International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)

WORKING PAPER

GREPECAS/22 — WP/09
06/09/24

Fourth GREPECAS–RASG-PA Joint Meeting and
Twenty-second Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/22)
Virtual Phase (Asynchronous, 16 September to 11 October 2024)
In-Person Phase (Lima, Peru, 20 to 22 November 2024)

Agenda Item 5: **CAR/SAM Air Navigation Services (ANS) Implementation**
5.2 Communications, Navigation and Surveillance (CNS)

CNS PROGRAMMES AND PROJECTS – SAM REGION

(Presented by the Secretariat)

EXECUTIVE SUMMARY

This working paper summarizes the activities carried out by the Communications, Navigation, and Surveillance (CNS) area of the SAM Region in follow-up to the activities of GREPECAS Projects C and D, for air navigation implementation activities. Additionally, updates to the conclusions and decisions of the GREPECAS/21 Meeting related to the CNS area and its projects are addressed.

Action:	Suggested actions in paragraph 4 of this working paper.
Strategic Objectives:	• Air Navigation Capacity and Efficiency
References:	• Twentieth Meeting of the Caribbean and South American Regional Planning and Implementation Group (GREPECAS/20), November 2022 • https://www.icao.int/NACC/Documents/Meetings/2022/GREPECAS20/GREPECAS20-FinalReport.pdf • Twenty-first Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/21), November 20 • https://www.icao.int/NACC/Documents/Meetings/2023/GREPECAS21/00-GREPECAS21-FinalReport.pdf

1. Introduction

1.1 Within the framework of GREPECAS Projects C – Automation and Situational Awareness, and D – Ground-to-Ground and Air-to-Ground Communication Infrastructure, this working paper presents the

main initiatives/activities developed in the SAM Region related to the implementation of Air Navigation Services (ANS) in the area of Communications, Navigation, and Surveillance (CNS).

2. CNS Activities Linked to GREPECAS Conclusions/Decisions

2.1 GREPECAS CONCLUSION/21/06

2.1.1 GREPECAS Conclusion 21/06 addresses the "**Update of Part III (CNS) of Volume II of the CAR/SAM ANP,**" in which States and Territories, through their designated ANP Focal Points, and in coordination with the ICAO NACC/SAM Regional Offices, must update Part III (CNS) of Volume II of the CAR/SAM ANP, considering the adoption of a new file format for the CNS tables.

2.1.2 Within the framework of the Interoperability Task Force (INTEROP TF), the CNS/ANP Subgroup was formed, with Mr. Edmundo Cortés Mancilla from Chile serving as rapporteur, who has coordinated the update of the tables with the ANP Focal Points of the SAM States.

2.1.3 The proposed change to the introductory text of Part III – Communications, Navigation, and Surveillance (CNS) can be accessed by authorized participants through the following MS Teams link: Part III Vol II Text.docx.

2.1.4 The following tables will form the new Part III (CNS):

- Table CNS II-1 – AERONAUTICAL MESSAGE SERVICE (AFTN/AMHS) PLAN;
- Table CNS II-2 – ATS DIRECT SPEECH CIRCUITS PLAN;
- Table CNS II-3 – ATS INTERFACILITY DATA COMMUNICATION (AIDC) PLAN;
- Table CNS II-4 – HF NETWORK DESIGNATORS APPLICABLE IN THE CAR/SAM REGIONS;
- Table CNS II-5 – CAR/SAM ATN IPV4 ADDRESSING PLAN;
- Table CNS II-6 – AERONAUTICAL MOBILE SERVICE AND AMSS PLAN;
- Table CNS II-7 – RADIO NAVIGATION AIDS PLAN;
- Table CNS II-8 – ASTERIX SAC CODE ASSIGNMENT PLAN; and
- Table CNS II-9 – SURVEILLANCE SYSTEMS PLAN

2.1.5 Some tables have already been forwarded for review by CAR States to consolidate the information, while other tables should remain unchanged.

2.2 GREPECAS CONCLUSION/21/10

2.2.1 The GREPECAS Conclusion/21/10 is aimed at **"Strengthening the management of frequencies for the use of air navigation services**," indicating the expansion of the scope of the Aeronautical Frequency Management Project with the activity of specifying a technical/operational management and planning application (software) for the allocation of aeronautical frequencies for the CAR/SAM Regions.

2.2.2 This activity has not yet been initiated, and the States of the SAM Region have tried to prioritize the implementation of GREPECAS Conclusion 21/12, with the aim of gaining experience and obtaining more information to better specify a new application, if necessary.

2.2.3 In item 2.4, further details are provided on the progress in the use of the current tool (Frequency Finder) used for the management of aeronautical frequencies.

2.3 GREPECAS CONCLUSION/21/11

2.3.1 The conclusion aimed at "**Developing a Terms of Reference document for a tool to evaluate the surveillance data of CAR and SAM States**" has not yet been initiated.

2.3.2 However, within the framework of the Regional Project RLA/06/901 of the SAM Region Implementation Group (SAM/IG), the project Coordination Committee has approved the holding of a "**Workshop on obtaining, monitoring, analysing, and using information from ADS-B sensors (ADS-B CNS/SUR/1)**", to be held from 25 to 29November 2024, which will serve as a preparatory activity to execute GREPECAS Conclusion 21/11.

2.4 GREPECAS CONCLUSION/21/12

2.4.1 GREPECAS Conclusion/21/12 addresses the "**Use of the Frequency Finder 2023 Application as a tool for managing VHF NAV and VHF COM frequencies used in the aeronautical context**," urging CAR and SAM States to nominate Focal Points and use the Frequency Finder 2023 runtime application to update VHF COM and VHF NAV frequency information.

2.4.2 The most current version (FF2023.03.RT) is available at the following link from the Frequency Spectrum Management Panel (FSMP):

https://www.icao.int/safety/FSMP/Pages/Documents.aspx

2.4.3 For the SAM Region States, several training sessions were conducted in 2023 (1 in-person and 4 online). Additionally, a refresher training for the current version (FF2023.03.RT) was held on September 12 and 13, 2024, which includes three modules: VHF COM, VHF NAV, and SSR.
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2.5 GREPECAS CONCLUSION/21/13

2.5.1 Regarding GREPECAS Conclusion 21/13 – "**Actions to advance the implementation of D-ATIS and DCL**," the SAM States already have a document from 2013 titled "**Guidance for the Implementation of Air-Ground Data Link Applications in the SAM Region**."

2.5.2 It is proposed to form a Subgroup of the INTEROP TF to review and update the existing guide and formulate action plans for the States of the SAM Region concerning the implementation of D-ATIS and DCL.

2.6 GREPECAS CONCLUSION/21/21

2.6.1 GREPECAS Conclusion/21/21 addresses the "**Development of an action plan for the implementation of ADS-B**," urging States/Territories to review the existing Operational Concept for ADS-B implementation in the CAR and SAM Regions, including its operational objectives, and to support the development of model regulations for ADS-B.

2.6.2 Within the framework of the INTEROP TF, three ad-hoc groups of the CNS/SUR Subgroup were formed to develop activities:

- Ad-hoc Group CONOPS ADS-B;
- Ad-hoc Group Regulation ADS-B; and
- Ad-hoc Group Implementation ADS-B.

2.6.3 The Ad-hoc Group CONOPS ADS-B is led by Mr. Julio Pereira (IATA), who proposed adding a new chapter (Chapter 7 – ADS-B Implementation) consistent with ICAO Circular 326. The other members of the Ad-hoc Group are reviewing the proposed changes for consideration by the Implementation Group (SAM/IG).

2.6.4 The Ad-hoc Group Regulation ADS-B is led by Mr. Marcos Vignolo (Uruguay), and the group has worked on updating the Advisory Circular (CA OPS-91-030) to include aspects related to the use of ADS-B (**Item 7. Specific approvals for RVSM aircraft operators equipped with qualified ADS-B OUT systems**). Additionally, the activity OPS 1.4 'Development of requirements and guidance material for the operation of aircraft in airspace where automatic dependent surveillance – broadcast (ADS-B) is mandatory' is scheduled for 2024, under the SRVSOP Technical Committee.

2.6.5 The Ad-hoc Group Implementation ADS-B currently does not have a lead, but during the "Workshop on obtaining, monitoring, analysing, and using information from ADS-B sensors (ADS-B CNS/SUR/1)," the appointment of a rapporteur for the group will be discussed with the participants (see item 2.3.2).

2.7 GREPECAS DECISION/21/24

2.7.1 GREPECAS Decision/21/24 "**Updates to the GREPECAS A2 GNSS Augmentation Project**" has not been initiated; however, CAR and SAM States have been invited to an event related to the topic, scheduled for September 23, 2024 – 'Regional LATAM SBAS Virtual Workshop,' provided by Thales Alenia Space.

3. Other CNS activities developed by the INTEROP TF

ATM/AIDC SUBGROUP

3.1 Two AIDC connections were established in September 2024:

- ACC Amazonico and ACC Maiquetia; and
- ACC Barranquilla and ACC Maiquetia.

3.2 Coordination for two AIDC connections was initiated in 2024:

- ACC Amazonico and ACC Bogota; and
- ACC Amazonico and ACC Bogota.

3.3 The following AIDC connection is still in pre-operational testing:

- ACC Amazonico and ACC Bogota.

3.4 Figure 1 presents the status of AIDC implementation in the SAM Region to date.

Estado	Implementado	Planeado	% Avance	% Avance Regional	Faltante
ARG	0	17	0.00	0.00%	7.14%
BOL	0	6	0.00	0.00%	7.14%
BRA	10	25	40.00	2.86%	4.28%
CHI	2	11	18.18	1.30%	5.84%
COL	5	13	38.46	2.75%	4.39%
ECU	3	3	100.00	7.14%	0.00%
FRA	0	5	0.00	0.00%	7.14%
GUY	0	5	0.00	0.00%	7.14%
PAN	2	6	33.33	2.38%	4.76%
PAR	0	3	0.00	0.00%	7.14%
PER	3	6	50.00	3.57%	3.57%
SUR	0	4	0.00	0.00%	7.14%
URU	0	5	0.00	0.00%	7.14%
VEN	2	6	33.33	2.38%	4.76%
Total				22.38%	77.58%

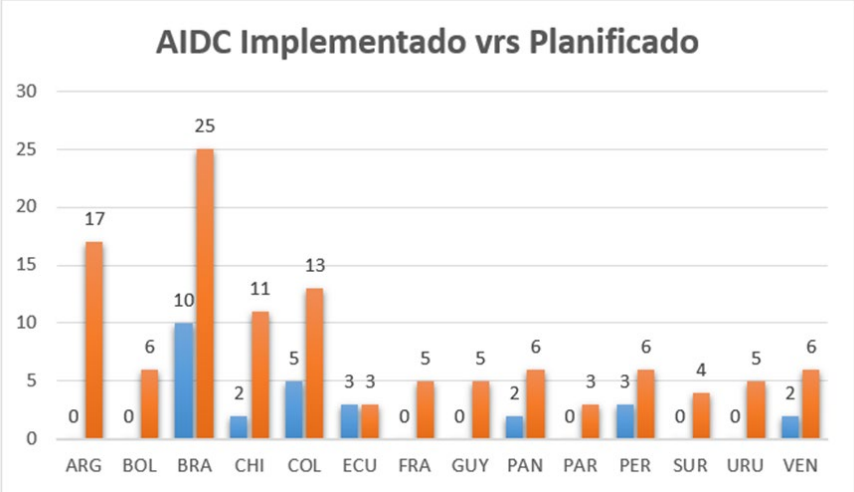

Figure 1 – AIDC Implementation in the SAM Region

ATM/FPL SUBGROUP

3.5 The ATM/FPL Subgroup, through the Ad-hoc Group CADAS, conducted an online workshop on the CADAS-ATS application (May 28, 2024).

CNS/AMHS SUBGROUP

3.6 Following the tests conducted on September 16 and 18, 2024, between the AMHS Centers in Georgetown and Piarco, AMHS implementation in the SAM Region will reach 99.35%.

3.7 In addition to the 40 planned connections (28 intraregional and 12 interregional), 9 extra-plan AMHS connections have been established.

3.8 Only one interregional AMHS connection (P1) has not yet been established, between the COM Center in Caracas and the COM Center in Curaçao. It is estimated that this connection will be completed by the end of 2025 or early 2026.

3.9 Figure 2 presents the status of AMHS implementation in the SAM Region.

State	Implemented	Planned	% Avance por Estado	Brecha por Estado	% Avance Regional	Brecha regional
ARG	8	8	100.00%	0.00%	7.14%	0.00%
BOL	3	3	100.00%	0.00%	7.14%	0.00%
BRA	14	14	100.00%	0.00%	7.14%	0.00%
CHI	2	2	100.00%	0.00%	7.14%	0.00%
COL	5	5	100.00%	0.00%	7.14%	0.00%
ECU	3	3	100.00%	0.00%	7.14%	0.00%
FRA	2	2	100.00%	0.00%	7.14%	0.00%
GUY	4	4	100.00%	0.00%	7.14%	0.00%
PAN	2	2	100.00%	0.00%	7.14%	0.00%
PAR	2	2	100.00%	0.00%	7.14%	0.00%
PER	7	7	100.00%	0.00%	7.14%	0.00%
SUR	2	2	100.00%	0.00%	7.14%	0.00%
URU	2	2	100.00%	0.00%	7.14%	0.00%
VEN	10	11	90.91%	9.09%	6.49%	0.65%
Total					99.35%	0.61%

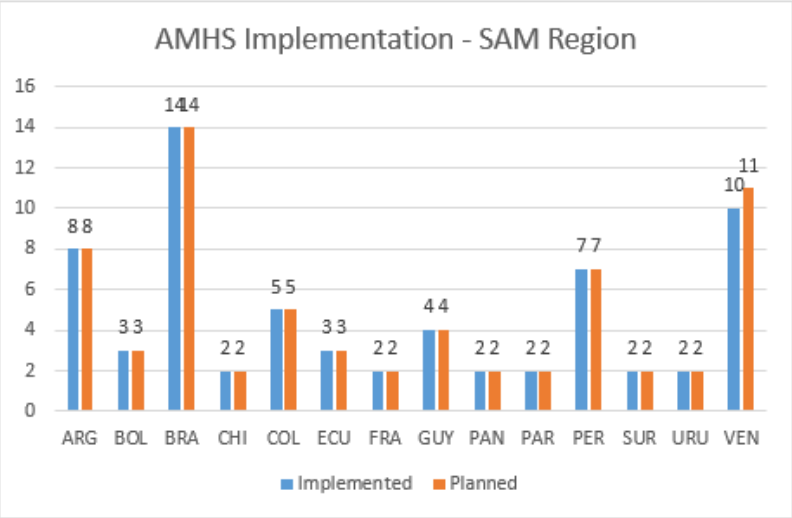

Figure 2 – AMHS Implementation in the SAM Region

Training on AMHS/SWIM Gateway

3.10 With resources from the Regional Technical Cooperation Project RLA/06/901, an online training on the AMHS/SWIM Gateway was conducted from May 6 to 10, 2024.

CNS/ANP SUBGROUP

3.11 The CNS/ANP Subgroup has worked on two activities requested by GREPECAS:

- Updating Part III (CNS) of Volume II of the CAR/SAM ANP (GREPECAS Conclusion 21/06); and
- Utilizing the Frequency Finder application for managing aeronautical spectrum frequencies, consolidating information from the database in Montreal.

3.12 Updates to the tables are awaited from the CAR States to consolidate the information, in order to submit amendment proposals to the regional plan.

3.13 Regarding the management of aeronautical frequencies, it is very important that all CAR/SAM States update their information to obtain a consolidated global database.

CNS/VOIP SUBGROUP

First Workshop/Meeting of the CNS/VOIP Subgroup

3.14 The First Workshop/Meeting of the CNS/VOIP Subgroup was held in Lima from February 26 to March 1, 2024, with the aim of assessing the VoIP capabilities implemented by SAM States; developing the syllabus for the training to be contracted on 'Interoperability Standards for ATM VoIP Components (EUROCAE ED-137)'; and coordinating the establishment of initial voice communications based on EUROCAE ED-137 Standards, via REDDIG.

Course on "Interoperability Standards for ATM VoIP Components (EUROCAE ED-137)"

3.15 From June 17 to 21, 2024, an online course on "Interoperability Standards for ATM VoIP Components (EUROCAE ED-137)" was conducted for 22 representatives from the participating States of the Regional Technical Cooperation Project RLA/06/901.

MET/IWXXM SUBGROUP

3.16 The Regional OPMET Data Bank (RODB) has been updated to meet the requirements of Annex 3 up to Amendment 78. Table 1 lists the versions that have already been implemented in the RODB of Brasília.

Table 1 – Versions of IWXXM Implemented in the RODB of Brasília

IWXXM	METAR/ SPECI	TAF	SIGMET	AIRMET	TCA	VAA	SWA	SIGWX	Requisito Anexo 3
1.1	1.1.0	1.1.0	1.1.0	-	-	-	-	-	Amd 76
2.1	2.1.1	2.1.1	2.1.1	2.1.1	2.1.1	2.1.1	-	-	Amd 77
3.0	3.0.0	3.0.0	3.0.0	3.0.0	3.0.0	3.0.0	3.0.0	-	Amd 78

3.17 Additionally, the administration of Brazil is working on the third update of the RODB of Brasília, with the aim of addressing Amendments 79 and 80 of Annex 3. Table 2 lists the versions that are being implemented, with an expected delivery in 2025.

Table 2 – Versions in Implementation in the RODB of Brasília

IWXXM	METAR /SPECI	TAF	SIGMET	AIRMET	TCA	VAA	SWA	SIGWX	Requisito Anexo 3
2021-2	3.1.0	3.0.1	4.0.0	3.1.0	3.1.0	3.1.0	3.0.1	1.0.0	Amd 79 + Amd 80
2023-1	3.1.0	3.0.1	4.0.1	3.1.1	3.1.0	3.1.0	3.0.1	1.1.0	Amd 79 + Amd 80

3.18 It is important to note that the RODB of Brasília can exchange information via Messaging Service (AMHS) as well as through web services (SWIM). Figure 3 presents the architecture of the RODB of Brasília.

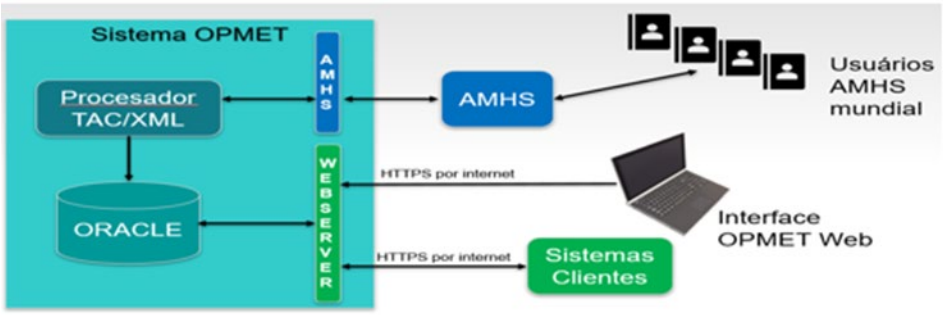

Figure 3 – Architecture of the RODB of Brasília

4. Suggested Actions

4.1 The Meeting is invited to:

a) analyze the information provided in this paper;

b) promote and maintain the participation of CNS specialists in the various subgroups and task forces that drive implementation;

c) update the required data for CNS planning, as outlined in paragraphs 2.1.1 and 2.4.1; and

d) define, if applicable, any other appropriate actions.

— END —