International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Seventeenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/17)
(Cochabamba, Bolivia (Plurinational State of), 21 to 25 July 2014)

Agenda Item 3: Air navigation activities at global, intra-regional, and inter-regional level

3.3 Inter-regional air navigation activities

Follow-up on CNS interregional Implementation Activities

(Note presented by the Secretariat)

SUMMARY

This working paper presents a follow-up to the implementation activities in the area of CNS particularly associated with the interregional coordination needs between the CAR and SAM Regions.

References:

- First NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/1), Mexico City, Mexico, 29 July to 1 August 2013
- Fourth North American, Central American and Caribbean Working Group Meeting (NACC/WG/4), Ottawa, Canada, 24 to 28 March 2014
- Twelfth workshop/meeting of the SAM implementation group (SAM/IG/12) (Lima, Peru 14 to 18 October 2013)
- Thirteenth workshop/meeting of the SAM implementation group (SAM/IG/13) (Lima, Peru 21 to 25 April 2014)
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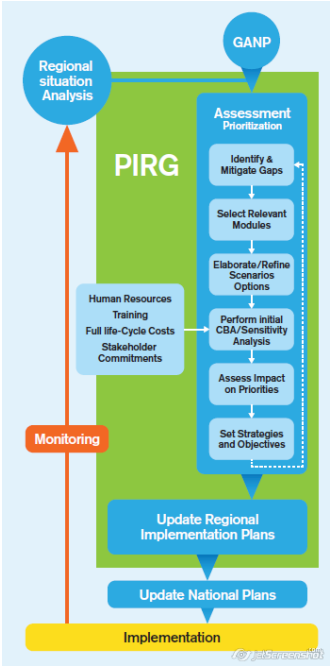
Strategic Objectives:	Safety Air Navigation Capacity and Efficiency Environmental Protection

1. Introduction

1.1 The Assembly resolution A38-2: ICAO global planning for safety and air navigation recognized the importance of effective implementation of regional and national plans and initiatives based on the global frameworks, and endorsed the GANP and the GASP, indicating that these global plans shall provide the frameworks in which regional, subregional and national implementation plans will be developed and implemented, thus ensuring harmonization and coordination of efforts aimed at improving international civil aviation safety, capacity and efficiency.

1.2 Both the CAR and the SAM regions had developed and approved their own regional Air Navigation Plans aligned with the ICAO



ASBU Methodology and reflecting the regional priorities to which the national priorities are also addressed.

2. Discussion

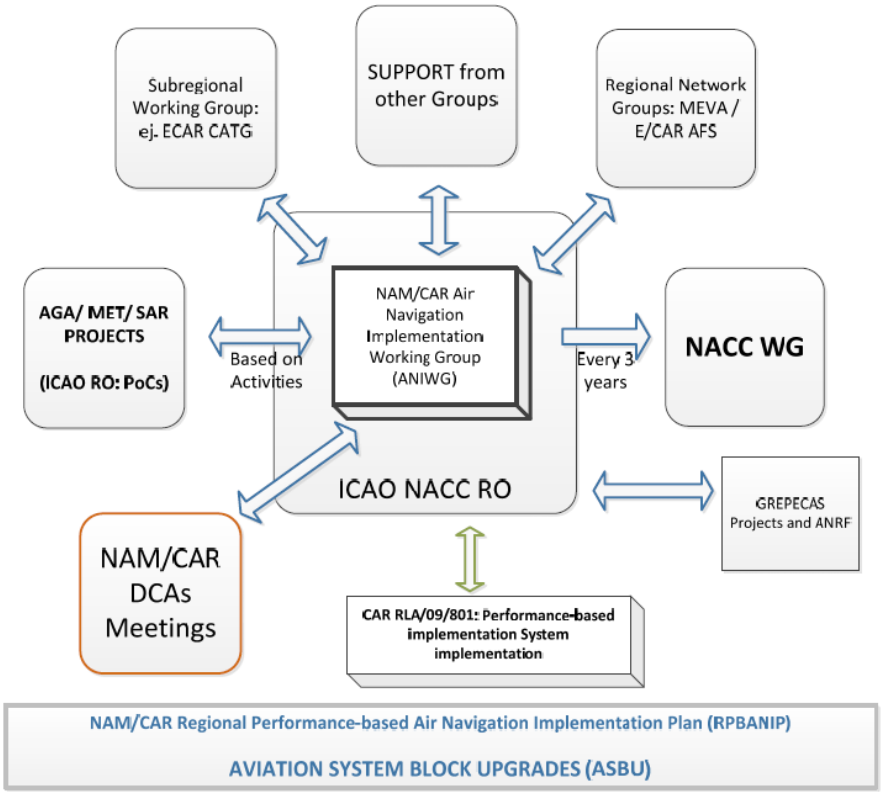
CNS Implementation Mechanism

CAR Region

2.1 For the CAR Region, Air Navigation implementation matters had been carried out by the different Subregional working groups (C/CAR, E/CAR and Central America) until July 2013, when the ANI/WG was established in response to NACC/DCA/4 Conclusion 4/9 - *Consolidation of Sub-Regional Working Groups in the CAR Region and* endorsed by all NAM/CAR Directors.

2.2 The objective of the ANI/WG is to consolidate the existing sub-regional working groups, reduce the number of meetings, avoid duplication, expedite work progress, and improve regional harmonization focused on the Air Traffic Management (ATM), Communications, Navigation and Surveillance (CNS) and Aeronautical Information Management (AIM) air navigation fields. Similarly due to the specific Air Navigation matters of the E/CAR area, the Eastern Caribbean Civil Aviation Technical Group Meeting (ECAR/CATG) was established.

2.3 The ANI/WG works together with the different regional ad-hoc groups (like MEVA TMG, E/CAR/NTG), subregional implementation groups (like E/CAR/CATG), the MET, SAR and AGA Projects to assist in the implementation of the Air Navigation matters in accordance to the Regional Performance Objectives (RPO) activities/tasks contained in the NAM/CAR Regional Performance-based Air Navigation Implementation Plan (RPBANIP) and report to the NACC/WG and NACC/DCAs Meeting as shown below:



2.4 The work programme, membership and other relevant information of the ANI/WG are available at the ANI/WG Webpage: http://www.icao.int/NACC/Pages/nacc-regionalgroups-aniwg.aspx.

SAM Region

2.5 In the SAM Region, the implementation of aspects related to air navigation is accomplished through the SAM/IG meetings, which are conducted twice a year. The last SAM/IG meeting (SAM/IG/13) was held in May 2014. At SAM/IG meetings, experts from different aeronautical disciplines involved in the topics of the agenda prepare action plans, support and follow up the implementation of systems, services, and procedures with a view to improving the efficiency and capacity of air navigation in the SAM Region, while maintaining high safety standards.

2.6 SAM/IG meetings respond mainly to the following regional implementation requirements related to the Global Air Navigation Plan (GANP) and the SAM Performance-Based Air Navigation Implementation Plan (PBIP):

a) transition from ground-based air traffic management to performance-based management (PBN);
b) improvements for balancing air traffic demand and capacity (ATFM);
c) assessment of operational requirements in order to identify communication, navigation and surveillance improvements for en-route and terminal area operations; and
d) operational implementation of new automated ATM systems and integration of the existing ones.

2.7 Each of the aforementioned requirements is being addressed by working groups made up by experts in the area (Route optimisation group, ATFM Group, CNS Group, and Automation Group). At SAM/IG meetings, there are plenary sessions with the participation of all the groups, and individual sessions by group.

2.8 The AGA, AIM, and MET areas have their own regional forums, and when the implementation requires the participation of more than one air navigation area, the SAM/IG becomes the relevant forum, and the agenda is adjusted accordingly.

Interregional CAR/SAM Implementation Activities

MEVA-REDDIG Interconnection

2.9 Studies for the interconnection/interoperability of digital networks in the CAR/SAM Regions started early this century with a view to improving the efficacy, efficiency, quality, and availability of aeronautical fixed service (AFS) voice and data communication circuits specified in the CAR/SAM Regional Air Navigation Plan, Volume II (FASID), reducing costs, and facilitating the gradual introduction of ATN and its ground-ground applications.

2.10 The studies were completed through the efforts of the MEVA II and REDDIG members. After eight MEVA II/REDDIG coordination meetings and three meetings of the MEVAII/REDDIG interconnection task force, contract No. 22500187 was signed between ICAO, on behalf of all REDDIG member States, and Americom Government Services, Inc. (AGS), the MEVA II service provider, for the interconnection of the MEVA II and REDDIG satellite telecommunication networks (March 2009) and

the development of technical cooperation project RLA/09/901 (*Agreement between ICAO and COCESNA for the MEVA II-REDDIG interconnection*, February 2009).

2.11 Since that date, the interconnection of the networks has operated with a high level of availability, ensuring the functionality of voice and data services between the two networks.

2.12 Taking into account the years of service of the MEVA II and REDDIG networks, both the MEVA II and the REDDIG Administrations undertook a process to modernise the networks, to be completed in October 2014 (REDDIG II) and March 2015 (MEVA III).

2.13 With the implementation of the new MEVA III and REDDIG II networks, and in order to maintain the interconnection in the REDDIG II project, the REDDIG II equipment to be installed in Tegucigalpa, Honduras has been purchased and is scheduled for installation in October 2014. The agreement between ICAO and COCESNA will be updated to include equipment purchase and installation expenses incurred in the REDDIG II project; recurrent costs will not vary.

2.14 The Seventeenth Meeting of the REDDIG Coordination Committee (Lima, Peru, 24-26 March) analyzed two proposals submitted by COMSOFT for the implementation of the MEVA III / REDDIG II interconnection in the Bogotá and Caracas nodes, and considered that the rental option was the most convenient. In this regard, the REDDIG Administration has already started to coordinate with the ICAO Technical Cooperation Bureau to begin drafting the new contract that would come into effect once the REDDIG II and MEVA III start operating.

2.15 In order to coordinate the final activities required for the implementation of the MEVA III - REDDIG II interconnection, the revision of the Memorandum of Understanding, and the implementation of new services through the interconnection, a MEVA III-REDDIG II coordination meeting has been scheduled for the first semester of 2015.

ATN implementation

2.16 The implementation of the ATN and its applications had been progressing fairly well following the users' performance and needs and evolving based on the CAR and SAM implementation Plans, the assistance of the GREPECAS D Projects and the regional implementation Groups.

2.17 The regional agreements made since GREPECAS/13 to implement the ATN as an IP-based network using initially IPv4 addresses, for internal and interregional connectivity, had been followed in the CAR and SAM Regions. The CAR Region IPv4 Addressing scheme was reviewed by the ANI/WG distinguishing the network and broadcast network addresses. A revised version was approved in the NACC/WG/4 Meeting as shown at: http://www.icao.int/NACC/Documents/eDOCS/Fasid/NAMCAR-IPv4AddressingScheme.pdf. Similarly, a review to the CAR ATN Network (data circuits only) was also conducted by the ANI/WG and presented in the NACC/WG/04.

AMHS interconnection

2.18 For the Ground-ground ATN applications, particular AMHS, the CAR and SAM Regions have their specific regional implementation Plans. For the CAR Region the AMHS Regional Plan was reviewed during the NACC/WG/04 Meeting and its current valid version is available at: http://www.icao.int/NACC/Documents/eDOCS/Fasid/AMHS%20Implementation%20Matrix%20UPDATE%2018%20April%202012.pdf.

2.19 In the SAM Region, the follow-up on the implementation of the AMHS interconnection is conducted at SAM/IG meetings. WP/14 of this Meeting contains details of the status of implementation and short-term implementation plans.

2.20 Regarding the AMHS interconnection between CAR/SAM States, initial coordination has been conducted to define an initial action plan for AMHS interconnection of Peru and Brazil with the United States. Likewise, with the installation of other AMHS systems, other CAR and SAM States that so require should start coordinating their AMHS interconnection. The physical medium to implement this interconnection would be the MEVA III - REDDIG II interconnection. In this regard, coordination of these implementations could take place through teleconferences or face-to-face CAR/SAM meetings.

AIDC implementation

2.21 Regarding AIDC implementation and regional targets, the CAR region had this planning in their Regional AIDC Planning, which was also reviewed during the NACC/WG/04 Meeting and the NAM Interface Control Document (ICD) was recommended as the reference document for this implementation considering that 4 states in the NAM/CAR regions had adopted the NAM ICD operationally. The next version (version E) of the NAM ICD is scheduled for the end of 2014. Some AIDC are planned between Trinidad and Tobago and Venezuela as part of the CAR Regional AIDC Plan.

2.22 In the SAM Region, follow-up on AIDC implementation is conducted by the SAM/IG. Information on the status of implementation and short-term plans are shown in WP/14 of this Meeting.

2.23 GREPECAS/14 adopted the *Interface Control Document (ICD) for data communications between ATS units in the Caribbean and South American Regions (CAR/SAM ICD)"*. Since all SAM States have implemented AIDC, the message set specified in the ICD has been adapted to the systems installed in the Region. In this regard, a *Guide for the implementation of AIDC through the interconnection of adjacent automated centres* (April *2013*) has been developed in the SAM Region.

2.24 When implementing AIDC between CAR/SAM States, both the GREPECAS ICD document and the NAM ICD should be reviewed, taking into account the aspects considered in the CAR and SAM Regions for AIDC implementation, especially the minimum AIDC message set, in order to achieve a successful implementation with the equipment existing in the two Regions.

GNSS Monitoring- RAIM Implementation

2.25 In the SAM Region, as part of the PBN implementation plans, circulars were drafted for the approval of aircraft and operations for en-route, terminal, and approach PBN procedures. These circulars set forth the need for a RAIM availability prediction programme for aircraft equipped with dual GNSS approved as primary means of navigation for en-route, terminal, and approach procedures.

2.26 Taking into account that operators in the SAM Region do not have a RAIM availability prediction programme, that authorities do not have regulations for approving a RAIM availability prediction programme, and that the prediction programmes available worldwide do not cover SAM airspace, the SAM/IG, with the support of Regional Project RLA/06/901, started a process in May 2010 for the implementation of a RAIM availability prediction service.

2.27 This process consisted in a study of RAIM availability prediction programmes, the development of technical specifications for the implementation of a RAIM availability prediction service, and a bidding process through the ICAO Technical Cooperation Bureau for the implementation of that service.

2.28 On 30 May 2014, ICAO, on behalf of 11 SAM States, signed a contract with DWI for the provision of a web-based RAIM availability prediction service in the SAM Region.

2.29 Accordingly, by September 2014, the SAM Region will have a web-based RAIM availability prediction service for en-route (RNP 10, RNP 4, RNP 2, and advanced RNP oceanic and remote continental areas), continental (RNAV 5, RNAV2, RNAV1, RNP2, and advanced RNP), terminal (RNAV 5, RNAV 2, RNAV 1, RNP 1, advanced RNP, RNP 0.3) and RNAV 1 (initial, intermediate, missed approach segments) - RNP 1 (initial, intermediate, missed approach segments) and RNP 0.3 (initial, intermediate, missed approach segments) approach operations. The service does not cover the RNP APCH AR procedure.

2.30 The RAIM prediction service of the SAM Region can be extended to other Regions. Consequently, the CAR States/Territory are invited to analyse the experience of the SAM Region in the implementation of the service for its implementation in the CAR Region.

2.31 As a result of the implementation of the WAAS system, the CAR Region has a GPS satellite signal integrity detection/prediction system, which currently covers only the WAAS coverage area (up to the South of Mexico and North of Cuba).

Radar Data sharing/exchange activities

2.32 Even though radar data sharing/exchange activities had being implemented in most of the continental airspace within the CAR and SAM Regions, providing a satisfactory radar coverage for both regions and following the GREECAS agreement for the use of ASTERIX as the exchange protocol.

2.33 Several coordination and planning have been conducted between the boundary States in CAR and SAM, specifically Curacao and Trinidad and Tobago with Venezuela; however the actions have not been implemented timely and the coordination need to continue to streamline these actions.

3. Suggested Action

3.1 The Meeting is invited to:

a) take note of the Air Navigation implementation mechanism for CNS matters;

b) review and analyze the interregional CNS Implementation activities; and

c) analyze other considerations respectively, as deemed appropriate by the meeting.

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