) of Civil Aviation Administration of China (CAAC) Mr. Tang Jinxiang, Engineer of Safety and Monitoring Technical Group, ATMB Email: tangjx@adcc.com.cn	China	RMA *(**note:** RASMAG/9 recommended that APANPIRG/19 [September 2008] approve China as Asia/Pacific RMA*	Current	Beijing, Guangzhou, Kunming, Lanzhou, Shanghai, Shenyang, Urumqi and Wuhan FIRs and Sector 01 (airspace over Hainan Island) of the Sanya FIR.
JCAB RMA - Japan Civil Aviation Bureau Mr. Masao Kondo, Special Assistant to the Director, Flight Procedures and Airspace Program Office Email: kondou-m2pd@mlit.go.jp	Japan	APANPIRG RMA	Current	Fukuoka FIR
		SMA	Available second quarter – 2009	Fukuoka FIR
Monitoring Agency for the Asia Region (MAAR) – Aeronautical Radio of Thailand LTD Mr. Nuttakajorn Yanpirat, Executive Officer, Systems Engineering, Aeronautical Radio of Thailand Ltd. Email: nuttakajorn.ya@aerothai.co.th	Thailand	APANPIRG RMA	Current	Bangkok, Kolkatta, Chennai, Colombo, Delhi, Dhaka, Hanoi, Ho Chi Minh, Hong Kong, Karachi, Kathmandu, Kota Kinabalu, Kuala Lumpur, Lahore, Male, Manila, Mumbai, Phnom Penh, Sanya FIR, Singapore, Taibei, Ulaan Bataar, Vientiane, Yangon FIRs

Organisation *(including contact officer)*	State	Competency	Status	Airspace assessed (FIRs)
Pacific Approvals Registry and Monitoring Organization (PARMO) – Federal Aviation Administration (US FAA) Mr. Dale Livingston, Manager, Separation Standards Analysis Team FAA Email: dale.livingston@faa.gov	USA	APANPIRG RMA	Current	Anchorage Oceanic, Auckland Oceanic, Incheon, Nadi, Oakland Oceanic, Tahiti FIRs
		SMA	Current	Anchorage Oceanic, Oakland Oceanic
South East Asia Safety Monitoring Agency (SEASMA) - Civil Aviation Authority of Singapore (CAAS) Mr. Kuah Kong Beng, Chief Air Traffic Control Officer Email: KUAH_Kong_Beng@caas.gov.sg	Singapore	Monitoring Authority for Gross Navigational Error (GNE)	Current	Hong Kong, Ho Chi Minh, Manila, Sanya and Singapore FIRs
		SMA for South China Sea	From 1st July 2008	Hong Kong, Ho Chi Minh, Manila, Sanya and Singapore FIRs
FIT - SEA (ICAO Regional Office Email icao_apac@bangkok.icao.int & **CRA Japan** Mr. Masahisa Hayashi, Deputy Director, Air Traffic Control Association Japan Email:hayashi@atcaj.or.jp	ICAO Regional Office & CRA Japan	FIT & CRA	Current	South China Sea FIRs

Organisation *(including contact officer)*	State	Competency	Status	Airspace assessed (FIRs)
IPACG/FIT Mr. Takahiro Morishima, JCAB Co-Chair Email: morishima-t2zg@mlit.go.jp & Mr. Reed Sladen, FAA Co-Chair Email: reed.b.sladen@faa.gov	Japan & USA	FIT & CRA	Current	North & Central Pacific (Oceanic airspace within Fukuoka FIR, and Anchorage & Oakland FIRs)
CRA Japan Mr. Masahisa Hayashi, Deputy Director, Air Traffic Control Association Japan Email:hayashi@atcaj.or.jp	Japan	CRA	Current	Fukuoka FIR for IPACG/FIT Ho Chi Minh, Manila, Singapore FIRs for FIT-SEA
FIT - BOB ICAO Regional Office email icao_apac@bangkok.icao.int & Mr. Bradley Cornell, Boeing Engineering Email: Bradley.D.Cornell@Boeing.Com	ICAO Regional Office & Boeing USA	FIT & CRA	Current	Bay of Bengal FIRs, Ujung Pandang and Jakarta FIRs, provides assistance to the members of the Arabian Sea/Indian Ocean ATS Coordination Group (ASIOACG)
ISPACG/FIT Mr. Bradley Cornell, Boeing Engineering Email: Bradley.D.Cornell@Boeing.Com	Boeing USA	FIT & CRA	Current	South Pacific FIRs and members of the Informal South Pacific ATS Coordination Group (ISPACG)

International Civil Aviation Organization | Organisation de l'aviation civile internationale | Organización de Aviación Civil Internacional | Международная организация гражданской авиации | منظمة الطيران المدني الدولي | 国际民用航空组织

Ref.: T 3/10.1.17 – AP018/08 (ATM) 31 January 2008

Subject: Global Long Term RVSM Height Monitoring

Action required: To note and take action

Sir/Madam,

I have the honour to direct your attention to recent initiatives of the APANPIRG Regional Airspace Safety Monitoring Advisory Group (RASMAG) in relation to the pending implementation from 2010 of ICAO global provisions for the long term monitoring of the height keeping performance of individual airframes involved in RVSM operations.

To be approved for operation in RVSM airspace, aircraft must comply with technical requirements that ensure that the aircraft will accurately maintain the actual height cleared by air traffic services. Extensive height-keeping performance data was collected globally to demonstrate the stability of altimetry system error (ASE), but the results to date indicate that altimetry systems drift is more than what was previously expected. This situation has led to the amendment proposal to Annex 6 – *Operation of Aircraft,* as promulgated for State comments in ICAO State Letter ref: AN 13/11.1-07/72 of 7 December 2007, that requires States to establish mechanisms for monitoring height-keeping performance at specified periodicity. The Annex 6 amendment is proposed for implementation from November 2010.

Presently, the on-going monitoring of RVSM operations is undertaken globally by entities known as RVSM Regional Monitoring Agencies (RMAs), which are specifically established for this purpose in order to meet existing ICAO Standards which require such monitoring. For the Asia/Pacific region, APANPIRG endorsed RMA services are provided by:

- The Australian Airspace Monitoring Agency (AAMA) operated by Airservices Australia;
- The JCAB RMA operated by the Japan Civil Aviation Bureau;
- The Monitoring Agency for the Asia Region (MAAR) operated by Aeronautical Radio of Thailand (AEROTHAI); and
- The Pacific Approvals Registry and Monitoring Organization (PARMO) operated by the United States Federal Aviation Administration.

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Additionally the China RMA, operated by the Air Traffic Management Bureau (ATMB) of China, is presently undertaking the credentialing process to receive APANPIRG endorsement for the provision of RMA services for Chinese RVSM airspace. The FIRs for which each RMA takes responsibility have been described in the RASMAG *"List of Competent Airspace Safety Monitoring Organizations"* – a copy of which is included as **Attachment B**.

In considering these matters, the Eighteenth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/18, September 2007) recognized that the pending implementation of long term monitoring requirements would have significant impacts in the way regional monitoring was managed, including the need for widespread regional height monitoring capability to be made available. APANPIRG/18 was of the opinion that work should be undertaken as soon as possible in order to assess the consequences for the Asia/Pacific Region and, under the provisions of Conclusion 18/4, tasked Asia/Pacific RMAs to work with RASMAG to prepare a regional impact statement summarizing the estimated consequences for the Region.

The RASMAG meeting in late 2007 (RASMAG/8, December 2007) considered these matters at length. RASMAG/8 considered that although the final composition of the global long-term height monitoring provisions in Annex 6 was still subject to final resolution, it was reasonable to expect that an RMA would need to carry out at least the following tasks:

a) Educate States and airspace users as to the roles and functions of an RMA,
b) Establish the monitoring requirements to be satisfied by each operator,
c) Coordinate with other RMAs so that monitoring results are shared, and
d) Ensure that an adequate regional monitoring system infrastructure exists.

In order to progress these matters in a timely fashion, RASMAG/8 formulated six Long Term Height Monitoring (LTHM) Actions for regional promulgation, as outlined in **Attachment A** to this letter.

Accordingly, in order to ensure adequate preparations for the implementation of the global long term RVSM height monitoring provisions, States and Asia/Pacific RMAs are requested to review the work of RASMAG in the context of ICAO State Letter ref: AN 13/11.1-07/72 of 7 December 2007 and consider implementing early responses to the attached LTHM Actions identified by RASMAG/8. In particular, I would encourage all States to immediately strengthen relationships with their respective RMAs and ensure that robust mechanisms are in place to ensure that information in relation to RVSM approvals status is continuously available to RMAs.

Accept, Sir/Madam, the assurances of my highest consideration.

Mokhtar A. Awan
Regional Director

Attachments:
A – List of RASMAG Long Term Height Monitoring Actions
B – RASMAG List of Competent Airspace Safety Monitoring Organizations

Long Term RVSM Height Monitoring Actions – Asia/Pacific Region

APANPIRG/18 (September, 2007) was of the opinion that work should be undertaken as soon as possible in order to assess the consequences for the Asia/Pacific Region of the implementation of ICAO global long term RVSM height monitoring requirements from 2010 and, under the terms of Conclusion 18/4, requested Asia/Pacific Regional Monitoring Agencies (RMAs) in conjunction with the APANPIRG Regional Airspace Safety Monitoring Advisory Group (RASMAG) to prepare a regional impact statement summarizing the estimated consequences for the Region, including consideration of the numbers of airframes required to be monitored.

In order to progress these matters in a timely fashion, RASMAG/8 (December, 2007) formulated six Long Term Height Monitoring (LTHM) Actions for promulgation, as outlined below. More details in respect to each LHTM Action can be found in the RASMAG/8 report, available from the website of the ICAO Asia/Pacific Office at http://www.bangkok.icao.int/ under the "Meetings" menu.

LTHM Action 1: Based on the final draft of the RMA Manual which was expected to be available from June 2008, Asia/Pacific RMAs in conjunction with RASMAG prepare and widely promulgate an information circular detailing, as a minimum, the roles and responsibilities of an RMA, the height monitoring process and equipment required, and the reasons and quantum of the global long term height monitoring requirements.

LTHM Action 2: To maintain effective delivery of existing RMA services and facilitate planning specifically designed to prepare for application of global long-term RVSM height monitoring requirements from 2010, each Asia/Pacific RMA should, as a matter of priority, bring to the attention of State regulators the difficulties being experienced by RMAs in receiving timely and accurate information (including routine large height deviation [LHD] reporting) from States. Asia/Pacific RMAs should seek assistance from States in implementing robust processes to:

a) continuously update RMA databases of operators and aircraft holding State RVSM approvals;

b) enable the expeditious forwarding of all LHD and related reports to RMAs, and

c) ensure availability of current details for State RVSM Point of Contact (POC) officials.

LTHM Action 3: Whilst recognizing that responsibility for compliance with Annex 6 height monitoring provisions remains the responsibility of States, as soon as practicable each Asia/Pacific RMA, in conjunction with State regulatory authorities and airspace user organizations, should develop a methodology for reviewing the RMA database of RVSM approvals in order to develop and promulgate a list of the minimum height monitoring which must be accomplished by each operator to which the RMA provides services. In preparing this list, account should be taken of special circumstances pertaining to infrequent airspace users recognizing that some operators may be required to complete minimum monitoring requirements which are a function of the proposed 1,000-flying-hour limit rather than the two-year limit.

LTHM Action 4: After determining the potential monitoring burden posed by the operators to which it provides service, each Asia/Pacific RMA should examine monitoring results accumulated by all other authorized global RMAs, regardless of region, in order to utilize monitoring results from other regions to avoid duplication and reduce the actual monitoring burden the RMA faces.

LTHM Action 5: Each Asia/Pacific Region RMA should, in light of its anticipated height monitoring burden, propose recommendations through RASMAG to APANPIRG useful in determining the regional ground-based and GPS-based Monitoring System (GMS) height monitoring infrastructure necessary to enable its affiliated operators to meet the global long-term RVSM monitoring requirements applicable from November 2010.

LTHM Action 6: Asia/Pacific RMAs collaboratively investigate the technical feasibility of using the aircraft geometric height produced by ADS-B and Multilateration surveillance systems to support monitoring of aircraft height keeping performance.

…….…… *End* ……..……

AGENDA ITEM 7: REVIEW DEVELOPMENTS RELATING TO CNS/ATM IMPLEMENTATION

Agenda Item 7: Review developments relating to CNS/ATM implementation

Update on the ICAO Global Air Navigation Plan and ICAO's Strategic Objectives

7.1 The meeting reviewed an update on the Global Plan Initiatives (GPIs) and of the ICAO Strategic Objectives adopted by the Council of ICAO on 14 December 2004. Both of these initiatives are required to be taken into account in the planning and implementation activities of APANPIRG and its contributing bodies. Copies of the GPIs have been included as **Appendix A** to the Report on Agenda Item 7.

7.2 The meeting noted the Third Edition of the ICAO Global Air Navigation Plan and agreed to maintain the Sub-Group's Task List in alignment with ICAO's Global Planning Initiatives.

The ICAO Global Aviation Safety Plan

7.3 The ICAO Global Aviation Safety Plan (GASP) was developed in 1997 and was updated regularly until 2005 to ensure its continuing relevance. In May 2005, an informal meeting between the Air Navigation Commission and Industry identified a need for a broader Plan that would provide a common frame of reference for not only ICAO but all stakeholders. Consequently, a new Global Aviation Safety Plan was developed, and was presented to the meeting.

7.4 The 'new' GASP is based on the following principles:

a) *Involvement of all stakeholders*: A proactive approach to aviation safety requires that all concerned stakeholders are involved. There is also a need to ensure that safety initiatives take place within a common framework to ensure consistency of objectives and to avoid duplication of effort. An important element of GASP is that it integrates the Global Aviation Safety Roadmap developed at the request, and with the support, of ICAO by the Industry Safety Strategy Group (Airbus, Boeing, Airports Council International, Civil Air Navigation Services Organization, International Air Transport Association, International Federation of Air Line Pilots' Associations and Flight Safety Foundation);

b) *Global Safety Initiatives (GSIs):* GASP defines twelve GSIs (**Appendix B** to the Report on Agenda Item 7 refers) that support the implementation of the ICAO Safety Strategic Objective. Each initiative relies on a set of best practices, metrics and maturity levels defined in the Global Aviation Safety Roadmap to ensure that implementation makes full use of the collective experience of the aviation community and that progress is measured in a transparent and consistent way;

c) *Planning process:* The objective of the planning process is to collaboratively develop an action plan that defines, at the regional, sub-regional or national level, the specific activities that should take place in order to improve safety;

d) *Consistency of the ICAO Global Planning Process*: GASP follows an approach and philosophy which is coherent with the *Global Air Navigation Plan for CNS/ATM Systems* (Doc 9750). Both were developed with close coordination and participation of industry, and both provide a common framework to ensure that regional, sub-regional, national and individual

initiatives are coordinated to deliver a harmonized, safe and efficient international civil aviation system.

7.5 The meeting noted the new Global Aviation Safety Plan and agreed to apply the GASP, GSIs and Global Aviation Safety Roadmap principles and objectives with respect to its work programme.

Amendments to ICAO Flight Plan

7.6 During late 2003, the Air Navigation Commission authorized the establishment of the ICAO Flight Plan Study Group (FPLSG) to assist the Secretariat. The primary work of the FPLSG was to develop a proposal for amendment of the flight plan provisions, including the ICAO model flight plan form and associated operating practices, so that they would meet future needs of aircraft with advanced capabilities and the requirements of automated air traffic management (ATM) systems, while taking into account compatibility with existing systems, human factors, training, cost and transition aspects.

7.7 The meeting reviewed the information in the PANS-ATM amendment proposal (see **Appendix C** to the Report on Agenda Item 7) and noted that implementation of the changes is proposed with effect from 15 November 2012. These changes will have widespread implications for automated systems, including ATC systems and airspace user systems, and the meeting encouraged States and international organizations to study the amendment and any implementation/transition guidelines that became available. Australia advised the meeting that the ANC's ATM Requirements and Performance Panel (ATMRPP) is preparing implementation guidelines to assist a globally streamlined implementation of the new flight planning provisions; these guidelines will become available in due course. The meeting agreed that there will be many actions necessary to ensure a streamlined regional implementation, including the development of a regional transition strategy. For example, the meeting initially indentified the following actions:

- AIDC guidelines and other regional documents will need to be updated,
- Contingency arrangements for States that cannot comply by the due date,
- How to handle staged implementations by States and/or airspace users,
- Management of Repetitive Flight Plans, and
- Implications for electronic presentations including electronic flight progress strips.

7.8 In light of the situation, the meeting agreed to the following draft Conclusion.

Draft Conclusion SG/18/6 – Establishment of an ICAO Flight Plan & ATS Message Implementation Task Force

That, an Asia/Pacific ICAO Flight Plan & ATS Message Implementation Task Force (FPL&AM/TF), with terms of reference as outlined in **Appendix D** to the ATM/AIS/SAR/SG/18 Report on Agenda Item 7, be established to develop a regional transition strategy to ensure the streamlined implementation of the amended ICAO flight planning and associated ATS Message provisions.

Summary of the First and Second Meetings of Asia/Pacific Performance Based Navigation Task Force

7.9 The meeting recalled that APANPIRG/18 had established the Asia/Pacific Performance Based Navigation Task Force (PBN/TF) under Conclusion 18/52 and had raised Conclusions 18/53, 18/54 and 18/55 to ensure development of Regional and State PBN Implementation plans, harmonized global PBN Standard and Recommended Practices (SARPS) and guidance materials, and designation of State Points of Contact for PBN matters. The meeting reviewed the summary reports of the two meetings of PBN/TF held to date, in January and April 2008, respectively.

7.10 It was noted that PBN/TF/1 had reviewed its Terms of Reference (TOR) in order to clarify references to approaches with vertical guidance; and that two sub-groups had been formed within PBN/TF to address:

1) Regional Implementation Plan; and
2) State Implementation Plan and State Documentation.

7.11 PBN/TF/2 supported the establishment of an ICAO Asia-Pacific Flight Procedure Office (FPO) by mid-2009 to assist States in the Asia and Pacific Regions to enhance the quality of their instrument flight procedures and meet the PBN implementation goals of ICAO Assembly resolution A36-23.

7.12 Following a discussion on the significant level of industry confusion between the provision of vertical advisories and that of true vertical guidance, the following Action Items were agreed to by PBN/TF/2:

1) States provide education to operators, pilots and ATC on the differences between VNAV guidance on a true Baro-VNAV approach and vertical 'advisory' that may be available when flying a lateral guidance only RNAV (GNSS) approach.

2) States' incorporate LNAV/VNAV designs into any new RNAV (GNSS) approaches.

7.13 To augment the benefits from future PBN Task Force meetings, the following improvement/suggestions were made:

1) States to share the current statistics of fleet readiness regarding PBN.
2) Early distribution of meeting material and documents.
3) States to propose more future education/implementation assistance.
4) Development and finalization of PBN approval matrix.
5) Task Force to focus more on GNSS implementation.
6) Expand communication between the Task Force and ANSPs & airlines.
7) Extend the Task Force duration to possibly 4-5 years.
8) States to share and highlight lessons learned during their PBN implementation
9) Finalization of PBN Manual (ICAO Doc. 9613)
10) States to share their GNSS implementations status.
11) Share information on related GNSS application, for example RAIM prediction
12) Include participation from aircraft manufacturers.

7.14 The Sub-Group noted the reports and, in keeping with the APANPIRG/18 Conclusion 18/55, requested States to urgently nominate PBN Focal Contact Persons. The meeting agreed that the work of the PBN/TF and RNP-SEA/TF should be complementary and not contradictory, and noted that the work of the RNP-SEA/TF, which is a contributory body of SEACG, was specific to the introduction of RNP 10 and RNP 4 in Southeast Asia in accordance with its TOR.

Seventh Meeting of Automatic Dependent Surveillance-Broadcast (ADS-B) Study and Implementation Task Force

7.15 The meeting reviewed the outcome of the Seventh meeting of Automatic Dependent Surveillance-Broadcast (ADS-B) Study and Implementation Task Force (ADS-B SITF/7) and the ADS-B Seminar held in China in early April 2008. The Seminar was attended by 140 participants and the Meeting was attended by 74 participants. The Seminar covered various issues related to ADS-B planning and implementation. The meeting noted that several regional guidance materials were developed by the Seventh meeting of the Task Force.

7.16 The planning and implementation status of ADS-B and Multilateration updated by States at the Task Force meeting was presented to the meeting. The meeting noted that the Task Force proposed replacement of the phrase “ADS” as mentioned in the PANS ATM Doc4444, Appendix 2 Flight Planning and Surveillance Equipment in the Item 10 with ‘ADS-C”. The meeting also noted the progress made by the SEA Sub-regional ADS-B Implementation Working Group.

Review of ASIA/PAC AIDC Implementation Status

7.17 The meeting recognized that ATS voice communications errors between ATCs across FIR boundaries are one of the most crucial aspects of APAC regional RVSM operations and importance of implementation of AIDC as a means of mitigating errors observed in controller to controller verbal communication. The meeting noted that as follow-up action to the APANPIRG Conclusion 18/26, an amendment proposal of ATS Inter-facility Data Communication (AIDC) Implementation Plan (FASID TABLE CNS-1E) was processed in March and approved on 23 May 2008. The status of planning and implementation of AIDC are reflected in the updated Table. The meeting also noted that the issue of transition to ATN/AMHS based AIDC was discussed at the Third meeting of the ATNICG. The ATN Implementation Coordination Group agreed that ATN implementation will be able to support AFTN based AIDC, which is currently in use.

7.18 The meeting encourages States to work together towards earlier implementation of compatible AIDC capabilities based on Asia/Pacific AIDC ICD between adjacent ATCs in accordance with the regional air navigation plan for AIDC.

Work Programme for Global Transition from AIS to AIM

7.19 The meeting reviewed the evolution of requirements for the global transition from AIS to Aeronautical Information Management (AIM) and the Work Programme to enable the transition from AIS to AIM. It was noted that:

a) a new study group, to be known as the Aeronautical Information Services – Aeronautical Information Management Study Group (AIS-AIMSG), had been established to assist the Secretariat in the development of:

i) a global strategy/roadmap for the transition from AIS to AIM to be delivered in draft by early 2009;

ii) SARPs and guidance material, expected by 2010, related to the provision of a standard aeronautical information conceptual model and standard aeronautical information exchange model to enable the global exchange of data in digital format;

iii) other SARPs, guidance and training material necessary to support AIM implementation by 2013; and

b) the AISMAPSG and the ADMSG had been dissolved.

Restructuring Plan of Kanto Airspace over Tokyo and Narita International Airports

7.20 The meeting noted information provided by Japan on the expansion plans for Haneda and Narita International Airports, and the consequent restructuring of the overlying Kanto airspace. Japan Civil Aviation Bureau (JCAB) was planning the project to implement on a step-by-step basis because this is a major change and impact to airspace configuration, routes and ATC operations.

Asia and South Pacific Initiative to Reduce Emissions (ASPIRE) Partnership for Increasing Efficiency and Reducing Greenhouse Gas Emissions in Aviation

7.21 The meeting reviewed information describing how the FAA, in conjunction with several air navigation service providers, has placed a renewed emphasis on developing air traffic service improvements designed to increase efficiency and reduce greenhouse gas emissions through operational initiatives in the Atlantic. The paper also discussed recent FAA efforts with Airservices Australia and Airways New Zealand in the South Pacific to introduce the ASPIRE Partnership, and with the Civil Aviation Bureau, Japan (JCAB) to investigate ASPIRE initiatives in the North Pacific.

7.22 The meeting was invited to consider the objectives of ASPIRE and how one might support its objectives and contribute to increase system and operating efficiency while reducing fuel burn and aviation's environmental footprint.

EXTRACT FROM THE GLOBAL AIR NAVIGATION PLAN
GLOBAL PLANNING INITIATIVES (GPI)

Note: *In the context of the GPIs, Operational Concept Component abbreviations have meanings as follows:*

AOM – Airspace Organization and Management,
DCB – Demand and Capacity Balancing,
AO – Aerodrome Operations,
TS – Traffic Synchronization,
CM – Conflict Management,
AUO – Airspace User Operations, and
ATMSDM – ATM Service Delivery Management.

(GPI-1) FLEXIBLE USE OF AIRSPACE
Scope: The optimization and equitable balance in the use of airspace between civil and military users, facilitated through both strategic coordination and dynamic interaction.
Related Operational Concept Components: AOM, AUO
Description of strategy
1.20 The use of airspace could be optimized through the dynamic interaction of civil and military air traffic services including real-time civil/military controller-to-controller co-ordination. This requires system support, operational procedures and adequate information on civilian traffic position and intentions. 1.21 The flexible use of airspace (FUA) concept is based on the principle that airspace should not be designated purely as civil or military, but rather as a continuum in which all user requirements are accommodated to the greatest possible extent. FUA should result in the removal of large tracts of permanent or transient restricted airspace or special use airspace. 1.22 Where there are continued requirements to accommodate specific individual airspace uses, thereby blocking airspace of certain dimensions, this should be accommodated on a transient basis. Airspace should be released immediately after the operation requiring the restriction is complete. 1.23 Greater benefits associated with implementation of FUA will be obtained through inter-State cooperation which may entail regional and sub-regional agreements as reserved airspace is often established along critical flight paths at national boundaries.

(GPI-2) REDUCED VERTICAL SEPARATION MINIMUM
Scope: The optimization of the utilization of airspace and enhanced aircraft altimetry systems.
Related Operational Concept Components: AOM, CM
Description of strategy
1.24 Reduced vertical separation minima (RVSM) reduces vertical separation to 300 metres (1 000 ft) above FL 290 from the current 600 metres (2000 ft), thereby providing six additional flight levels. The Manual on Implementation of a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive provides specific guidance on implementation of (Doc 9574). 1.25 A great deal of experience has been gained with RVSM and all necessary Standards and Recommended Practices (SARPs) guidance material are available to support implementation.

(GPI-3) HARMONIZATION OF LEVEL SYSTEMS
Scope: The adoption by all States of the ICAO Flight Level Scheme based on feet as contained in Appendix 3 to Annex 2 – *Rules of the Air.*
Related Operational Concept Components: AOM, CM, AUO
Description of strategy
1.26 The majority of ICAO Contracting States have chosen to use the imperial measurement system for referencing altitudes and levels, however, some States continue to use the metric system. To compound matters, some States that use the metric system, have adopted different vertical spacing standards than what is contained in ICAO Annex 2 **—** *Rules of the Air*. 1.27 Aircraft registered in States that have adopted the imperial system have altimetry systems calibrated in feet. Those registered in States that have adopted the metric system generally have altimeters calibrated in metres. Aircraft operating across boundaries into States with differing systems are required to carry additional altimeters, or to use conversion charts. Air traffic controllers handling such flights are also required to use conversion charts. 1.28 The implementation of RVSM at the interface between States using the different systems has increased safety concerns and causes the loss of several levels resulting in a less efficient operation for aircraft and a loss in airspace capacity. In addition, certain States that utilize the metric system have not made certain high level cruising altitudes available; thereby, imposing significant operating restrictions on aircraft operating on long-range sectors. 1.29 Harmonization of level systems, whereby all States adopt the ICAO Flight Level Scheme based on feet, should be pursued.

(GPI-4) ALIGNMENT OF UPPER AIRSPACE CLASSIFICATIONS
Scope: The harmonization of upper airspace and associated traffic handling through application of a common ICAO ATS Airspace Class above an agreed division level.
Related Operational Concept Components: AOM, CM, AUO
Description of strategy
1.30 To the extent possible airspace should be structured as a continuum, free from operational discontinuities, inconsistencies and differing rules and procedures. Alignment of airspace classifications can help to achieve this goal. It would also facilitate the introduction and better utilization of data link communications, improved flight plan processing systems, and advanced airspace management coordination tools and message exchange capabilities, leading to progressively more flexible and dynamic management of airspace. Airspace classifications should be harmonized intra-regionally and, where possible, across several regions. 1.31 Air transport and most business aircraft operations should be contained within airspace within which positive air traffic control services are provided to all aircraft (i.e. Class A, B, C or D). 1.32 ATM provided in various airspace volumes should be based on the ICAO airspace classification system as defined in Annex 11 — *Air Traffic Services* (i.e. Class A to G), and those classifications should be implemented on the basis of a safety assessment, taking into account the volume of nature of the air traffic.

(GPI-5) RNAV AND RNP (PERFORMANCE-BASED NAVIGATION)
Scope: The incorporation of advanced aircraft navigation capabilities into the air navigation system infrastructure.
Related Operational Concept Components: AOM, AO, TS, CM, AUO
Description of strategy
1.33 The implementation of the concept of performance based navigation will lead to increased capacity and enhanced efficiency through reductions in separation minima, bringing benefits to aircraft operators that equip to meet performance requirements. Performance-based navigation will also improve safety, particularly on approach through a reduction of controlled flight into terrain. 1.34 A significant number of aircraft are capable of area navigation (RNAV) and required navigation performance (RNP). Where warranted, these capabilities should be further exploited to develop more efficient routes and aircraft trajectories that are not directly tied to ground-based navigation aids. Certain RNAV equipped aircraft also have a significantly enhanced capability to achieve sequencing requirements to runways, particularly through the use of the "required time of arrival" function within the flight management system (FMS). 1.35 The performance-based navigation concept, which comprises RNAV and RNP operations recognizes that a clear distinction must be made in the designation of operations, between those aircraft operations that require onboard self-contained performance monitoring and alerting and those that do not. 1.36 In accordance with the performance-based navigation concept, all phases of flight are addressed including enroute (oceanic/remote and continental), terminal and approach. The concept, its implementation processes, navigation applications, as well as the operational approval and aircraft qualification requirements is described in the performance-based navigation manual which will be published as a new edition of Doc 9613.

(GPI-6) AIR TRAFFIC FLOW MANAGEMENT
Scope: The implementation of strategic, tactical and pre-tactical measures aimed at organizing and handling traffic flows in such a way that the totality of the traffic handled at any given time or in any given airspace or aerodrome is compatible with the capacity of the ATM system.
Related Operational Concept Components: AOM, AO, DCB, TS, CM, AUO
Description of strategy
1.37 The implementation of demand/capacity measures, commonly known as air traffic flow management (ATFM), implemented on a regional basis where needed, will enhance airspace capacity and improve operating efficiency. 1.38 In the event that traffic demand regularly exceeds capacity, resulting in continuing and frequent traffic delays, or when it becomes apparent that forecast traffic demand will exceed the available capacity, the appropriate ATM units, in consultation with aircraft operators, should consider implementing steps aimed at improving the use of the existing system capacity, and developing plans to increase capacity to meet the actual or forecast demand. Any such planning to increase capacity should be undertaken in a structured and collaborative manner. 1.39 Where warranted, States and regions should evolve to a collaborative based approach to capacity through collaborative decision-making, a reduction in the reliance on tactical flow management. It is inevitable that tactical flow intervention will continue to be required; however closer coordination between airspace users and ATM service providers can reduce the need for routine tactical intervention which is often disruptive to aircraft operations.

(GPI-7) DYNAMIC AND FLEXIBLE ATSROUTE MANAGEMENT
Scope: The establishment of more flexible and dynamic route systems, on the basis of navigation performance capability, aimed at accommodating preferred flight trajectories
Related Operational Concept Components: OM, AUO
Description of strategy
1.40 The implementation of ATS route structures that avoid concentrations of aircraft over congested points and implementation of an ATS routing environment that meets the needs of the airspace users to operate along preferred and dynamic flight trajectories, will increase capacity and increase aircraft operating efficiency. 1.41 RNAV routes are not restricted to the location of ground-based aids and provide benefits to aircraft operators and the ATM system. All modern aircraft are RNAV capable and efforts should be made to design and implement RNAV routes. 1.42 Dynamic route management involves the aircraft in the planning process. Typical scenarios include the generation of change-of routing requests by the dispatch functions of the aircraft operators, the processing and approval of these requests by ATS providers and transmission of the change-or-routing approval to the aircraft. Advanced scenarios would have the aircraft making requests directly to ATS providers who would process and modify the request if necessary and then forward the approved route to aircraft and affected service providers along the route of flight. 1.43 Random routing strategically or pre-tactically defines areas within which fixed routes are not designated and where aircraft determine an appropriate track from an entry point to an exit point. 1.44 User-preferred routes make use of the capability of aircraft operators to determine optimum tracks, based on a range of flight parameters. In accordance with this concept, ATS routes or tracks would not be fixed to pre-determined routes or waypoints, except where required for control purposes, however, trajectories would be available to ATM staff. 1.45 User-preferred routing requests are generated by the airspace user or their dispatch functions and submitted to the ATS provider for approval or renegotiation if a conflict is determined followed by their transmission to aircraft. Advanced scenarios would have the aircraft making requests directly to ATS providers who would process and modify the request if necessary and then forward the approved route to aircraft.

(GPI-8) COLLABORATIVE AIRSPACE DESIGN AND MANAGEMENT
Scope: The application of uniform airspace organization and management principles on a global basis, leading to a more flexible airspace design to accommodate traffic flows dynamically.
Related Operational Concept Components: AOM, AUO
Description of strategy
1.46 Collaborative airspace design and management is aimed at organizing airspace in a cooperative manner involving all users so that airspace is managed to accommodate the preferred trajectories of the users. States and regions should take advantage of aircraft capabilities when designing airspace. In designing and implementing airspace changes, account needs to be taken of the fleet capabilities among airspace users within a given airspace. Furthermore, collaboration with airspace users will identify procedures and/or solutions that make use of available aircraft capabilities. 1.47 Other emerging developments such as collaborative decision-making, the "required time of arrival" function in the flight management system (FMS), the endorsement of the global ATM operational concept and the implementation of data link applications, will also allow improved airspace design and management. 1.48 Over an evolutionary period, dynamic airspace management should be applied where significant benefits would be gained. Dynamic airspace management comprises integrated decision making; demand based capacity (see air traffic flow management, paragraph 1.36); and user preferred routes (see dynamic and flexible ATS route management, paragraph 1.39). 1.49 Integrated decision making is an extension of the principles of the flexible use of airspace concept to include airspace users in flight in decision making with respect to tactical assessment of the use of reserved airspace and requirements for transit times of special use airspace. 1.50 Aircraft FMSs can provide information on estimated time enroute for proposed route changes. In addition, data link communication through CPDLC, providing the ability to uplink and downlink flight planning information, can support deployment of integrated decision making.

(GPI-9) SITUATIONAL AWARENESS
Scope: Operational implementation of data link-based surveillance. The implementation of equipment to allow traffic information to be displayed in aircraft supporting implementation of conflict prediction and collaboration between flight crew and the ATM system. Improve situational awareness in the cockpit by making available electronic terrain and obstacle data of required quality.
Related Operational Concept Components: AO, TS, CM, AUO
Description of strategy
1.51 The further implementation of enhanced surveillance techniques (ADS-C or ADS-B) will allow reductions in separation minima and an enhancement of safety, increase in capacity, improved flight efficiency, all on a cost-effective basis. These benefits may be achieved by bringing surveillance to areas where there is no primary or secondary radar, when cost-benefit models warrant it. In airspaces where radar is used, enhanced surveillance can bring further reductions in aircraft separation minima and improve, in high traffic density areas, the quality of surveillance information both on the ground and in the air, thereby increasing safety levels. The implementation of sets of quality assured electronic terrain and obstacle data necessary to support the ground proximity warning systems with forward looking terrain avoidance function as well as minimum safe altitude warning (MSAW) system will benefit safety substantially. 1.52 Implementation of surveillance systems for surface movement at aerodromes where weather conditions and capacity warrant will also enhance safety and efficiency while implementation of cockpit display of traffic information and associated procedures will enable pilot participation in the ATM system and improve safety through greater situational awareness. 1.53 In remote and oceanic airspace where ADS-C is used, FANS capabilities exist on many air transport aircraft and could be added to business aircraft. ADS-B can be used to enhance traffic surveillance in domestic airspace. in this respect, it should be noted that 1090 extended squitter is both available and should be accepted as the global choice for the ADS-B data link. 1.54 At terminal areas and at aerodromes surrounded by significant terrain and obstacles, the availability of quality assured terrain and obstacle databases containing digital sets of data representing terrain surface in the form of continuous elevation values and digital sets of obstacle data of features, having vertical significance in relation to adjacent and surrounding features considered hazardous to air navigation, will improve situational awareness and contribute to the overall reduction of the number of controlled flight into terrain related accidents.

(GPI-10) TERMINAL AREA DESIGN AND MANAGEMENT
Scope: The optimization of the terminal control area (TMA) through improved design and management techniques.
Related Operational Concept Components: AOM, AO, TS, CM, AUO
Description of strategy
1.55 There are many ways that a well designed and managed TMA can have an important impact on safety, capacity and efficiency. TMA design should be implemented uniformly across all TMAs within a State or Region and should provide benefits while minimizing pilot/controller communications and optimizing pilot and controller workload. TMA arrival acceptance rates should be based tactically on a collaborative decision-making process involving tower, TMA and en-route sectors, while strategically involving airspace users, to ensure optimum traffic handling. 1.56 The enhancement of TMA management includes: 1) Complete the implementation of WGS-84 (see WGS-84, paragraph 1.89 below); 2) Design and implement optimized RNAV and RNP arrival and departure procedures (see also RNAV and RNP (Performance-based navigation GPI-5); 3) Design and implement RNP-based approach procedures (see also Performance-based navigation in paragraph 1.34 above); and 4) Enhance traffic and capacity management. 1.57 The implementation of dynamic TMA management procedures may comprise several elements such as dynamic wake vortex detection and mitigation, and collaborative capacity management 1.58 At those locations where a business case supports implementation, decision support tools should be developed and implemented to provide a more structured and efficient management of arrival and departure traffic flows and more efficient use of the runway(s); more fuel-efficient trajectories and reduced noise exposure.

(GPI-11) RNPAND RNAV STANDARD INSTRUMENT DEPARTURES (SIDS) AND STANDARD TERMINALARRIVALS (STARS)
Scope: The optimization of the terminal control area (TMA) through implementation of improved ATS route structures based on RNP and RNAV, connecting the enroute phase of flight with the final approach, based on improved coordination processes.
Related Operational Concept Components: AOM, AO, TS, CM, AUO
Description of strategy
1.59 The implementation of optimized standard instrument departures (SIDs), standard instrument arrivals (STARs), instrument flight procedures, holding, approach and associated procedures, taking advantage of aircraft navigation capabilities such as RNP and RNAV, as well as ATM decision support systems, will improve capacity and efficiency substantially. 1.60 The use of SIDs and STARs, will maximize system capacity and predictability while easing the environmental impact, reducing fuel consumption, and reducing ATS coordination. States should take advantage of the performance characteristics that are currently available to design such route structures.Near-term benefits can be achieved by applying RNP1 and RNAV 2 and 1 criteria to the design of SIDs and STARs allowing optimum spacing between the routes leading to greater capacity and efficiency benefits (see paragraph 1.3.2). 1.61 SIDs and STARs allow the efficient transit of aircraft from the runway to enroute flight and vice versa; the segregation of departing traffic from arriving traffic to provide safe aircraft spacing; the maintaining of obstacle clearance requirements; the meeting of environmental requirements; and provision of a predictable flight trajectory compatible with aircraft RNAV systems.

(GPI-12) FUNCTIONAL INTEGRATION OFGROUND SYSTEMS WITH AIRBORNE SYSTEMS
Scope: The optimization of the terminal control area (TMA) to provide for more fuel efficient aircraft operations through FMS-based arrival procedures and functional integration of ground and airborne systems
Related Operational Concept Components: AOM, AO, TS, CM, AUO
Description of strategy
1.62 In recent years there have been several efforts to develop flight procedures that provide the most efficient trajectory during an aircraft's approach to the destination aerodrome. These procedures allow an uninterrupted flight trajectory from top of descent until the aircraft is stabilized for landing. For the purposes of design work, it may be necessary to implement these procedures in phases. 1.63 The design of en-route and arrival air routes and associated procedures should facilitate the routine use of continuous descent procedures. Similarly, the design of departure procedures should facilitate the routine use of unrestricted climb procedures. 1.64 In order to maximize efficiency in TMA airspace, taking advantage of improved TMA design and making best use of automation is critical. Therefore, in addition to continuous descent capabilities, aircraft will increasingly be equipped with time of arrival computation. This capability will integrate with ground automation to deliver time of arrival over fixes to assist in the sequencing process allowing aircraft to remain closer to their 4-D preferred trajectory.

(GPI-13) AERODROME DESIGN AND MANAGEMENT
Scope: The implementation of management and design strategies to improve movement area utilization.
Related Operational Concept Components: AO, CM, AUO
Description of strategy
1.65 Improved aerodrome design and management activities, including coordination and collaboration between ATM providers, vehicle operators and aircraft operators can have an important impact on safety and capacity at aerodromes. 1.66 Local collaborative decision-making processes should lead to sharing of key flight scheduling data that would enable all participants (aerodrome, ATC, ATFM, aircraft operators, ground handling) to improve their awareness of aircraft status throughout the "turn around" process. This will allow minimal and precise ATFM measures to be applied and higher predictability of schedules to be achieved. Benefits would include more efficient use of aerodrome resources and ground handling, reduction in delays and higher predictability of schedules. 1.67 As an integral part of the air navigation system, the aerodrome will provide the needed ground infrastructure including, *inter alia*, lighting, taxiways, runway and runway exits, precise surface guidance to improve safety and to maximize aerodrome capacity in all weather conditions. The ATM system should enable the efficient use of the capacity of the aerodrome airside infrastructure. to ensure optimum use of aerodromes: a) runway occupancy time should be reduced where capacity and efficiency benefits would be gained; b) the ability to safely manoeuvre in all weather conditions whilst maintaining capacity should be sought; c) where warranted, precise surface guidance to and from a runway will improve capacity and efficiency; and d) the position (to an appropriate level of accuracy) and intent of all vehicles and aircraft operating on the manoeuvring and movement areas should be known and available to the appropriate ATM community members at those aerodromes where a cost-benefit analysis shows that substantial capacity and efficiency gains would be had.

(GPI-14) RUNWAY OPERATIONS
Scope: Maximize runway capacity.
Related Operational Concept Components: AO, TS, CM, AUO
Description of strategy
1.68 Enhancing the performance of runway operations begins with the establishment of runway capacity benchmarks which are usually defined as the maximum number of flights an aerodrome can routinely handle in an hour for above Category I weather minimum. These benchmarks are estimates that vary with runway configurations and the mix of aircraft types. Where warranted, it should be an objective to utilize aircraft capabilities and available runways in the most appropriate manner to move the all weather throughput as close to the visual throughput as possible. 1.69 Achieving the optimum capacity for each runway is a complex task involving many factors, both tactical and strategic. In order to effectively manage that task it is essential to measure the effects of changes and to monitor performance of the airspace users and ATM providers. The latter case will be applicable to the analysis of pilot and controller performance and must recognize the requirement to maintain the confidence of the users and to work within the existing culture of safety. A system of performance indicators that forms the basis of measurements and analyses should be devised. Tactical factors affecting runway occupancy include flight operations and ATM factors. The flight operations aspects include operator performance; effects of company procedures; use of the airfield infrastructure; and aircraft performance issues. 1.70 Runway capacity constraints are defined by, inter alia, procedures, runway physical characteristics, aircraft performance capabilities, surveillance capabilities, aircraft spacing, weather limitations, environmental restrictions and surrounding land use management aspects. Improved procedures for minimizing spacing such as reduced runway separation, precision runway monitoring (PRM) and RNP+-approaches for closely-spaced parallel runways will optimize spacing capability.

(GPI-15) MATCH IMC AND VMC OPERATING CAPACITY
Scope: Improve the ability of aircraft to manoeuvre on the aerodrome surface in adverse weather conditions.
Related Operational Concept Components: AO, CM, AUO
Description of strategy
1.71 It should be an objective of the ATM system to utilize all airborne and service provision capabilities to maintain VMC capacity during IMC conditions to the greatest practical extent. More use should be made of the capability of modern aircraft systems and ground systems in evolving toward this objective. Taxiway design and guidance capability may then be matched to those conditions. 1.72 Implementation of A-SMGCS, decision support tools and associated procedures offer the best solution for aircraft to operate in all weather conditions. At those locations where benefit/cost analysis indicate a positive value, the improved guidance and control of taxiing aircraft and moving vehicles on the movement area as well as impending conflict alert may be fully automated. 1.73 Synthetic vision, based on detailed aerodrome map, can enhance situational awareness under adverse weather conditions where runway/taxiway markings may be obscured. Head-up display and guidance systems that can synthesize enhanced vision sensor data and synthetic vision images can offer an integrated solution to enhance situational awareness. 1.74 Enhanced conflict detection and alerting technologies and procedures will improve the aerodrome surface movement throughput while meeting established levels of safety. Controllers should also have access to systems to help them develop and maintain situational awareness of all traffic on the movement area in all weather conditions.

(GPI-16) DECISION SUPPORT AND ALERTING SYSTEMS
Scope: Implement decision support tools to assist air traffic controllers and pilots in detecting and resolving air traffic conflicts and in improving traffic flow.
Related Operational Concept Components: DCB, TS, CM, AUO
Description of strategy
1.75 Decision support systems facilitate early resolution of potential conflicts, provide basic levels of explorative probing to optimize strategies and reduce the need for tactical action. The executive role of controllers is thereby enhanced, giving scope for management of more traffic within acceptable workload limits. 1.76 Several tools are available that have the ability to substantially enhance safety. These include minimum safe altitude warning systems, short term conflict alert and runway incursion alerting tools. Tools that can improve efficiency include automated flight data processing systems, longer term conflict prediction and sequencing tools and online data interchange systems. 1.77 Conflict prediction tools span several sectors and permit improved sectoral planning, thereby providing the advantage of more expeditious traffic flow and less potential conflicts within established arrival schedules. This will allow sector teams to operate more effectively and will result in more optimum and efficient arrival flows. 1.78 The automation of coordination tasks between adjacent sectors improves the quality of information on traffic transiting between sectors and makes it more predictable, thereby allowing reduced separation minima, decreased workload, and increased capacity and more efficient flight operations.

(GPI-17) DATA LINK APPLICATIONS
Scope: Increase the use of data link applications.
Related Operational Concept Components: DCB, AO, TS, CM, AUO, ATMSDM
Description of strategy
1.79 The implementation of less complex data link services (e.g. pre-departure clearance, oceanic clearance, D-ATIS, automatic position reporting, etc) can bring immediate efficiency benefits to the provision of ATS. Transition to the use of data link communications for more complex safety related uses that take advantage of a wide variety of Controller Pilot Datalink Communication (CPDLC) messages, including ATC clearances is already being successfully implemented. 1.80 Use of CPDLC and implementation of other data link applications can bring significant advantages in terms of workload and safety over voice communication for both pilots and controllers. In particular, they can provide efficient linkages between ground and airborne systems, improved handling and transfer of data, reduced channel congestion, reduced communication errors, interoperable communication media and reduced workload. The reduction of workload per flight translates into capacity increases and enhances safety. 1.81 Communication data link and data link surveillance technologies and applications should be selected and harmonized for seamless and interoperable global operations. ADS-C, ADS-B and CPDLC are in service in various regions of the world but lack global harmonization. Current regional initiatives, including utilizing unique message subsets and CPDLC procedures, hinder efficient development and acceptance for global aircraft operations. Existing and emerging technologies should be implemented in a harmonized global manner in the near term to support long-term goals. Harmonization will define global equipage requirements and therefore minimize user investment. 1.82 FANS-1/A and ATN applications support similar functionality, but with different avionics requirements. Many internationally operated aircraft are equipped with FANS-1/A avionics initially to take advantage of data link services offered in certain oceanic and remote regions. FANS-1/A equipage on international business aviation aircraft is underway and is expected to increase.

(GPI-18) AERONAUTICAL INFORMATION
Scope: To make available in real-time, quality assured electronic information (aeronautical, terrain and obstacle).
Related Operational Concept Components: AOM, DCB, AO, TS, CM, AUO, ATMSDM
Description of strategy
1.83 RNAV, RNP, computer-based navigation systems and ATM requirements introduced a need for new corresponding AIS requirements for quality and timeliness of information. To be able to cope and manage the provision of information and satisfy these new requirements, the traditional role of aeronautical information service should change into a system-wide information management service with changing duties and responsibilities. **Electronic information** 1.84 To facilitate coordination, improve efficiency and safety and ensure that the ATM Community shares the same information when collaborating on decisions, availability, in real-time, of quality assured electronic information (aeronautical, terrain and obstacle) is essential. Electronic information will enhance pilots' situational awareness during enroute, terminal and aerodrome operations by loading onboard equipment with geo-referenced data sets containing enroute, terminal and aerodrome information. The same information may be made available at different ATC positions, pre-flight planning units as well as for access by airlines flight planning departments or private/general aviation users. The electronic information can be tailored and formatted so that it satisfies ATM user requirements and applications. Standardized data formats will be used in creating the information databases which will then be populated with quality assured data sets.

(GPI-19) METEOROLOGICAL SYSTEMS
Objective: To improve ATM system. e the availability of meteorological information in support of a seamless global
Related Operational Concept Components: AOM, DCB, AO, AUO
Description of strategy
1.85 Immediate access to real-time, global operational meteorological (OPMET) information is required to assist ATM in tactical decision-making for aircraft surveillance, air traffic flow management and flexible/dynamic aircraft routing which will contribute to the optimization of the use of airspace. Such stringent requirements will imply that most meteorological systems should be automated and that meteorological service for international air navigation be provided in an integrated and comprehensive manner through global systems such as the world area forecast system (WAFS), the international airways volcano watch (IAVW) and the ICAO tropical cyclone warning system. 1.86 Enhancements to WAFS, IAVW and the ICAO tropical cyclone warning system to improve the accuracy, timeliness and usefulness of the forecasts issued will be required to facilitate the optimization of the use of airspace. 1.87 Increasing use of data-link to downlink and uplink meteorological information (through such systems as D-ATIS and D-VOLMET) will assist in the automatic sequencing of aircraft on approach and will contribute to the maximization of capacity. Developments of automated ground-based meteorological systems in support of operations in the terminal area will provide OPMET information, (such as automated low-level wind shear alerts) and automated runway wake vortex reports. OPMET information from the automated systems will also assist in the timely provision of forecasts and warnings of hazardous weather phenomena. These forecasts and warnings, together with automated OPMET information, will contribute to maximizing runway capacity.

(GPI-21) NAVIGATION SYSTEMS
Scope: Enable the introduction and evolution of performance-based navigation supported by a robust navigation infrastructure providing an accurate, reliable and seamless global positioning capability.
Related Operational Concept Components: AO, TS, CM, AUO
Description of strategy
1.90 Airspace users need a globally interoperable navigational infrastructure that delivers benefits in safety, efficiency and capacity. Aircraft navigation should be straight-forward and conducted to the highest level of accuracy supported by the infrastructure. 1.91 To meet those needs, the progressive introduction of performance-based navigation must be supported by an appropriate navigation infrastructure consisting of an appropriate combination of global navigation satellite systems (GNSS), self-contained navigation systems (inertial navigation system) and conventional ground-based navigation aids. 1.92 GNSS provides standardised positioning information to the aircraft systems to support precise navigation globally. One global navigation system will help support a standardisation of procedures and cockpit displays coupled with a minimum set of avionics, maintenance and training requirements. Thus, the ultimate goal is a transition to GNSS that would eliminate the requirement for ground-based aids, although the vulnerability of GNSS to interference may require the retention of some ground aids in specific areas. 1.93 GNSS-centered performance-based navigation enables a seamless, harmonised and cost effective navigational service from departure to final approach that will provide benefits in safety, efficiency and capacity. 1.94 GNSS implementation will be carried out in an evolutionary manner, allowing gradual system improvements to be introduced. Near-term applications of GNSS are intended to enable the early introduction of satellite-based area navigation without any infrastructure investment, using the core satellite constellations and integrated multisensor airborne systems. The use of these systems already allows for increased reliability of non-precision approach operations at some airports. 1.95 Medium/longer term applications will make use of existing and future satellite navigation systems with some type of augmentation, or combination of augmentations required for operation in a particular phase of flight.

(GPI-22) COMMUNICATION INFRASTRUCTURE
Scope: To evolve the aeronautical mobile and fixed communication infrastructure, supporting both voice and data communications, accommodating new functions as well as providing the adequate capacity and quality of service to support ATM requirements.
Related Operational Concept Components: AO, TS, CM, AUO
Description of strategy
1.96 ATM depends extensively and increasingly on the availability of real-time or near real-time, relevant, accurate, accredited and quality-assured information to make informed decisions. The timely availability of appropriate aeronautical mobile and fixed communication capabilities (voice and data) to accommodate ATM requirements and to provide the adequate capacity and quality of service requirements is essential. The aeronautical communication network infrastructure should accommodate the growing need for information collection and exchange within a transparent network in which all stakeholders can participate. 1.97 The gradual introduction of performance-based SARPs, system-level and functional requirements will allow the increased use of commercially available voice and data telecommunication technologies and services. In the framework of this strategy, States should, to the maximum extent possible, take advantage of appropriate technologies, services and products offered by the telecommunication industry. 1.98 Considering the fundamental role of communications in aviation as an enabler, the common objective is to seek the most efficient communication network service providing the desired services with the required performance and interoperability required for aviation safety levels at minimum cost.

(GPI-23) AERONAUTICAL RADIO SPECTRUM
Scope: Timely and continuing availability of adequate radio spectrum, on a global basis, to provide viable air navigation services (communication, navigation and surveillance).
Related Operational Concept Components: AO, TS, CM, AUO, ATMSDM
Description of strategy
1.99 States need to address all regulatory aspects on aeronautical matters on the agendas for ITU World Radiocommunication Conferences (WRC). Particular attention is drawn to the need to maintain the current spectrum allocations to aeronautical services. 1.100 The radio spectrum is a scarce natural resource with finite capacity for which demand from all users (aeronautical and non-aeronautical) is constantly increasing. Thus, the ICAO strategy on aeronautical radio spectrum, aims at long-term protection of adequate aeronautical spectrum for all radio communication, surveillance and radio navigation systems. The process of international coordination taking place in the International Telecommunication Union (ITU), obliges all spectrum users (i.e. aeronautical and non aeronautical) to continually defend and justify spectrum requirements. Civil aviation operations are expanding globally creating pressure on the already stressed and limited available aeronautical spectrum. 1.101 The framework of this initiative involves the support and dissemination by States of the ICAO quantified and qualified policy statements of requirements for aeronautical radio frequency spectrum agendas for ITU World Radio communication Conferences (WRC). This is necessary to maintain the current spectrum allocations to aeronautical services, ensure the continuing availability of adequate aeronautical radio spectrum and ultimately the viability of existing and new air navigation services globally.

Global Aviation Safety Plan

June 2007

International Civil Aviation Organization

TABLE OF CONTENTS

FOREWORD

The air transport industry plays a major role in world economic activity and remains one of the fastest growing sectors of the world economy. One of the key elements to maintaining the vitality of civil aviation is to ensure safe, secure, efficient and environmentally sustainable conditions at the global, regional and national levels.

ICAO's efforts at addressing the needs of the air transport industry and international civil aviation as described above, are aimed at the coordination of the global planning processes. The Global Aviation Safety Plan serves as a strategic document, providing the planning methodology that will lead to global harmonization in the area of safety.

The Global Aviation Safety Plan follows an approach and philosophy similar to that of the *Global Air Navigation Plan* (Doc 9750). Both were developed with the close coordination and participation of industry and both provide a common framework to ensure that regional, sub-regional, national and individual initiatives are coordinated to deliver a harmonized, safe and efficient international civil aviation system.

CHAPTER 1 - EVOLUTION OF GLOBAL SAFETY INITIATIVES

Introduction

ICAO introduced the first version of the Global Aviation Safety Plan (GASP) in 1997 by formalizing a series of conclusions and recommendations developed during an informal meeting between the Air Navigation Commission and industry. The plan was used to guide and prioritize the technical work programme of the Organization. It was updated regularly until 2005 to ensure its continuing relevance.

In May 2005, another meeting between the Air Navigation Commission and industry identified a need for a broader plan that would provide a common frame of reference for all stakeholders. Such a plan would allow a more proactive approach to aviation safety and help coordinate and guide safety policies and initiatives worldwide to reduce the accident risk for commercial aviation. It was then decided that industry representatives, the Industry Safety Strategy Group [1](ISSG), would work together with ICAO to develop a common approach for aviation safety. The Global Aviation Safety Roadmap that was developed by the ISSG provided the foundation upon which the Global Aviation Safety Plan is based. In March 2006, ICAO held the Directors General of Civil Aviation Conference on a Global Strategy for Aviation Safety (DGCA/06), which welcomed the development of the Global Aviation Safety Roadmap and recommended that ICAO develop an integrated approach to safety initiatives based on the Global Aviation Safety Roadmap which would provide a global framework for the coordination of safety policies and initiatives.

A Global Strategy for Aviation Safety

The attainment of a safe system is the highest priority in aviation. However, safety actions are not only driven by facts and data but also by the perception of safety needs by the public. Acceptable safety risk is related to the trust attributed to the aviation safety system, which is undermined every time an accident occurs. Therefore the challenge is to drive an already low accident rate even lower. To guide its work, ICAO has established the following safety target.

ICAO Safety Target for 2008-2011

1. Reduce the number of fatal accidents and fatalities worldwide irrespective of the volume of air traffic.
2. Achieve a significant decrease in accident rates, particularly in regions where these remain high.
3. No single ICAO region shall have an accident rate* more than twice the worldwide rate by the end of 2011.

** Based on a five-year sliding average*

The Global Aviation Safety Roadmap

The Global Aviation Safety Roadmap[2] prepared by the Industry Safety Strategy Group in close cooperation with ICAO is the basis from which the Global Aviation Safety Plan has been developed. The roadmap recognizes that all stakeholders of the aviation system need to be involved and clearly identifies the roles played by the regulatory and industry elements while emphasizing their complementary nature, promotes a proactive approach to safety and provides a means to ensure that safety initiatives throughout

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[1] Members of the ISSG are, Airbus, Boeing, Airports Council International (ACI), Civil Air navigation Services Organization (CANSO), International Air Transport Association (IATA), International Federation of Air Line Pilots' Associations (IFALPA) and Flight Safety Foundation (FSF).

[2] The current version of the Global Aviation Safety Roadmap is available on http://www.icao.int/fsix/safety.cfm

the world deliver improved safety by the coordination of effort, thus reducing inconsistency and duplication.

The roadmap is based upon high-level principles that have been accepted by all aviation stakeholders as vital to the enhancement of safety levels within global commercial aviation. It was not developed to replace data-driven regional initiatives such as the United States Commercial Aviation Safety Team (CAST), Europe's ESSI (European Safety Strategy Initiative) or the Pan-American Aviation Safety Team Initiative (PAAST). Rather, it builds on these valuable programmes, highlighting key areas that governments and industry must act on. Above all, it tackles those areas that currently are not effectively addressed.

The Global Aviation Safety Roadmap provides a common frame of reference for all stakeholders including States, regulators, aircraft and airport operators, air traffic service providers, aircraft manufacturers, international organizations and safety organizations. It does so by defining the twelve following focus areas and providing guidance on how to address them:

- States
    1. Consistent implementation of international Standards
    2. Consistent regulatory oversight
    3. Effective errors / incidents reporting
    4. Effective incident and accident investigation

- Regions
    5. Consistent coordination of regional programmes

- Industry
    6. Effective reporting and analysis of errors and incidents
    7. Consistent use of Safety Management Systems
    8. Consistent compliance with regulatory requirements
    9. Consistent adoption of industry best practices
    10. Alignment of global industry safety strategies
    11. Sufficient number of qualified personnel
    12. Effective use of technology to enhance safety

Part 2 of the roadmap provides detailed guidance on the implementation of the twelve focus areas by providing a set of objectives for each focus area that are each supported by a set of best practices and metric and a maturity model. The roadmap also includes a step-by-step process to help develop Safety Enhancement Plans at the regional or sub-regional level.

Relation between the Global Aviation Safety Plan and the Global Aviation Safety Roadmap

The Global Aviation Safety Roadmap constitutes the basis on which the Global Aviation Safety Plan is built and is an integral part of it. From a practical point of view, GASP can be seen as the ICAO strategy for States, regions and industry to address the focus areas identified in the roadmap. GASP also establishes a coordination mechanism to ensure that the roadmap and the plan are kept up-to-date in a coordinated way.

Need for Partnership

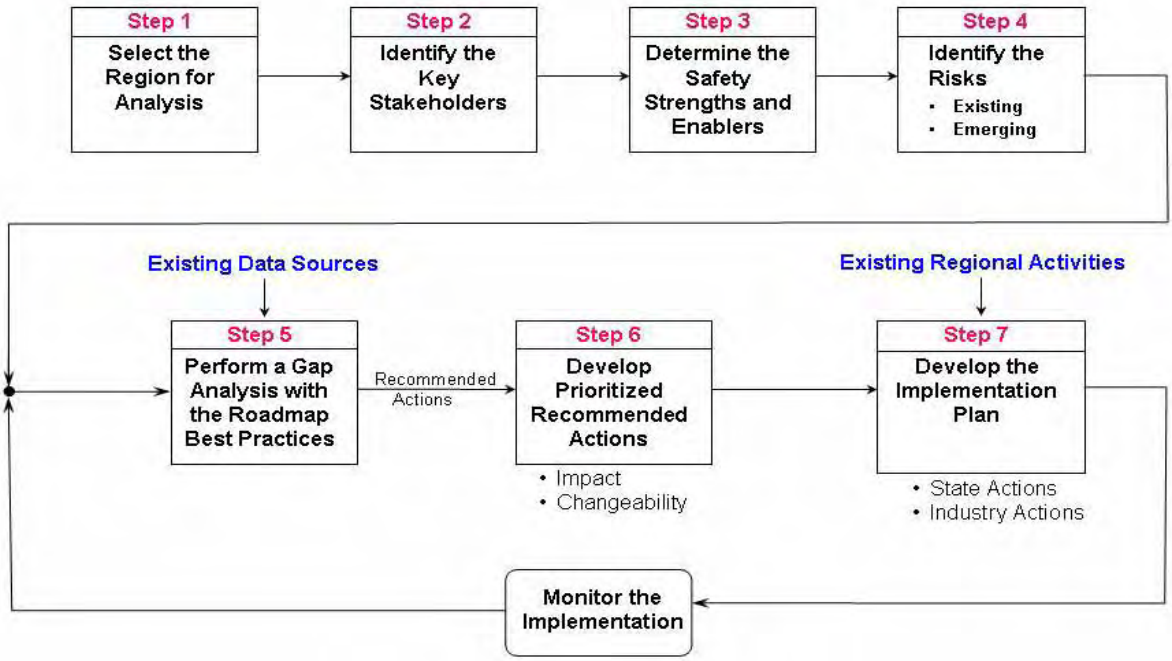
A proactive approach to aviation safety requires that all concerned stakeholders are involved. The very close relationship between the Global Aviation Safety Plan and the Global Aviation Safety Roadmap is an example of the partnership that shall permeate all safety initiatives. Although both the roadmap and the safety plan identify a primary stakeholder for each focus area, it needs to be emphasized

that this grouping is not intended to be exclusive. The roadmap and the safety plan are built on the principle of partnership, and as such, it is essential that all relevant stakeholders are involved in the development and implementation of any activities aimed at improving safety under the focus areas. Their commitment is fundamental for success.

Together with ICAO, the chief shareholders in the civil aviation sector are States,[3] airlines/operator, airports, air navigation service providers, aircraft and equipment manufacturers, maintenance and repair organizations, regional organizations international organizations, and industry representatives. The commitment of all stakeholders is fundamental for success in improving safety.

Planning Process

The objective of the planning process is to collaboratively develop an action plan that defines the specific activities that should take place in order to improve safety. It begins with an analysis of what the situation is today, and then compares it to where the organization would like to be. This "gap analysis" identifies specific steps that can be taken to reach the desired goal. The developers of the plan then decide what specific actions will be taken and in what order — in other words, generating a prioritized action list. From that list, the developers build an action plan, which in addition to identifying the actions to be taken, determines who is responsible for them. The process — and each step — is illustrated in the flow chart below.



Planning process steps

Step 1 **Determine the subject for analysis:** A subject may be an ICAO region, one of the regions described in the roadmap, a subset of these regions (e.g. COSCAPs, of similar States within a region), or even an individual State.

Step 2 **Identify key stakeholders:** In order to assure that any plan will be able to instil changes intended to improve aviation safety, it is essential that the perspective of

[3] airlines, airport operators and air navigation service providers include those that are owned by States or are a State entity.

all key stakeholders be considered. Therefore, those stakeholders need to be identified early. A stakeholder can be any party — e.g. Regulatory Authority, operator, or organization — that could be involved in implementing or influencing changes, or which is significantly affected by these changes. These stakeholders will constitute a safety team that will perform the remaining steps.

Step 3 **Outline the safety strengths and enablers:** There is a need to develop an understanding of the general environment of the subject targeted for safety enhancement efforts. Inherent in every subject is a collection of factors that support the safety of aviation within that subject. The identification of these strengths and enablers is critical in order to find ways to build upon this safety foundation.

Step 4 **Identify the existing and merging risks:** The process requires the identification of those risks that can create an environment which will weaken overall aviation safety within that subject, either currently or in the foreseeable future. Accurate and comprehensive listings of these risks are essential in performing a meaningful gap analysis in Step 5.

Step 5 **Perform a gap analysis:** A gap analysis is simply an evaluation that compares the existing situation to the desired one. There are a variety of methods that can be used to perform a gap analysis. Using data from a number of existing sources (ICAO USOAP, IATA IOSA, safety deficiencies identified by PIRGs or other sources, analysis of available safety data) or from the detailed knowledge derived from a group of knowledgeable experts, the gap analysis will describe the difference between the *current situation* (utilizing information captured in Steps 3 and 4), and the *target*, the highly evolved situation in which the global safety initiatives of the GASP have been implemented.

The gap analysis summary should identify the organizations or entities responsible for correcting the deficiency. Multiple gaps will require assessment so that priorities can be established and appropriate implementation plans can be developed.

Step 6 **Develop prioritized recommended actions:** By reviewing the gaps and the associated best practices, a list of potential safety enhancement actions can be identified. However, it should be recognized that it is sometimes impractical to implement an action plan that addresses each and every deviation from the mature (highly evolved) level.

Each gap identified in the gap analysis should be reviewed in the following manner:

- Safety impact – evaluate the safety enhancement that would result from the elimination of the gap. Ideally, a *quantitative* approach using various methodologies such as those developed by the United States' Commercial Aviation Safety Team (CAST) can be used. Where quantitative assessment is difficult, reliance on the knowledge and expertise of the evaluation team will allow ordering the list of potential actions having the greatest impact on safety.

- Implementation – although the impact on safety should be the primary method of prioritizing the list of potential actions, the ability to make the changes must also be considered. This evaluation should include the

existence of the political will to change and the availability of technology and resources necessary to implement the change. A conclusion that implementation is not practical should be arrived at only as a last resort. If such a conclusion is reached, aviation activities need to be adjusted to remove the impact of the identified safety gap.

Step 7 **Develop an action plan:** Once a list of potential prioritized actions has been developed, the implementation action plan must be defined. The plan should include a manageable set of actions that represent those steps necessary to move to the next level of maturity.

Once the plan is finalized, a responsible party or organization must be identified to lead the implementation of each action item. It should be recognized that there are already many regional activities and organizations working around the world that may be able to provide implementation strategies and support. For example, the various ICAO COSCAPs forming in that area could be helpful in defining and coordinating State actions.

Monitoring **Continuous improvement – what to do next:** The work is not complete, even after the plan has been defined and turned over to the organizations or individuals responsible for leading the implementation. The implementation activities should be continuously monitored to ensure that action is being accomplished, any roadblocks to implementation are removed and the plan accommodates any newly identified gaps.

This safety enhancement process is best accomplished in a step-wise fashion to move to the next level of maturity. Once the initial action plan has been completed, repeat the process in order to identify the next safety enhancement actions to implement.

Global Safety initiatives

Global safety initiatives are designed to support the implementation of the ICAO Safety Strategic Objective and other safety objectives that might be established by regions, States or industry. Planning and implementation should be started in the near-term and progressed in an evolutionary manner. Long-term initiatives necessary to guide the evolution to a safer civil aviation system will be added to the Global Aviation Safety Plan as they are developed and agreed to.

The initiatives described in the following pages are provided to facilitate the planning process and should not be viewed as stand-alone work items, but rather, in many cases, as interrelated. Therefore, initiatives are quite capable of integrating with, and supporting each other. Each GSI identifies the corresponding Focus Areas of the Global Aviation Safety Roadmap and include references to the Roadmap Best Practices as guidance for the development of implementation activities under each GSI.

ICAO will organize its own work programme under the Safety Strategic Objective in line with the GASP and its GSIs to facilitate an effective global implementation.

(GSI-1) CONSISTENT IMPLEMENTATION OF INTERNATIONAL STANDARDS AND INDUSTRY BEST PRACTICES

Scope: Full implementation of applicable ICAO SARPs and industry best practices.

Primary stakeholders: ICAO, States

Related Global Aviation Safety Roadmap component: Focus Area 1

Description of strategy

1. States implement ICAO SARPs and best practices consistently. Compliance with ICAO Standards is considered internationally essential and sound application of ICAO Recommendations and best practices is accepted as the effective way to achieve consistent implementation worldwide: States coordinate their activities to influence those unwilling to comply. Gaps are identified through USOAP and the notification of differences process.

   Related Roadmap Best Practices and Metrics: BP1a-1 to 4

2. Perform gap assessment for those States that cannot comply. Establish plans to reach desired compliance, including coordinated international support where necessary to close gaps.

   Related Roadmap Best Practice and Metrics: BP1b-1

3. Compliance with international SARPs is assessed on a continuing basis through ICAO USOAP and other equivalent means of assessment. Coordinated international support is being provided where necessary.

   Related Roadmap Best Practice and Metrics: BP1b-1

(GSI-2) CONSISTENT REGULATORY OVERSIGHT

Scope: Each State is in a position to objectively evaluate any given safety critical aviation activity within its jurisdiction and require that the activity adhere to standards designed to ensure an acceptable level of safety.

Primary stakeholders: ICAO, States

Related Global Aviation Safety Roadmap component: Focus Area 2

Description of strategy

1. States ensure their Regulatory Authority is independent in the conduct of its safety functions, competent and adequately funded.

   Related Roadmap Best Practices and Metrics: BP2a-1 to 4

2. States establish appropriate systems to ensure continued effectiveness of their regulatory function.

   Related Roadmap Best Practices and Metrics: : BP1c/2b-2 to 5, BP2a-6

(GSI-3) EFFECTIVE ERRORS AND INCIDENTS REPORTING

Scope: A free flow of data exists that is required to assess aviation system safety on a continuous basis and to correct deficiencies when warranted.

Primary stakeholders: ICAO, States

Related Global Aviation Safety Roadmap component: Focus Area 3

Description of strategy

1. States introduce legislative changes to support the "just culture", encourage open reporting systems, and protect data collected solely for the purpose of improving aviation safety.

   Related Roadmap Best Practices and Metrics: BP3a-1 to 4

2. ICAO implements review of States' activities to identify gaps in their legislative action to encourage open reporting systems. Develop a plan to address gaps.

   Related Roadmap Best Practices and Metrics: BP3b-1 to 2

3. Collate regional safety data.

   Related Roadmap Best Practices and Metrics: BP3c-1 to 4

4. Implement international sharing of data/global data reporting system.

   Related Roadmap Best Practices and Metrics: BP3b-1 to4

(GSI-4) EFFECTIVE INCIDENT AND ACCIDENT INVESTIGATION

Scope: The accident or incident investigations provide the opportunity for an in-depth examination of both the causal factors leading up to the particular event and the broader questions concerning the underlying safety of an entire operation.

Primary stakeholders: ICAO, States

Related Global Aviation Safety Roadmap component: Focus Area 4

Description of strategy

1. States implement ICAO Annex 13 principles and the introduction of, or access to, an adequately funded, professionally trained, independent and impartial investigative body. Action is taken on safety recommendations.

   Related Roadmap Best Practices and Metrics: BP4a-1 to 9

2. States institute a legal framework for protection of safety data, with the purpose of accident prevention, not assignment of blame.

   Related Roadmap Best Practices and Metrics: BP4b-1 to 3

3. Implement international cooperation and information sharing of accidents and incidents.

   Related Roadmap Best Practices and Metrics: BP4c-1 to 4

(GSI-5) CONSISTENT COORDINATION OF REGIONAL PROGRAMMES

Scope: While regional differences will dictate different implementations of best practices at different levels of maturity, there is much benefit that can be gained by sharing the experience between regions.

Primary stakeholders: ICAO, States, regions

Related Global Aviation Safety Roadmap component: Focus Area 5

Description of strategy

1. Design regional mechanisms and build on existing ones in order to foster consistency.
   Related Roadmap Best Practices and Metrics: BP5a-1 to 3

2 Assign priority of action to regions on the basis of risk assessment.
   Related Roadmap Best Practices and Metrics: BP5b-1 to 2

(GSI-6) EFFECTIVE ERRORS AND INCIDENTS REPORTING AND ANALYSIS IN THE INDUSTRY

Scope: The development and maintenance of a "Just Culture" is one of the primary means available to industry to understand where the hazards and risks lie within an organization.

Primary stakeholder: Industry

Related Global Aviation Safety Roadmap component: Focus Area 6

Description of strategy

1. Industry commits to a "Just Culture" of reporting all safety-related and potential safety issues without fear of reprimand to involved parties.

   Related Roadmap Best Practices and Metrics: BP6a-1 to 5

2. Identify and implement common metrics and descriptors of precursor events needed to enable adoption of a proactive approach to managing risk.

   Related Roadmap Best Practices and Metrics: BP6b-1 to 4

3. Establish and integrate across the industry shared incident/error databases. Demonstrate and disseminate the benefits of open reporting.

   Related Roadmap Best Practices and Metrics: BP6c-1 to 4

(GSI-7) CONSISTENT USE OF SAFETY MANAGEMENT SYSTEMS (SMS)

Scope: A systematic management of the risks associated with flight operations, aerodrome ground operations, air traffic management and aircraft engineering or maintenance activities is essential to achieve high levels of safety performance.

Primary stakeholder: Industry

Related Global Aviation Safety Roadmap component: Focus Area 7

Description of strategy

1. SMS is mandated across all sectors and disciplines of the industry.
   Related Roadmap Best Practice and Metric: BP7a-1

2. Develop a plan for incorporation of SMS into audit processes.
   Related Roadmap Best Practice and Metric: BP7b-1

3. Develop audit processes to assess operation of SMS function.
   Related Roadmap Best Practice and Metric: BP7b-1

4. Implement review of SMS during audits.
   Related Roadmap Best Practice and Metric: BP7b-1

5. Define interface points between industry focus areas and develop a plan for SMS programme integration across all interfaces.
   Related Roadmap Best Practices and Metrics: BP7e-1 to 4

(GSI-8) CONSISTENT COMPLIANCE WITH REGULATORY REQUIREMENTS

Scope: The attainment of a safe system requires that industry complies with State regulations. The main responsibility for compliance rests with industry, which has a legal, commercial and moral obligation to ensure that operations are conducted in accordance with the regulations.

Primary stakeholder: Industry

Related Global Aviation Safety Roadmap component: Focus Area 8

Description of strategy

1. With full management support, execute independent assessment and gap analysis within the industry of regulatory compliance to address areas of non-compliance.

   Related Roadmap Best Practices and Metrics: BPa-1 to 5

2. Perform regular independent audits of operational safety to assess ongoing compliance across the industry.

   Related Roadmap Best Practices and Metrics: BP8b-1 to 2

(GSI-9) CONSISTENT ADOPTION OF INDUSTRY BEST PRACTICES

Scope: Best practices, which represent the application of lessons learned globally by industry, are adopted by individual organizations in a timely manner.

Primary stakeholder: Industry

Related Global Aviation Safety Roadmap component: Focus Area 9

Description of strategy

1. Improve the structures (through management commitment) for maintaining knowledge of best practices and identify future developments in best practices.

   Related Roadmap Best Practices and Metrics: BP9a-1 to 5

2. With industry openly sharing information regarding the benefits of best practices, implement performance benchmarking of dissemination consistency.

   Related Roadmap Best Practice and Metrics: BP9b-1

(GSI-10) ALIGNMENT OF INDUSTRY SAFETY STRATEGIES

Scope: The efforts of all industry stakeholders to improve aviation safety at the local, State, and regional levels are more effective at a global level if they are well aligned and based on shared goals and methods.

Primary stakeholder: Industry

Related Global Aviation Safety Roadmap component: Focus Area 10

Description of strategy

1. Design a mechanism for coordination and sharing of safety strategies.

   Related Roadmap Best Practices and Metrics: BP10a-1 to 3

2. Coordinate and share safety strategies, seeking to achieve alignment and minimize duplication.

   Related Roadmap Best Practices and Metrics: BP10b-1 to 5

(GSI-11) SUFFICIENT NUMBER OF QUALIFIED PERSONNEL

Scope: Industry and the regulatory authorities have access to a sufficient number of qualified staff to support their activity.

Primary stakeholder: Industry

Related Global Aviation Safety Roadmap component: Focus Area 11

Description of strategy

1. Identify requirements for sustaining aviation safety against projected growth of commercial aviation.

   Related Roadmap Best Practice and Metric: BP11a-1

2. Implement resource plans to deliver appropriate numbers of qualified people.

   Related Roadmap Best Practices and Metrics: BP11b-1 to 2

3. Establish audit processes to confirm that people resource plans will deliver the appropriate numbers.

   Related Roadmap Best Practice and Metric: BP11c-1

(GSI-12) USE OF TECHNOLOGY TO ENHANCE SAFETY

Scope: Technology advances which contribute significantly to improvements in safety are implemented.

Primary stakeholder: Industry

Related Global Aviation Safety Roadmap component: Focus Area 12, Appendices E, F and G

Description of strategy

1. Define proven technology gaps. Industry works together to identify areas where technology might provide significant safety benefits.

   Related Roadmap Best Practices and Metrics: BP12a-1 to 3

2. Deploy proven technologies that have been developed to enhance safety.

   Related Roadmap Best Practices and Metrics: BP12b-1 to 3

3. Integrate measures to close technology gap.

   Related Roadmap Best Practices and Metrics: BP12c-1 to 2

CHAPTER 2 - A PERFORMANCE BASED SYSTEM MEETING THE USER EXPECTATION

Safety – A Performance Expectation – Measuring Risk

Safety is a "performance expectation". With air travel already being the safest form of transportation, the challenge to industry and regulatory agencies is to make an already safe system safer. In the context of GASP, the aviation stakeholders expected to deliver "a reduction in the global accident risk in commercial aviation". This raises the issue of the best way to measure this risk, together with any associated changes that are realized as a result of effective implementation of GASP and the roadmap.

Accident rate data represents a reliable source for measuring safety performance. There are several excellent sources of accident rates which are maintained throughout the aviation industry and should be considered a vital component to any risk measurement effort.

An example of this readily available data is the ICAO Council reports. These reports include tracking the fatal accident rate of aircraft employed on public air transport operations in scheduled operations. ICAO measures the worldwide safety performance in terms of a range of aviation safety statistics.

A most effective quantitative risk management programme would be one in which information sharing is the norm. Currently, as a result of a memorandum of cooperation between ICAO and IATA, data collected from IOSA and USOAP programmes, along with other forms of safety intelligence, can now be shared between these international organizations as appropriate. ICAO has entered similar cooperation and sharing agreements with the European Civil Aviation Conference (ECAC), the European Aviation Safety Agency (EASA) and EUROCONTROL.

Currently, certain entities in industry are striving to take a more prognostic or predictive approach to risk assessment. This requires more innovative safety-related data collection and analysis approaches. An example is the formulation of safety strategies with the use of some existing programmes such as Flight Data Analysis (FDA) – Flight Data Monitoring (FDM) – Flight Operations Quality Assurance (FOQA) programmes. Other examples include those from auditing programmes such as the ICAO Universal Safety Oversight Audit Programme (USOAP) and the IATA Operational Safety Audit (IOSA).

Keeping the Global Aviation Safety Plan Up to Date

Although the Global Aviation Safety Plan establishes high level objectives which should remain stable in the mid-term, the effective implementation of the global plan and the associated roadmap rely on best practices, metrics, processes and methodologies that will evolve and change over time. To ensure its continuing relevance, ICAO is committed to maintaining the Global Aviation Safety Plan up to date in close cooperation and coordination with all stakeholders. In doing so, it will use the information and feedback that it receives through its Safety Oversight Audit Programme, its field missions, its safety databases, its planning and implementation groups, its groups of experts, and more generally, with its regular contact and exchange of safety data with States and industry.

It also continues to participate actively in the work of the Industry Safety Strategy Group that is maintaining the Global Aviation Safety Roadmap with the objective of maintaining the synchronization and complementary nature of the two documents.

Using the Global Aviation Safety Plan

At the highest level, the Global Aviation Safety Plan provides the methodology and the focus that is required to implement the ICAO Strategic Objective on safety that is to "enhance global civil aviation safety".

The global safety initiatives identify the areas on which the safety efforts should be focussed to best achieve improvement in safety. The associated best practices and metrics provide the tools to develop action and to measure progress. For ICAO, the GSIs are used to assess whether proposed new safety tasks should be included in the work programme and once in the work programme, to measure progress. In conjunction with the planning process described in Chapter 1, they provide the framework for the development of regional and national activities undertaken by ICAO through its Unified Strategy Programme, its Technical Assistance Programme and other means.

Documents in support of a safe global aviation system

ICAO Strategic Objective A. - Safety – Enhance global civil aviation safety			
Title	**Role**	**Description**	**Supporting Document**
Global Aviation Safety Plan	Strategy	General methodology for harmonization and prioritization of safety efforts in support of the ICAO Strategic Objective on safety.	• Industry Global Aviation Safety Roadmap, Part I
Global Safety Initiatives	Tactics	A set of implementation methodologies derived from current operational best practices and available guidance materials.	• Industry Global Aviation Safety Roadmap, Part II • ICAO Business Plan
Regional and National Safety Plans	Action	Regional work programmes including the planning, implementation and monitoring of the detailed activities and their timelines	• Safety Implementation Plans (e.g. AFI Implementation Plan)

— END —

PRES RK/1497 28 March 2008
AN 13/2.1

To: Representatives on the Council

cc: Members of the ANC, Secretary General, D/ANB

From: President of the Council

Subject: **Approval by the Air Navigation Commission, acting under delegated authority, of Amendment 1 to the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444) (Council Subject No. 14.1.2)**

In accordance with the decision taken during the eighth and twelfth meetings of the 156th Session of the Council on 8 and 15 March 1999 respectively, the Council delegated the approval of amendments to PANS documentation and to Regional Supplementary Procedures to the Air Navigation Commission, subject to the approval by the President of the Council after their circulation to Representatives on the Council.

In view of the above, I am circulating the attached memorandum from the President of the Air Navigation Commission regarding Amendment 1 to the Fifteenth Edition to the *Procedures for Air Navigation* Services — *Air Traffic Management* (PANS-ATM, Doc 4444).

Should you have any comments, I would be grateful to receive them no later than 2 May 2008. In the absence of comments, I shall approve this Amendment to the PANS-ATM on behalf of the Council and inform the Council accordingly.

Roberto Kobeh González

Ref: AN 13/2.1 27 March 2008

To: President of the Council

From: President of the Air Navigation Commission

Subject: **Approval by the Air Navigation Commission of Amendment 1 to the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444) (Council Subject No. 14.1.2)**

1. In accordance with the procedure accepted during the eighth and twelfth meetings of the 156th Session of the Council, on 8 and 15 March 1999 respectively, whereby the Council delegated the approval of amendments to PANS documentation to the Air Navigation Commission, subject to the approval by the President of the Council after their circulation to Representatives on the Council, on 22 and 24 January 2008, the Air Navigation Commission (177-1 and 177-2):

a) approved, as Amendment 1 to the Fifteenth Edition to the PANS-ATM (Doc 4444), the amendment in Attachment A to this memorandum;

b) approved the amendment to the Foreword presented in Attachment B to this memorandum; and

c) agreed that the amendment should become applicable on 15 November 20012

2. Amendment 1 stems from the work of the Flight Plan Study Group (FPLSG). The nature and scope of the proposed amendment is to update the ICAO model flight plan form in order to meet the needs of aircraft with advanced capabilities and the evolving requirements of automated air traffic management (ATM) systems, while taking into account compatibility with existing systems, human factors, training, cost and transition aspects.

3. Amendment 1 to the PANS-ATM is now forwarded to you for approval after its circulation to the Representatives on the Council.

O.R. Nundu

Enclosures:

A — Amendment 1 to the PANS-ATM

B — Amendment to the Foreword

ATTACHMENT A

PROPOSED AMENDMENT TO THE *PROCEDURES FOR AIR NAVIGATION SERVICES — AIR TRAFFIC MANAGEMENT (PANS-ATM, DOC 4444)*

NOTES ON THE PRESENTATION OF THE PROPOSED AMENDMENT

The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

1.	~~Text to be deleted is shown with a line through it~~	text to be deleted
2.	New text to be inserted is highlighted with grey shading	new text to be inserted
3.	~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading.	new text to replace existing text

PROCEDURES FOR AIR NAVIGATION SERVICES — AIR TRAFFIC MANAGEMENT (PANS-ATM, DOC 4444)

. . .

CHAPTER 4. GENERAL PROVISIONS FOR AIR TRAFFIC SERVICES

. . .

4.4 FLIGHT PLAN

4.4.1 Flight plan form

Note.— Procedures for the use of repetitive flight plans are contained in Chapter 16, Section 16.4.

. . .

4.4.1.3 Operators and air traffic services units should comply with:

a) the instructions for completion of the flight plan form and the repetitive flight plan listing form given in Appendix 2; and

b) any constraints identified in relevant Aeronautical Information Publications (AIPs).

Note 1.— Failure to adhere to the provisions of Appendix 2 or any constraint identified in relevant AIPs may result in data being rejected, processed incorrectly or lost.

Note 2.— The instructions for completing the flight plan form given in Appendix 2 may be conveniently printed on the inside cover of flight plan form pads, or posted in briefing rooms.

. . .

4.4.2 Submission of a flight plan

4.4.2.1 PRIOR TO DEPARTURE

4.4.2.1.1 Flight plans shall not be submitted more than 120 hours before the estimated off-block time of a flight.

4.4.2.1.~~1~~2 Except when other arrangements have been made for submission of repetitive flight plans, a flight plan submitted prior to departure should be submitted to the air traffic services reporting office at the departure aerodrome. If no such unit exists at the departure aerodrome, the flight plan should be submitted to the unit serving or designated to serve the departure aerodrome.

4.4.2.1.~~2~~3 In the event of a delay of 30 minutes in excess of the estimated off-block time for a controlled flight or a delay of one hour for an uncontrolled flight for which a flight plan has been submitted, the flight plan should be amended or a new flight plan submitted and the old flight plan cancelled, whichever is applicable.

CHAPTER 11. AIR TRAFFIC SERVICES MESSAGES

. . .

11.4 MESSAGE TYPES AND THEIR APPLICATION

. . .

11.4.2 Movement and control messages

. . .

11.4.2.2 MOVEMENT MESSAGES

. . .

11.4.2.2.2 FILED FLIGHT PLAN (FPL) MESSAGES

Note.— Instructions for the transmission of an FPL message are contained in Appendix 2.

. . .

11.4.2.2.2.5 FPL messages ~~shall normally~~should be transmitted immediately after the filing of the flight plan. ~~However, i~~If a flight plan is filed more than 24 hours in advance of the estimated off-block time of the flight to which it refers, ~~that flight plan shall be held in abeyance until at most 24 hours before the flight begins so as to avoid the need for the insertion of a date group into that~~ the date of the flight departure shall be inserted in Item 18 of the flight plan. ~~In addition, if a flight plan is filed early and the provisions of 11.4.2.2.2.2 b) or c) or 11.4.2.2.2.3 apply, transmission of the FPL message may be withheld until one hour before the estimated off-block time, provided that this will permit each air traffic services unit concerned to receive the information at least 30 minutes before the time at which the aircraft is estimated to enter its area of responsibility.~~

. . .

11.4.2.2.4 MODIFICATION (CHG) MESSAGES

A CHG message shall be transmitted when any change is to be made to basic flight plan data contained in previously transmitted FPL or RPL data. The CHG message shall be sent to those recipients of basic flight plan data which are affected by the change. Relevant revised basic flight plan data shall be provided to such affected entities not previously having received this.

Note.— See 11.4.2.3.4 concerning notification of a change to coordination data contained in a previously transmitted current flight plan or estimate message.

. . .

APPENDIX 2. FLIGHT PLAN

. . .

2. Instructions for the completion of the flight plan form

. . .

2.2 Instructions for insertion of ATS data

Complete Items 7 to 18 as indicated hereunder.

Complete also Item 19 as indicated hereunder, when so required by the appropriate ATS authority or when otherwise deemed necessary.

Note 1.— Item numbers on the form are not consecutive, as they correspond to Field Type numbers in ATS messages.

Note 2.— Air traffic services data systems may impose communications or processing constraints on information in filed flight plans. Possible constraints may, for example, be limits with regard to item length, number of elements in the route item or total flight plan length. Significant constraints are documented in the relevant Aeronautical Information Publication.

ITEM 7: AIRCRAFT IDENTIFICATION (MAXIMUM 7 CHARACTERS)

INSERT one of the following aircraft identifications, not exceeding 7 alphanumeric characters and without hyphens or symbols:

~~a~~b) the nationality or common mark and registration mark~~ing~~ of the aircraft (e.g. EIAKO, 4XBCD, N2567GA), when:

1) in radiotelephony the call sign to be used by the aircraft will consist of this identification alone (e.g. ~~OOTEK~~CGAJS), or preceded by the ICAO telephony designator for the aircraft operating agency (e.g. ~~SABENA OOTEK~~BLIZZARD CGAJS);

2) the aircraft is not equipped with radio~~;~~.

OR ~~b~~a) the ICAO designator for the aircraft operating agency followed by the flight identification (e.g. KLM511, NGA213, JTR25) when in radiotelephony the call sign to be used by the aircraft will consist of the ICAO telephony designator for the operating agency followed by the flight identification (e.g. KLM511, NIGERIA 213, ~~HERBIE~~JESTER 25)~~.~~;

Note 1.— Standards for nationality, common and registration marks to be used are contained in Annex 7, Chapter 2.

Note 2.— Provisions for the use of radiotelephony call signs are contained in Annex 10, Volume II, Chapter 5. ICAO designators and telephony designators for aircraft operating agencies are contained in Doc 8585 — Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.

ITEM 8: FLIGHT RULES AND TYPE OF FLIGHT (ONE OR TWO CHARACTERS)

Flight rules

INSERT one of the following letters to denote the category of flight rules with which the pilot intends to comply:

I if it is intended that the entire flight will be operated under the IFR
V if it is intended that the entire flight will be operated under the VFR
Y if the flight initially will be operated under the IFR ~~first) and specify in Item 15 the point~~, followed by one or more subsequent changes of flight rules or
Z if the flight initially will be operated under the VFR ~~first)~~, followed by one or more subsequent changes of flight rules

Specify in Item 15 the point or points at which a change of flight rules is planned.

Type of flight

INSERT one of the following letters to denote the type of flight when so required by the appropriate ATS authority:

S if scheduled air service
N if non-scheduled air transport operation
G if general aviation
M if military
X if other than any of the defined categories above.

Specify status of a flight following the indicator STS in Item 18, or when necessary to denote other reasons than listed for specific handling by ATS, indicate the reason following the indicator RMK in Item 18.

. . .

ITEM 10: EQUIPMENT AND CAPABILITIES

Capabilities comprise the following elements:

a) presence of relevant serviceable equipment on board the aircraft;

b) equipment and capabilities commensurate with flight crew qualifications; and

c) where applicable, authorization from the appropriate authority.

Radio communication, navigation and approach aid equipment and capabilities

INSERT one letter as follows:

N if no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable,

OR S if standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (see Note 1),

AND/OR

INSERT one or more of the following letters to indicate the serviceable COM/NAV/approach aid equipment and capabilities available ~~and serviceable~~:

A	~~(Not allocated)~~GBAS landing system	J7	CPDLC FANS 1/A SATCOM (Iridium)
B	~~(Not allocated)~~LPV (APV with SBAS)	K	~~(~~MLS~~)~~
C	LORAN C	L	ILS
D	DME	M1	~~Omega~~ATC RTF SATCOM (INMARSAT)
E1	~~(Not allocated)~~FMC WPR ACARS	M2	ATC RTF (MTSAT)
E2	D-FIS ACARS	M3	ATC RTF (Iridium)
E3	PDC ACARS	O	VOR
F	ADF	~~P~~P1–P9	~~(Not allocated)~~Reserved for RCP
G	~~(~~GNSS~~)~~ (*See Note 2*)	~~Q~~	~~(Not allocated)~~
H	HF RTF	R	~~RNP type certification~~PBN approved *(see Note ~~5~~4)*
I	Inertial Navigation	T	TACAN
J1	~~(Data Link)~~CPDLC ATN VDL Mode 2(*See Note 3*)	U	UHF RTF
J2	CPDLC FANS 1/A HFDL	V	VHF RTF
J3	CPDLC FANS 1/A VDL Mode A	W	RVSM approved
J4	CPDLC FANS 1/A VDL Mode 2	X	MNPS approved
J5	CPDLC FANS 1/A SATCOM (INMARSAT)	Y	~~when prescribed by ATS~~VHF with 8.33 kHz channel spacing capability
J6	CPDLC FANS 1/A SATCOM (MTSAT)	Z	Other equipment carried or other capabilities *(see Note ~~2~~5)*

Any alphanumeric characters not indicated above are reserved.

*Note 1.— If the letter S is used, s~~S~~tandard equipment is considered to be VHF RTF, ~~*ADF,*~~ VOR and ILS, unless another combination is prescribed by the appropriate ATS authority.*

Note 2.— If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ and separated by a space.

Note ~~2~~5.— If the letter Z is used, specify in Item 18 the other equipment carried or other capabilities, preceded by COM/ ~~and/or~~, NAV/ and/or DAT, as appropriate.

Note 3.— ~~If the letter J is used, specify in Item 18 the equipment carried, preceded by DAT/ followed by one or more letters as appropriate.~~See RTCA/EUROCAE Interoperability Requirements Standard For ATN Baseline 1 (ATN B1 INTEROP Standard – DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.

Note ~~4~~6.— Information on navigation capability is provided to ATC for clearance and routing purposes.

Note ~~5~~4.— ~~Inclusion of~~If the letter R is used, the performance based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance based navigation to a specific ~~indicates that an aircraft meets the RNP type prescribed for the~~ route segment~~(s)~~, route~~(s) and/~~or area ~~concerned~~ is contained in the Performance-Based Navigation Manual *(Doc 9613).*

Surveillance equipment and capabilities

INSERT N if no surveillance equipment for the route to be flown is carried, or the equipment is unserviceable,

OR

INSERT one or ~~two~~more of the following ~~letters~~descriptors, to a maximum of 20 characters, to describe the serviceable surveillance equipment ~~carried~~and/or capabilities on board:

~~SSR equipment~~SSR Modes A and C

~~N Nil~~
A Transponder — Mode A (4 digits — 4 096 codes)
C Transponder — Mode A (4 digits — 4 096 codes) and Mode C

SSR Mode S

~~X Transponder — Mode S without both aircraft identification and pressure-altitude transmission~~
E Transponder — Mode S, including aircraft identification, pressure-altitude and extended squitter (ADS-B) capability
H Transponder — Mode S, including aircraft identification, pressure-altitude and enhanced surveillance capability
I Transponder — Mode S, including aircraft identification, but no pressure-altitude capability

L Transponder — Mode S, including aircraft identification, pressure-altitude, extended squitter (ADS-B) and enhanced surveillance capability

P Transponder — Mode S, including pressure-altitude, but no aircraft identification ~~transmission~~capability

~~I Transponder — Mode S, including aircraft identification transmission, but no pressure-altitude transmission~~

S Transponder — Mode S, including both pressure altitude and aircraft identification ~~transmission~~capability

X Transponder — Mode S with neither aircraft identification nor pressure-altitude capability

Note.— Enhanced surveillance capability is the ability of the aircraft to down-link aircraft derived data via a Mode S transponder.

ADS-B

B1 ADS-B with dedicated 1090 MHz ADS-B "out" capability

B2 ADB-B with dedicated 1090 MHz ADS-B "out" and "in" capability

U1 ADS-B "out" capability using UAT

U2 ADS-B "out" and "in" capability using UAT

V1 ADS-B "out" capability using VDL Mode 4

V2 ADS-B "out" and "in" capability using VDL Mode 4

ADS-C

D1 ADS-C with FANS 1/A capabilities

G1 ADS-C with ATN capabilities

~~*ADS equipment*~~

~~D ADS capability~~

Alphanumeric characters not indicated above are reserved.

Example: ADE3RV/HB2U2V2G1

Note.— Additional surveillance application should be listed in Item 18 following the indicator SUR/ .

ITEM 13: DEPARTURE AERODROME AND TIME (8 CHARACTERS)

INSERT the ICAO four-letter location indicator of the departure aerodrome as specified in Doc 7910, *Location Indicators*,

OR, if no location indicator has been assigned,

INSERT ZZZZ and *SPECIFY*, in Item 18, the name and location of the aerodrome preceded by DEP/ ,

OR, the first point of the route or the marker radio beacon preceded by DEP/…, if the aircraft has not taken off from the aerodrome,

OR, if the flight plan is received from an aircraft in flight,

INSERT AFIL, and *SPECIFY*, in Item 18, the ICAO four-letter location indicator of the location of the ATS unit from which supplementary flight plan data can be obtained, preceded by DEP/ .

THEN, WITHOUT A SPACE,

INSERT for a flight plan submitted before departure, the estimated off-block time (EOBT),

OR, for a flight plan received from an aircraft in flight, the actual or estimated time over the first point of the route to which the flight plan applies.

ITEM 15: ROUTE

INSERT the *first cruising speed* as in (a) and the *first cruising level* as in (b), without a space between them.

THEN, following the arrow, *INSERT* the route description as in (c).

(a) Cruising speed (maximum 5 characters)

INSERT the *True Air Speed* for the first or the whole cruising portion of the flight, in terms of:

Kilometres per hour, expressed as K followed by 4 figures (e.g. K0830), *or*

Knots, expressed as N followed by 4 figures (e.g. N0485), *or*

True Mach number, when so prescribed by the appropriate ATS authority, to the nearest hundredth of unit Mach, expressed as M followed by 3 figures (e.g. M082).

(b) Cruising level (maximum 5 characters)

INSERT the planned cruising level for the first or the whole portion of the route to be flown, in terms of:

Flight level, expressed as F followed by 3 figures (e.g. F085; F330), *or*

**Standard Metric Level in tens of metres,* expressed as S followed by 4 figures (e.g. S1130), *or*

Altitude in hundreds of feet, expressed as A followed by 3 figures (e.g. A045; A100), *or*

Altitude in tens of metres, expressed as M followed by 4 figures (e.g. M0840), *or*

for uncontrolled VFR flights, the letters VFR.

*When so prescribed by the appropriate ATS authorities.

(c) Route (including changes of speed, level and/or flight rules)

Flights along designated ATS routes

INSERT, if the departure aerodrome is located on or connected to the ATS route, the designator of the first ATS route,

OR, if the departure aerodrome is not on or connected to the ATS route, the letters DCT followed by the point of joining the first ATS route, followed by the designator of the ATS route.

THEN

INSERT each point at which either a change of speed and/or level is planned to commence, or a change of ATS route, and/or a change of flight rules is planned,

Note.— When a transition is planned between a lower and upper ATS route and the routes are oriented in the same direction, the point of transition need not be inserted.

FOLLOWED IN EACH CASE

by the designator of the next ATS route segment, even if the same as the previous one,

OR by DCT, if the flight to the next point will be outside a designated route, unless both points are defined by geographical coordinates.

Flights outside designated ATS routes

INSERT points normally not more than 30 minutes flying time or 370 km (200 NM) apart, including each point at which a change of speed or level, a change of track, or a change of flight rules is planned.

OR, when required by appropriate ATS authority(ies),

DEFINE the track of flights operating predominantly in an east-west direction between 70°N and 70°S by reference to significant points formed by the intersections of half or whole degrees of latitude with meridians spaced at intervals of 10 degrees of longitude. For flights operating in areas outside those latitudes the tracks shall be defined by significant points formed by the intersection of parallels of latitude with meridians normally spaced at 20 degrees of longitude. The distance between significant points shall, as far as possible, not exceed one hour's flight time. Additional significant points shall be established as deemed necessary.

For flights operating predominantly in a north-south direction, define tracks by reference to significant points formed by the intersection of whole degrees of longitude with specified parallels of latitude which are spaced at 5 degrees.

INSERT DCT between successive points unless both points are defined by geographical coordinates or by bearing and distance.

USE ONLY the conventions in (1) to (5) below and *SEPARATE* each sub-item by a space.

(1) ATS route (2 to 7 characters)

The coded designator assigned to the route or route segment including, where appropriate, the coded designator assigned to the standard departure or arrival route (e.g. BCN1, Bl, R14, UB10, KODAP2A).

Note.— Provisions for the application of route designators are contained in Annex 11, Appendix 1~~, whilst guidance material on the application of an RNP type to a specific route segment(s), route(s) or area is contained in the~~ Manual on Required Navigation Performance (RNP) *~~(Doc 9613)~~.*

(2) Significant point (2 to 11 characters)

The coded designator (2 to 5 characters) assigned to the point (e.g. LN, MAY, HADDY), *or,*
if no coded designator has been assigned, one of the following ways:

— *Degrees only* (7 characters):

2 figures describing latitude in degrees, followed by "N" (North) or "S" (South), followed by 3 figures describing longitude in degrees, followed by "E" (East) or "W" (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g. 46N078W.

— *Degrees and minutes* (11 characters):

4 figures describing latitude in degrees and tens and units of minutes followed by "N" (North) or "S" (South), followed by 5 figures describing longitude in degrees and tens and units of minutes, followed by "E" (East) or "W" (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g. 4620N07805W.

— *Bearing and distance from a ~~navigation aid~~significant point:*

The identification of the ~~navigation aid (normally a VOR)~~significant point, ~~in the form of 2 or 3 characters, THEN~~followed by the bearing from the ~~aid~~point in the form of 3 figures giving degrees magnetic, ~~THEN~~followed by the distance from the ~~aid~~point in the form of 3 figures expressing nautical miles. In areas of high latitude where it is determined by the appropriate authority that reference to degrees magnetic is impractical, degrees true may be used. Make up the correct number of figures, where necessary, by insertion of zeros — e.g. a point 180° magnetic at a distance of 40 nautical miles from VOR "DUB" should be expressed as DUB180040.

(3) Change of speed or level (maximum 21 characters)

The point at which a change of speed (5% TAS or 0.01 Mach or more) or a change of level is planned to commence, expressed exactly as in (2) above, followed by an *oblique stroke and both the cruising speed and the cruising level*, expressed exactly as in (a) and (b) above, without a space between them, *even when only one of these quantities will be changed*.

Examples: LN/N0284A045
MAY/N0305Fl80
HADDY/N0420F330
4602N07805W/N0500F350
46N078W/M082F330

DUB180040/N0350M0840

(4) Change of flight rules (maximum 3 characters)

The point at which the change of flight rules is planned, expressed exactly as in (2) or (3) above as appropriate, *followed by a space and one of the following*:

VFR if from IFR to VFR
IFR if from VFR to IFR

Examples: LN VFR
LN/N0284A050 IFR

(5) Cruise climb (maximum 28 characters)

The letter C followed by an *oblique stroke*; *THEN the point at which cruise climb is planned to start*, expressed exactly as in (2) above, *followed by an oblique stroke; THEN the speed to be maintained during cruise climb*, expressed exactly as in (a) above, followed by *the two levels defining the layer to be occupied during cruise climb*, each level expressed exactly as in (b) above, *or the level above which cruise climb is planned followed by the letters PLUS*, without a space between them.

Examples: C/48N050W/M082F290F350
C/48N050W/M082F290PLUS
C/52N050W/M220F580F620.

ITEM 16: DESTINATION AERODROME AND TOTAL ESTIMATED ELAPSED TIME, DESTINATION ALTERNATE AERODROME(S)

Destination aerodrome and total estimated elapsed time (8 characters)

INSERT the ICAO four-letter location indicator of the destination aerodrome ~~followed, without a space, by the total estimated elapsed time~~as specified in Doc 7910, *Location Indicators*,

OR , if no location indicator has been assigned,

INSERT ZZZZ ~~followed, without a space, by the total estimated elapsed time,~~ and *SPECIFY* in Item 18 the name and location of the aerodrome, preceded by DEST/ .

THEN WITHOUT A SPACE

INSERT the total estimated elapsed time.

Note.— For a flight plan received from an aircraft in flight, the total estimated elapsed time is the

estimated time from the first point of the route to which the flight plan applies to the termination point of the flight plan.

Destination a~~A~~lternate aerodrome(s) ~~(4 characters)~~

INSERT the ICAO four-letter location indicator(s) of not more than two destination alternate aerodromes, as specified in Doc 7910, *Location Indicators*, separated by a space,

OR, if no location indicator has been assigned to the destination alternate aerodrome(s),

INSERT ZZZZ and *SPECIFY* in Item 18 the name and location of the destination alternate aerodrome(s), preceded by ALTN/ .

ITEM 18: OTHER INFORMATION

Note.— Use of indicators not included under this item may result in data being rejected, processed incorrectly or lost.

Hyphens or oblique strokes should only be used as prescribed below.

INSERT 0 (zero) if no other information,

OR, any other necessary information in the ~~preferred~~ sequence shown hereunder, in the form of the appropriate indicator selected from those defined hereunder followed by an oblique stroke and the information to be recorded:

STS/ Reason for special handling by ATS, e.g. a search and rescue mission, as follows:

ALTRV: for a flight operated in accordance with an altitude reservation;
ATFMX: for a flight approved for exemption from ATFM measures by the appropriate ATS authority;
FFR: fire-fighting;
FLTCK: flight check for calibration of navaids;
HAZMAT: for a flight carrying hazardous material;
HEAD: a flight with Head of State status;
HOSP: for a medical flight declared by medical authorities;
HUM: for a flight operating on a humanitarian mission;
MARSA: for a flight for which a military entity assumes responsibility for separation of military aircraft;
MEDEVAC: for a life critical medical emergency evacuation;
NONRVSM: for a non-RVSM capable flight intending to operate in RVSM airspace;
SAR: for a flight engaged in a search and rescue mission; and
STATE: for a flight engaged in military, customs or police services.

Other reasons for special handling by ATS shall be denoted under the designator RMK/.

PBN/ Indication of RNAV and/or RNP capabilities. Include as many of the descriptors below, as apply to the flight, up to a maximum of 8 entries, i.e. a total of not more than 16 characters.

	RNAV SPECIFICATIONS
A1	RNAV 10 (RNP 10)
B1	RNAV 5 all permitted sensors
B2	RNAV 5 GNSS
B3	RNAV 5 DME/DME
B4	RNAV 5 VOR/DME
B5	RNAV 5 INS or IRS
B6	RNAV 5 LORANC
C1	RNAV 2 all permitted sensors
C2	RNAV 2 GNSS
C3	RNAV 2 DME/DME
C4	RNAV 2 DME/DME/IRU
D1	RNAV 1 all permitted sensors
D2	RNAV 1 GNSS
D3	RNAV 1 DME/DME
D4	RNAV 1 DME/DME/IRU
	RNP SPECIFICATIONS
L1	RNP 4
O1	Basic RNP 1 all permitted sensors
O2	Basic RNP 1 GNSS
O3	Basic RNP 1 DME/DME
O4	Basic RNP 1 DME/DME/IRU
S1	RNP APCH
S2	RNP APCH with BARO-VNAV
T1	RNP AR APCH with RF (special authorization required)
T2	RNP AR APCH without RF (special authorization required)

Combinations of alphanumeric characters not indicated above are reserved.

~~EET/ Significant points or FIR boundary designators and accumulated estimated elapsed times to such points or FIR boundaries, when so prescribed on the basis of regional air navigation agreements, or by the appropriate ATS authority.~~

~~Examples: EET/CAP0745 XYZ0830~~
~~EET/EINN0204~~

~~RIF/ The route details to the revised destination aerodrome, followed by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to reclearance in flight.~~

~~Examples: RIF/DTA HEC KLAX~~
~~Examples: RIF/ESP G94 CLA YPPH~~
~~Examples: RIF/LEMD~~

~~REG/ The registration markings of the aircraft, if different from the aircraft identification in Item 7.~~

~~SEL/ SELCAL Code, if so prescribed by the appropriate ATS authority.~~

~~OPR/ Name of the operator, if not obvious from the aircraft identification in Item 7.~~

~~STS/ Reason for special handling by ATS, e.g. hospital aircraft, one engine inoperative, e.g. STS/HOSP, STS/ONE ENG INOP.~~

~~TYP/ Type(s) of aircraft, preceded if necessary by number(s) of aircraft, if ZZZZ is inserted in Item 9.~~

~~PER/ Aircraft performance data, if so prescribed by the appropriate ATS authority.~~

~~COM/ Significant data related to communication equipment as required by the appropriate ATS authority, e.g. COM/UHF only.~~

~~DAT/ Significant data related to data link capability, using one or more of the letters S, H, V and M, e.g. DAT/S for satellite data link, DAT/H for HF data link, DAT/V for VHF data link, DAT/M for SSR Mode S data link.~~

NAV/ Significant data related to navigation equipment, other than specified in PBN/, as required by the appropriate ATS authority. Indicate GNSS augmentation under this indicator, with a space between two or more methods of augmentation, e.g. NAV/GBAS SBAS.

COM/ Indicate communications applications or capabilities not specified in Item 10a.

DAT/ Indicate data applications or capabilities not specified in 10a.

SUR/ Include surveillance applications or capabilities not specified in Item 10b.

DEP/ Name and location of departure aerodrome, if ZZZZ is inserted in Item 13, or the ~~ICAO four-letter location indicator of the location of the~~ ATS unit from which supplementary flight plan data can be obtained, if AFIL is inserted in Item 13. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location as follows:

With 4 figures describing latitude in degrees and tens and units of minutes followed by “N” (North) or “S” (South), followed by 5 figures describing longitude in degrees and tens and units of minutes, followed by “E” (East) or “W” (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g. 4620N07805W (11 characters).

OR, Bearing and distance from the nearest significant point, as follows:

The identification of the significant point followed by the bearing from the point in the form of 3 figures giving degrees magnetic, followed by the distance from the point in the form of 3 figures expressing nautical miles. In areas of high latitude where it is determined by the appropriate authority that reference to degrees magnetic is impractical, degrees true may be used. Make up the correct number of figures, where necessary, by insertion of zeros, e.g. a point of 180° magnetic at a distance of 40 nautical miles from VOR “DUB” should be expressed as DUB180040.

OR, The first point of the route (name or LAT/LONG) or the marker radio beacon, if the aircraft has not taken off from an aerodrome.

DEST/ Name and location of destination aerodrome, if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described under DEP/ above.

DOF/ The date of flight departure in a six figure format (YYMMDD, where YY equals the year, MM equals the month and DD equals the day).

REG/ The nationality or common mark and registration mark of the aircraft, if different from the aircraft identification in Item 7.

EET/ Significant points or FIR boundary designators and accumulated estimated elapsed times from take-off to such points or FIR boundaries, when so prescribed on the basis of regional air navigation agreements, or by the appropriate ATS authority.

Examples: EET/CAP0745 XYZ0830
EET/EINN0204

SEL/ SELCAL Code, for aircraft so equipped.

TYP/ Type(s) of aircraft, preceded if necessary without a space by number(s) of aircraft and separated by one space, if ZZZZ is inserted in Item 9.

Example: TYP/2F15 5F5 3B2

~~ALTN/ Name of destination alternate aerodrome(s), if ZZZZ is inserted in Item 16.~~

~~RALT/ Name of en-route alternate aerodrome(s).~~

CODE/ Aircraft address (expressed in the form of an alphanumerical code of six hexadecimal characters) when required by the appropriate ATS authority. Example: “F00001” is the lowest aircraft address contained in the specific block administered by ICAO.

DLE/ Enroute delay or holding, insert the significant point(s) on the route where a delay is planned to occur, followed by the length of delay using four figure time in hours and minutes (hhmm).

Example: DLE/MDG0030

OPR/ ICAO designator or name of the aircraft operating agency, if different from the aircraft identification in item 7.

ORGN/ The originator’s 8 letter AFTN address or other appropriate contact details, in cases where the originator of the flight plan may not be readily identified, as required by the appropriate ATS authority.

Note.— In some areas, flight plan reception centres may insert the ORGN/ identifier and originator’s AFTN address automatically.

PER/ Aircraft performance data, indicated by a single letter as specified in the *Procedures for Air Navigation Services — Aircraft Operations* (PANS-OPS, Doc 8168), *Volume I — Flight Procedures*, if so prescribed by the appropriate ATS authority.

ALTN/ Name of destination alternate aerodrome(s), if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

RALT/ ICAO four letter indicator(s) for en-route alternate(s), as specified in Doc 7910, *Location Indicators*, or name(s) of en-route alternate aerodrome(s), if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

TALT/ ICAO four letter indicator(s) for take-off alternate, as specified in Doc 7910, *Location Indicators*, or name of take-off alternate aerodrome, if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

RIF/ The route details to the revised destination aerodrome, following by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to reclearance in flight.

Examples: RIF/DTA HEC KLAX
RIF/ESP G94 CLA YPPH

RMK/ Any other plain language remarks when required by the appropriate ATS authority or deemed necessary.

ITEM 19: SUPPLEMENTARY INFORMATION

. . .

4. Instructions for the transmission of a supplementary flight plan (SPL) message

Items to be transmitted

Transmit items as indicated hereunder, unless otherwise prescribed:

a) AFTN Priority Indicator, Addressee Indicators <<≡, Filing Time, Originator Indicator <<≡ and, if necessary, specific identification of addressees and/or originator;

b) commencing with <<≡ (SPL:

all symbols and data in the unshaded areas of boxes 7, 13, 16 and 18, except that the ‘)’ at the end of box 18 is *not* to be transmitted, and then the symbols in the unshaded area of box 19 down to and including the)<<≡ of box 19,

additional alignment functions as necessary to prevent the inclusion of more than 69 characters in any line of Items 18 and 19. The alignment function is to be inserted only in lieu of a space, so as not to break up a group of data,

letter shifts and figure shifts (not pre-printed on the form) as necessary;

c) the AFTN Ending, as described below:

End-of-Text Signal

a) one LETTER SHIFT

b) two CARRIAGE RETURNS, one LINE FEED

Page-feed Sequence

Seven LINE FEEDS

End-of-Message Signal

Four of the letter N.

. . .

7. Instructions for the completion of the repetitive flight plan (RPL) listing form

. . .

7.4 Instructions for insertion of RPL data

. . .

ITEM G: SUPPLEMENTARY DATA AT

INSERT name and appropriate contact details of ~~contact~~entity where information normally provided under Item 19 of the FPL is kept readily available and can be supplied without delay.

. . .

APPENDIX 3. AIR TRAFFIC SERVICES MESSAGES

1. Message contents, formats and data conventions

. . .

1.2 The standard types of field

. . .

The standard fields of data permitted in ATS messages are as shown in the following table. The numbers in column 1 correspond with those in the reference table on page A3-30.

Field type	*Data*
3	Message type, number and reference data
5	Description of emergency
7	Aircraft identification and SSR Mode and Code
8	Flight rules and type of flight
9	Number and type of aircraft and wake turbulence category
10	Equipment and capabilities
13	Departure aerodrome and time
14	Estimate data
15	Route
16	Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)
17	Arrival aerodrome and time
18	Other information
19	Supplementary information
20	Alerting search and rescue information
21	Radio failure information
22	Amendment

. . .

1.6 Data conventions

. . .

1.6.3 *The expression of position or route*

The following alternative data conventions shall be used for the expression of position or route:

a) from 2 to 7 characters, being the coded designator assigned to an ATS route to be flown;

b) from 2 to 5 characters, being the coded designator assigned to an en-route point;

c) 4 numerics describing latitude in degrees and tens and units of minutes, followed by "N" (meaning "North") or "S" (South), followed by 5 numerics describing longitude in degrees and tens and units of minutes, followed by "E" (East) or "W" (West). The correct number of numerics is to be made up, where necessary, by the insertion of zeros, e.g. "4620N07805W";

d) 2 numerics describing latitude in degrees, followed by "N" (North) or "S" (South), followed by 3 numerics describing longitude in degrees, followed by "E" (East) or "W" (West). Again, the correct number of numerics is to be made up, where necessary, by the insertion of zeros, e.g. "46N078W";

e) 2 ~~or 3~~to 5 characters being the coded identification of a ~~navigation aid (normally a VOR)~~ significant point, followed by 3 decimal numerics giving the bearing from the point in degrees magnetic followed by 3 decimal numerics giving the distance from the point in nautical miles. The correct number of numerics is to be made up, where necessary, by the insertion of zeros, e.g. a point at 180° magnetic at a distance of 40 nautical miles from VOR "FOJ" would be expressed as "FOJ180040".

. . .

Field Type 8 — Flight rules and type of flight

Format:– [a | b] *

SINGLE HYPHEN

(a) *Flight Rules*
1 LETTER as follows:
I if ~~IFR~~it is intended that the entire flight will be operated under the IFR
V if ~~VFR~~ it is intended that the entire flight will be operated under the VFR
Y if ~~IFR first~~the flight initially will be operated under the IFR, followed by one or more subsequent changes of flight rules
Z if ~~VFR first~~the flight initially will be operated under the VFR, followed by one or more subsequent changes of flight rules
Note.— If the letter Y or Z is used, the point or points at which a change of flight rules is planned is to be shown as indicated in Field Type 15.

* This field shall be terminated here unless indication of the type of flight is required by the appropriate ATS authority.

. . .

Field Type 10 — Equipment and Capabilities

Format:– [a] / [b]

SINGLE HYPHEN

(a) *Radio Communication, Navigation and Approach Aid Equipment and Capabilities*

1 LETTER as follows:

N no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable

OR

S Standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (*See Note 1*)

AND/OR

ONE OR MORE OF THE FOLLOWING LETTERS to indicate the serviceable COM/NAV/approach aid equipment ~~serviceable~~and capabilities

A	~~(Not allocated)~~GBAS landing system	J7	CPDLC FANS 1/A SATCOM (Iridium)
B	~~(Not allocated)~~LPV (APV with SBAS)	K	~~(~~MLS~~)~~
C	LORAN C	L	ILS
D	DME	M1	~~Omega~~ATC RTF SATCOM (INMARSAT)
E1	~~(Not allocated)~~FMC WPR ACARS	M2	ATC RTF (MTSAT)
E2	D-FIS ACARS	M3	ATC RTF (Iridium)
E3	PDC ACARS	O	VOR
F	ADF	P1–P9	~~(Not allocated)~~Reserved for RCP
G	~~(~~GNSS~~)~~ (*See Note 2*)	~~Q~~	
H	HF RTF	R	~~(Not allocated)~~ ~~RNP type certification~~PBN approved *(see Note ~~5~~4)*
I	Inertial Navigation	T	TACAN
J1	~~(Data link)~~CPDLC ATN VDL Mode 2 *(see Note 3)*	U	UHF RTF
J2	CPDLC FANS 1/A HFDL	V	VHF RTF
J3	CPDLC FANS 1/A VDL Mode A	W	RVSM approved
		X	MNPS approved
J4	CPDLC FANS 1/A VDL Mode 2	Y	~~when prescribed by ATS~~VHF with 8.33 kHz channel spacing capability
J5	CPDLC FANS 1/A SATCOM (INMARSAT)	Z	Other equipment carried or other capabilities *(see Note ~~2~~5)*
J6	CPDLC FANS 1/A SATCOM (MTSAT)		

*Note 1.— If the letter S is used, s~~S~~tandard equipment is considered to be VHF RTF, ~~*ADF*~~, VOR and ILS, unless another combination is prescribed by the appropriate ATS authority.*

Note 2.— If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ separated by a space.

Note ~~2~~5.— If the letter Z is used, specify in Item 18 the other ~~the~~ equipment carried or other capabilities~~is to be specified in Item 18~~, preceded by COM/ , ~~and/or~~ NAV/ and/or DAT, as appropriate.

Note 3.— ~~If the letter J is used, specify in Item 18 the equipment carried, preceded by DAT/ followed by one or more letters as appropriate.~~See RTCA/EUROCAE Interoperability Requirements Standard For ATN Baseline 1 (ATN B1 INTEROP Standard – DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.

Note 46.— Information on navigation capability is provided to ATC for clearance and routing purposes.

Note 54.— Inclusion of If the letter R is used, the performance based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance-based navigation to a specific indicates that an aircraft meets the RNP type prescribed for the route segment(s), route(s) and/or area concerned is contained in the Performance-Based Navigation Manual *(Doc 9613).*

OBLIQUE STROKE

(b) *Surveillance Equipment and capabilities*

ONE OR TWO LETTERSMORE of the following descriptors, to a maximum of 20 characters, to describe the serviceable surveillance equipment carriedand/or capabilities on board:

SSR equipmentModes A and C

~~N Nil~~
A Transponder — Mode A (4 digits — 4 096 codes)
C Transponder — Mode A (4 digits — 4 096 codes) and Mode C

SSR Mode S

~~X Transponder — Mode S without both aircraft identification and pressure-altitude transmission~~
E Transponder — Mode S, including aircraft identification, pressure-altitude and extended squitter (ADS-B) capability
H Transponder — Mode S, including aircraft identification, pressure-altitude and enhanced surveillance capability
I Transponder — Mode S, including aircraft identification, but no pressure-altitude capability
L Transponder — Mode S, including aircraft identification, pressure-altitude, extended squitter (ADS-B) and enhanced surveillance capability
P Transponder — Mode S, including pressure-altitude, but no aircraft identification transmissioncapability
~~I Transponder — Mode S, including aircraft identification transmission, but no pressure-altitude transmission~~

S Transponder — Mode S, including both pressure altitude and aircraft identification transmissioncapability
X Transponder — Mode S with neither aircraft identification nor pressure-altitude capability

Note.– Enhanced surveillance capability is the ability of the aircraft to down-link aircraft derived data via a Mode S transponder.

ADS-B

B1 ADS-B with dedicated 1090 MHz ADS-B “out” capability

B2 ADS-B with dedicated 1090 MHz ADS-B “out” and “in” capability
U1 ADS-B “out” capability using UAT
U2 ADS-“out” and “in” capability using UAT
V1 ADS-B “out” capability using VDL Mode 4
V2 ADS-B “out” and “in” capability using VDL Mode 4

ADS-C

D1 ADS-C with FANS 1/A capabilities
G1 ADS-C with ATN capabilities

~~*ADS equipment*~~

~~D ADS capability~~

Alphanumeric characters not indicated above are reserved.

Note.– Additional surveillance application should be listed in Item 18 following the indicator SUR/ .

Examples: –S/A
–SC~~HJ~~I/C~~D~~B1
–SAF~~J~~R/S~~D~~V1

. . .

Field Type 13 — Departure aerodrome and time

Format:– *
a b

SINGLE HYPHEN

(a) *Departure Aerodrome*

4 LETTERS, being

the ICAO four-letter location indicator allocated to the departure aerodrome as specified in Doc 7910, *Location Indicators*, or

ZZZZ if no ICAO location indicator has been allocated (*see Note 1*) or if the departure aerodrome is not known, or

AFIL if the flight plan has been filed in the air (*see Note 2*).

Note 1.— If ZZZZ is used, the name and location of the departure aerodrome is to be shown in the Other Information Field (see Field Type 18) if this Field Type is contained in the message.

Note 2.— If AFIL is used, the ATS unit from which supplementary flight data can be obtained is to be shown in the Other Information Field (Field Type 18).

* This field shall be terminated here in message types ~~CHG, CNL, ARR,~~ CPL, EST, CDN~~,~~ and ACP ~~and RQS~~. It shall be terminated here in message type RQP if the estimated off-block time is not known.

(b) *Time*

4 NUMERICS giving

the estimated off-block time (EOBT) at the aerodrome in (a) in FPL, ARR, CHG, CNL, ~~and~~ DLA and RQS messages transmitted before departure and in RQP message, if known, or

the actual time of departure from the aerodrome in (a) in ALR, DEP and SPL messages, or

the actual or estimated time of departure from the first point shown in the Route Field (see Field Type 15) in FPL messages derived from flight plans filed in the air, as shown by the letters AFIL in (a).

Examples: –EHAM0730
–AFIL1625

. . .

Field Type 14 — Estimate data

Format:– [a] / [b] [c]* [d] [e]

SINGLE HYPHEN

(a) *Boundary Point (see Note 1)*

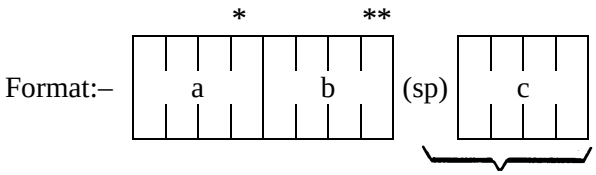
The BOUNDARY POINT expressed either by a designator consisting of 2 to 5 characters, in Geographical Coordinates, in Abbreviated Geographical Coordinates, or by bearing and distance from a ~~designated~~significant point ~~(e.g. a VOR)~~.

Note 1.— This point may be an agreed point located close to, rather than on, the FIR boundary.

Note 2.— See 1.6 for data conventions.

. . .

Field Type 16 — Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)



See Note in margin on page A3-2~~0~~1.

FIELD TYPE 16

Previous type of field or symbol	*This type of field is used in*	*Next type of field or symbol*
15	ALR	18
15	FPL	18
13	CHG	~~22~~18
13	CNL	~~)~~18
13	DLA	~~)~~18
13	DEP	~~)~~18
13	ARR***	17
15	CPL	18
14	EST	)
13	CDN	22
13	ACP	)
13	RQS	~~)~~18
13	SPL	18

*** Only in case of a diversionary landing.

SINGLE HYPHEN

(a) *Destination Aerodrome*

4 LETTERS, being

the ICAO four-letter location indicator allocated to the destination aerodrome as specified in Doc 7910, *Location Indicators*, or

ZZZZ if no ICAO location indicator has been allocated.

Note.— If ZZZZ is used, the name and location of the destination aerodrome is to be shown in the Other Information Field (see Field Type 18).

* This field is to be terminated here in all message types other than ALR, FPL and SPL.

. . .

SPACE

(c) *Destination Alternate Aerodrome(s)*
4 LETTERS, being

the ICAO four-letter location indicator allocated to an alternate aerodrome, as specified in Doc 7910, *Location Indicators* or

ZZZZ if no ICAO location indicator has been allocated.

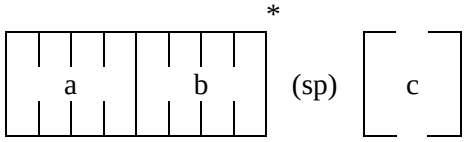
Note.— If ZZZZ is used, the name and location of the destination alternate aerodrome is to be shown in the Other Information Field (see Field Type 18).

.

Note.— One further element of (c) should be added, as necessary, preceded by a space

Examples: –EINN0630
–EHAM0645 EBBR
–EHAM0645 EBBR EDDL

Field Type 17 — Arrival aerodrome and time

Format:– 

SINGLE HYPHEN

(a) *Arrival Aerodrome*

4 LETTERS, being

the ICAO four-letter location indicator allocated to the arrival aerodrome as specified in Doc 7910, *Location Indicators*, or

ZZZZ if no ICAO location indicator has been allocated.

Note.— If ZZZZ is used, the name or location of the arrival aerodrome is to be shown in the Other Information Field (see Field Type 18).

(b)	*Time of Arrival* 4 NUMERICS, giving the actual time of arrival.

* This field is to be terminated here if an ICAO location indicator has been allocated to the arrival aerodrome.

Field Type 18 — Other information

Note.— Use of indicators not included under this item may result in data being rejected, processed incorrectly or lost.

Hyphens or oblique strokes should only be used as prescribed below.

Format:– [a]

or

– [ ] (sp) [ ] (sp) * (sp) [ ]

(* additional elements as necessary)

SINGLE HYPHEN

(a) 0 (zero) if no other information,

OR,

Any other necessary information in the ~~preferred~~ sequence shown hereunder, in the form of the appropriate indicator selected from those defined hereunder followed by an oblique stroke and the information to be recorded:

STS/ Reason for special handling by ATS, e.g. a search and rescue mission, as follows:

ALTRV: for a flight operated in accordance with an altitude reservation;
ATFMX: for a flight approved for exemption from ATFM measures by the appropriate ATS authority;
FFR: fire-fighting;
FLTCK: flight check for calibration of navaids;
HAZMAT: for a flight carrying hazardous material;
HEAD: a flight with Head of State status;
HOSP: for a medical flight declared by medical authorities;
HUM: for a flight operating on a humanitarian mission;
MARSA: for a flight for which a military entity assumes responsibility for separation of military aircraft;
MEDEVAC: for a life critical medical emergency evacuation;
NONRVSM: for a non-RVSM capable flight intending to operate in RVSM airspace;
SAR: for a flight engaged in a search and rescue mission; and
STATE: for a flight engaged in military, customs or police services.

Other reasons for special handling by ATS shall be denoted under the designator RMK/.

PBN/ Indication of RNAV and/or RNP capabilities. Include as many of the descriptors below, as apply to the flight, up to a maximum of 8 entries, i.e. a total of not more than 16 characters.

	RNAV SPECIFICATIONS
A1	RNAV10 (RNP 10)
B1	RNAV 5 all permitted sensors
B2	RNAV 5 GNSS
B3	RNAV 5 DME/DME
B4	RNAV 5 VOR/DME
B5	RNAV 5 INS or IRS
B6	RNAV 5 LORANC
C1	RNAV 2 all permitted sensors
C2	RNAV 2 GNSS
C3	RNAV 2 DME/DME
C4	RNAV 2 DME/DME/IRU
D1	RNAV 1 all permitted sensors
D2	RNAV 1 GNSS
D3	RNAV 1 DME/DME
D4	RNAV 1 DME/DME/IRU
	RNP SPECIFICATIONS
L1	RNP 4
O1	Basic RNP 1 all permitted sensors
O2	Basic RNP 1 GNSS
O3	Basic RNP 1 DME/DME
O4	Basic RNP 1 DME/DME/IRU
S1	RNP APCH
S2	RNP APCH with BAR-VNAV
T1	RNP AR APCH with RF (special authorization required)
T2	RNP AR APCH without RF (special authorization required)

Combinations of alphanumeric characters not indicated above are reserved.

~~EET/ Significant points or FIR boundary designators and accumulated estimated elapsed times to such points or FIR boundaries, when so prescribed on the basis of regional air navigation agreements, or by the appropriate ATS authority.~~
~~Examples: EET/CAP0745 XYZ0830~~
~~EET/EINN0204~~

~~RIF/ The route details to the revised destination aerodrome, followed by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to reclearance in flight.~~

~~Examples: RIF/DTA HEC KLAX~~
~~Examples: RIF/ESP G94 CLA YPPH~~
~~Examples: RIF/LEMD~~

~~REG/ The registration markings of the aircraft, if different from the aircraft identification in Item 7.~~

~~SEL/ SELCAL Code, if so prescribed by the appropriate ATS authority.~~

~~OPR/ Name of the operator, if not obvious from the aircraft identification in Item 7.~~

~~STS/ Reason for special handling by ATS, e.g. hospital aircraft, one engine inoperative, e.g. STS/HOSP, STS/ONE ENG INOP.~~

~~TYP/ Type(s) of aircraft, preceded if necessary by number(s) of aircraft, if ZZZZ is inserted in Item 9.~~

~~PER/ Aircraft performance data, if so prescribed by the appropriate ATS authority.~~

~~COM/ Significant data related to communication equipment as required by the appropriate ATS authority, e.g. COM/UHF only.~~

~~DAT/ Significant data related to data link capability, using one or more of the letters S, H, V and M, e.g. DAT/S for satellite data link, DAT/H for HF data link, DAT/V for VHF data link, DAT/M for SSR Mode S data link.~~

NAV/ Significant data related to navigation equipment, other than specified in PBN/, as required by the appropriate ATS authority. Indicate GNSS augmentation under this indicator, with a space between two or more methods of augmentation, e.g. NAV/GBAS SBAS.

COM/ Indicate communications applications or capabilities not specified in Item 10a.

DAT/ Indicate data applications or capabilities not specified in Item 10a.

SUR/ Include surveillance applications or capabilities not specified in Item 10b.

DEP/ Name and location of departure aerodrome, if ZZZZ is inserted in Item 13, or the ~~ICAO four-letter location indicator of the location of the~~ ATS unit from which supplementary flight plan data can be obtained, if AFIL is inserted in Item 13. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location as follows:

With 4 figures describing latitude in degrees and tens and units of minutes followed by “N” (North) or “S” (South), followed by 5 figures describing longitude in degrees and tens and units of minutes, followed by “E” (East) or “W” (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g. 4620N07805W (11 characters).

OR Bearing and distance from the nearest significant point, as follows:

The identification of the significant point followed by the bearing from the point in the form of 3 figures giving degrees magnetic, followed by the distance from the point in the form of 3 figures expressing nautical miles. In areas of high latitude where it is determined by the appropriate authority that reference to degrees magnetic is impractical, degrees true may be

used. Make up the correct number of figures, where necessary, by insertion of zeros, e.g. a point of 180° magnetic at a distance of 40 nautical miles from VOR "DUB" should be expressed as DUB180040.

OR The first point of the route (name or LAT/LONG) or the marker radio beacon, if the aircraft has not taken off from an aerodrome.

DEST/ Name and location of destination aerodrome, if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described under DEP/ above.

DOF/ The date of flight departure in a six figure format (YYMMDD, where YY equals the year, MM equals the month and DD equals the day).

REG/ The nationality or common mark and registration mark of the aircraft, if different from the aircraft identification in Item 7.

EET/ Significant points or FIR boundary designators and accumulated estimated elapsed times from take-off to such points or FIR boundaries, when so prescribed on the basis of regional air navigation agreements, or by the appropriate ATS authority.

Examples: EET/CAP0745 XYZ0830
EET/EINN0204

SEL/ SELCAL Code, for aircraft so equipped.

TYP/ Type(s) of aircraft, preceded if necessary without a space by number(s) of aircraft and separated by one space, if ZZZZ is inserted in Item 9.

Example: –TYP/2F15, 5F5, 3B2

~~ALTN/ Name of destination alternate aerodrome(s), if ZZZZ is inserted in Item 16.~~

~~RALT/ Name of en-route alternate aerodrome(s).~~

CODE/ Aircraft address (expressed in the form of an alphanumerical code of six hexadecimal characters) when required by the appropriate ATS authority. Example: "F00001" is the lowest aircraft address contained in the specific block administered by ICAO.

DLE/ Enroute delay or holding, insert the significant point(s) on the route where a delay is planned to occur, followed by the length of delay using four figure time in hours and minutes (hhmm).

Example: –DLE/MDG0030

OPR/ ICAO designator or name of the aircraft operating agency, if different from the aircraft identification in item 7.

ORGN/ The originator's 8 letter AFTN address or other appropriate contact details, in cases where the originator of the flight plan may not be readily identified, as required by the appropriate ATS authority.

Note.— In some areas, flight plan reception centres may insert the ORGN/ identifier and originator's AFTN address automatically.

PER/ Aircraft performance data, indicated by a single letter as specified in the ***Procedures for Air Navigation Services — Aircraft Operations*** (PANS-OPS, Doc 8168), ***Volume I — Flight Procedures***, if so prescribed by the appropriate ATS authority.

ALTN/ Name of destination alternate aerodrome(s), if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

RALT/ ICAO four letter indicator(s) for en-route alternate(s), as specified in Doc 7910, ***Location Indicators***, or name(s) of en-route alternate aerodrome(s), if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

TALT/ ICAO four letter indicator(s) for take-off alternate, as specified in Doc 7910, ***Location Indicators***, or name of take-off alternate aerodrome, if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

RIF/ The route details to the revised destination aerodrome, following by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to reclearance in flight.

Examples:–RIF/DTA HEC KLAX
–RIF/ESP G94 CLA YPPH

RMK/ Any other plain language remarks when required by the appropriate ATS authority or deemed necessary.

Examples:–0
~~–STS/MEDEVAC~~
–EET/015W0315 020W0337 030W0420 040W0502
~~–STS/ONE ENG INOP~~
~~–DAT/S~~

. . .

Field Type 22 — Amendment

FIELD TYPE 22

Previous type of field or symbol	*This type of field is used in*	*Next type of field or symbol*
16	CHG	~~*22 or)~~*18*
16	CDN	***22 or)*

* Indicates that further fields of this type may be added

. . .

RULES FOR THE COMPOSITION OF ATS MESSAGES
(See Sections 1.3 to 1.8 of this Appendix)

. . .

STANDARD ATS MESSAGES AND THEIR COMPOSITION

DESIGNATOR	. . .		. . .	Other information
MESSAGE TYPE				18
Alerting		ALR		
Radiocommunication failure		RCF		
Filed flight plan		FPL		
Delay		DLA		18
Modification		CHG		18
Flight plan cancellation		CNL		18
Departure		DEP		18
Arrival		ARR		
Current flight plan		CPL		
Estimate		EST		
Coordination		CDN		
Acceptance		ACP		
Logical acknowledgement message		LAM		
Request flight plan		RQP		18
Request supplementary flight plan		RQS		18
Supplementary flight plan		SPL		

. . .

The expression of position or route

The following alternative data conventions shall be used for the expression of position or route:

. . .

(e) 2 ~~or 3~~to 5 characters being the coded identification of a ~~navigation aid (normally a VOR)~~ significant point, followed by 3 decimal numerics giving the bearing from the point in degrees magnetic followed by 3 decimal numerics giving the distance from the point in nautical miles. The correct number of numerics is to be made up, where necessary, by insertion of zeros, e.g. a point at 180° magnetic at a distance of 40 nautical miles from VOR "FOJ" would be expressed as "FOJ180040".

. . .

2. Examples of ATS messages

. . .

2.2 Emergency messages

2.2.1 *Alerting (ALR) message*

2.2.1.1 *Composition*

. . .

–	9 Type of aircraft and wake turbulence category	–	10 Equipment and capabilities

. . .

16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)

. . .

2.2.1.2 *Example*

The following is an example of an alerting message relating to an uncertainty phase, sent by Athens Approach Control to Belgrade Centre and other ATS units, in respect of a flight from Athens to Munich.

(ALR-INCERFA/LGGGZAZX/OVERDUE
–FOX236/A3600024-IM
–C141/H-S/C~~D~~
–LGAT1020
–N0430F220 B9 3910N02230W/N0415F240 B9 IVA/N0415F180 B9
–EDDM0227 EDDF
–REG/A43213 EET/LYBE0020 EDMI0133 ~~REG/A43213~~ OPR/USAF RMK/NO POSITION REPORT SINCE DEP PLUS 2 MINUTES
–E/0720 P/12 R/UV J/LF D/02 014 C ORANGE A/SILVER C/SIGGAH
–USAF LGGGZAZX 1022 126.7 GN 1022 PILOT REPORT OVER NDB ATS UNITS ATHENS FIR ALERTED NIL)

2.2.1.2.1 *Meaning*

Alerting message — uncertainty phase declared by Athens due no position reports and no radio contact since two minutes after departure — aircraft identification FOX236 — IFR, military flight — Starlifter, heavy wake turbulence category, equipped with standard communications, navigation and approach aid equipment for the route, SSR transponder with Modes A (4 096 code capability) and C~~— ADS capability~~ — last assigned Code 3624 — departed Athens 1020 UTC — cruising speed for first portion of route 430 knots, first requested cruising level FL 220 — proceeding on airway Blue 9 to 3910N2230W where TAS would be changed to 415 knots and FL240 would be requested — proceeding on airway Blue 9 to Ivanic Grad VOR where FL 180 would be requested, maintaining TAS of 415 knots and FL240 would be requested — proceeding on airway Blue 9 to Munich, total estimated elapsed time 2 hours and 27 minutes — destination alternate is Frankfurt — aircraft registration A43213 — accumulated estimated elapsed times at the Belgrade and Munich FIR boundaries 20 minutes and 1 hour and 33 minutes respectively — ~~aircraft registration A43213~~ — the aircraft is operated by the USAF — no position report has been received since 2 minutes after departure — endurance 7 hours and 20 minutes after take-off — 12 persons on board — portable radio equipment working on VHF 121.5 MHz and UHF 243 MHz is carried — life jackets fitted with lights and fluorescein are carried — 2 dinghies with orange covers are carried, have a total capacity for 14 persons — aircraft colour is silver — pilot's name is SIGGAH — operator is USAF

— Athens approach control was the last unit to make contact at 1022 UTC on 126.7 MHz when pilot reported over GN runway locator beacon — Athens approach control have alerted all ATS units within Athens FIR — no other pertinent information.

. . .

2.3 Filed flight plan and associated update messages

2.3.1 *Filed flight plan (FPL) message*

2.3.1.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code – 8 Flight rules and type of flight

– 9 Type of aircraft and wake turbulence category – 10 Equipment and capabilities

– 13 Departure aerodrome and time

– 15 Route (using more than one line if necessary)

– 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)

– 18 Other information (using more than one line if necessary)

)

2.3.1.2 *Example*

The following is an example of a filed flight plan message sent by London Airport to Shannon, Shanwick and Gander Centres. The message may also be sent to the London Centre or the data may be passed to that centre by voice.

(FPL ~~-TPR~~ACA101-IS
~~-B707M~~B773/H-CHO~~P~~V/C~~D~~
–EGLL1400
–N0450F310 ~~G1 UG1~~L9 UL9 STU285036/M082F310 ~~UG1~~UL9 ~~52N015W~~LIMRI
52N020W 52N030W 50N040W 49N050W
–CYQX0455 CYYR
–EET/EIN~~N~~S0026 EGGX0111 0 20W0136 CYQX0228 0 40W0330 0 50W0415 SEL/FJEL)

2.3.1.2.1 *Meaning*

Filed flight plan message — aircraft identification ~~TPR~~ACA101 — IFR, scheduled flight — a Boeing ~~707, medium~~777-300, heavy wake turbulence category equipped with Loran C, HF RTF, VOR, ~~Doppler,~~ VHF RTF and SSR transponder with Modes A (4 096 code capability) and C ~~— ADS capability —~~ departure aerodrome is London, estimated off-block time 1400 UTC — cruising speed and requested flight level for the first portion of the route are 450 knots and FL 310 — the flight will proceed on Airways ~~Green 1~~Lima 9 and Upper ~~Green 1~~Lima 9 to a point bearing 285 degrees magnetic and 36 NM from the Strumble VOR. From this point the flight will fly at a constant Mach number of .82, proceeding on Upper ~~Green 1~~Lima 9 to ~~52N15W~~LIMRI; then to 52N20W; to 52N30W; to 50N40W; to 49N50W; to destination Gander, total estimated elapsed time 4 hours and 55 minutes — destination alternate is Goose Bay — captain has notified accumulated estimated elapsed times at significant points along the route, they are at the Shannon FIR boundary 26 minutes, at the Shanwick Oceanic FIR boundary 1 hour and 11 minutes, at 20W 1 hour and 36 minutes, at the Gander Oceanic FIR boundary 2 hours and 28 minutes, at 40W 3 hours and 30 minutes and at 50W 4 hours and 15 minutes — SELCAL code is FJEL.

2.3.2 *Modification (CHG) message*

2.3.2.1 *Composition*

(	3 Message type, number and reference data	–	7 Aircraft identification and SSR Mode and Code	–	13 Departure aerodrome and time	
–	16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)					
–	18 Other information (using more than one line if necessary)					
–	22 Amendment	- - - -	22 Amendment		etc. (using more than one line if necessary)	)

2.3.2.2 *Example*

The following is an example of a modification message sent by Amsterdam Centre to Frankfurt Centre correcting information previously sent to Frankfurt in a filed flight plan message. It is assumed that both centres are computer-equipped.

(CHGA/F016A/F014-GABWE/A2173-EHAM0850-EDDF-DOF/080122-8/I-16/EDDN)

2.3.2.2.1 *Meaning*

Modification message – Amsterdam and Frankfurt computer unit identifiers A and F, followed by serial number (016) of this message sent by Amsterdam, repeat of computer unit identifiers followed by serial number (014) of the related filed flight plan message – aircraft identification GABWE, SSR Code 2173 operating in Mode A, en route from Amsterdam EOBT0850 to Frankfurt date of flight 22 Jan 2008 – Field Type 8 of the related filed flight plan message is corrected to IFR – Field Type 16 of the related filed flight plan is corrected, the new destination is Nürnberg.

2.3.3 *Flight plan cancellation (CNL) message*

2.3.3.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code – 13 Departure aerodrome and time

– 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s))

– 18 Other information (using more than one line if necessary))

2.3.3.2 *Example 1*

The following is an example of a flight plan cancellation message sent by an ATS unit to all addressees of a filed flight plan message previously sent by that unit.

(CNL-DLH522-EDBB0900-LFPO-0)

2.3.3.2.1 *Meaning*

Flight plan cancellation message – cancel the flight plan of aircraft identification DLH522 – flight planned from Berlin EOBT0900 to Paris – no other information.

2.3.3.3 *Example 2*

The following is an example of a flight plan cancellation message sent by a centre to an adjacent centre. It is assumed that both centres are equipped with ATC computers.

(CNLF/B127F/B055-BAW580-EDDF1430-EDDW-0)

2.3.3.3.1 *Meaning*

Flight plan cancellation message – identifiers of sending and receiving ATC computer units F and B, followed by serial number (127) of this message, repeat of computer unit identifiers followed by serial number (055) of current flight plan message previously transmitted – cancel the flight plan of aircraft identification BAW580 – flight planned from Frankfurt EOBT1430 to Bremen – no other information.

2.3.4 *Delay (DLA) message*

2.3.4.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code – 13 Departure aerodrome and time

– 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s))

– 18 Other information (using more than one line if necessary))

2.3.4.2 *Example*

The following is an example of a delay message from a departure aerodrome, or from a parent unit handling communications for a departure aerodrome, to each addressee of a filed flight plan message.

(DLA-KLM671-LIRF0900-LYDU-0)

2.3.4.2.1 *Meaning*

Delay message – aircraft identification KLM671 – revised estimated off-block time Fiumicino 0900 UTC destination Dubrovnik – no other information.

2.3.5 *Departure (DEP) message*

2.3.5.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code – 13 Departure aerodrome and time

– 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s))

– 18 Other information (using more than one line if necessary))

2.3.5.2 *Example*

The following is an example of a departure message from a departure aerodrome, or from a parent unit handling communications for a departure aerodrome, to each addressee of a filed flight plan message.

(DEP-CSA4311-EGPD1923-ENZV-0)

2.3.5.2.1 *Meaning*

Departure message – aircraft identification CSA4311 – departed from Aberdeen at 1923 UTC – destination Stavanger – no other information.

2.3.6 *Arrival (ARR) message*

2.3.6.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code – 13 Departure aerodrome and time

– 17
Arrival aerodrome and time)

2.3.6.2 *Example 1*

The following is an example of an arrival message sent from the arrival aerodrome (= destination) to the departure aerodrome.

(ARR-CSA406-LHBP-LKPR0913)

2.3.6.2.1 *Meaning*

Arrival message — aircraft identification CSA406 — departed from Budapest/Ferihegy — landed at Prague/Ruzyne Airport at 0913 UTC.

2.3.6.3 *Example 2*

The following is an example of an arrival message sent for an aircraft which has landed at an aerodrome for which no ICAO location indicator has been allocated. The SSR Code would not be meaningful.

(ARR-~~HELI13~~HHE13-EHAM-1030 DEN HELDER)

2.3.6.3.1 *Meaning*

Arrival message aircraft identification ~~HELI13~~HHE13 — departed from Amsterdam — landed at Den Helder heliport at 1030 UTC.

2.4 Coordination messages

2.4.1 *Current flight plan (CPL) message*

2.4.1.1 *Composition*

(3
Message type, number and reference data – 7
Aircraft identification and SSR Mode and Code – 8
Flight rules and type of flight

– 9
Type of aircraft and wake turbulence category – 10
Equipment and capabilities

– 13
Departure aerodrome and time – 14
Estimate data

– 15
Route (using more than one line if necessary)

– 16
Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)

– 18
Other information (using more than one line if necessary)
)

2.4.1.2 *Example 1*

The following is an example of a current flight plan message sent from Boston Centre to New York Centre on a flight which is en route from Boston to La Guardia Airport.

(CPL-UAL621/A5120-IS
–~~DC9~~A320/M-S/C~~D~~
–KBOS-HFD/1341A220A200A
–N0420A220 V3 AGL V445
–KLGA
–0)

2.4.1.3 *Example 2*

The following is an example of the same current flight plan message, but in this case the message is exchanged between ATC computers.

(CPLBOS/LGA052-UAL621/A5120-IS
–~~DC9~~A320/M-S/C~~D~~
–KBOS-HFD/1341A220A200A
–N0420A220 V3 AGL V445
–KLGA
–0)

Note.— The messages in Examples 1 and 2 are identical except that the Message Number of Example 2 does not appear in Example 1.

2.4.1.4 *Meaning*

Current flight plan message [with sending unit identity (BOS) and receiving unit identity (LGA), followed by the serial number of this message (052)] — aircraft identification UAL621, last assigned SSR Code 5120 in Mode A — IFR, scheduled flight — one ~~DC9~~A320, medium wake turbulence category, equipped with standard communications, navigation and approach aid equipment for the route and SSR transponder with Modes A (4 096 code capability) and C ~~— ADS capability —~~ departed Boston — the flight is estimated to cross the Boston/New York "boundary" at point HFD at 1341 UTC, cleared by the Boston Centre at altitude 22 000 feet but to be at or above altitude 20 000 feet at HFD — TAS is 420 knots, requested cruising level is altitude 22 000 feet — the flight will proceed on airway V3 to reporting point AGL thence on airway V445 — destination is La Guardia Airport — no other information.

2.4.2 *Estimate (EST) message*

2.4.2.1 *Composition*

(	3 Message type, number and reference data	–	7 Aircraft identification and SSR Mode and Code	–	13 Departure aerodrome and time

– 14 Estimate data – 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s))

. . .

2.4.3 *Coordination (CDN) message*

2.4.3.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code – 13 Departure aerodrome and time

– 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)

– 22 Amendment - - - - 22 Amendment etc. (using more than one) line if necessary)

. . .

2.4.4 *Acceptance (ACP) message*

2.4.4.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code – 13 Departure aerodrome and time

– 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s))

. . .

2.5 Supplementary messages

2.5.1 *Request flight plan (RQP) message*

2.5.1.1 *Composition*

(3 Message type, number and reference data – 7 Aircraft identification and SSR Mode and Code

– 13 Departure aerodrome and time – 16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s))

– | 18
Other information (using more than one line if necessary) |)

2.5.1.2 *Example*

The following is an example of a request flight plan message sent by a centre to an adjacent centre after receipt of an estimate message, for which no corresponding filed flight plan message had been received previously.

(RQP-PHOEN-EHRD-EDDL-0)

2.5.1.2.1 *Meaning*

Request flight plan message – aircraft identification PHOEN departed from Rotterdam – destination Düsseldorf – no other information.

2.5.2 *Request supplementary flight plan (RQS) message*

2.5.2.1 *Composition*

(| 3
Message type, number and reference data | – | 7
Aircraft identification and SSR Mode and Code | – | 13
Departure aerodrome and time |

– | 16
Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s) |)

– | 18
Other information (using more than one line if necessary) |)

2.5.2.2 *Example*

The following is an example of a request flight plan message sent by an ATS unit to the ATS unit serving the departure aerodrome requesting information contain in the flight plan form, but not transmitted in the filed or current filed flight plan messages.

(RQS-KLM405/A4046-EHAM-CYMX-0)

2.5.2.2.1 *Meaning*

Request supplementary flight plan message – aircraft identification KLM405/SSR Code 4046 operating in Mode A – departure aerodrome is Amsterdam – destination aerodrome is Mirabel – no other information.

2.5.3 *Supplementary flight plan (SPL) message*

2.5.3.1 *Composition*

(| 3
Message type, number and reference data | – | 7
Aircraft identification and SSR Mode and Code | – | 13
Departure aerodrome and time |

–	16 Destination aerodrome and total estimated elapsed time, destination alternate aerodrome(s)

. . .

— — — — — — — — —

ATTACHMENT B

AMENDMENT TO THE FOREWORD OF THE PANS-ATM

Add the following at the end of Table A:

Amendment	***Source(s)***	***Subject***	***Approved Applicable***
1	Flight Plan Study Group (FPLSG)	Update the ICAO model flight plan form.	D 15 November 2012

— END —

TERMS OF REFERENCE

Asia/Pacific ICAO Flight Plan & ATS Messages Implementation Task Force (FPL&AM/TF)

Terms of Reference

The terms of reference of the FPL&AM/TF are:

1) To conduct a comprehensive review of Amendment 1 to the Fifteenth Edition of the PANS ATM (Doc 4444, effective 15 November 2012) in order to identify, study and address implementation complexities arising from the adoption of amended PANS ATM Chapter 4, Chapter 11, Appendix 2 and Appendix 3 provisions relating to the ICAO Flight Plan and associated ATS Message formats; and

2) As a result of the review, and in accordance with relevant additional ICAO provisions, prepare and promulgate coordinated Asia/Pacific transition strategies and plans with associated timelines to enable the streamlined implementation of the amended Flight Plan and ATS Message provisions contained in Amendment 1 of the Fifteenth Edition to the PANS ATM.

In addressing these terms of reference, the Task Force should consider, *inter alia*, the following aspects:

1) Likelihood that such changes within local systems will differ between Regions and systems, therefore global transition is not feasible in view of the localized issues and APANPIRG is best placed to authorize regional transition plans;

2) Inter and intra regional issues;

3) Impact on inter-system co-ordination messaging (e.g. AIDC)
   - AIDC guidelines and other regional documents will need to be updated;

4) Contingency arrangements for States that cannot comply by the due date;
   - How to handle staged implementations by States and/or airspace users,
   - Expectations across ANSPs with different implementation dates, and
   - Systems that transition early will need to be capable of handling both new and current instruction sets.

5) Inter-system exchanges need to take account of differing automation capabilities in order to avoid excessive message rejection;

6) Establishment of an Information Management system to track implementation timelines for various States/systems;

7) Management of Repetitive Flight Plans;

8) Implications for presentation formats, including paper & electronic flight progress strips;

9) Impacts to users (flight planning systems etc); and

10) Appropriately timed withdrawal of existing State or Regional specific requirements to ensure consistency with new instruction set.

Membership

Proposed membership of the Task Force should include, but is not limited to, the following:

> Australia, China, Hong Kong-China, India, Indonesia, Japan, Malaysia, New Zealand, Singapore, Thailand, United States, Viet Nam, IATA and IFALPA.

Industry participation, if required, is to be included under responsibility of State delegations or with approval from the ICAO Asia/Pacific Regional Office.

Reporting

Report progress to ATM/AIS/SAR/SG/19 and CNS/MET/SG/13 (June/July 2009), and APANPIRG/20 (September 2009)

ICAO Strategic Objectives and GPIs

Amendment 1 to the Fifteenth Edition of PANS-ATM promulgates updates to operational messages, including the ICAO Flight Plan message set, in order to provide, *inter alia*, increased detail and definition of aircraft equipage with the objective of better managing and enabling provision of the related ATS services.

The work and outcomes from the FPL&AM/TF are expected to support:

ICAO Strategic Objectives:

- *A: Safety – Enhance global civil aviation safety*
- *D: Efficiency – Enhance the efficiency of aviation operations*
- *E: Continuity – Maintain the continuity of aviation operations*

Global Plan Initiatives

GPI-5	*Performance based navigation*
GPI-9	*Situational awareness*
GPI-11	*RNP and RNAV Standard Instrument Departures (SIDs) and Standard Terminal Arrivals (STARs)*
GPI-17	*Implementation of data link applications*

…… *end* ……

AGENDA ITEM 8: DEFICIENCIES IN THE AIR NAVIGATION FIELD

Agenda Item 8: Deficiencies in the Air Navigation field

List of Air Navigation Deficiencies in the ATM/AIS/SAR Fields

8.1 The meeting was reminded that APANPIRG/17 had expressed concern at the slow progress in eliminating the safety related deficiencies. APANPIRG/18 (September 2007) noted the key requirements essential for the successful implementation of the procedures contained within the Asia Pacific Supplement to the Uniform Methodology and the necessity to update the Supplement to include the provision of a regional on-line database for deficiencies, adopting Conclusion 18/60 accordingly. APANPIRG/18 noted that the Deficiency Review Task Force had completed the work assigned by APANPIRG Conclusion 17/55 and agreed to Decision 18/61 dissolving the Task Force.

8.2 These matters were further reviewed during the 44th Conference of Asia/Pacific Directors General (44th DGCA Conference, October 2007) and the following action item was raised:

Action Item 44/1 **Resolution of Deficiencies**

Recognizing the adverse impact on safety, efficiency and regularity of air transport and noting the deliberations on elimination of deficiencies expressed in APANPIRG Conclusions 18/60 and 18/62, the Conference strongly urged the Asia Pacific States listed in the APANPIRG List of deficiencies to:

a) designate a contact officer to coordinate with ICAO Regional Office on matters related to deficiencies;

b) develop corrective action plans with fixed target dates for resolution of safety related deficiencies and inform the ICAO Regional Office;

c) collaborate in resolving of the safety related deficiencies according to the established action plans; and

d) consider utilizing the services of the ICAO Technical Cooperation Bureau and/or other suitable cooperative arrangements for rectification of deficiencies.

8.3 The meeting reviewed and noted the verbal updates to the List of Air Navigation Deficiencies in the ATM/AIS/SAR fields as updated by APANPIRG/18 and subsequently by the Regional Office based on feedback from States. The updated List is appended at **Appendix A** to the Report on Agenda Item 8. States were encouraged to continue to update the Regional Office as soon as deficiencies were resolved. The Secretariat encouraged States to formally advise the Regional Office by letter of the changes that had been verbally advised to the meeting.

8.4 The meeting noted Conclusion 18/59 in relation to West Pacific Small Island Developing States and that the Regional Office is liaising with the States to establish the current position before establishing a TCB project to provide direct assistance to these States.

Regional Database of Air Navigation Deficiencies in ASIA/PAC Region

8.5 In a paper presented by the Secretariat the meeting was informed that following on from ALLPIRG Conclusion 5/14 and APANPIRG Conclusion 17/53, APAPNPIRG/18 had adopted the following Conclusion:

Conclusion 18/58 -– ASIA/PACIFIC On-line Air Navigation Deficiency Data Base

That,

a) Asia/Pacific Air Navigation Deficiency Data Base be adopted and linked to the ICAO APAC web site; and

b) Regional Office provide secured access to the on-line Deficiency Data Base to all CAA and other authorities concerned within the ASIA/PAC States.

8.6 The main objective of the online database is to foster the resolution of the safety-related deficiencies through increased transparency and information sharing between the States, the international organizations and the users concerned. This is in line with the principle of transparency in the Global Safety Roadmap and the ICAO Global Aviation Safety Plan (GASP).

8.7 In the past, the APANPIRG list of Deficiencies had been made available only through the APANPIRG meeting reports. The new database will be available as a separate item, password protected, on the ICAO APAC web site and will be kept up-to-date by the Regional Office.

8.8 The meeting reviewed the functionality and technical specifications of the draft database. The database will be updated by the Regional Office based on information provided by States and users as per the procedures outlined in the Uniform Methodology and the Asia/Pacific Supplement. Examples of the data base reports are provided in **Appendix B** to the Report on Agenda Item 8.

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

(Changes proposed **after** APANPIRG/18 are shown in strikeout and underlining.) ***(last updated 27 June 2008)***

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
ATS Routes								
Requirements of Part VIII, Table ATS 1 of the Air Navigation Plan	India/Nepal	A473 - Not implemented	16/3/99	A new proposal was submitted in mid 2003 by Nepal. This is being coordinated by AAI with defense authorities.	India/Nepal - ~~implement the route~~ propose to delete A473 from BANP	India/Nepal	Item captured in Chapter 2 of the Route Catalogue. ATM/AIS/SAR/G/~~16 (June 2006)~~ 18 (June 2008) updated re progress.	B
	China	B591 - Partially implemented	22/7/97		China will consider future imeplementation.	China	Reviewed by ARNR/TF. Item captured in Chapter 2 of the Route Catalogue ATM/AIS/SAR/G/16 (June 2006) updated - route implemented in Shanghai FIR, however implementation is not in accordance with BANP, further implementation TBD	B
	Cambodia/Philippines/ Thailand/Viet Nam	G473 - Partially implemented	24/11/93	Co-ordination is in progress among States and ICAO.	~~ICAO~~ Cambodia/Philippines/ Thailand/Viet Nam - continue ~~implementation~~ co-ordination to propose deletion from BANP.	Cambodia /Philippines Thailand/Viet Nam~~/ICAO~~	Superceded by the re-structuring of the South China Sea (SCS) Route structure in 2001. Accordingly, SEACG/15 (May 2008, Bnagkok) was informed that Thailand and States concerned agreed with the deletion of G473.	B

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
	China/Kazakhstan	R216 - Not implemented	24/11/93	CAAC advises current route B215 KUQA A460 REVKI to Alma Ata meets the requirements for traffic from Urumqi to Alma Ata and requests deletion of R216 from BANP (14 Apr 03).	CAAC will coordinate with Kazakhstan to delete R216 from BANP.	China/Kazakhstan ICAO	Captured in Chapter 2 of the Route Catalogue.	B
	Cambodia/Lao PDR/Thailand	R345 - Not implemented. Under the coordination process.	24/11/93	Cambodia has advised that the requirement is no longer valid and will propose the deletion of requirement in consultation with Lao PDR and Thailand.	Cambodia- coordinate the deletion with IATA as well as Lao PDR and Thailand. Thailand - will implement in July 2008. AIP Supplement was issued.	Cambodia/Lao PDR/ Thailand	Item captured in Chapter 2 of the Route Catalogue.	B
	Indonesia	R459 - Implemented as W51 and W36	24/11/93	ICAO has requested Indonesia to implement as R459.	Indonesia, Singapore - consider implementation of the route with designator L504.	Indonesia/Singapore	To be implemented as L504. Target implementation date TBD	B

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
WGS-84								
Requirements of Paragraph 3.6.4 of Annex 15	Bhutan	WGS-84 - Not implemented	2/7/1999	Data conversion completed, but not published		Bhutan	TBD	A
	Cambodia	WGS-84 - Partially implemeted	28/6/2001	Cambodia reported ICAO on 22 June 2004 and ATM/AIS/SAR/SG/18 on 26 June 2008 that the WGS-84 coordinates had been implemented at international airports, airspace and international routing. Domestic airports and routes have not been implemented with WGS-84.		Cambodia	TBD	A
	China	WGS-84 - Not implemented * implemented in the Sanya FIR as of 1 Nov 2001	2/7/1999	Differences to Annex 15 - *Aeronautical Information Services* are notified		China	WGS 84 coordinates interim is in progress and planned to be completed in 2010. China reported ATM/AIS/SAR/SG/18 that WGS-84 Task force had been established and confirmed the target date of 2010.	A
	~~DPR Korea~~	~~WGS-84 - Not implemented~~				~~DPR Korea~~	~~2004~~ Completed	~~A~~
	Kiribati	WGS-84 - Not implemented				Kiribati	TBD	A
	Nauru	WGS-84 - Not implemented		Conferring with consultant		Nauru	TBD	A

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
	~~Philippines~~	~~WGS-84 – Implemented at international airports~~		~~on going~~		~~Philippines~~	Fully implemented and published in AIP as of January 2006.	~~A~~
	Solomon Islands	WGS-84 - Not implemented				Solomon Islands	1999	A
	Vanuatu	WGS-84 - Implemented at main airports	2/7/1999			Vanuatu	1999	A

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
Type of ATS								
Requirements of Part II, Table ATS 3D of the Air Navigation Plan	India	Some ATS route segments in part of Mumbai FIR are subject to Advisory Services	24/11/93	Co-ordination in progress through BBACG. HF radio being modernized and datalink being installed.	India - implement Area Control Services. India issued AIP Supplement 02/2008 to change class F to class E. AIP Supplement 08/2007 refers exceptional two routes. The Regional Office invited India to send a State letter.	India	ATM/AIS/SAR/G/16 (June 2006) updated CPDLC trial progressing well, CRA to be established soon, implementation of CPDLC will enable update to control services FL290-FL410. As of July 2007 CRA still not in place, consequent delay to datalink implementation.	A

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
Airspace Classification								
Requirements of Paragraph 2.6 of Annex 11	China	Airspace Classification - Not implemented	7/7/99		Difference to Annex 11 is published in AIP, China.	China	ATM/AIS/SAR/G/16 (June 2006) updated, planning in progress to divide into 4 classes of airspace, some differences to ICAO airspace classifications	A
	DPR Korea	Airspace Classification - Not implemented	7/7/99			DPR Korea	~~2005~~mid-2009	A
	Kiribati	Airspace Classifcation - Not implemented	7/7/99			Kiribati	TBD	A
	Nauru	Airspace Classification - Not implemented	7/7/99			Nauru	TBD	A
	Papua New Guinea	Airspace Classification - Not implemented	7/7/99			Papua New Guinea	Project in place	A
	Solomon Islands	Airspace Classification - Not implemented	7/7/99			Solomon Islands	TBD	A
	Viet Nam	Airspace Classificatio - Not implemented	7/7/99			Viet Nam	~~Expected completion 2007 (National Assembly adopted Civil Air Law on 29 June 2006, ATS regulations will be re-issued accordingly.)~~1Q 2009	A

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
AIP Format								
Requirements of Chapter 4 of Annex 15	Cook Islands	AIP Format - Not implemented	7/7/99			Cook Islands	ATM/AIS/SAR/G/16 (June 2006) updated - AIP COOK ISLANDS in new format in progress with assistance of New Zealand, effective date TBD	A
	Kiribati	AIP Format - Not implemented	7/7/99			Kiribati		A
	Nauru	AIP Format - Not implemented	7/7/99			Nauru		A
	Papua New Guinea	AIP Format - Not implemented	7/7/99	under development		Papua New Guinea	TBA	A

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
SAR capability								
Requirements of Annex 12	Cook Islands	Annex 12 requirements not implemented. No agreements with adjacent States.	31/1/95	SAR agreement with New Zealand under development	Cook Islands - implement Annex 12 requirements and co-ordinate LOA with adjacent States ICAO - assist to develop SAR capability and to co-ordinate with adjacent States	Cook Islands	2004	U
	Maldives	Annex 12 requirements not implemented. No agreements with adjacent States.	24/4/97	SAR services and facilites provided (details to be confirmed). SAR agreements with neighbouring States under development	Maldives - implement Annex 12 requirements and co-ordinate LOA with adjacent States ICAO - assist to develop SAR capability and to co-ordinate with adjacent States	Maldives	2004	U

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
Carriage of ACAS II								
Requirement of Chapter 6 of Annex 6	Bhutan	Annex 6 requirement not implemented.	26/8/05		Bhutan - implement Annex 6 as required.	Bhutan	TBD	U
	Cook Islands	Annex 6 requirement not implemented.	26/8/05		Cook Island - implement Annex 6 as required.	Cook Islands	TBD	U
	Kiribati	Annex 6 requirement not implemented.	26/8/05		Kiribati - implement Annex 6 as required.	Kiribati	TBD	U
	Marshall Islands	Annex 6 requirement not implemented.	26/8/05		Marshall Islands - implement Annex 6 as required.	Marshall Islands	TBD	U
	Micronesia	Annex 6 requirement not implemented.	26/8/05		Micronesia - implement Annex 6 as required.	Micronesia	TBD	U
	Nauru	Annex 6 requirement not implemented.	26/8/05		Nauru - implement Annex 6 as required.	Nauru	TBD	U
	Palau	Annex 6 requirement not implemented.	26/8/05		Palau - implement Annex 6 as required.	Palau	TBD	U
	Papua New Guinea	Annex 6 requirement not implemented.	26/8/05		Papua New Guinea - implement Annex 6 as required.	Papua New Guinea	TBD	U

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
	Philippines	Annex 6 requirement not implemented.	26/8/05		Philippines - implement Annex 6 as required.	Philippines	Rules and regulations regarding carriage of ACAS II already incorporated in ATO Administrative Order no 121 series of 2001 under section 12.356(a) and (b)	U
	Solomon Islands	Annex 6 requirement not implemented.	26/8/05		Solomon Islands - implement Annex 6 as required.	Solomon Islands	TBD	U
	Tonga	Annex 6 requirement not implemented.	26/8/05		Tonga - implement Annex 6 as required.	Tonga	TBD	U
	Vnuatu	Annex 6 requirement not implemented.	26/8/05	Pressure altitude reporting transponder required in all airspace since 1/1/00.	Vanuatu - implement Annex 6 as required.	Vanuatu	TBD	U

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
Carriage of Pressure Altitude Reporting Transponder								
Requirement of Chapter 6 of Annex 6	Bhutan	Annex 6 requirement not implemented.	26/8/05		Bhutan - implement Annex 6 as required.	Bhutan	TBD	U
	Cambodia	Annex 6 requirement not implemented.	26/8/05	ACAS II required in all airspace within FIR since 1/1/03.	Cambodia - implement Annex 6 as required.	Cambodia	TBD	U
	Cook Islands	Annex 6 requirement not implemented.	26/8/05		Cook Island - implement Annex 6 as required.	Cook Islands	TBD	U
	DPR Korea	Annex 6 requirement not implemented.	26/8/05	ACAS II required in all airspace within FIR since 1/1/01.	DPR Korea - implement Annex 6 as required.	DPR Korea	~~TBD~~2009	U
	New Caledonia	Annex 6 requirement not implemented.	26/8/05	ACAS II required in all airspace within FIR since 23/1/03.	New Caledonia - implement Annex 6 as required.	New Caledonia	TBD	U
	Kiribati	Annex 6 requirement not implemented.	26/8/05		Kiribati - implement Annex 6 as required.	Kiribati	TBD	U
	~~Lao PDR~~	~~Annex 6 requirement not implemented.~~	~~26/8/05~~	~~ACAS II required in all airspace within FIR since 1/1/03.~~	~~Lao PDR - implement Annex 6 as required.~~	~~Lao PDR~~	Competed	~~U~~
	Marshall Islands	Annex 6 requirement not implemented.	26/8/05	ACAS II required.	Marshall Islands - implement Annex 6 as required.	Marshall Islands	TBD	U
	Micronesia	Annex 6 requirement not implemented.	26/8/05		Micronesia - implement Annex 6 as required.	Micronesia	TBD	U
	Nauru	Annex 6 requirement not implemented.	26/8/05		Nauru - implement Annex 6 as required.	Nauru	TBD	U

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
	Palau	Annex 6 requirement not implemented.	26/8/05		Palau - implement Annex 6 as required.	Palau	TBD	U
	Papua New Guinea	Annex 6 requirement not implemented.	26/8/05		Papua New Guinea - implement Annex 6 as required.	Papua New Guinea	TBD	U
	Philippines	Annex 6 requirement not implemented. Implemented within TMA only.	26/8/05		Philippines - implement Annex 6 as required.	Philippines	TBD. Rules and regulations regarding carriage of pressure altitude reporting transponder already incorporated in ATO Administrative Order No 91, series of 2002 under section 91.215(a) & (b)	U
	Solomon Islands	Annex 6 requirement not implemented.	26/8/05		Solomon Islands - implement Annex 6 as required.	Solomon Islands	TBD	U
	Tonga	Annex 6 requirement not implemented.	26/8/05		Tonga - implement Annex 6 as required.	Tonga	TBD	U

AIR NAVIGATION DEFICIENCIES IN THE ATM/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
Non Provision of Safety-related Data								
Requirement of Paragraph 3.3.4.1 of Annex 11	~~Lao PDR~~	~~Annex 11 requirement not implemented.~~	~~21/8/06~~		~~Lao PDR - provide the safety-related data as required.~~	~~Lao PDR~~	~~TBD~~Completed	~~A~~
	Myanmar	Annex 11 requirement not implemented.	21/8/06		Myanmar - provide the safety-related data as required.	Mayanmar	TBD	U
	Papua New Guinea	Annex 11 requirement not implemented.	21/8/06		Papua New Guinea - provide the safety-related data as required.	Papua New Guinea	TBD	U
	Fiji	Annex 11 requirement not implemented.	21/8/06		Fiji - provide the safety-related data as required.	Fiji	TBD	U
	Tahiti	Annex 11 requirement not implemented.	21/8/06		Tahiti - provide the safety-related data as required.	Tahiti	TBD	U

APANPIRG List of Deficiencies (by AN field)

DEF AN Field	State	DEF ID	DEF Priority	DEF Type
AOP				
	India	AP-AOP-01	U	RWY
	Myanmar	AP-AOP-02	A	RWY
	Myanmar	AP-AOP-03	A	Aerodrome
	Myanmar	AP-AOP-04	A	RWY
	Nepal	AP-AOP-05	U	Aerodrome
	New Zealand	AP-AOP-06	U	RWY
	Philippines	AP-AOP-08	A	Aerodrome
ATM				
	Bangladesh	AP-ATM-50	U	Carriage of PART
	Bangladesh	AP-ATM-67	A	Non-provision of Safety-related Data
	Bhutan	AP-ATM-08	A	WGS-84
	Bhutan	AP-ATM-37	U	Carriage of ACAS II
	Bhutan	AP-ATM-51	U	Carriage of PART
	Cambodia	AP-ATM-04-1	B	ATS Routes
	Cambodia	AP-ATM-06-1	B	ATS Routes
	Cambodia	AP-ATM-09	A	WGS-84
	Cambodia	AP-ATM-52	U	Carriage of PART
	China	AP-ATM-02	B	ATS Routes
	China	AP-ATM-05-1	B	ATS Routes
	China	AP-ATM-10	A	WGS-84
	China	AP-ATM-18	A	Airspace Classification
	Cook Islands	AP-ATM-28	A	AIP Format
	Cook Islands	AP-ATM-35	U	SAR Capability
	Cook Islands	AP-ATM-38	U	Carriage of ACAS II
	Cook Islands	AP-ATM-53	U	Carriage of PART

DEF AN Field	State	DEF ID	DEF Priority	DEF Type
	New Caledonia	AP-ATM-56	U	Carriage of PART
	Palau	AP-ATM-44	U	Carriage of ACAS II
	Palau	AP-ATM-62	U	Carriage of PART
	Papua New Guinea	AP-ATM-24	A	Airspace Classification
	Papua New Guinea	AP-ATM-32	A	AIP Format
	Papua New Guinea	AP-ATM-45	U	Carriage of ACAS II
	Papua New Guinea	AP-ATM-63	U	Carriage of PART
	Papua New Guinea	AP-ATM-70	U	Non-provision of Safety-related Data
	Philippines	AP-ATM-04-2	B	ATS Routes
	Philippines	AP-ATM-14	A	WGS-84
	Philippines	AP-ATM-46	U	Carriage of ACAS II
	Philippines	AP-ATM-64	U	Carriage of PART
	Solomon Islands	AP-ATM-15	A	WGS-84
	Solomon Islands	AP-ATM-26	A	Airspace Classification
	Solomon Islands	AP-ATM-47	U	Carriage of ACAS II
	Solomon Islands	AP-ATM-65	U	Carriage of PART
	Thailand	AP-ATM-04-3	B	ATS Routes
	Thailand	AP-ATM-06-3	B	ATS Routes
	Tonga	AP-ATM-48	U	Carriage of ACAS II
	Tonga	AP-ATM-66	U	Carriage of PART
	Vanuatu	AP-ATM-16	A	WGS-84
	Vanuatu	AP-ATM-49	U	Carriage of ACAS II
	Viet Nam	AP-ATM-04-4	B	ATS Routes
	Viet Nam	AP-ATM-27	A	Airspace Classification
CNS				
	Myanmar	AP-CNS-01		VHF COM
MET				
	Cambodia	AP-MET-09	A	Service for operators and flight crew memb
	Cambodia	AP-MET-11	U	Meteorological Watch Office

Tuesday, August 21, 2007

DEF AN Field	State	DEF ID	DEF Priority	DEF Type
	Indonesia	AP-MET-03	A	Information for volcanic ash
	Indonesia	AP-MET-06	U	SIGMET (Volcanic Ash)
	Kiribati	AP-MET-02	A	MET Reports
	Lao PDR	AP-MET-12	U	SIGMET
	Myanmar	AP-MET-10	A	Service for operators and flight crew memb
	Myanmar	AP-MET-13	U	SIGMET
	Nepal	AP-MET-14	U	SIGMET
	Papua New Guinea	AP-MET-04	A	Information for volcanic ash
	Papua New Guinea	AP-MET-08	U	SIGMET (Volcanic Ash)
	Philippines	AP-MET-07	U	SIGMET (Volcanic Ash)
	Solomon Islands	AP-MET-01	A	MET Reports

APANPIRG List of Deficiencies (by State)

State	DEF ID	DEF AN Field	DEF Priority	DEF Type
Bangladesh				
	AP-ATM-50	ATM	U	Carriage of PART
	AP-ATM-67	ATM	A	Non-provision of Safety-related Data
Bhutan				
	AP-ATM-08	ATM	A	WGS-84
	AP-ATM-37	ATM	U	Carriage of ACAS II
	AP-ATM-51	ATM	U	Carriage of PART
Cambodia				
	AP-ATM-04-1	ATM	B	ATS Routes
	AP-ATM-06-1	ATM	B	ATS Routes
	AP-ATM-09	ATM	A	WGS-84
	AP-ATM-52	ATM	U	Carriage of PART
	AP-MET-09	MET	A	Service for operators and flight crew members
	AP-MET-11	MET	U	Meteorological Watch Office
China				
	AP-ATM-02	ATM	B	ATS Routes
	AP-ATM-05-1	ATM	B	ATS Routes
	AP-ATM-10	ATM	A	WGS-84
	AP-ATM-18	ATM	A	Airspace Classification
Cook Islands				
	AP-ATM-28	ATM	A	AIP Format
	AP-ATM-35	ATM	U	SAR Capability
	AP-ATM-38	ATM	U	Carriage of ACAS II

State	DEF ID	DEF AN Field	DEF Priority	DEF Type
	AP-ATM-58	ATM	U	Carriage of PART
	AP-ATM-68	ATM	A	Non-provision of Safety-related Data
	AP-MET-12	MET	U	SIGMET
Maldives				
	AP-ATM-36	ATM	U	SAR Capability
Marshall Islands				
	AP-ATM-41	ATM	U	Carriage of ACAS II
	AP-ATM-59	ATM	U	Carriage of PART
Micronesia				
	AP-ATM-42	ATM	U	Carriage of ACAS II
	AP-ATM-60	ATM	U	Carriage of PART
Myanmar				
	AP-AOP-02	AOP	A	RWY
	AP-AOP-03	AOP	A	Aerodrome
	AP-AOP-04	AOP	A	RWY
	AP-ATM-69	ATM	U	Non-provision of Safety-related Data
	AP-CNS-01	CNS		VHF COM
	AP-MET-10	MET	A	Service for operators and flight crew members
	AP-MET-13	MET	U	SIGMET
Nauru				
	AP-ATM-13	ATM	A	WGS-84
	AP-ATM-23	ATM	A	Airspace Classification
	AP-ATM-31	ATM	A	AIP Format
	AP-ATM-43	ATM	U	Carriage of ACAS II
	AP-ATM-61	ATM	U	Carriage of PART
Nepal				

State	DEF ID	DEF AN Field	DEF Priority	DEF Type
	AP-AOP-05	AOP	U	Aerodrome
	AP-ATM-01-2	ATM	B	ATS Routes
	AP-MET-14	MET	U	SIGMET
New Caledonia				
	AP-ATM-56	ATM	U	Carriage of PART
New Zealand				
	AP-AOP-06	AOP	U	RWY
Palau				
	AP-ATM-44	ATM	U	Carriage of ACAS II
	AP-ATM-62	ATM	U	Carriage of PART
Papua New Guinea				
	AP-ATM-24	ATM	A	Airspace Classification
	AP-ATM-32	ATM	A	AIP Format
	AP-ATM-45	ATM	U	Carriage of ACAS II
	AP-ATM-63	ATM	U	Carriage of PART
	AP-ATM-70	ATM	U	Non-provision of Safety-related Data
	AP-MET-04	MET	A	Information for volcanic ash
	AP-MET-08	MET	U	SIGMET (Volcanic Ash)
Philippines				
	AP-AOP-08	AOP	A	Aerodrome
	AP-ATM-04-2	ATM	B	ATS Routes
	AP-ATM-14	ATM	A	WGS-84
	AP-ATM-46	ATM	U	Carriage of ACAS II
	AP-ATM-64	ATM	U	Carriage of PART
	AP-MET-07	MET	U	SIGMET (Volcanic Ash)
Solomon Islands				

Tuesday, August 21, 2007

APANPIRG List of Air Navigation Deficiencies - Rev 08.2007

State	Thailand	DEF ID:	AP-ATM-04-3	DEF Priority:	B

DESCRIPTION OF THE DEFICIENCY

DEF Status:	Open
Date Reported:	11/24/1993
Reported by:	

DEF Type:	ATS Routes
DEF Req - ICAO Doc:	ANP Part VIII, Table ATS 1

Other States concerned:	Cambodia, Philippines, Viet Nam
DEF Description:	G473 - Partially implemented
DEF Remark:	Co-ordination is in progress among States and ICAO.

DESCRIPTION OF THE CORRECTIVE ACTION PLAN (CAP)

Status:	Open
CAP Submitted:	No
CAP Date:	

CAP Exec Body:	Thailand
CAP Target Date:	

Cor Act Recom ICAO:	
CAP Description State:	ICAO - continue implementation co-ordination.
CAP Monitoring:	Captured in Chapter 2 of the Route Catalogue.

Last Review:		**Date Removed:**	

Tuesday, August 21, 2007

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APANPIRG List of Air Navigation Deficiencies - Rev 08.2007

State	Thailand	DEF ID:	AP-ATM-06-3	DEF Priority:	B

DESCRIPTION OF THE DEFICIENCY

DEF Status:	Open
Date Reported:	11/24/1993
Reported by:	

DEF Type:	ATS Routes
DEF Req - ICAO Doc:	ANP Part VIII, Table ATS 1

Other States concerned:	Lao PDR, Cambodia
DEF Description:	R345 - Not implemented. Under the coordination process.
DEF Remark:	Cambodia has advised that the requirement is no longer valid and will propose the deletion of requirement in consultation with Lao PDR and Thailand.

DESCRIPTION OF THE CORRECTIVE ACTION PLAN (CAP)

Status:	Open
CAP Submitted:	No
CAP Date:	

CAP Exec Body:	Thailand
CAP Target Date:	

Cor Act Recom ICAO:	
CAP Description State:	Cambodia - coordinate the deletion with IATA as well as Lao PDR and Thailand "
CAP Monitoring:	Item captured in Chapter 2 of the Route Catalogue.

Last Review:		**Date Removed:**	

Tuesday, August 21, 2007

2:26:03 PM

AGENDA ITEM 9: UPDATE THE LIST OF ATM/AIS/SAR TASKS LIST

Agenda Item 9: Update the list of ATM/AIS/SAR Tasks together with priorities

ATM/AIS/SAR Task List

9.1 In accordance with the wishes of APANPIRG/17 the Secretariat had prepared a 'new format' task list for consideration by ATM/AIS/SAR/SG/17 in July 2007. However, following a review of the new format Task List it was rejected by ATM/AIS/SAR/SG/17. The meeting found the new format to be too cluttered and too high level, resembling a Key Priorities list rather than a working list intended to effectively support the implementation work programme of the Sub Group. Consequently, the Secretariat prepared a 'rewritten' task list for consideration by the Sub Group.

9.2 Following a review of the proposed Task list from the Secretariat, IATA expressed concern that because no working group had been established in some cases, some tasks on the Task List did not have a responsible party to ensure the allocated task was progressed. The Secretariat highlighted that the work groups held only the delegated "functional responsibility" in terms of the Task List and primary responsibility continued to lie with States, Regional Office, Airspace Users and International Organizations, as allocated for all items on the list.

9.3 The meeting recommended the adoption of the updated and 'rewritten' task list, as amended by the meeting, which is included as **Appendix A** to the Report on Agenda Item 9. In accordance with the decision of ATM/AIS/SAR/SG/17 the relevant Conclusions and Recommendations from ALLPIRG/5 and the 11th Air Navigation Conference (shown at **Appendices B and C,** respectively, to the Report on Agenda Item 9) are now included as attachments to the ATM/AIS/SAR/SG Task list for ease of reference.

Draft Decision SG/18/7 – ATM/AIS/SAR Task List

That, the ATM/AIS/SAR Sub-Group Task List and attachments contained in **Appendix A** to the ATM/AIS/SAR/SG/18 Report on Agenda Item 9 be adopted as the current work programme for the ATM/AIS/SAR Sub-Group of APANPIRG.

APANPIRG List of Key Priorities

9.4 The meeting recalled that the List of Key Priorities for the CNS/ATM implementation in the ASIA/PAC Region is regularly reviewed by APANPIRG and that the intention of the list is to facilitate CNS/ATM implementation programmes by highlighting matters that should be given priority for implementation.

9.5 In reviewing the List of Key Priorities, the meeting noted a disparity between the ATFM entry on the Task List and the ATFM entry in the Key Priorities List. Specifically, the entry *"f) assessment of economic and environmental impact of the implementation of the ATFM system"* that was included on the Sub Group Task List was not included on the List of Key Priorities. The meeting recommended that APANPIRG consider the inclusion of this text on the Key Priorities list and updated the list accordingly.

9.6 The meeting also noted the similarity between the subject matter covered by Key Priority 1 (PBN Implementation), Key Priority 5 (GNSS Implementation) and Key Priority 8 (Implementation of APV approaches) and requested that the CNS/MET/SG/10 review these three items with the objective of attempting to combine them into one Key Priority.

9.7 The updated list of Key Priorities for the CNS/ATM Implementation is included as **Appendix D** to the Report on Agenda Item 9.

ATM/AIS/SAR Sub Group of APANPIRG — TASK LIST

The priorities assigned in the list have the following connotation:

A = Tasks of a high priority on which work should be expedited; and
B = Tasks of a medium priority on which work should be undertaken as soon as possible but not to the detriment of Priority "A" tasks.

(last updated 27 June, 2008)

ACTION ITEM & PRIORITY	GLOBAL PLAN INITIATIVE	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
18/1 **Priority A**	GPI-5 Performance based navigation GPI- 8 Collaborative airspace design and management	**ATS Routes** a) Identify ATS route requirements and monitor progress of route implementation in APAC Region b) Coordinate implementation of new ATS routes in accordance with the requirements of both States and airspace users c) Maintain Asia/Pacific ATS Route Catalogue on ICAO Regional Office website	ONGOING	States, Airspace Users, Regional Office **Functional Responsibility:** TRASAS CMRI BBACG SEACG ISPACG IPACG ASIOACG IIOACG	OPEN	ATS Routes included as standing agenda item on ATS Coordination Group agendas

ACTION ITEM & PRIORITY	GLOBAL PLAN INITIATIVE	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
18/2 **Priority A**	GPI-5 Performance based navigation GPI-8 Collaborative airspace design and management	**ATS route implementation based on PBN Concepts** *South East Asia* Conduct ATS route implementations in collaboration with stakeholders based on the Regional PBN Implementation Plan agreed by APANPIRG, to improve en-route airspace efficiency by means of reduced horizontal separation (lateral and longitudinal) based on PBN provisions.	2010	States of South East Asia, Regional Office **Functional Responsibility:** RNP-SEA/TF for SCS, no other working group established	OPEN	RNP-SEA/TF implementing 50/50NM on L642 & M771 on 2/3 July 2008
18/3 **Priority A**	GPI-5 Performance based navigation GPI-8 Collaborative airspace design and management	**ATS route implementation based on PBN Concepts** *Bay of Bengal* Conduct ATS route implementations in collaboration with stakeholders based on the Regional PBN Implementation Plan agreed by APANPIRG, to improve en-route airspace efficiency by means of reduced horizontal separation (lateral and longitudinal) based on PBN provisions.	2010	States of Bay of Bengal, Regional Office **Functional Responsibility:** No working group established	OPEN	EMARSSH Routes in Nov 2002 BBACG/19 & FIT-BOB/9 adopted 2009 as target for 50 NM longitudinal

ACTION ITEM & PRIORITY	GLOBAL PLAN INITIATIVE	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
18/4 **Priority A**	GPI-5 Performance based navigation GPI-8 Collaborative airspace design and management	**ATS route implementation based on PBN Concepts** *Pacific Area (including North Pacific)* Conduct ATS route implementations in collaboration with stakeholders based on the Regional PBN Implementation Plan agreed by APANPIRG, to improve en-route airspace efficiency by means of reduced horizontal separation (lateral and longitudinal) based on PBN provisions.	2010	States of North Pacific, Central and South Pacific, respectively, Regional Office **Functional Responsibility:** No working group established	OPEN	50 NM longitudinal implemented North Pacific in 2008 30/30 NM (RNP4) implemented Honiara, Nauru, Brisbane, Nadia Auckland Oceanic FIRs in January 2005 30/30 NM Operational trial Oakland FIR commenced 2007, will commence Fukuoka FIR from August 2008, Anchorage FIR late 2008

ACTION ITEM & PRIORITY	GLOBAL PLAN INITIATIVE	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
18/5 **Priority A**	GPI-5 Performance based navigation GPI-8 Collaborative airspace design and management GPI-10 Terminal area design and management, GPI-11 RNP and RNAV Standard Instrument Departures (SIDs) and Standard Terminal Arrivals (STARs) GPI-12 Flight Management System (FMS) – based arrival procedures	**<u>Terminal Area implementation based on PBN Concept</u>** Implement ICAO Performance Based Navigation (PBN) provisions for terminal area operations in collaboration with stakeholders based on the Regional PBN Implementation Plan agreed by APANPIRG, to improve terminal area efficiency by use of advanced navigation specifications for SIDs, STARs and instrument approach procedures.	In accordance with Regional & State PBN Plans for 2008-2010 and 2010-2012	States, Users, Regional Office **Functional Responsibility:** PBN/TF to prepare implementation n plan, no other working group established	OPEN	

ACTION ITEM & PRIORITY	GLOBAL PLAN INITIATIVE	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
18/5 **Priority A**	GPI-6 Air traffic flow management GPI-8 Collaborative airspace design and development GPI-16 Decision support and alerting system	**<u>Implement Air Traffic Flow Management</u>** States to consider and implement aspects of air traffic flow management (ATFM) including: a) centralized ATFM b) inter-regional cooperative ATFM; c) establishment of ATFM databases; d) application of strategic ATFM planning; and e) application of tactical ATFM planning f) assessment of economic and environmental impact of the implementation of the ATFM system.	2012	States, Users, Regional Office ATM/AIS/SAR/SG APANPIRG **Functional Responsibility:** ATFM/TF for Bay of Bengal, no other working group established	OPEN	Bay of Bengal ATFM/TF active since 2005 Bay of Bengal implemented BOBCAT 5 July 2007
18/7 **Priority A**	GPI-2 Reduced vertical separation minima	**<u>RVSM Implementation</u>** a) Plan for and facilitate implementation of RVSM, as appropriate, in the Asia/Pacific Region b) Address concerns in relation to the modified single alternate FLOS in the SCS and interfaces with surrounding single alternate FLOS.	2009 2008	RVSM/TF States, Regional Office **Functional Responsibility:** RVSM/TF **Functional Responsibility:** WPAC/SCS RSG	OPEN OPEN	RVSM Implementation Task Force active since 2008. China sovereign airspace implementation 21 November 2007. Ulaanbaatar and Pyongyang FIRs not yet implemented, RVSM implemented throughout remainder of remainder of Asia/Pacific Amended flight level arrangements will be implemented in WPAC/SCS area on 2/3 July 2008 by Scrutiny Group

ACTION ITEM & PRIORITY	GLOBAL PLAN INITIATIVE	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
18/8 **Priority A**	None applicable	**Identify and manage Deficiencies in the ATM, AIS and SAR fields** a) Develop and maintain Deficiencies list, b) Identify unimplemented items in the BANP, c) Assist States to correct deficiencies, d) Promote timely resolution of safety-critical items identified by APANPIRG	ONGOING	States, Users, International Organisations, Regional Office, ATM/AIS/SAR/SG APANPIRG **Functional Responsibility:** No working group established	OPEN	ALLPIRG/5 (March 2006) raised Conclusion 5/15 in respect of "Last Resort" action to resolve deficiencies
18/10 **Priority A**	None applicable	**Regional ATM Contingency Planning** Prepare ATM Contingency Plans based on model (Indonesia) adopted by APANPIRG/17. Coordinate with neighbouring States to prepare plans	2010	States, Regional Office, **Functional Responsibility:** No working group established	OPEN	Send copies of ATM Contingency Plans to Regional Office

ACTION ITEM & PRIORITY	GLOBAL PLAN INITIATIVE	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
18/6 **Priority B**	GPI-18 Aeronautical information	**Implement AIS enhancements** a) Develop AIS implementations plans for introduction of AIS quality systems and AIS databases and consider issues arising from the use of public internet for AIS; b) Study means of aeronautical data management by civil aviation authorities and/or ATS providers in other regions including the aeronautical information exchange model (AIXM) and the electronic AIP (eAIP), and consider the feasibility in making use of these methods/models in the Asia/Pacific Region; c) Develop Regional AIS Automation Plan, training material and conduct workshops on the Guidance Manual for AIS in the Asia/Pacific Region	2012	States, Users, Regional Office **Functional Responsibility:** AITF	OPEN	AIS Implementation Task Force (AITF) is active since March 2006
18/9 **Priority B**	None applicable	**SAR Matters** Assist appropriate provision of SAR facilities, services and procedures within the Asia Pacific Region by: a) Periodic review of SAR facilities, services and procedures in the region, b) Encourage States to delegate or negotiate SAR services, c) Asia/Pacific "SAR Capability Matrix" be kept up to date and distributed to States for information and action., d) Asia/Pacific "Register of SAR Agreements" be kept up to date and distributed to States for information and action	ONGOING	States, Regional Office, ATM/AIS/SAR/SG APANPIRG **Functional Responsibility:** No working group established	OPEN	States to update the ATM/AIS/SAR/SG each year to permit the periodic update of the SAR Capability Matrix and Register of SAR Agreements.

ACTION ITEM & PRIORITY	GLOBAL PLAN INITIATIVE	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
18/11 **Priority B**	As appropriate	**APANPIRG Key Priorities** Regularly review APANPIRG List of Key Priorities for implementation of CNS/ATM systems for the Asia/Pacific region, identify new items as required, encourage and monitor implementation	ONGOING	States, Regional Office, Airspace Users, International Organisations ATM/AIS/SAR/SG **Functional Responsibility:** No working group established	OPEN	
18/12 **Priority B**	As appropriate	**ALLPIRG/5 Actions** Study and take appropriate action on ALLPIRG/5 Conclusions 5/2, 5/4, 5/5, 5/7, 5/8, 5/9, 5/11 and 5/13. in accordance with APANPIRG Decision 17/1	ONGOING	States, Regional Office, Airspace Users, International Organisations ATM/AIS/SAR/SG **Functional Responsibility:** No working group established	OPEN	
18/13 **Priority B**	As appropriate	**Eleventh Air Navigation Conference Actions** Study and implement recommendations 1/1, 1/10, 1/13, 4/1, 4/2, 6/11 and 7/1 of AN-Conf/11	ONGOING	States, Regional Office, Airspace Users, International Organisations ATM/AIS/SAR/SG **Functional Responsibility:** No working group established	OPEN	

ACTION ITEM & PRIORITY	GLOBAL PLAN INITIATIVE	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
18/14 **Priority A**	GPI-5 Performance based navigation GPI-9 Situational awareness GPI-11 RNP and RNAV Standard Instrument Departures (SIDs) and Standard Terminal Arrivals (STARs) GPI-17 Implementation of data link applications	**<u>Amendments to ICAO Flight Plan</u>** Review Amendment 1 to the Fifteenth Edition of the PANS ATM (Doc 4444, effective 15 November 2012) to identify implementation complexities and consequent regional implementation plans and strategies arising from the adoption of amended PANS ATM provisions relating to the ICAO Flight Plan and associated ATS Message formats.	2010	States, Regional Office, Airspace Users, International Organisations ATM/AIS/SAR/SG **Functional Responsibility:** FPL&AM/TF	OPEN	

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FOLLOW-UP BY ATM/AIS/SAR Sub Group ON CONCLUSIONS OF ALLPIRG/5 (March 2006)

ALLPIRG/5 Conclusions	Relationship with Strategic Objective & Global Plan Initiatives (GPIs)	Follow-up task	Follow-up to be initiated by
Conclusion 5.2 — Implementation of Global Plan Initiatives (GPIs)			
That, recognizing that the evolution continues from a systems-based to a performance-based approach to planning and implementation of the air navigation infrastructure, the regional planning groups:	Increases efficiency (Strategic objective D) Relates to all GPIs		
a) note that the Global Plan is a significant component in the development of regional and national plans and that, together with the global ATM operational concept, provide an effective architecture for achieving a harmonized and seamless Global ATM system;		Note that the Global Plan is a significant component in the development of regional and national plans	APANPIRG, States and international organizations
b) identify GPIs that most closely align with the well established implementation plans of their respective regions;		Identify GPIs that most closely align with the implementation plans of their respective regions	APANPIRG, States and international organizations
c) select GPIs that would be most effective in achieving the objectives of the region while ensuring continuation of the work already accomplished;		Select GPIs that would be most effective in achieving the objectives of the region	APANPIRG, States and international organizations
d) implement GPIs that take into account the Initiatives across regions, to align work programmes and to develop national and regional plans that facilitate achieving a Global ATM system;		Implement GPIs in the development of national and regional plans	APANPIRG, States and international organizations
e) utilize the planning tools as the common planning and implementation mechanism, thereby ensuring proper coordination and global integration; and		Utilize the planning tools as the common planning and implementation mechanism	APANPIRG, States and international organizations
f) review, at each PIRG meeting as a part of its regular agenda, the progress achieved and challenges identified in the implementation of GPIs using a common template.		Review, at each PIRG meeting as a part of its regular agenda, the progress achieved and challenges identified in the implementation of GPIs	APANPIRG

ALLPIRG/5 Conclusions	Relationship with Strategic Objective & Global Plan Initiatives (GPIs)	Follow-up task	Follow-up to be initiated by
Conclusion 5/4 — Application of the business case model for CNS/ATM systems implementation			
That PIRGs, States and airspace users:	Increases efficiency (Strategic objective D) Relates to all GPIs		
a) note that business cases for the implementation of CNS/ATM systems leading to a global ATM system is a key element in the development of regional, subregional and national plans;		Note that business cases for the implementation of CNS/ATM systems is a key element in the development of regional, subregional and national plans	APANPIRG, States and international organizations
b) consider the application of the model for the development of business cases in the formulation of national and subregional plans with a view to facilitating the achievement of a global ATM system; and		Apply the model for the development of business cases in the formulation of national and subregional plans	APANPIRG, States and international organizations
c) establish, with ICAO's assistance and within the limits of the programme budget, a network of experts on cost-effectiveness, cost-benefit analyses and business cases for the implementation of CNS/ATM systems in order to share expertise and to provide assistance to the Regional Offices.		Establish a network of experts on cost-effectiveness, cost-benefit analyses and business cases for the implementation of CNS/ATM systems	ICAO Headquarters
Conclusion 5/5 — ICAO Global air navigation plan (ANP) database and geographic information system (GIS) portal			
Recognizing that access to an ICAO Global ANP database and associated planning services through an web-based ICAO GIS portal would constitute an invaluable tool in supporting, integrating and monitoring the planning and implementation of harmonized regional, interregional and global air navigation infrastructures, the regional planning groups:	Increases efficiency (Strategic objective D) Relates to all GPIs		
a) note the progress made by the Secretariat in accordance with Recommendation 1/14 of AN-Conf/11 and the ICAO Global ANP database;		Note the progress made in the development of ICAO Global ANP database	APANPIRG, States and international organizations

ALLPIRG/5 Conclusions	Relationship with Strategic Objective & Global Plan Initiatives (GPIs)	Follow-up task	Follow-up to be initiated by
b) note the ongoing efforts by the Secretariat in harmonizing formats of all the ANP tables together with the inclusion of temporal information in the tables that would assist the regional planning groups in monitoring and analysing the implementation progress;		Harmonize formats of all the ANP tables	ICAO Headquarters
c) note the intent to expand the ANP tables to include Global Plan Initiatives (GPIs), as appropriate; and		Include GPIs in the ANP tables	ICAO Headquarters
d) utilize, through the ICAO GIS portal, the ICAO Global ANP database and associated planning services so as to ensure the currency, coordination and implementation of regional air navigation planning and to contribute to the further development of air navigation plans as the framework for the efficient implementation of new air navigation systems and services at the national, regional, interregional and global levels.		Utilize the ICAO Global ANP database and associated planning service	APANPIRG, States and international organizations
Conclusion 5/7 — Environmental benefits of CNS/ATM systems			
That PIRGs and States: a) use the Committee on Aviation Environmental Protection (CAEP) provided CO_2 conversion factor in the analysis of environmental benefits of implementing CNS/ATM systems;	Minimizes environmental impact (Strategic objective C)	Use the CAEP provided CO2 conversion factor in the analysis of environmental benefits of implementing CNS/ATM systems	APANPIRG, States and international organizations
b) prioritize the implementation of voluntary, operationally-based improvements in their air traffic management systems, with emphasis on fuel savings, emissions reductions and noise benefits, and also to mitigate costs to the industry;		Prioritize the implementation of voluntary, operationally-based improvements in their air traffic management systems	APANPIRG, and States
c) provide feedback to ICAO on studies conducted on the environmental benefits of implementing CNS/ATM systems; and		Provide feedback to ICAO on studies conducted on the environmental benefits of implementing CNS/ATM systems	APANPIRG, States and international organizations
d) share air traffic data to improve future CAEP assessments, in line with State letter AN 1/17-03/86.		Share traffic data with CAEP	APANPIRG, States and international organizations

ALLPIRG/5 Conclusions	Relationship with Strategic Objective & Global Plan Initiatives (GPIs)	Follow-up task	Follow-up to be initiated by
Conclusion 5/8 — Globally coordinated air traffic services (ATS) routes			
That PIRGs: a) establish a global consolidated, prioritized list of routes and terminal area (TMA) improvements in close coordination with airspace users; and	Increases efficiency (Strategic objective D) Relates to GPI 7	Establish a global consolidated, prioritized list of routes and terminal area (TMA) improvements	APANPIRG and States
b) work with neighbouring PIRGs/States/air navigation service providers (ANSPs) to accelerate international route improvements.		Work with neighbouring PIRGs/States/ANSPs to accelerate international route improvements	APANPIRG and States
Conclusion 5/9 — Terminal area (TMA) structure and area navigation			
That States: a) employ area navigation in all TMAs, including appropriate arrival and departure procedures, to improve efficiency and reduce emissions in the vicinity of airports; and that, in special cases where there are particularly challenging obstacles and where air traffic density is very high and additional approach paths are possible, the more precise and contained required navigation performance (RNP) procedures be employed; and	Increases efficiency (Strategic objective D) Relates to GPI 5	Employ area navigation in all TMAs, including appropriate arrival and departure procedures	States
b) review operations, procedures and training of controllers to ensure the optimum management of air traffic services.		Review operations, procedures and training of controllers to ensure the optimum management of air traffic services	States
Conclusion 5/11 — Air traffic management (ATM) safety management			
That ICAO: a) urge States to give priority to the establishment and effective operation of their ATM safety management and safety regulatory functions;	Increases safety (Strategic objective A)	Give priority to the establishment and effective operation of their ATM safety management and safety regulatory functions	States

ALLPIRG/5 Conclusions	Relationship with Strategic Objective & Global Plan Initiatives (GPIs)	Follow-up task	Follow-up to be initiated by
b) support the development of sufficient expertise levels in the industry through formal training in ATM safety issues and, by cooperation through regional bodies, promote collective means to optimize the effectiveness of training provision; and		Develop formal training in ATM safety issues	States
c) develop further measures to enable the implementation of a "just-culture" reporting environment to facilitate the reporting of ATM occurrences.		Implement a "just-culture" reporting environment to facilitate the reporting of ATM occurrences	States
Conclusion 5/13 — Implementation of performance-based navigation concept			
That, to increase awareness and understanding of the performance-based navigation concept and its elements:	Increases efficiency (Strategic Objective D) Relates to GPI 5		
a) ICAO organize workshops and training activities; and		Organize workshops and training activities through the SIP mechanism	ICAO Headquarters
b) where area navigation (RNAV) or required navigation performance (RNP) implementations are required, these will be implemented by PIRGs and States according to the performance-based navigation concept.		Implement performance-based navigation concept	APANPIRG, States and international organizations

— END —

RECOMMENDATIONS OF AN-CONF/11
FOLLOW-UP ACTIONS BY ICAO/PIRGs/STATES/INTERNATIONAL ORGANIZATIONS (IOs)

	RECOMMENDATION		ACTION	
	#	ITEM	BY ICAO/PIRGs/ STATES/IOs	ACTION/TASKS
AGENDA ITEM 1: INTRODUCTION AND ASSESSMENT OF A GLOBAL AIR TRAFFIC MANAGEMENT (ATM) OPERATIONAL CONCEPT				
1	**1/1**	**Endorsement of the global ATM operational concept** That:		
		a) ICAO, States and planning and implementation regional groups (PIRGs), consider the global ATM operational concept as the common global framework to guide planning for implementation of ATM systems and to focus all ATM development work;	PIRGs/States/ IOs	re (a) and (b): Consider the global ATM operational concept as the common global framework and use as guidance for the planning and implementation of CNS/ATM systems.
		b) the global ATM operational concept be used as guidance for development of ICAO CNS/ATM related provisions;	PIRGs/States/ IOs	
		c) States with the support of the other members of the ATM community undertake work to validate the seven components in the global ATM operational concept;	States/IOs	Validate the seven components in the global ATM operational concept.
		d) ICAO, States and PIRGs develop transition strategies for implementation of ATM systems based on the global ATM operational concept; and	PIRGs/States	Develop transition strategies based on the global ATM operational concept.
		e) ICAO align its technical work programme to facilitate future work related to the global ATM operational concept	ICAO	Secretary General to align its technical work accordingly.

	RECOMMENDATION		ACTION	
	#	ITEM	BY ICAO/PIRGs/ STATES/IOs	ACTION/TASKS
10	**1/10**	**Status of the *Global Air Navigation Plan for CNS/ATM Systems* (Doc 9750)** That States and planning and implementation regional groups (PIRGs) consider the *Global Air Navigation Plan for CNS/ATM Systems* (Doc 9750) as a catalyst for change, providing a global safety and interoperability framework while allowing regional or local adaptation to efficiently meet regional and local needs.	PIRGs/States/ IOs	To note the intent of the recommendation.
13	**1/13**	**Harmonization of air navigation systems** That ICAO and the ATM community explore the possibility of developing a mechanism for implementing the interregional interface applications with a view to facilitating the harmonized implementation of air navigation systems giving rise to a global ATM system in an evolutionary fashion.	PIRGs/States/ IOs	To identify interface issues and address them through appropriate interregional mechanism.

	RECOMMENDATION		ACTION	
	#	ITEM	BY ICAO/PIRGs/ STATES/IOs	ACTION/TASKS
AGENDA ITEM 4: CAPACITY-ENHANCEMENT MEASURES				
29	**4/1**	**Harmonization of air navigation systems between regions** That ICAO:		
		a) maintain, and develop further, a coordination mechanism between regions for planning and implementation of capacity-enhancing measures and ATM performance improvement between regions for a harmonized evolution aimed at enhancing aviation efficiency and safety;	ICAO/PIRGs	Develop further, a coordination mechanism between regions for a harmonized evolution aimed at enhancing aviation efficiency and safety.
		b) be systematically involved in any regional initiatives aiming at enhancing ATM capacity and performance; and	ICAO	Noted.
		c) urge States, who have not already done so, to establish national CNS/ATM coordination and implementation committees, with a point of contact to be made known to the respective ICAO Regional Office, so as to facilitate harmonized transition to CNS/ATM systems.	States	Establish national CNS/ATM coordination and implementation committees, with a point of contact to be made known to the respective ICAO Regional Office.
30	**4/2**	**Investigation of performance-driven planning and implementation methods** That States study the approach to planning and implementation commonly adopted by European States, with a view to the possible application of its elements in their respective regions.	PIRGs/States	Study the approach to planning and implementation commonly adopted by European States, with a view to the possible application of its elements.

	RECOMMENDATION		ACTION	
	#	ITEM	BY ICAO/PIRGs/ STATES/IOs	ACTION/TASKS
AGENDA ITEM 6: AERONAUTICAL NAVIGATION ISSUES				
51	**6/11**	**Amendment to the Global Plan — Navigation** That:		
		a) the *Global Air Navigation Plan for CNS/ATM Systems* (Doc 9750) be amended as shown in Appendix C to the report on Agenda Item 6; and	ICAO	Requested the Secretary General to take appropriate action.
		b) updated CNS/ATM systems implementation time lines contained in Part II of the Global Plan be reviewed by the Regional Implementation Group and consolidated for incorporation in the next edition of the Global Plan.	PIRGs	Update CNS/ATM systems implementation time lines contained in Part II of the Global Plan.
AGENDA ITEM 7: AERONAUTICAL AIR-GROUND AND AIR-TO-AIR COMMUNICATIONS				
57	**7/1**	**Strategy for the near-term introduction of ADS-B** That States:		
		a) note that a common element in most of the approaches currently adopted for early implementation of ADS-B is the selection of the SSR Mode S extended squitter as the initial data link; and	PIRGs/States	To note.
		b) take into account this common element to the extent possible in their national and regional implementation choices in order to facilitate global interoperability for the initial introduction of ADS-B.	PIRGs/States	Take into account this SSR Mode S extended squitter as a common element in their national and regional implementation choices for the initial introduction of ADS-B.

KEY PRIORITIES FOR CNS/ATM IMPLEMENTATION IN THE ASIA/PACIFIC REGION

No.	KEY PRIORITIES	DESCRIPTION	MILESTONES	SUB-GROUP	STATUS	DISCUSSION/ACTION
1.	Performance Based Navigation (RNP/RNAV) Implementation ***[Note: ATM/AIS/SAR/SG/18 request CNS/MET/SG/10 to consider combining items 1, 5 and 8]***	Implement performance based navigation, operation and procedures to improve the efficiency and flexible use of airspace.	Report to APANPIRG	ATM/AIS/SAR CNS/MET	On-going Phased implementation.	Reflect performance based navigation, not just RNP.
2.	ADS-C	The implementation of ADS-C in oceanic or remote areas in accordance with the Regional CNS/ATM Plan is required for the enhancement of safety and ATM.	Report to APANPIRG FIT-BOB reconvened September 2003. Bay of Bengal operational trial of ADS/CPDLC commenced February 2004, trial on going. FIT-SEA inaugural meeting May 2004. South China Sea operational trial of ADS/CPDLC expected 2006/2007.	ATM/AIS/SAR	Phased implementation. Implementation focus and timetable need to be developed. States are gaining experience in the use of ADS-C.	

No.	KEY PRIORITIES	DESCRIPTION	MILESTONES	SUB-GROUP	STATUS	DISCUSSION/ACTION
3.	Co-operation in Regional CNS/ATM Planning, Implementation & Training.	The continuation and enhancement of ICAO's co-ordinating role of technical co-operation in CNS/ATM planning and implementation, in close co-operation with all partners and taking into account the regional approach, is required.	Report to APANPIRG	All	Sub-Groups to identify requirements.	Emphasis needs to be on sharing information and training. Title 'Technical Co-operation" is confusing with assistance programs. Need to inform States of opportunities for training well in advance of scheduled date. Training opportunities should include ICAO programs as well as associated organizations programs. ATN Seminar was conducted. Two ADS-B Seminars were conducted QMS Seminar SAIDS-2G MET/ATM Coordination Seminars were conducted PBN Seminar was conducted in Beijing by ICAO

No.	KEY PRIORITIES	DESCRIPTION	MILESTONES	SUB-GROUP	STATUS	DISCUSSION/ACTION
~~4.~~	Preparation for WRC-2011	The co-operative participation of States is required with their respective telecommunications regulatory authorities, regional groups, at the APT forums and at the WRC regional preparatory meetings for WRC-2011 to ensure that aviation spectrum requirements are fulfilled and protected.	WRC-2007	All	States are designating contact points responsible for preparation for WRC 2011 and are providing contact details for posting on the website to facilitate coordination.	High importance task. Spectrum must be available to enable CNS/ATM implementation. Of the 35 States 31 States have nominated the focal point of contact
5.	GNSS Implementation • GBAS • SBAS ***[Note: ATM/AIS/SAR/SG/18 request CNS/MET/SG/10 to consider combining items 1, 5 and 8]***	To implement GNSS in accordance with the Asia Pacific Regional Strategy. Facilitate market available GBAS ground system *(CAT I)* certified to Annex 10 SARPs.	On-going 2008	CNS/MET	SBAS receivers - (TSO C145/6) now available Lead aircraft with certified GBAS avionics now in service.	Strategy for Approach, Landing and Departure identified GBAS as a preferred CAT I option. No ground equipment is available that is certified to Annex 10 SARPs.

No.	KEY PRIORITIES	DESCRIPTION	MILESTONES	SUB-GROUP	STATUS	DISCUSSION/ACTION
6.	MET support for the new CNS/ATM System.	To identify the ATM requirements for new MET products supporting CNS/ATM systems and update the plan accordingly.	2006	CNS/MET	MET/ATM TF has surveyed the new requirements and is preparing an update for the MET chapter of the ASIA/PAC Regional Plan for the New CNS/ATM Systems. MET/ATM coordination seminar was conducted 8-10 February 2006.	MET/ATM coordination seminar provided information for updating the Regional Plan
		Implementation of the transition to GRIB and BUFR coded WAFS products	2006		GRIB coded products have been implemented. BUFR coded SIGWX charts are being implemented with the deadline for implementation 30 Nov 2006	
7.	ADS-B	Operational Standards to support proposed separation standards.	2006	ADS-B Task Force	Progressed by Task Force in AIGD and completed by SASP & OPLINK. Doc4444 being amended.	Focus on activities to enable successful ADS-B OUT implementation. Roll-out of ADS-B considered an on-going activity.
		Airline aircraft certificated to participate in ADS-B operations.	2006	ADS-B Task Force	Lead aircraft certified for initial ADS-B OUT operation	
		Avionic packages available to meet GA and low capacity operations.	2006	ADS-B Task Force	Avionics package to meet GA & low capacity operation is available.	

No.	KEY PRIORITIES	DESCRIPTION	MILESTONES	SUB-GROUP	STATUS	DISCUSSION/ACTION
8.	Implementation of APV and RNAV (GNSS) Approaches. ***[Note: ATM/AIS/SAR/SG/18 request CNS/MET/SG/10 to consider combining items 1, 5 and 8]***	Review applicability of APV and RNAV (GNSS) Approach Design Standards, aircraft certification and augmentation system availability for Asia Pacific. Develop implementation strategy.	2006 2007	CNS/MET ATM/AIS/SAR	APV and RNAV (GNSS) Design standards now in PANS OPS. Aircraft certified for RNAV (GNSS) and APV approaches.	Completed ATM/AIS/SAR/SG to consider operational issues including charting.
9.	Data Link Flight Information Services (DFIS) applications	To implement the following applications via request/response mode of data link in the Asia and Pacific Regions: a) Data link –automatic terminal information services (D-ATIS); b) VOLMET data link service (D-VOLMET); c) Pre-Departure Clearance (PDC) delivery via data-link; d) DCL	2008	ATM/AIS/SAR CNS/MET	Trials and demonstrations are conducted and some operational services are provided by States.	Implementation of D-ATIS is progressing Expected to be implemented at all locations except one by 2008 PDC implemented at several locations

No.	KEY PRIORITIES	DESCRIPTION	MILESTONES	SUB-GROUP	STATUS	DISCUSSION/ACTION
10.	Safety Management Systems.	States to establish national safety management systems and effective application of safety programmes which are required for the provision of air traffic services. Required monitoring services available to support operational enhancements.		ATM/AIS/SAR RASMAG RASMAG	Annex 11 provisions effective 27 November 2003. On-going RASMAG activities. Operational enhancements suspended where effective monitoring is not available.	
11.	Air Traffic Flow Management.	States to consider and implement aspects of air traffic flow management (ATFM) including: a) centralized ATFM b) inter-regional cooperative ATFM; c) establishment of ATFM databases; ~~d)~~ application of strategic ATFM planning; ~~and~~ e) application of tactical ATFM planning; and f) assessment of economic and environmental impact of the implementation of the ATFM system.	2006	ATM/ ATIS/ SAR	On going	

AGENDA ITEM 10: ANY OTHER BUSINESS

Agenda Item 10: Any other business

Signature Ceremony

10.1 A short "Signature Ceremony" was conducted during the meeting for the purposes of signing the amended "Letter of Agreement for Monitoring of Aircraft Navigation Errors in the South China Sea". Representatives from 7 of the 8 parties involved – being China, Hong Kong China, Indonesia, Philippines, Singapore, Thailand and Viet Nam jointly signed copies of the LOA. As the appropriate official from Malaysia had been unable to attend the meeting, Singapore would ensure that the 8 signed copies of the LOA were carried to Malaysia for the last signature and would then make arrangements for one signed copy of each LOA to be forwarded to the other signatories. A PDF copy of the signed agreement would also be provided to the Regional Office.

Jeppesen AIS presentation

10.2 Jeppesen made a presentation to the meeting (**Appendix A** to the Report of Agenda Item 10 refers) in relation to the responsibilities of commercial AIS Service providers in the aeronautical data chain. The presentation highlighted the extensive works that were required in the extremely tight timeframes provided for by the AIRAC system. Receipt of the AIS product (e.g. AIC, AIP Supplement) from a State started a work process that had to ensure that, for example, airborne navigation databases were updated with the new information prior to the effective date. State compliance with Annex 15 AIRAC provisions was critical and support from States was sought in this regard.

FIR Boundary change – Oakland, Manila, Ujung Pandang

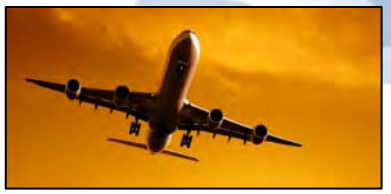
10.3 The Indonesia, Philippines and the United States took advantage of a side meeting to discuss progress in relation to making an agreed amendment to the joint FIR boundary in the vicinity of position N0400 E13220. A common understanding of the issues was achieved and the three parties would continue to work by correspondence with the objective of reaching an agreed position by the CNS/MET/SG meeting in July 2008. The presence of delegates from the respective States in Bangkok for the CNS/MET meeting would enable joint discussions to finalize these arrangements.

Commercial Service Provider Role In the Aeronautical Data Supply Chain

Presentation to
ICAO Asia Pacific
ATM/AIS/SAR/SG/18
Bangkok, Thailand
June 23-2, 2008

Bill Kellogg
International Aviation Affairs
Jeppesen

Agenda



- Growth
- Onboard solutions
- New Nav Techniques
- Integrated Services
- Conclusions

Commercial Data Service Provision

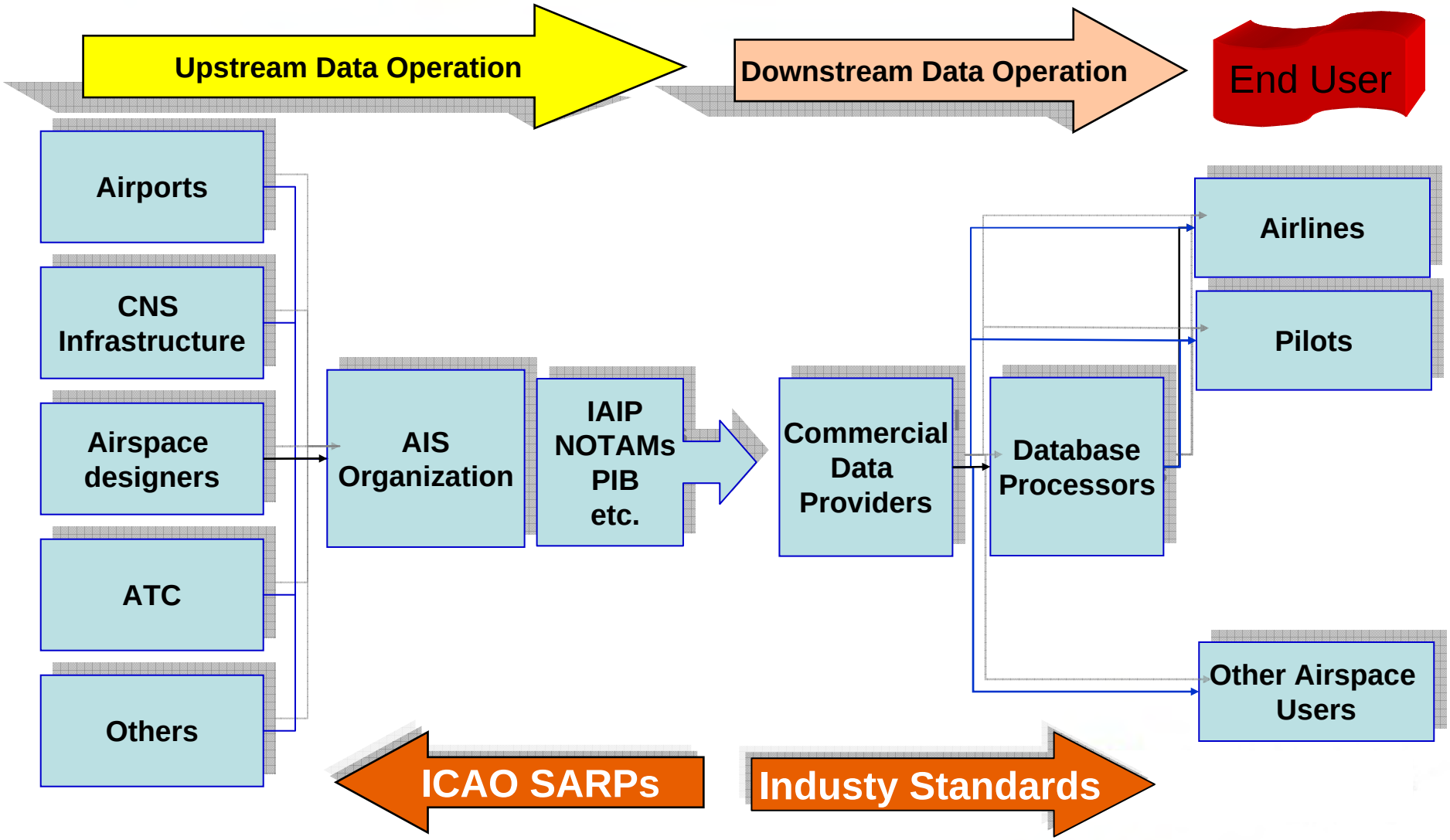
Challenges & needs of the ATM system

- The Data Chain
- Role in the data chain
- Standards & Regulation
- Traditional Services

JEPPESEN

The Data Chain

Actors from End to End



Large amount of data processed every cycle

Source Management

- Global commercial data providers receive information from more than 200 Aeronautical Information Services
- Source documents comes in 24 different languages
- Each AIRAC Cycle Jeppesen and other commercial data providers receive on average:
  - 780 Source Documents
  - 18,300 Pages of Source (paper & electronic)
  - 72,000 Notice To Airmen (NOTAM)

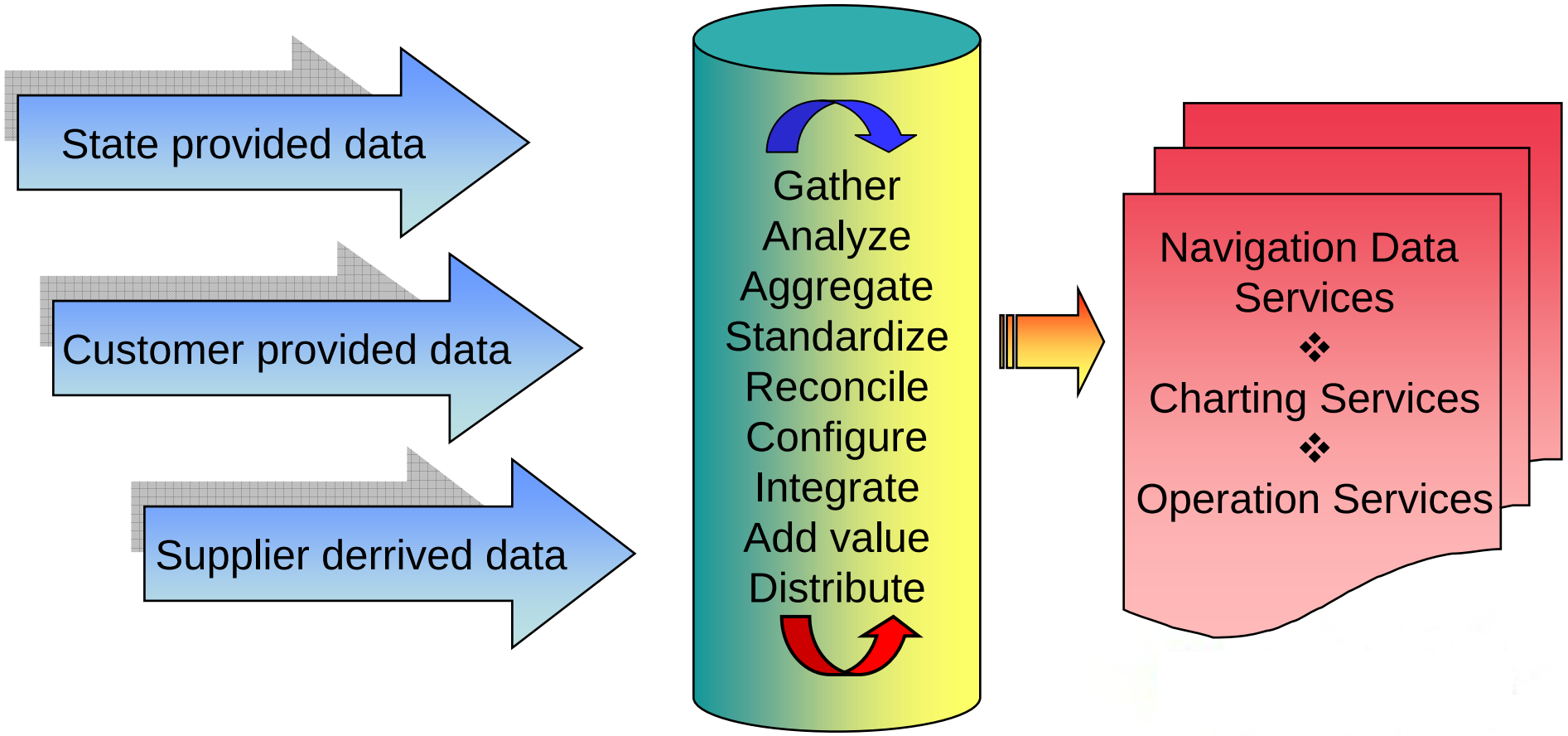
    - 1,300 NOTAM affect Charts or NavData

JEPPESEN

The Data Chain

Data comes in from various sources

Data Streams | **Commercial Data provider** | **End user**



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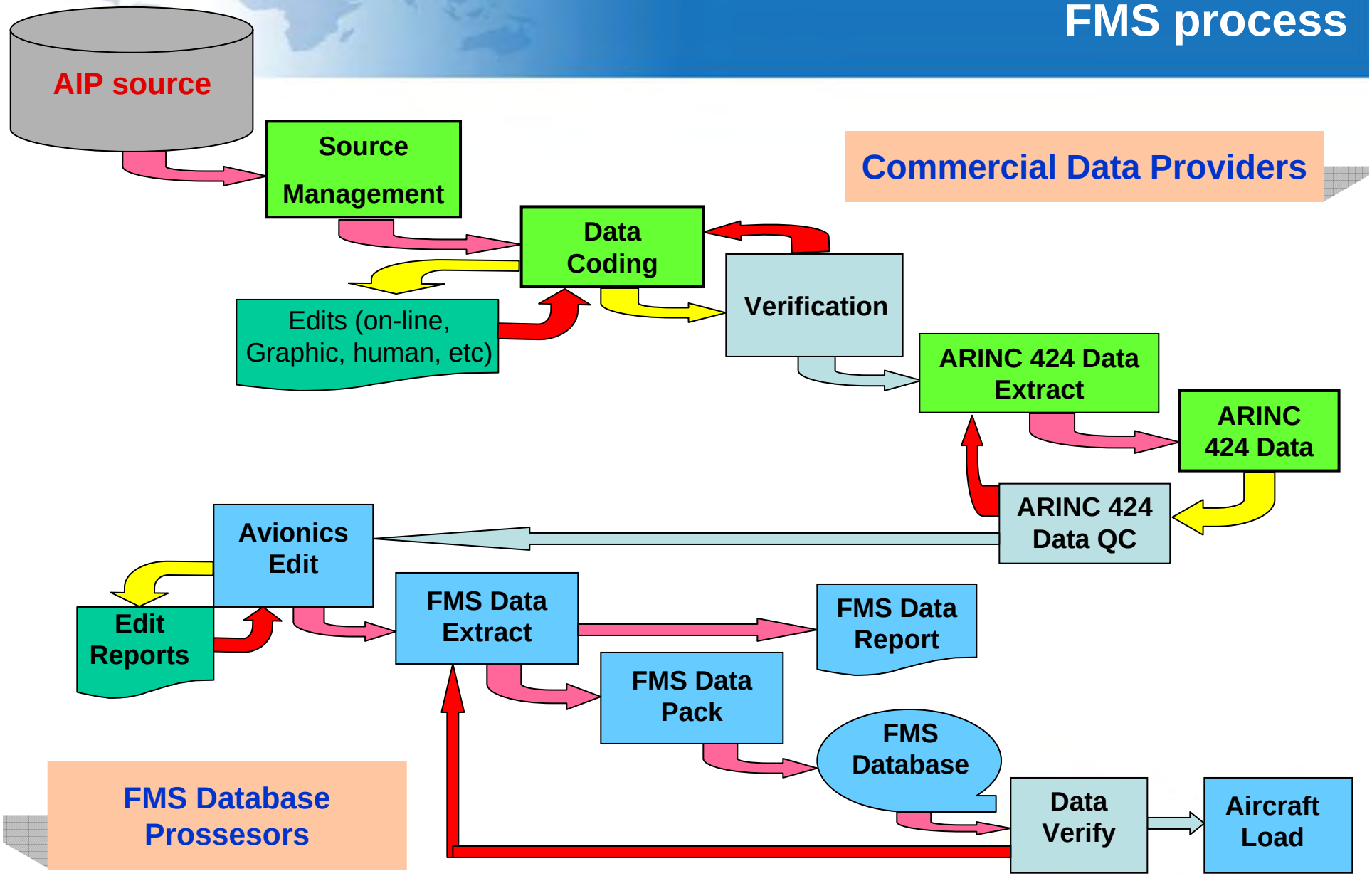
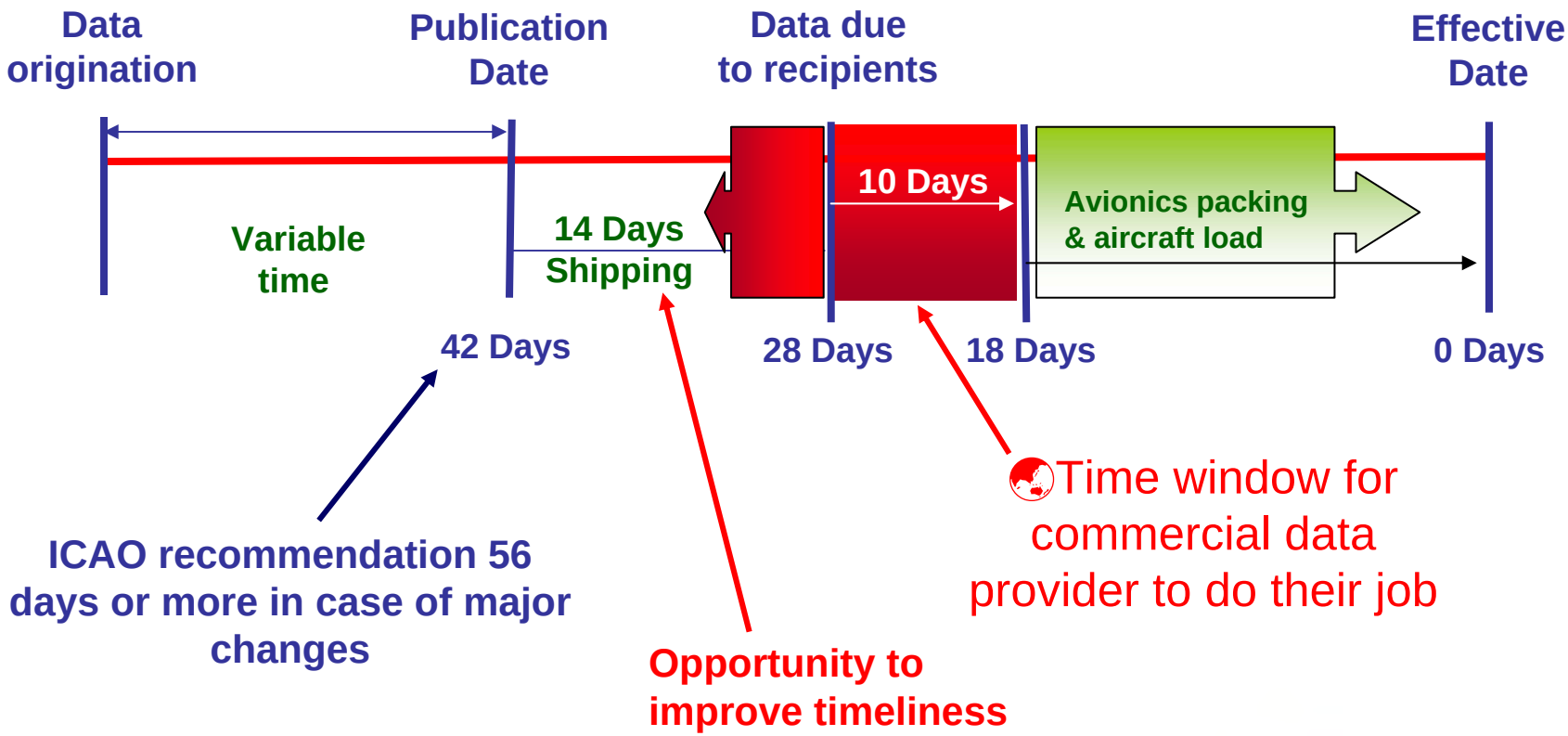
Role of Commercial Provider in the Data Chain

FMS process

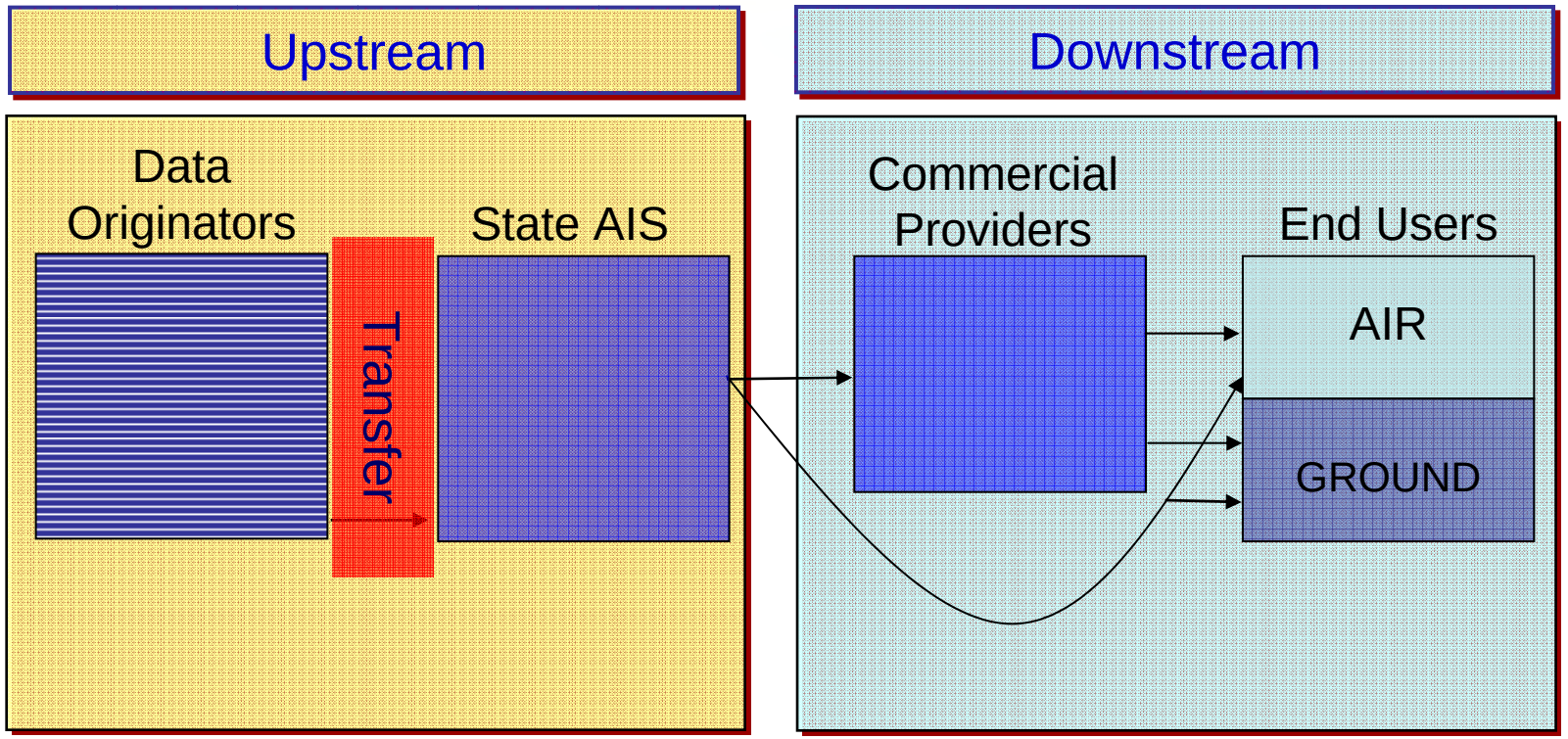


Timeliness requirements

AERONAUTICAL INFORMATION REGULATION AND CONTROL (AIRAC)



The actors in the data chain follow different rules



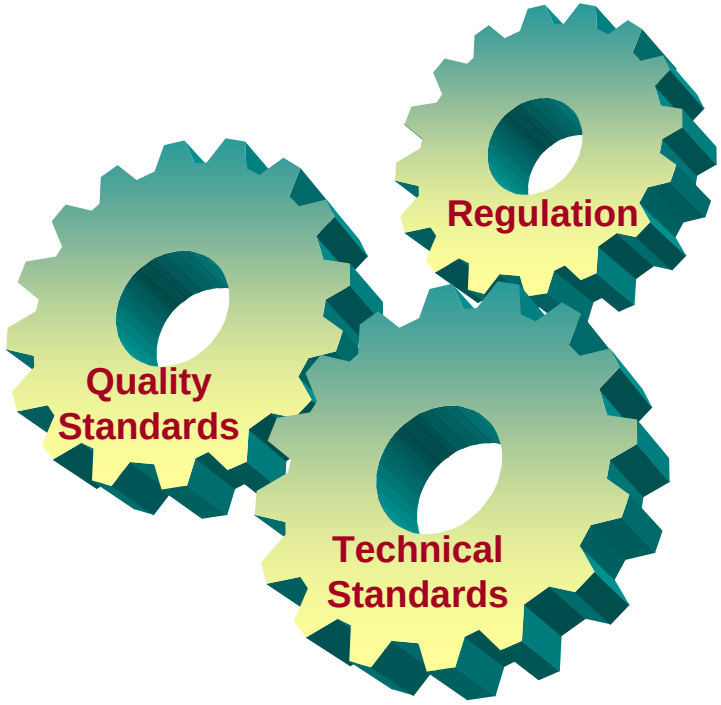
ICAO SARPS, National & Regional Regulations

ICAO Annexes 4 & 15

Industry Standards, National & Regional Regulations

RTCA DO-200A / EUROCAE ED-76A
State Letters of Acceptance

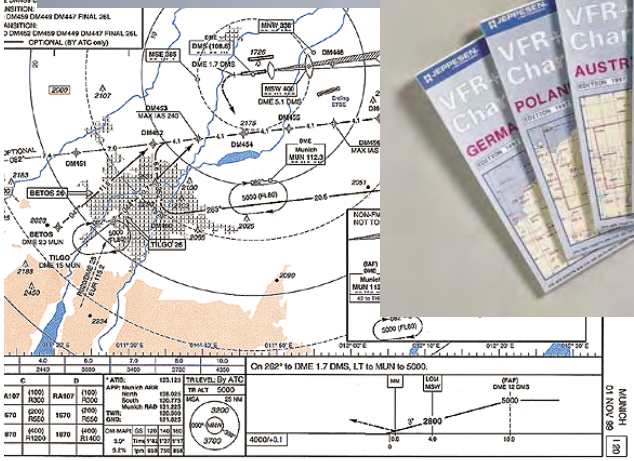
The need for harmonization

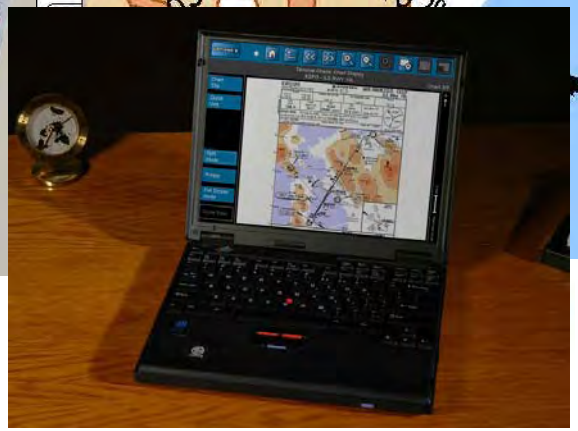


- **Data quality assurance downstream depends on the level of data quality provided upstream.**
- **Harmonization of standards along the entire data supply chain is necessary to improve end-to-end quality and assure interoperability.**
- **If future regulatory oversight includes the entire data supply chain. We need to:**
  - Develop a globally harmonized mechanism
  - To assure a level regulatory playing field for all service providers (whether state appointed or commercial), and
  - minimize national and regional fragmentation**.**

Charting

Standard & Tailored subscription services in Paper and Digital format



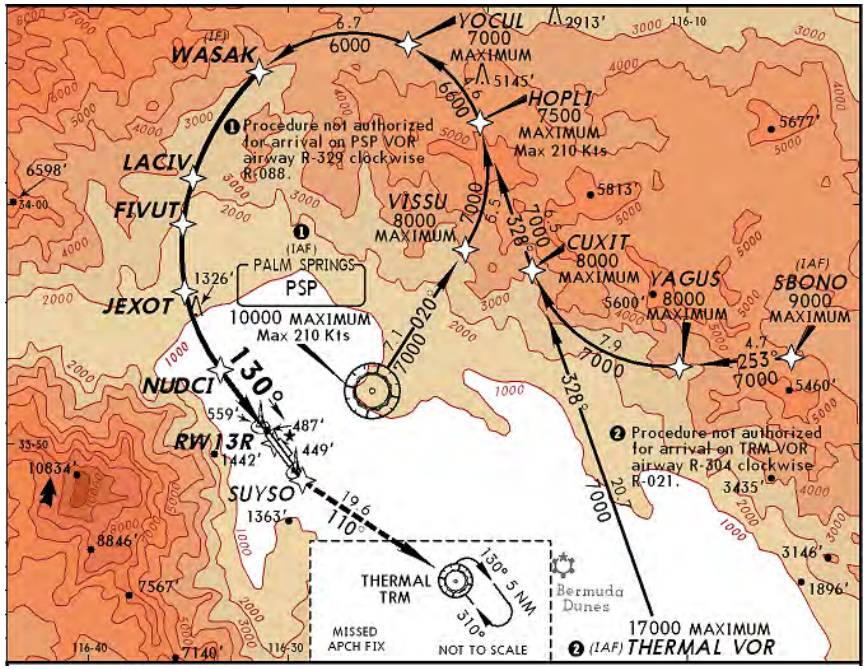


Navigation Data

Today virtually all worldwide flight procedures are available in databases

Over one million records maintained

150,000 database transactions each AIRAC cycle



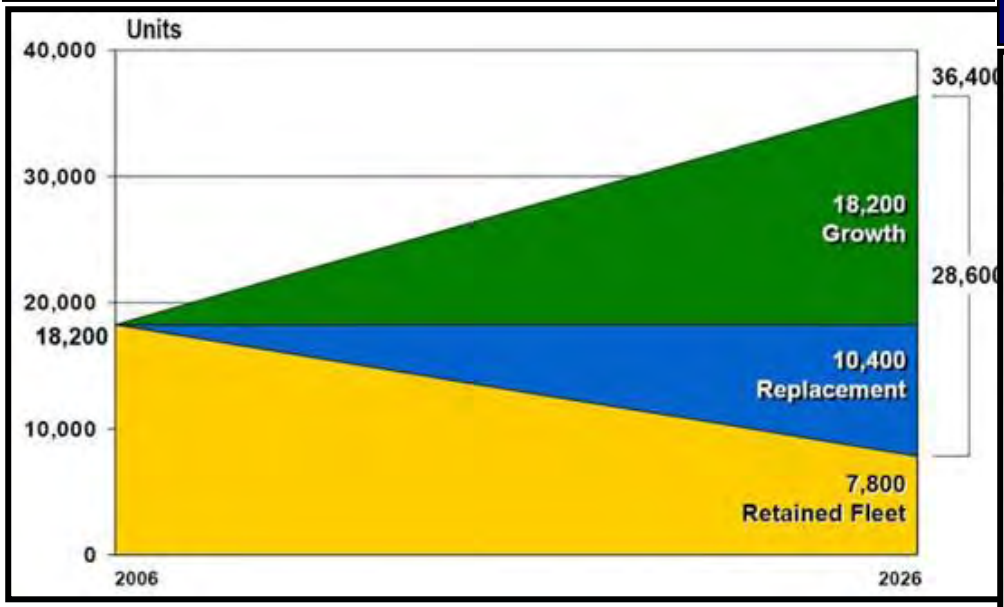
Does the traditional AIS serve our future needs ?

The answer is

NO !

New Aircraft - Quantity

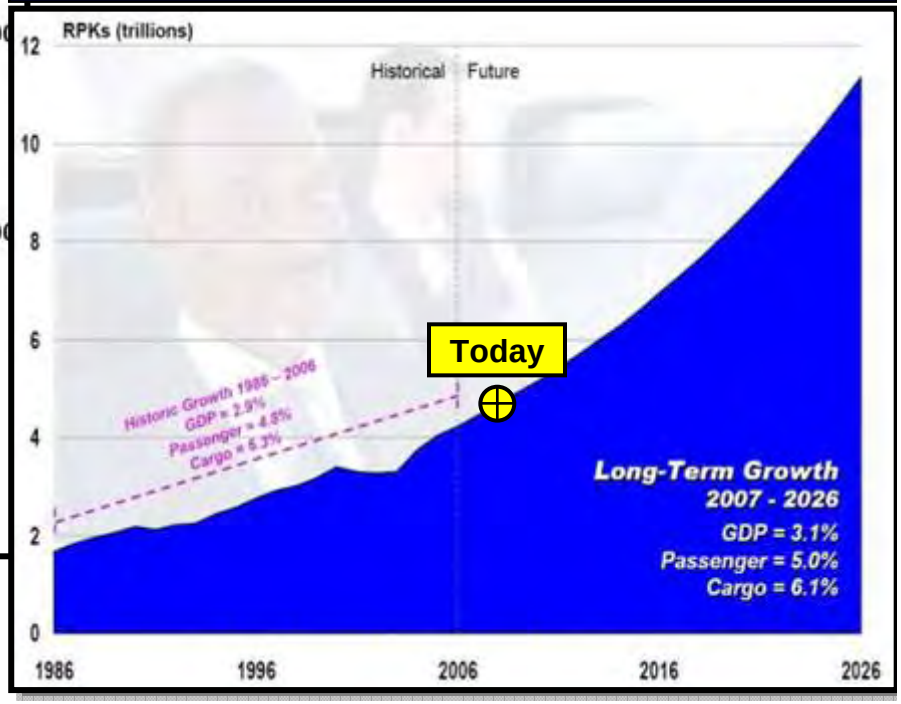
Commercial Fleet will More Than Double



Growth in Traffic

In RPK = Revenue Passenger Kilometers

Enormous Long-Term Growth



Source:
Boeing Commercial Market Outlook
BCA July 2007

How do we deal with the growth ?

Increased capacity demands, rising costs and environmental concerns require the implementation of a global ATM system capable to:

- **Enhance safety;**
- **Increase system capacity, optimize use of airport capacity;**
- **Reduce delays;**
- **Reduce flight operating costs;**
- **Reduce fuel consumption and emissions;**
- **Enable more efficient use of airspace, more flexibility, reduced separations;**
- **Enable more dynamic flight planning and better accommodation of optimum flight profiles;**
- **Reduce pilot and controller workload and enhance decision making support**

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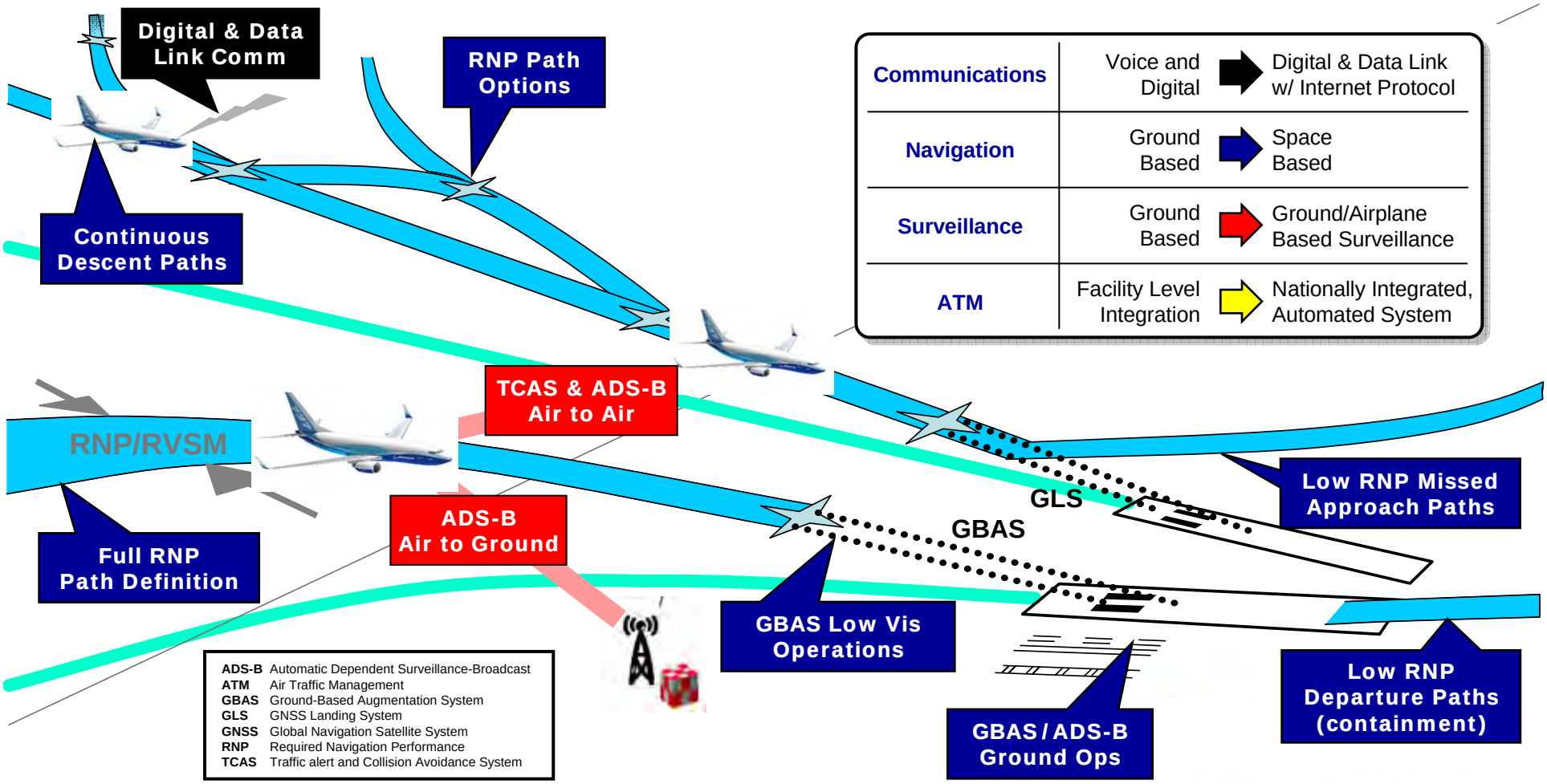
Future ATM / CNS

Nationally Integrated, Automated Air Traffic System and Management Tools



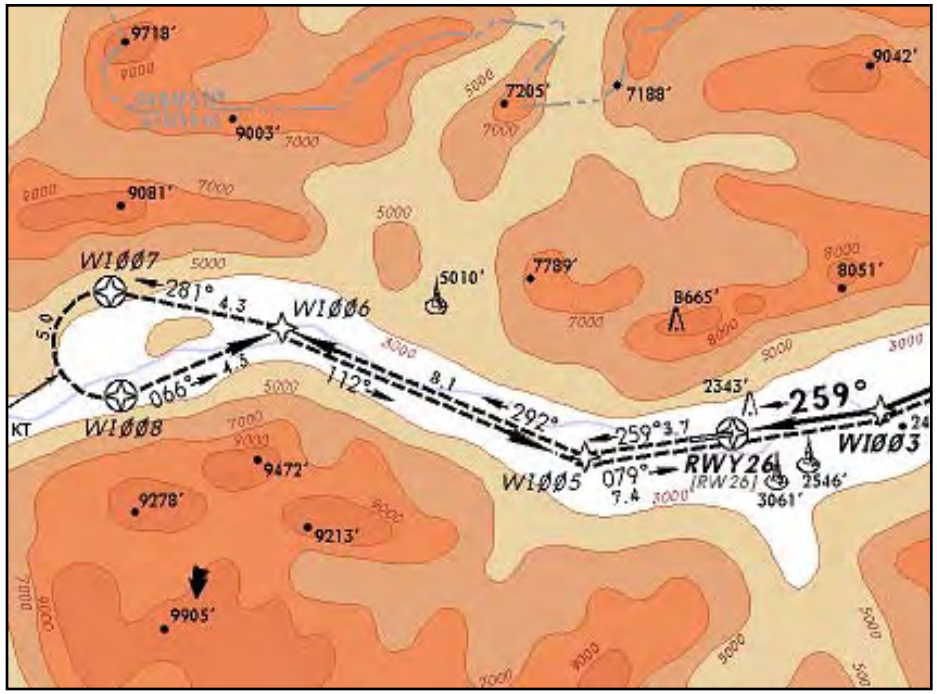
Communications	Voice and Digital	Digital & Data Link w/ Internet Protocol
Navigation	Ground Based	Space Based
Surveillance	Ground Based	Ground/Airplane Based Surveillance
ATM	Facility Level Integration	Nationally Integrated, Automated System

ADS-B	Automatic Dependent Surveillance-Broadcast
ATM	Air Traffic Management
GBAS	Ground-Based Augmentation System
GLS	GNSS Landing System
GNSS	Global Navigation Satellite System
RNP	Required Navigation Performance
TCAS	Traffic alert and Collision Avoidance System

Performance Based Navigation (PBN)

PBN is a framework for defining navigation performance requirements, including RNAV and RNP specifications.

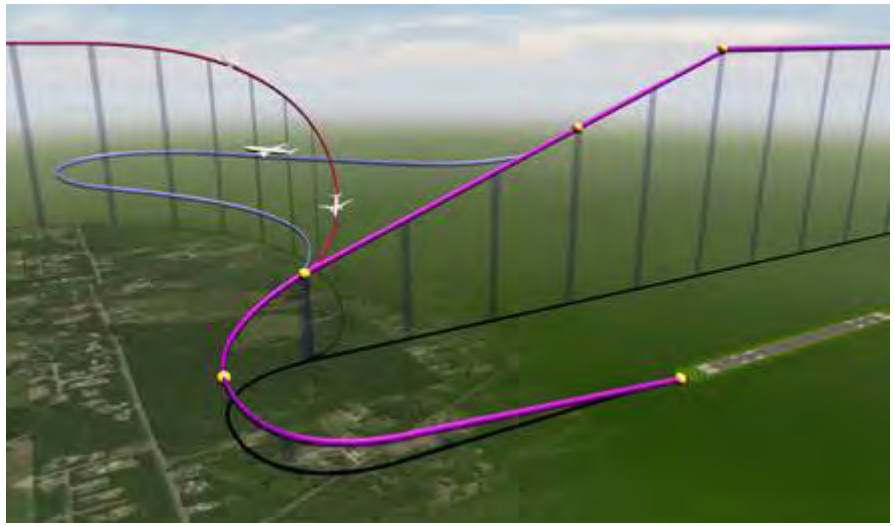
PBN will bring airspace and procedure improvements in the near-term and it will provide benefits to operators who have invested in existing and upcoming capabilities.



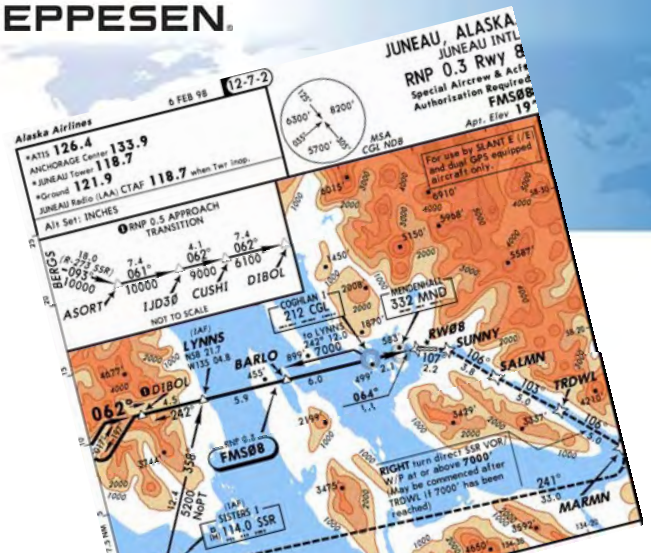
Required Navigation Performance (RNP)

- **Current Procedures**
  - Flight tracks “manually” adjusted by ATC.
  - Higher fuel burn, higher environmental impact, decreased predictability.

- **RNP Procedures**
  - More efficient design of airspace and procedures.
  - Improved safety, access, capacity, predictability, operational efficiency, and environmental effects.
  - Less intervention from ATC.



Performance Based Navigation (PBN)



Data Quality - The “dark side” of PBN ?

- Most data for PBN operations requires data integrity levels not currently being achieved:
  - 10^{-5} (essential) - 1 error in 100,000
  - 10^{-8} (critical) - 1 error in 100,000,000
- Current human/manual data supply chain is generally limited to data integrity no better than 10^{-3} (routine) – 1 error in 1,000
- PBN is extremely data-dependent. It requires:
  - timely aeronautical information
  - of higher quality than is generally available today.

Digital Transformation

Paper and Documents

Transforming

Embedded Digital Information Solutions

Electronic Flight Bag

Digital Solutions for the cockpits

Commercial Data Service Providers enable digital solutions for cockpit use.

Future value will come from aggregating disparate layers of data into the right information in real time!

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Onboard Solutions

Electronic Flight Bag (EFB)

Class 3 - Boeing

Class 1 and 2

Class 3 - Airbus

Mixed Fleet, Multi-Class EFB Solutions • In Partnership with OEMs and Integrators

Onboard Solutions

EFB - Airport Moving Map

Jeppesen Airport Moving Map

First Delivered on Boeing Class 3 EFB

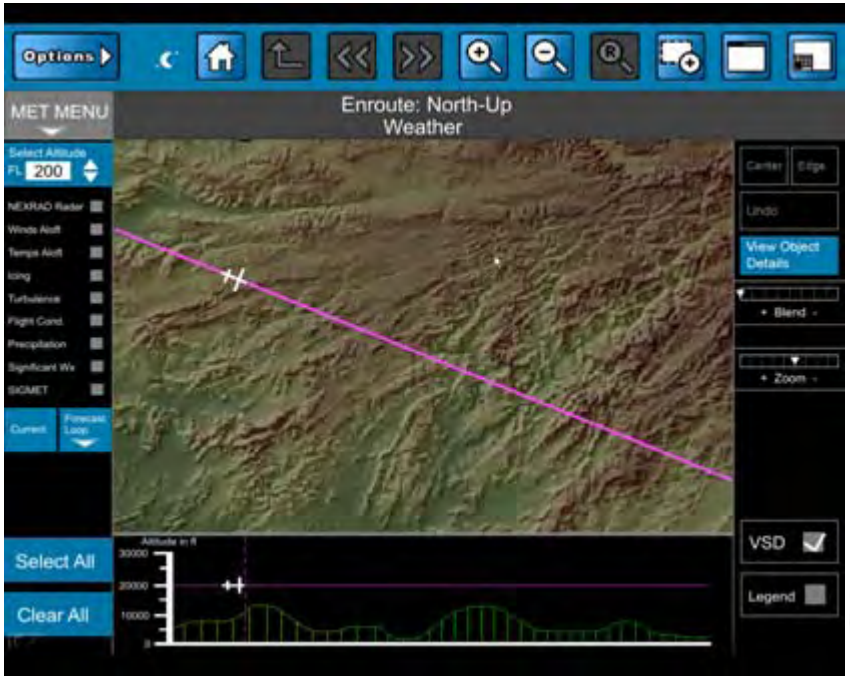
October, 2003

(Photo Courtesy KLM, Boeing, Jeppesen)

Onboard Weather & Terrain Displays

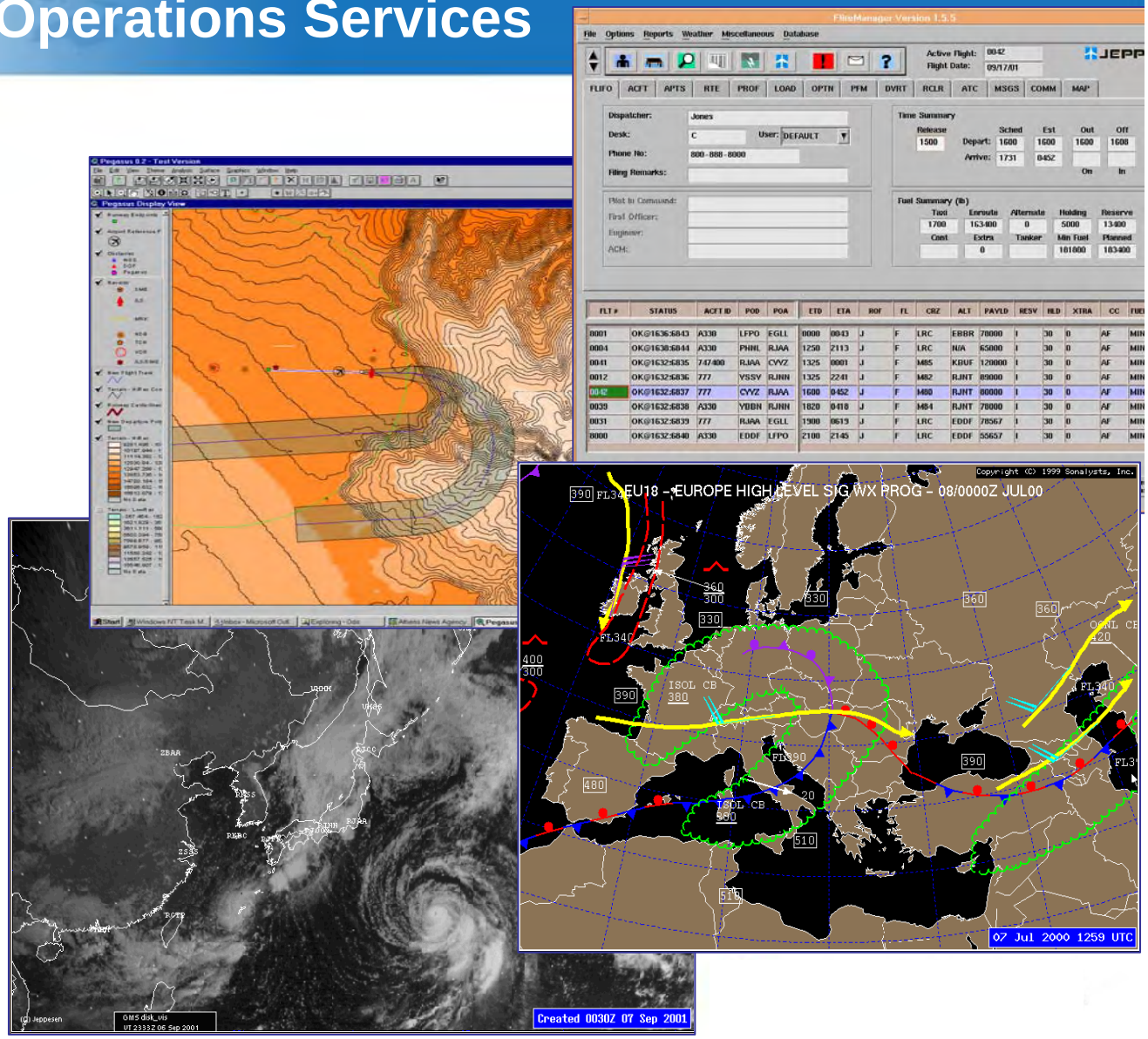
Near real-time weather on the flight deck

Terrain display for enhanced situational awareness



Operations Services

- Flight Planning
- Weather
- NOTAMS
- Performance
- Flight Tracking
- Ops Management
- Crew Scheduling



Conclusions

- Aeronautical Information is a critical enabler for future data dependent ATM systems.
- Implementation of Performance Based Navigation and new digital and integrated onboard solutions require data of a much higher quality than available today.
- Reliable and consistent data is fundamental to successfully address the opportunities and challenges of future ATM systems.
- Data provided within the scope of ICAO Annex 15 and related documents is in most cases not suitable for direct use in air and ground based applications.
- With a framework of reliable aeronautical facts and data supplied by States, commercial service providers can build what the market needs.
- Aeronautical service providers, whether State appointed or commercial, need to start their work from a level playing field
  - Open and consistent access to aeronautical information facts and data
  - Innovation, progress and the products the market needs will follow.

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Conclusions

- We urge States to:
  - Support the transition from document based Aeronautical Information Services (AIS) to digital aeronautical information management (AIM) and delivery
  - Establishment of Quality Management Systems (QMS) for the origination, collection and processing of aeronautical information
  - Support ICAO efforts to define a globally consistent framework for aeronautical information access, copyrights and charging

Together, we support global aviation

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AGENDA ITEM 11: DATE AND VENUE FOR NEXT MEETING

Agenda Item 11: Date and venue for next meeting

11.1 The meeting agreed that the next ATM/AIS/SAR Sub-Group meeting would be held over 5 working days from 22 – 26 June, 2009 at the Regional Office premises. The Regional Office would make appropriate arrangements and advise parties accordingly.

Closing remarks

11.2 In closing the meeting, the Chairman thanked all meeting participants and colleagues of the ICAO Secretariat. During the past four and a half days, the meeting had worked through 59 Working Papers and Information Papers, drafting a number of Conclusions and Decisions for consideration by the APANPRG. These outcomes would not have been achieved without the dedicated efforts, collective wisdom and cooperation from all members. A wide range of subjects was covered during the course of the meeting including RVSM implementation, PBN development, ATFM and transition from AIS to AIM, etc.

11.3 The Chairman noted that despite the significant achievements of the past few years, the way ahead is full of challenges. In a few days' time, the South China Sea area will reorganize its Flight Level Allocation Scheme with a view to enhancing integration with the flight level system of NE Asia and the Bay of Bengal areas. 50 NM lateral and longitudinal separations based on RNP 10 on route L642 and M771 will also be implemented concurrently to improve capacity. These are great achievements by affected States and our colleagues of the Regional Office, who should collectively take credit for the significant progress made. However, with fuel prices at all time high, the difficulties being encountered by airline operators need to be fully appreciated and we need to work hand-in-hand with them to wade through the turbulence ahead. Other issues such as reduction of carbon emissions, and airspace and runway capacity constraints become more prominent as time goes by and there is no doubt that there are even bigger challenges ahead of all of us. We need to continue our best endeavour's to overcome these challenges and achieve our common objective of promoting the safe and harmonious development of aviation through the joint efforts of all member states and the ICAO Regional Office.

11.4 The Chairman wished all participants a safe journey home and declared the meeting closed.

— END —

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LIST OF WORKING AND INFORMATION PAPERS

WORKING PAPERS

WP/No.	Agenda Item	Subject	Presented by
1	1	Provisional Agenda	Secretariat
2	2	APANPIRG/18 Report and ANC/Council Actions	Secretariat
3	3	Review of RVSM Implementation Task Force Meetings	Secretariat
4	4	Review of AIS Implementation Task Force (AITF/3)	AITF/3 Secretary
5	5	Summary Report of the Ninth FANS Implementation Team Bay of Bengal (FIT-BOB/9)	Secretariat
6	5	The Fourth Meeting of the Western Pacific/South China Sea RVSM Scrutiny Group	Secretariat
7	5	Summary of the Second Meeting of the Trans-Regional Airspace and Supporting ATM Systems Steering Group (TRASAS/2)	Secretariat
8	5	Summary Reports of the FANS Implementation Team, South-East Asia (FIT-SEA)	Secretariat
9	6	Asia/Pacific RVSM Safety Assessments	RASMAG Chairman
10	6	Report on Activities of the RASMAG	RASMAG Chairman
11	5	South East Asia Required Navigation Performance (RNP) Implementation Task Force (RNP-SEA/TF)	RNP-SEA/TF Chairman
12	7	Seventh Meeting of Automatic Dependent Surveillance-Broadcast (ADS-B) Study and Implementation Task Force	Secretariat
13	3	Update on the Development of the ICAO EUR/NAT Regional Database for the Five-Letter Name-codes Allocations	Secretariat
14	3	Search and Rescue Matters	Secretariat
15	3	Improving SAR Services within the Asia-Pacific Region	United States
16	5	Summary Report of the Nineteenth Meeting of the Bay of Bengal ATS Coordination Meeting (BBACG/19)	Secretariat
17	5	Review of the Report of the Fifteenth Meeting of the South-East Asia ATS Co-ordination Group (SEACG/15)	SEACG Chairman
18	2	Review and Update Conclusions and Decisions of APANPIRG	Secretariat
19	9	ATM/AIS/SAR Task List	Secretariat

WP/No.	Agenda Item	Subject	Presented by
20	8	List of Air Navigation Deficiencies in the ATM/AIS/SAR Fields	Secretariat
21	4	Outcomes of the 44th DGCA Conference	Secretariat
22	7	Update on the ICAO Global Air Navigation Plan and ICAO's Strategic Objectives	Secretariat
23	7	Summary of the First and the Second Meetings of Asia/Pacific Performance Based Navigation Task Force	Secretariat
24	4	Progress Report on a Draft Air Traffic Flow Management (ATFM) Communication Manual for the Asia/Pacific Region	United States Japan
25	4	Review of the Asia and Pacific ATS Route Catalogue	Secretariat
26	4	Results of IATA, IFALPA and OPMET/M TF Team regarding TAF in VOLMET Survey	OPMET/M TF Secretariat
27	7	Amendments to ICAO Flight Plan	Secretariat
28	5	Report of the Eleventh Meeting of the Air Traffic Flow Management Task Force (ATFM/TF/11)	Secretariat
29	3	Air Traffic Flow Management Workshop	Secretariat
30	7	The ICAO Global Aviation Safety Plan (GASP)	Secretariat
31	3	Traffic Movements and GNE Reports June 2007 to May 2007 on the six designated monitored areas in the South China Sea	Singapore
32	3	BOBCAT Update since BBACG/19	Thailand
33	3	Ad Hoc Working Group on Global Operational Data Link Document (GOLD)	Secretariat
34	4	Implementation of RVSM in Africa	Secretariat
35	3	ADS/CPDLC Implementation in Ujung Pandang FIR	Indonesia
36	4	Preventive Measures against Runway Incursions in Japan	Japan
37	4	30-Hour TAF – Timetable for Regional Implementation	OPMET/M TF Chairman Secretariat
38	9	APANPIRG List of Key Priorities	Secretariat
39	4	Volcanic Ash Simulation Exercises in the EUR/NAT Region	Secretariat
40	7	Review of ASIA/PAC AIDC Implementation Status	Secretariat
41	4	Fuel Savings Through Lifting of Speed Restrictions for SIDs	IATA

INFORMATION PAPERS

IP/No.	Agenda Item	Subject	Presented by
1	–	List of Tentative Working and Information Papers	Secretariat
2	6	APANPIRG Safety Data Submission Requirements	RASMAG Chairman
3	5	22nd Meeting of the Informal South Pacific ATS Coordinating Group (ISPACG/22)	United States
4	5	27th and 28th Meeting of the Informal Pacific Air Traffic Control (ATC) Coordinating Group (IPACG/27 & IPACG/28)	United States
5	5	The Second Meeting of the Arabian Sea/Indian Ocean ATS Coordination Group (ASIOACG/2)	Secretariat
6	4	Updates on ATM/AIS/SAR Activities in Viet Nam	Viet Nam
7		*Intentionally left blank*	
8	3	Regional Special Implementation Project for AIS	Secretariat
9	7	Work Programme to enable the Global Transition from AIS to AIM	Secretariat
10	4	New Air Traffic Control Centre (ATCC) in Hong Kong	Hong Kong, China
11	8	Regional Database of Air Navigation Deficiencies in ASIA/PAC Region	Secretariat
12	7	Restructuring Plan of the KANTO Airspace over Tokyo and Narita International Airports	Japan
13	7	The Implementation of 30 NM and 50 NM Longitudinal Separations based on ADS in the Fukuoka FIR	Japan
14	4	Termination of SAR Satellite Services on121.5 and 243.0 MHz	Australia
15	7	Asia and South Pacific Initiative to Reduce Emissions (ASPIRE) Partnership for Increasing Efficiency and Reducing Greenhouse Gas Emissions in Aviation	United States
16	4	FAA Evaluation of the Effectiveness of the Current Airspace/Route Structures and Oakland Air Route Traffic Control Center (ARTCC) Air Traffic Service (ATS) Route Realignment Update	United States
17	4	Satellite Data Communications Performance in Oceanic and Remote Regions and the work of the FANS SATCOM Improvement Team (FANS SIT)	United States
18	4	IATA Vision for 2015 for Operational Improvements in the Asia Pacific Region	IATA
19	5	ATM/AIS/SAR Related Activities of the Regional Office	Secretariat

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