



**GREPECAS Programmes and Projects Committee (PPRC) Fifth Virtual Meeting
 (ePPRC/05)
 Online, 20 – 21 April 2023**

Agenda Item 2: Review of the Programmes and Projects of the CAR/SAM Planning and Implementation Regional Group (GREPECAS)

2.1 Programmes and Projects reviewed by GREPECAS:

Communications, Navigation and Surveillance (CNS)

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
This working paper provides information on the activities carried out by the CNS area within the framework of the Programmes and Projects of the CAR/SAM Planning and Implementation Regional Group (GREPECAS).	
Action:	Suggested actions are presented in Section 3.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"> • Air Navigation Capacity and Efficiency • Economic Development of Air Transport • Environmental Protection
<i>References:</i>	<ul style="list-style-type: none"> • Twentieth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/20), Salvador, Brazil, 16 to 18 November 2022: https://www.icao.int/NACC/Pages/meetings-2022-grepecas20.aspx

1. Introduction

1.1 Within the framework of Projects C – Automation and Situational Awareness and D – GREPECAS Ground-Ground and Ground-Air Communications Infrastructure, this working paper presents the main initiatives/activities developed in the CAR/SAM Regions, related to the implementation of Air Navigation Services (ANS) in the Communications, Navigation and Surveillance (CNS) area.

1.2 A summary of the activities carried out by the CNS area is also presented, following up on the conclusions and decisions of the last GREPECAS/20 meeting.

2. Regional Activities

2.1 NAM/CAR Activities

2.1.1 The NAM/CAR Regions updated their work agenda in all Air Navigation areas, including CNS activities; in this regard, the activities to date are listed below:

- a) Conclusion GREPECAS/20/03 on carrying out a "Study on Operational Priorities for the Implementation of ADS-B and Aspects of the Use of ADS-B in ATC Units" was included, in this sense:
 - The document "ADS-B Operational Concept" developed by the Surveillance Task Force of the North American, Central American and Caribbean Working Group (NACC/WG/TF/SURV) covers recommendations to achieve operational objectives through Automatic Dependent Surveillance - Broadcast (ADS-B).
 - A study of regional coverage of surveillance data was carried out, including secondary radars and ADS-B, and according to the result, work will proceed with specific action plans with each State of the CAR Region.
 - At the request of the NACC/WG, work is being done on a proposal (date) for the mandatory implementation of ADS-B for the CAR Region.
- b) Regarding the Conclusion GREPECAS/20/18: "Review of Air Navigation Deficiency Assessment Processes", the CNS area is carrying out joint work with all ANS areas to identify regional deficiencies in terms of infrastructure through of the evaluation of the Basic Building Blocks (BBB).

2.2 SAM activities

2.2.1 Since the GREPECAS/20 Meeting held in Salvador, Brazil, from 16 to 18 November 2023, the following activities were carried out by the States of the SAM Region:

- a) Workshop/Training on Firewalls equipment of the South American Digital Network (REDDIG);
- b) RLA/03/901 - Twenty Ninth Meeting of the REDDIG Coordination Committee (REDDIG RCC/29);
- c) First Workshop/Meeting of the ATM/FPL Subgroup;
- d) Virtual Workshop on the Brazilian Flight Plan Centralization System (SIGMA);
- e) New established interconnections with the Aeronautical message handling system (AMHS) (P1);
- f) Exchange of Satellite ADS-B information via REDDIG

Workshop/Training in REDDIG II Firewall equipment

2.2.2 In the period from 22 to 25 November 2023, the Workshop/Training on Firewalls equipment of the South American Digital Network (REDDIG) was held, equipment which was procured by the RLA/03/901 Technical Cooperation Regional Project.

Twenty Ninth Meeting of the REDDIG Coordination Committee (REDDIG RCC/29)

2.2.3 The REDDIG RCC/29 Meeting was held from 13 to 17 March 2023, in Lima. The meeting was attended by 32 participants from 13 Member States (Argentina, Brazil, Chile, Colombia, Ecuador, Guyana, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay and Venezuela), 2 industry companies (COCESNA and CIRION), including ICAO specialists.

2.2.4 The following conclusions were formulated during the Meeting:

- a) RCC/29-1 – Ad-Hoc Group to study and propose an advanced standard configuration for the firewall equipment purchased.
- b) RCC/29-2 – Management and Administration of the RLA/03/901 Regional Project with the implementation of REDDIG III.
- c) RCC/29-3 – Implementation of REDDIG III.
- d) RCC/29-4 – Approval of the budget of the RLA/03/901 Regional Project Rev “X”.

2.2.5 The REDDIG RCC/29 Meeting report can be accessed through the following link: <https://www.icao.int/SAM/Pages/MeetingsDocumentation.aspx?m=2023-RLA03901-RCC29&t=1>

First Workshop/Meeting of the ATM/FPL Subgroup

2.2.6 During the period from 27 to 31 March 2023, the First Workshop/Meeting of the ATM/FPL Subgroup was held, with the aim of studying and proposing solutions for the centralization of flight plan management, in order to mitigate errors and duplication/multiplicity of flight plans and associated messages, with the participation of interested States and Industry.

2.2.7 The Summary of the Workshop/Meeting Discussions will be available at the following link: <https://www.icao.int/SAM/Pages/MeetingsDocumentation.aspx?m=2023-RLA06901-SGATMFPL1&t=1>

Virtual Workshop on the Brazilian Flight Plan Centralization System (SIGMA)

2.2.8 From 18 to 19 April 2023, an online workshop on the Brazilian Flight Plan Centralization System (SIGMA) was held, presented by the system manufacturer (Atech).

2.2.9 The following topics were addressed in detail:

- a) Demonstration of flight plan submission planning through the FPL BR and EFB applications
- b) Submission of a flight plan through the FPL BR application
- c) Treatment of the flight plan in the Aeronautical Information Service (AIS) Virtual Office
- d) Demonstration of the flight plan in the Flight Plan Centralization System
- e) Flight demonstration in the SAGITARIO Air Traffic Control (ATC) Area Control Center (ACC) system and its approval
- f) Demonstration of demand and capacity graphs in the SIGMA System

New established interconnections with the Aeronautical message handling system (AMHS) (P1)

2.2.10 In 2022 and up to the present year, the following planned AMHS (P1) interconnections were established, via REDDIG II:

- a) 11/30/2022: Ezeiza COM Center (SAEZ) and Montevideo COM Center (SUMU)
- b) 02/14/2023: Brasilia COM Center (SBBR) and Montevideo COM Center (SUMU)
- c) 02/23/2023: Caracas COM Center (SVCA) and Madrid COM Center (LEEE)
- d) 02/28/2023: Brasilia COM Center (SBBR) and Madrid COM Center (LEEE)

2.2.11 In 2022 and up to the present year, the following extra-plan AMHS (P1) interconnections were established, via REDDIG II:

- a) 06/06/2022: Ezeiza COM Center (SAEZ) and Caracas COM Center (SVCA)
- b) 08/15/2022: Bogota COM Center (SKED) and CENAMER COM Center (MHTG)
- c) 08/30/2022: Caracas COM Center (SVCA) and CENAMER COM Center (MHTG)
- d) 09/06/2022: Lima COM Center (SPIM) and CENAMER COM Center (MHTG)
- e) 12/07/2022: Lima COM Center (SPIM) and Montevideo COM Center (SUMU)
- f) 03/08/2023: Ezeiza COM Center (SAEZ) and Madrid COM Center (LEEE)
- g) 04/04/2023: Panama COM Center (MPPO) and Lima COM Center (SPIM)

Exchange of Satellite ADS-B information via REDDIG

2.2.12 In the period of March and April 2023, coordination was carried out for the establishment of the circuit for the exchange of aeronautical surveillance by Satellite ADS-B (Space-based ADS-B) between the REDDIG II (MPLS) nodes of COCESNA in Ilopango and Aireon in Virginia.

2.3 Joint NAM/CAR/SAM activities

2.3.1 Following up on Decision GREPECAS/20/05 "Creation of an Ad-Hoc Group for the Development of a Regional Project for the Management of Aeronautical Frequencies" the ICAO NACC Regional Office received the group from 30 January to 3 February 2023 with participants from Chile, Dominican Republic, Haiti, Uruguay and COCESNA. The report of the Ad-hoc Group meeting can be found at the following link: <https://www.icao.int/NACC/Pages/meetings-2023-afm.aspx>.

2.2.4 The Ad-hoc Group has prepared the Regional Project proposal for frequency management in the CAR/SAM Regions for approval during the ePPRC/5 Meeting. The GREPECAS Project will be aimed at:

- a) provide guidance to CAR and SAM States to manage frequency assignment;
- b) establish updated databases in both regions available to the States;
- c) establish more expeditious mechanisms for coordination and socialization of topics of interest in this area; and
- d) develop mechanisms to analyse the use of frequencies for future aeronautical services.

2.2.5 Each ICAO Regional Office would manage directly with their States the actions recommended by the Ad-Hoc Group; these are found in the **Appendix** to this working paper.

2.2.6 The Conclusion GREPECAS/20/12 "NAM/CAR/SAM Workshop for the Implementation of Mitigation Measures to Avoid Interference in the Operation of Radio Altimeters due to the

Commissioning of 5G Technology". The workshop was held on 28 February 2023 and the report can be found at the following link: <https://www.icao.int/NACC/Pages/meetings-2023-5grisk.aspx>.

2.2.7 Decision GREPECAS/20/05 and Conclusion GREPECAS/20/12 are finalized.

3. Suggested actions

3.1 States are invited to:

- a) take note of the information presented in this working paper;
 - b) approve the GREPECAS Project for the CAR/SAM Regional Management of the Radio Electric Spectrum for Aviation; and
 - c) analyse any other related matter that the Meeting deems necessary.
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APPENDIX

PROJECT FOR THE CAR/SAM REGIONAL MANAGEMENT OF THE RADIO ELECTRIC SPECTRUM FOR AVIATION

CAR/SAM Regions	PROJECT DESCRIPTION (PD)	PD N° C	
<i>Programme</i>	Project Title	Start Date	End Date
<p>Improvements to the Regional Frequency Management</p> <p>(ICAO Programme Coordinators: Mayda Avila, Regional Officer, Communications, Navigation and Surveillance (CNS), NACC Office</p> <p>Francisco Almeida Regional Office CNS, SAM Office</p>	<p>CAR/SAM REGIONAL MANAGEMENT OF THE RADIO ELECTRIC SPECTRUM FOR AVIATION</p> <p>Project Coordinators:</p> <ul style="list-style-type: none"> - CAR: Emmanuel Jacques - SAM: To be defined <p>Experts contributing to the Project:</p> <ul style="list-style-type: none"> - Ricardo Enrique Velásquez Aravena (Chile) - Felix Jose Peralta Díaz (Dominican Republic) - Elvis Collado (Dominican Republic) - Emmanuel Joseph Jacques (Haiti) - Horacio Berretta Kramer (Uruguay) - Rodolfo Josué Rosales Calero (COCESNA) 	April 2023	May 2024
Project Objectives	The main objective is to create a regional mechanism to ensure the correct and efficient management of frequencies for aviation services in the NAM/CAR/SAM Regions to improve safety throughout its operation to avoid interference and other frequency problems.		
Scope	Propose improvements that allow facing the challenges to safeguard the frequencies of the radio spectrum, necessary for current and future aeronautical services in the CAR/SAM Regions.		
Metrics	<ul style="list-style-type: none"> • Number of CAR and SAM States participating in the Project. • COM1, COM2 and COM3 listings update in the regions. 		

CAR/SAM Regions	PROJECT DESCRIPTION (PD)	PD N° C
Goals	<ul style="list-style-type: none"> • Update the information on aeronautical frequency assignment in the CAR/SAM Regions. • Establish/update the regional frequency assignment procedure. • Propose a regional training programme for the management of aeronautical frequencies. • Establish follow-up and evaluation mechanisms on World Radiocommunications Conference (WRC) of the International Telecommunication Union (ITU) issues. • Search for mechanisms that allow the application of procedures standardization. 	
Strategy	<ul style="list-style-type: none"> • Involvement of the CAR and SAM States in the execution of the proposed activities. • Use of current meeting mechanisms. • Assignment of the necessary human resources by States for the development of the Project. • Review of the agenda presented for ITU WRC Conferences. • Dissemination of the information that affects the aeronautical frequencies to the CAR and SAM States. 	
Justification	<p>The radio spectrum is a scarce natural resource with a finite capacity whose demand is constantly growing.</p> <p>Aeronautical radio services are internationally recognized as the main users of radio frequencies, without which the operation of aircraft could not satisfy the global demand for safe, efficient and profitable transportation. ICAO's position aims to protect the aeronautical spectrum for all radio communication and radio navigation systems used for ground-based installations and on board aircraft.</p> <p>Civil aviation requirements continue to grow, demanding more navigation and communication facilities, thus creating increasing pressure on an already limited resource similarly to other non-aviation users with whom aviation shares the frequency spectrum resource. Consequently, civil aviation must develop and present its agreed policies and its quantified and qualified statements of radio frequency spectrum requirements, in order to ensure the continuous availability and access to the frequency spectrum resource and, ultimately, the continued viability of air navigation services worldwide.</p> <p>The management of the aeronautical frequency spectrum is required due to:</p> <ul style="list-style-type: none"> • Scarce natural resource with finite capacity limits and increasing demand. • Spectrum management being a combination of administrative procedures and technical procedures. • Congestion imposes the need for frequency spectrum management. • The need to guarantee the efficient operation and without interferences of radio electric services, (for example, communications and radio navigation). <p>Finally, the development of the Project will allow to:</p> <ul style="list-style-type: none"> • Provide guidance to CAR and SAM States to manage frequency assignment. • Establish updated databases in both regions and available to the States. • Establish more expeditious mechanisms for coordination and socialization of topics of interest in this area. • Develop mechanisms for frequency use analysis for future aeronautical services. 	

CAR/SAM Regions	PROJECT DESCRIPTION (PD)	PD N° C
Related Projects	Air Navigation Project	

Project Deliverables	Relationship with Regional Performance Objectives (RPO) and Aviation System Block Upgrades (ASBU) modules	Responsible	Implementation Status	Date		Comments
				Start	Finish	
PROJECT FOR THE CAR/SAM REGIONAL MANAGEMENT OF THE RADIO ELECTRIC SPECTRUM FOR AVIATION						
Project Definition:	COMS, NAVS B0 and B1			30 January 2023	17 January 2023	
Development of the Project Requirements		GREPECAS Ad-hoc Group		30 January 2023	3 February 2023	According to Conclusion GREPECAS/20/05
Communication of the report to States		ICAO NACC and SAM Offices		6 February 2023	24 February 2023	Completed
Response by States		CAR and SAM States		20 February 2023	17 March 2023	Completed
Request the Point of Contact (PoC) of each State		CAR and SAM States		20 February 2023	17 March 2023	Completed
Presentation of the Project at the PPRC meeting		ICAO NACC and SAM Offices		6 February 2023	6 February 2023	
Update information on aeronautical frequency assignment in the CAR/SAM Regions:	COMS, NAVS B0 and B1			7 February 2023	20 November 2023	

Project Deliverables	Relationship with Regional Performance Objectives (RPO) and Aviation System Block Upgrades (ASBU) modules	Responsible	Implementation Status	Date		Comments
				Start	Finish	
Establish the information update requirements (according to Annex 10)		ICAO NACC and SAM Offices		7 February 2023	20 February 2023	
Develop an electronic format for filling in the information		ICAO NACC and SAM Offices		26 April 2023	9 May 2023	
Meeting of the Ad-hoc Group to review the proposal		GREPECAS Ad-hoc Group		10 May 2023	10 May 2023	
Send the request for information to States, in accordance with the defined criteria		ICAO NACC and SAM Offices		11 May 2023	24 May 2023	
Online meeting to explain the requested information		ICAO NACC and SAM Offices		5 June 2023	5 June 2023	
Response from States		CAR and SAM States		6 June 2023	17 July 2023	
Analysis of the information received		GREPECAS Ad-hoc Group ⁱ		18 July 2023	31 July 2023	Appointed by the States after the project is approved.
Submission of the report on the status of implementation of frequencies at the regional level		ICAO NACC and SAM Offices		1 August 2023	21 August 2023	
Response from States on the report		CAR and SAM States		22 August 2023	2 October 2023	
Development of the final report on the status of frequencies at the CAR and SAM regional level		GREPECAS Ad-hoc Group		3 October 2023	13 November 2023	
Presentation of the project at GREPECAS/21		ICAO NACC and SAM Offices		14 November 2023	20 November 2023	

Project Deliverables	Relationship with Regional Performance Objectives (RPO) and Aviation System Block Upgrades (ASBU) modules	Responsible	Implementation Status	Date		Comments
				Start	Finish	
Establish/update the regional frequency assignment procedure:	COMS, NAVS B0 and B1					
Review and update of the procedure in force at the NACC and SAM Offices.		ICAO NACC and SAM Offices		6 June 2023	6 June 2023	
Establish the criteria to cover both the CAR and SAM regions. (see the criteria for use and where the information will be placed on the Offices' web pages)		ICAO NACC and SAM Offices		7 June 2023	27 June 2023	
Propose a regional training programme for the management of aeronautical frequencies:	COMS, NAVS B0 and B1					
Review of the profile of personnel that manages aeronautical frequencies		GREPECAS Ad-hoc Group		7 February 2023	13 February 2023	
Search for training mechanism (verify the Training Centres, has cost)		GREPECAS Ad-hoc Group		14 February 2023	13 March 2023	
Submit a proposal to States		ICAO NACC and SAM Offices		26 April2023	27 April2023	
Establish follow-up and evaluation mechanisms for ITU CMR issues:	COMS, NAVS B0 and B1					
Verify the sector responsible from State exists		GREPECAS Ad-hoc Group		28 February 2024	30 March 2024	

Project Deliverables	Relationship with Regional Performance Objectives (RPO) and Aviation System Block Upgrades (ASBU) modules	Responsible	Implementation Status	Date		Comments
				Start	Finish	
Familiarise ICAO's position with States through ICAO Headquarters familiarization events		GREPECAS Ad-hoc Group		28 February 2024	30 March 2024	In accordance with the submission of the document "ICAO Position on WRC-27"
Submit the information with PoCs designated by States		GREPECAS Ad-hoc Group		28 February 2024	30 March 2024	

ⁱ GREPECAS Ad-hoc Group must be assigned by GREPECAS for project execution once it is approved.