International Civil Aviation Organization
South American Regional Office
Eleventh Meeting of Civil Aviation Authorities of the South American Region (RAAC/11)
(Santiago, Chile, 6-8 May, 2009)

Agenda Item 2: Review of the Implementation of the Regional Air Navigation Plan

a) Review of the Regional ATM Improvements

ACTIVITIES IN THE FIELD OF AIR NAVIGATION IN THE SOUTH AMERICAN REGION

(Presented by the Secretariat)

SUMMARY

This working paper presents a summary of the activities performed and scheduled for 2009 in the ICAO South American Region in the field of air navigation in order to implement the ICAO Global ATM operational concept.

References:

- Programme of Activities of the ICAO South American Regional Office
- Report of the second meeting of the Coordination Committee of Project RLA/06/901 (Lima, Peru, 2-3 December, 2002); and
- Report of the second Workshop/Meeting of the SAM Implementation Group (SAM IG/3) (Regional Project RLA/06/901) (Lima, Peru, 3-7 November 2008)

ICAO Strategic Objectives:

A: *Safety*
C: *Environmental Protection*
D: *Efficiency*

1. Introduction

1.1 ICAO is currently focused on the implementation of the global ATM operational concept, which main objective is to achieve a global, inter-functional air traffic management system for all users during all flight stages that meets the agreed safety levels agreed, provides optimum economic operations, is environmentally sustainable, and meets national safety requirements.

1.2 The implementation of a global ATM operational concept has a long-term horizon, until the year 2025 and beyond. The transition process has already started and includes the adoption of a number of operational initiatives in the SAM Region, some of which have been achieved with the support of the ICAO technical cooperation programme.

1.3 The SAM Region is planning the short- and medium-term activities for the implementation of the initiatives of the global air navigation plan, whose result will be an air traffic management system like the one envisioned under the global ATM operational concept.

1.4 The activities of the regular programme for the implementation of the ATM operational concept and its 7 components in the Region focus on the fields of AIS, ATM, CNS, and MET. Planning, follow-up, and execution of several of the implementation programmes mentioned are being supported by project RLA/06/901, *Assistance in the implementation of an ATM regional system taking into account the ATM operational concept and the corresponding technological support for communications, navigation, and surveillance (CNS)*, whose main instrument is the holding of meetings of the SAM Implementation Group (SAM/IG). Other activities are carried out within the framework of informal meetings, bilateral or multilateral coordination meetings, courses, seminars, and workshops.

1.5 A brief summary of the activities performed and scheduled in the short term for executing the implementation projects that contribute to improve the regional ATM follows.

2. Analysis

Air Traffic Management (ATM) Issues

Optimising the ATS route network

2.1 A programme to improve the route network was launched in 2001, resulting in the implementation of 77 RNAV routes, the modification of 58 route paths, and the elimination of 7 routes; accordingly, the ICAO Council approved the respective amendments to the CAR/SAM Air Navigation Plan. Three new RNAV routes are pending implementation in 2009. Likewise and taking into account an analysis performed on this route network, a feasibility study was conducted in order to optimise the ATS route network in the South American Region so that it may respond to the new aviation requirements and include the new performance-based navigation operational concept. This regional initiative is to be evaluated and executed at the SAMIG meetings.

Programme for the Implementation of Performance-Based Navigation (PBN)

2.2 An action plan that takes into account the short-term en-route PBN (RNAV-5) implementation programme was developed as well as two action plan models: one considers a short-term PBN implementation programme for terminal (TMA) operations and the other one considering a short-term PBN implementation programme for approach operations. This activity is being developed within the scope of the SAMIG meetings. One of the weaknesses identified in the implementation of this PBN project has been the lack of a sufficient number of trained staff for the design of RNAV and RNP procedures. In this sense, through project RLA 06/901, a special implementation project (SIP) and the collaboration of Brazil and Chile, a course on RNAV/RNP approach procedure design and another one on RNP procedures with authorisation required (RNP AR APCH) have been scheduled for 1-11 September 2009 and 5-16 October 2009, respectively.

2.3 Activities within the SRVSOP system (RLA 99/901) have made it possible to develop advisory circulars (CA) that provide acceptable means of compliance (AMC) regarding aircraft and operator approval for RNAV/5 operations, RNP approaches with authorisation required (RNP AR APCH), and approaches with vertical guidance/barometric vertical navigation (APV/baro-VNAV); still pending is the development of other circulars for harmonised PBN implementation in the Region.

Air Traffic Flow Management (ATFM) Implementation Programme

2.4 GREPECAS approved the ATFM Operational Concept (ATFM CONOPS) for application in the CAR/SAM Regions. Pursuant to this document, the SAM Region has determined the current level of development of traffic management, and has developed and approved an ATFM roadmap, an action plan for ATFM implementation, and a draft AFTM procedural handbook, to be applied by traffic management units in the Region. In March 2009, under the sponsorship of RLA 06/901 and the Brazilian Administration, a course on the methodology to calculate airport and ATC sector capacity was conducted. This activity is being developed within the scope of SAMIG meetings.

Coordination between adjacent ACCs, updating of Letters of Operational Agreement, and ATS Contingency Plans

2.5 Meetings between adjacent States are held periodically in order to update the letters of operational agreement of control centres, which include the specific procedures to be applied for the provision of air traffic control services. Likewise, and in compliance with the standard contained in Annex 11 on the issuance of contingency plans, the South American Region held in 2007 a meeting on the contingency planning. At that meeting, the contingency plans for all of the States of the Region were drafted, harmonised, and agreed upon. The States maintain these plans duly updated through bilateral or multilateral coordination meetings. Through these plans, international civil aviation can be assured that ATS will continue operating and that the main international air routes will remain open in case of a partial or total interruption of the ATS and/or the related support services.

Assessment of Training requirements in the Civil Aviation Training Academies (CIAC) of the SAM Region

2.6 Based on the implementation programmes being carried out in the Region in the areas of aeronautical information, aeronautical meteorology, air traffic management, communications, navigation, surveillance, and airports, it has been concluded that training of human resources is fundamental for safety and efficiency of operations, as well as for the implementation of the new civil aviation concepts. Accordingly, ICAO has considered of vital importance that the Civil Aviation Training Centres of the Region support this process so as to have duly trained ACC personnel on a timely basis. In this sense, the CIAC/8 meeting was held in 2008 and the next meeting of training centres has been scheduled for November 2009.

State Safety Programme (SSP) – Safety Management System (SMS)

2.7 In terms of safety, the SAM Region has trained a significant number of civil aviation administration officials on safety management systems (SMS). Under the sponsorship of the DGCA of Peru, an ECCAIRS (European Coordination Centre for Aviation Incident Reporting Systems) course has been scheduled for 1-5 June, 2009 and another one on the State Safety Programme (SSP) for 9-12 June, 2009. Likewise, several States of the Region have requested that these courses be offered at national level.

Improvements to the South Atlantic Route Network

2.8 Substantial improvements continue to be introduced in the South Atlantic airspace. The South Atlantic Group (SAT) has implemented unidirectional routes to accommodate more aircraft in their optimum flight levels, and after 9 months of experience, it may be concluded that benefits have been derived in terms of significant fuel savings and reduction of CO2 emissions. Moreover, in the airspace over the Atlantic Ocean, south of the EUR/SAM corridor, a random area called AORRA (Atlantic Ocean Random Routing Area) was implemented and the existing fixed routes were suspended. This allows operators to fly optimum paths avoiding and/or taking advantage of the prevailing wind conditions.

2.9 Concerning CNS, there have been several improvements, such as the implementation of ADS/CPDLC in the EUR/SAM Corridor has been scheduled for July 2010, the FANS Operations Manual (FOM) has been developed and approved, Argentina and Brazil are part of the CAFSAT digital network that addresses South Atlantic requirements, among others.

Analysis of large height deviations (LHD)

2.10 When RVSM was implemented in the CAR/SAM Regions, it was necessary to create an agency to monitor the performance of the reduced vertical separation minima. By regional agreement, this function is performed by the Caribbean and South American Regional Agency (CARSAMMA), sponsored by Brazil. CARSAMMA has played a fundamental role in everything related to RVSM airspace safety assessment. The periodical review of large height deviations (LHD) that is performed bi-annually during the Scrutiny Group meetings has been one of the fundamental means to conduct these assessments. Based on this task, recommendations have been made to the States of the Region to adopt measures to improve safety levels in the cited airspace.

Matters related to communications, navigation, and surveillance (CNS)

Digital Network Interconnection between the ICAO CAR and SAM Regions

2.11 For the implementation of the digital network interconnection between the CAR and SAM Regions, the interconnection between the REDDIG and MEVA II networks is underway. In this sense, an interconnection plan for the two networks, a Memorandum of Understanding between the REDDIG Administration and MEVA II on the technical, administrative, and operational aspects of the interconnection, a contract between ICAO and the MEVA II service provider, and an agreement between the REDDIG Administration and COCESNA have been developed. The implementation of the REDDIG and MEVA II interconnection is scheduled to begin in late April 2009, its completion being estimated for late 2009.

REDDIG Technical and Administrative Management

2.12 The ICAO Regional Office, along with the REDDIG Administrator, coordinates with the member States the technical, administrative, and operational support for the REDDIG. This task will continue until the start up of the RMO, initially scheduled for 2010.

Interconnection of AMHS systems in the SAM Region

2.13 For the implementation of AMHS systems in the Region, an IP addressing plan has been defined, a test protocol has been established, and AMHS tests have been performed between the Ezeiza and the Brasilia MTAs and between the Ezeiza MTA and Argentina. Guidance material for the interconnection of AMHS systems is expected to be available the last quarter of 2009.

Interconnection of Automated Systems

2.14 For the implementation of the interconnection of automated systems, several guidance documents have been prepared, such as the Interface Control Document (SCID), the initial Plan for the interconnection of automated systems, and the preliminary document on SAM automation system requirements. Likewise, an action plan for the implementation of the interconnection of automated systems was prepared as well as a memorandum of understanding describing the technical, administrative, and operational aspects of the interconnection of automated systems between States with adjacent ACCs.

ADS-B Trials

2.15 For the implementation of ADS-B trials in the Region, trial objectives have been defined, together with the activities to be performed, and the coordination with several entities that provide surveillance systems so that they may conduct ADS-B trials free of charge. There are plans to conduct ADS-B trials in mid 2009 in Lima, Peru, as well as a workshop/seminar to present trial results.

Matters concerning Aeronautical Meteorology (MET)

World Area Forecast System (WAFS)

2.16 Measures are being taken for the migration of WAFS forecasts from GRIB 1 code to GRIB 2, the introduction of time and space increments, the inclusion of three additional upper wind and temperature forecasts for flight levels FL 270 (350 hPa), FL 320 (275 hPa), and FL 360 (225 hPa), and the holding of a seminar to promote proper use of these new forecasts.

Note – WAFS improvements will increase the precision, timely distribution, and usefulness of forecasts in order to achieve optimum use of the airspace in benefit of ATM.

International Airways Volcano Watch (IAVW)

2.17 The purpose of the measures being taken is for States to improve the procedures for drafting and disseminating information on the actual or foreseen existence of en-route meteorological phenomena that may impact safety (SIGMET), particularly those related to volcanic ash, including regional drills of fictitious volcanic eruptions twice a year. A seminar is expected to be held, and there is an updated regional guide with guidelines and practical examples, as well as AFTN address tables based on the requirements of Part VI – MET of the CAR/SAM FASID.

Note – Immediate access to the information related to volcanic ash clouds helps the ATM to make tactical decisions on aircraft surveillance, air traffic flow management, and flexible and dynamic routing of aircraft, which will contribute to improve safety and ATM efficiency.

Operational Meteorological Information OPMET

2.18 In order to improve the production of OPMET information, a guide with guidelines and practical cases is being prepared, as well as the AFTN address tables based on the requirements of Part VI – MET of the CAR/SAM FASID. Additionally, controls on the OPMET exchange at regional level (CAR/SAM) are implemented every year, and the international OPMET data bank in Brasilia carries out annual controls in order to validate the efficiency of the OPMET exchange. Likewise, the controls applied by IATA with respect to global OPMET exchange are analysed and acted upon.

Note – More precise and timely meteorological information will permit an optimised planning and forecasting of flight paths thus improving safety and ATM efficiency.

MET Quality Assurance

2.19 A regional Guide is being prepared with MET procedures and work instructions, the risk assessment, and the relationship between MET and the other air navigation areas, based on ISO Standard 9000 2008 and the ICAO/OMM Doc 9873.

Note – Meteorological information quality management will be an integrated function of the ATM system and will adapt to the information to meet ATM requirements in terms of content, format, and timing.

2.20 The meteorological information will help minimise the environmental impact of air traffic.

Matters concerning Aeronautical Information (AIS)

AIS-MAP Quality Management System

2.21 As established in Annex 15, each contracting State is responsible for adopting all the necessary measures to establish a duly organised quality system containing the procedures, processes, and resources necessary to implement quality management in each of the production and distribution stages of the aeronautical information integrated package. In this sense, a seminar/workshop will be held in the month of July 2009 with the purpose of supporting the participating States in the identification and application of specific procedures for AIS-MAP activities within the quality management framework, and ensuring the effective application of AIS-MAP requirements and procedures contained in ICAO Annexes 4 and 15 with the precision and integrity required by such information.

WGS-84 Implementation

2.22 With the introduction of RNAV, the problem of having geographical coordinates referenced to local geodetic data has become ever more evident and has clearly shown the need of having a universal geodetic reference system. Taking into account that completing the implementation of the WGS-84 geodetic reference system is an essential pre-requisite for many ATM enhancements, including GNSS, the meetings of the SAM/IG of Project RLA 06/901 have been able to give continuity to the task of implementing the aforementioned geodetic reference in the en-route airspaces, terminal areas, control zones, and aerodromes, and harmonise the geographical coordinates in flight information region boundaries.

Transition from AIS to AIM – e-TOD Implementation

2.23 To support ATM, States must make the necessary efforts to manage aeronautical information and aeronautical charts in a digital environment. To this end, ICAO is studying the amendments that need to be introduced to Annex 4. Regarding this issue, it is clear that States should conduct a training programme on the geographical information system (GIS), the database, and electronic terrain and obstacle data (e-TOD). This matter is currently being addressed through seminars and workshops in which experts make presentations on mapping quality, standards, geographic information systems, digital terrain models, in order to address the aforementioned topics from a technical perspective and thus standardise the criteria for their correct implementation following ICAO SARPs. In this sense, the SAM Region held a seminar on e-TOD in 2007 and another one has been scheduled for the second semester of 2009 or the first semester of 2010 in the CAR Region.

Transition from AIS to AIM –AIXM-AICM Implementation

2.24 Aeronautical information will be obtained from many originators and will be maintained in a network of distributed global data banks. An Aeronautical Information Conceptual Model (AICM) is currently being developed, and an Aeronautical Information Exchange Model has been produced. They are both necessary to have information available in any data bank, regardless of structure or language, to communicate with other banks.

2.25 As in the case of e-TOD, the efforts of States on this subject must be supported through seminars and workshops in which experts lecture on different AICM and AIXM topics. In this regard, an AIXM/CAR-SAM seminar was held in the SAM Region in 2007, and another one on AIXM has been scheduled for 19-21 May, 2009 in Tegucigalpa, Honduras.

NOTAM Contingency Plan

2.26 NOTAM Contingency Plans must be established in order to provide details on the measures that will support the Air Traffic Service Contingency Plan, through an efficient exchange of NOTAM information at national and international levels, and ensure continued operations, even if they are affected by different service failures. The NOTAM Contingency Plan defines the actions to be taken in order to reduce or eliminate the impact of both labour conflicts and inconveniences caused by natural disasters on the continuous and efficient supply of NOTAM services, providing technical administrative measures (in the databases and AFTN communications) and the necessary coordination and operational procedures: before, during, and after any contingency phase with the information provided by States/Territories/International Organisations.

2.27 The meetings carried out by the GREPECAS AIM/SG are facilitating the coordination and the relevant arrangements for the harmonisation of NOTAM Contingency Plans amongst CAR and SAM States. Efforts on this task need to continue.

Matters concerning Search and Rescue (SAR)

Letters of Operational Agreement for Search and Rescue

2.28 Annex 12, Chapter 3 – Cooperation, establishes that contracting States will coordinate their search and rescue organisations with those of neighbouring States, subject to the conditions set forth by their own authorities. The objective is to allow rescue brigades to enter immediately into the territory of other States. To this end, the States must define with the neighbouring States the conditions for the entry of SAR brigades of one State into the territory of the other States.

2.29 It is obvious that the diversity of concepts and topics involved in a Bilateral SAR Agreement is very complex. Upon fully addressing each of them in order to put them into practice, the need is seen to create an interdisciplinary working environment that involves different State entities (customs, migrations, border sanitation, etc.) It is for this reason that these topics are specifically addressed, among other SAR-related topics, at search and rescue meetings. To date, 6 SAR/SAM meetings have been held, achieving satisfactory results in terms of the establishment of SAR agreements; a CAR/SAM SAR meeting is scheduled for May 2009 with a work agenda that includes the discussion of SAR agreements between adjacent CAR/SAM States.

Search and Rescue Drills

2.30 The CAR/SAM Basic ANP, Part VII – Search and Rescue Services (SAR), under the heading Search and Rescue Operations, incorporates recommendation 7/12 of the CAR/SAM RAN/2 meeting, which indicates that States should take the necessary measures to have their SAR brigades conduct joint SAR drills with those of other States, carrying out operations on a regular basis, if possible, at least once a year.

2.31 Drills between regional SAR units are very useful, without the need to activate search and rescue brigades for real. Without using too many economic resources, it is possible to test the means of communications committed by the States to the exchange of messages between regional SAR units, and for the SAR staff assigned to the different SAM RCCs to practice the planning and coordination of the search and rescue of occupants of aircraft in distress or involved in accidents. To date, two SAR drills have been performed in the SAM Region, and a third one is foreseen to be carried out at the CAR/SAM SAR meeting scheduled for May 2009.

3. Conclusion

3.1 From the analysis of this paper, it may be concluded that collaboration among the States of the Region is the best tool available which enables ICAO to meet the strategic objectives defined for the 2005-2010 period. This collaboration is reflected on the full support provided by Sates to project RLA 06/901, within which many of the initiatives described of this document are being carried out. Likewise, civil aviation authorities, as usual, continue to support unconditionally the Regional Office through meetings, seminars, courses, and workshops.

3.2 Special mention must be made of the willingness shown by the authorities to comply with Conclusion RAAC 6/16 that urges the States of the Region to participate in the programme of associated experts, by seconding national personnel through an agreement with ICAO, for a limited period of time in those areas in which the Regional Office does not have the corresponding expert. In this sense, several States have contributed, allowing experts and consultants of their administrations to actively participate in different fields, allowing for an efficient and effective performance of tasks.

3.3 Upon completing the aforementioned programmes, the States of the Region will have achieved a coordinated and homogeneous planning and implementation of several initiatives of the global air navigation plan, as well as the exchange of experiences throughout the entire process with a view to implementing a safe, integrated, interoperable, and cost-effective regional ATM system, within a global safety and interoperability framework that meets the needs of international civil aviation.

4. Suggested action

4.1 The meeting is invited to:

a) take note of the information provided herein;

b) analyse the activities carried out and scheduled in the short term in order to comply with implementation programmes;

c) analyse any other related matter that the Meeting may deem necessary; and

d) encourage the States of the Region to continue supporting the implementation programmes currently being executed.

REGIONAL PROJECTS OF THE ICAO SAM REGIONAL OFFICE
WORK PROGRAMME FOR 2009

Project Name	Objective/Tasks	Deliverable	SO	Target Date	Parties involved	Responsible party	Observations
AIR TRAFFIC MANAGEMENT (ATM)							
PBN RNAV 5 implementation	Analyze the navigation capacity of the aircraft fleet	Navigation capacity of the aircraft fleet data base developed	A, C, D	19 October 2009	SAM/IG OPS/AIR WG/ States	RO/ATM	
	Analyze ground-based means of communication, navigation (VOR, DME) and surveillance to meet navigation specifications and the navigation reversal mode.	CNS data base developed	A, C, D	20 April 2009	CNS consultant/ States	RO/ATM	
	Determine the methodology to be used to assess airspace safety and route spacing,	Safety assessment methodology for RNAV 5 defined	A, C, D	19 October 2009	CARSAMMA	RO/ATM	
	Encourage the expansion of FUA concept	Procedures to ensure airspace flexibility developed	A, C, D	December 2009	SAM/IG PBNTF	RO/ATM	
		Coordination mechanism between CAA and military authorities provided to States	A, C, D	December 2009	SAM PBN/TF/ States	RO/ATM	

ATS route optimization	Implement routes and/or realign RNAV routes, and eliminate conventional routes.	ATS routes network optimized	C, D	19 October 2009	States	RO/ATM	
	Study the possibility to restructure the SAM airspace	Optimized SAM airspace	C, D,	19 October 2009	ATM consultant/ States	RO/ATM	
Air Traffic Flow Management (ATFM) Implementation	Develop the ATFM Procedural Handbook for the SAM Region	ATFM procedures standardised	C, D	19 October 2009	SAM/IG ATFM/TF	RO/ATM	
	Airports and ATC sectors capacity course	Training carried out	C, D	19 October 2009	CGNA Brazil	RO/ATM	
	Develop the Methodology for the Calculation of Airport and Airspace Capacity in the SAM Region	A common methodology to be applied	C, D	19 October 2009	CGNA Brazil/ SAM/IG ATFM/TF	RO/ATM	
Safety management system (SMS) and States Safety Programmes (SSP)	Provide SMS and SSP courses	Training carried out	A	1 December 2009	HQ/ States	RO/ATM	
Contingency Plans	Update, as required, States ATS contingency plans to ensure continue of operations.	States ATS contingency plans improved	A, E	1 December 2009	States/HQ	RO/ATM	
		States ready to face contingency situations	A, E	1 December 2009	States/HQ	RO/ATM	

Implementation of New Flight Plan model	Establish a SAM transition strategy to the new FPL model	Draft transition strategy provided to GREPECAS	A, D	1 December 2009	ATM consultant	RO/ATM	
Identify Training requirements and coordinate its implementation	Prepare States experts to implement ICAO initiatives Coordinate these activities with the Regional Civil Aviation Training Centres (CATCs)	States experts prepared to implement the ICAO initiative Training provided in harmonize and cooperative manner by the CATCs	D	December 2011	States	RO ATM	
Improve ATS provision in the Atlantic Ocean	Implement new routes scheme Optimize the structure of the EUR/SAM corridor airspace	ATS provision in the Atlantic Ocean improved Optimization of the airspace structure in the Atlantic Ocean implemented	A D	December 2011	States involved Dakar RO	RO ATM	
AERONAUTICAL INFORMATION MANAGEMENT (AIM)							
Seminar on quality management system for aeronautical information services (SIP 2009)	Provide the States in the SAM Region with up-to-date guidance on the implementation of QMS in AIS	Increased compliance of the AIS service providers in the SAM Region with the quality assurance requirements	A2, A8, D1 and D2	20 July 2009	SAM States	RO/AIM/SAR	
WGS-84 Implementation	Assist States in implementation of WGS-84	WGS-84 requirement implemented	A2, A7	1 January 2010	SAM States	RO/AIM/SAR	

Transition from AIS to AIM	Training for the use of the e-TOD aeronautical information exchange model (AIXM)	Training carried out	A1, A2	1 Jan 2013 (ongoing)	SAM States	RO/AIM/SAR	In coordination with NACC Office
NOTAM Contingency Plan	Reduce the impact of the disruption in the normal supply of NOTAM services in support of ATM to an acceptable level	NOTAM Contingency Plan implemented	A2, A6, E2	1 October 2010	SAM States	RO/AIM/SAR	
Transition from AIS to AIM, AIXM implementation	Training for the use of the aeronautical information exchange model (AIXM)	Training carried out	A1, A2	1 December 2011	SAM States	RO/AIM/SAR	In coordination with NACC Office
COMMUNICATIONS, NAVIGATION & SURVEILLANCE (CNS)							
Interconnection of digital networks between SAM and CAR Regions	Coordinate and provide assistance on the interconnection of digital networks between SAM and CAR Regions	REDDIG and MEVAII VSAT network interconnected	D2, D4	November 2009	MEVA II / REDDIG Coordination Group	RO/CNS	
Technical and administrative matters on the management of REDDIG network	Coordinate technical and administrative matters on the management of the REDDIG VSAT network	Ensured that the REDDIG VSAT network counts with high rate of availability	D2, D4	Ongoing	REDDIG members and Administration	RO/CNS	

Interconnection of AMHS system in the SAM Region	Coordinate and provide assistance for the interconnection of AMHS system in the SAM Region	Orientation document for the interconnection of AMHS system between SAM States	D2, D4	December 2009	REDDIG Administration and Argentina, Brazil and Peru	RO/CNS	
Interconnection of automation services between ACCs in the SAM Region	Provide assistance for the interconnection of automation services between ACCs in the SAM Region	Elaborated a Memorandum of Understanding on technical, operational, administrative, institutional and financial aspects for the interconnection of automation services between two States with adjacent ACC	D2, D4	December 2010	SAM States	RO/CNS	
ADS B Trials in the SAM Region	Provide assistance in the implementation of ADS B trials in the SAM Region	Provided guidelines on ADS B trials and training on ADS B	D2, D4	October 2009	SAM/IG	RO/CNS	
METEOROLOGY (MET)							
WAFS Implementation	Facilitate the implementation Plan for the transition from GRIB 1 to GRIB 2	Update the GREPECAS Action Plan	D	- Mar-09 - Dec-09	Mexico RO/MET, WAFC Provider State	RO/MET	

IAVW implementation	Improvements of IAVW procedures Follow-up status of implementation of GREPECAS Conclusions; - Keep updated the Action Plan; - Carry out periodic SIGMET Test; - Update the CAR/SAM SIGMET Guide; - Carry out SIGMET Seminar	- Update the GREPECAS Action Plan; - SIGMET Test Report; - Guide updated; - Seminar	A, D	- Mar-09 - Dec-09 - May & Nov-09 - - Oct-09 - Nov-09	Mexico RO/MET, VA TFR, HQ	RO/MET	
OPMET information	Improvement of exchange of OPMET information Update the CAR/SAM OPMET Handbook Draft to reflect changes in the FASID MET Tables; Carry out the regular control of OPMET data; Coordination with RO/MET, Mexico	Draft CAR/SAM OPMET Handbook updated; Statistics tables	A, D	Oct-09	Mexico RO, CAR and SAM States, Brasilia OPMET DB, HQ, RO/MET	RO/MET	C/MET HQ comments

MET Quality Assurance	Assist States in QMS MET implementation - Develop a Draft Guide for the application of QMS MET procedures, its standardization based on Standard ISO 9000 2008; - Seminar/ Workshop on QMS MET	- CAR/SAM QMS MET Guide Draft; - Seminar/workshop	A, D	- Aug-09 - Sep-09	States, RO/MET QMS TFR	RO/MET	
SEARCH AND RESCUE (SAR)							
Promote and support States in the development of SAR agreements	Improve coordination among adjacent RCC	Three SAR agreements implemented	E2	31 December 2009	SAM States	RO/AIM/SAR	
Improve the performance of the national/international SAR system	Improve SAR competencies and coordination among adjacent RCCs	One SAR exercise executed	E2	22 May 2009	SAM States	RO/AIM/SAR	

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