



**Fifth GREPECAS–RASG-PA Joint Meeting (GREPECAS-RASG-PA/5) and  
 Twenty-Third Meeting of the CAR/SAM Regional Planning and Implementation Group  
 (GREPECAS/23)**

Virtual Phase (Asynchronous, 19 January to 17 February 2026)  
 In-Person Phase (Mexico City, Mexico, 4 to 6 March 2026)

**Agenda Item 8: CAR/SAM Air Navigation Implementation**

**COOPERATION AND JOINT PROGRESS IN CAR AND SAM REGIONS ON  
 COMMUNICATIONS – NAVIGATION – SURVEILLANCE ACTIVITIES**

(Presented by the Secretariat)

**EXECUTIVE SUMMARY**

The purpose of this Information Paper is to provide GREPECAS with a consolidated, high-level overview of the main activities carried out jointly by the CAR and SAM Regions in the field of Communication, Navigation and Surveillance (CNS) systems, under the coordination of the ICAO NACC and SAM Regional Offices, during the period 2024–2025.

This document complements the specific working papers presented in the areas of CNS, offering an integrated overview that allows for an appreciation of the coherence of interregional work and its alignment with ICAO's strategic priorities. The Appendix to the paper lists the CNS matters addressed. Furthermore, and in line with the evolution of the GANP (Doc 9750, 8th Edition), this paper incorporates a description of the strengthened cross-cutting coordination mechanisms among the CNS, ATM, AIM, and MET components, which are necessary to ensure the modernization, digitalization, and resilience of air navigation services in the CAR/SAM Regions.

<p><i>Strategic Objectives 2026-2050:</i></p>	<ul style="list-style-type: none"> <li>• Every flight is safe and secure</li> <li>• Aviation is environmentally sustainable</li> <li>• Aviation delivers seamless, accessible, and reliable mobility for all</li> <li>• No country left behind</li> <li>• The International Civil Aviation Convention and Other Treaties, Laws and Regulations Address All Challenges</li> <li>• The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All</li> </ul>
<p><i>References:</i></p>	<ul style="list-style-type: none"> <li>• Tenth meeting of the North American, Central American and Caribbean Working Group, NACC/WG/10, September 2025.</li> <li>• Thirty-third meeting of the SAM Region Implementation Group, SAM/IG/33, August 2025</li> <li>• Twenty-first Meeting of the Regional Planning and Implementation Group for CAR and SAM, GREPECAS/21, November 2023</li> <li>• Applicable GREPECAS conclusions.</li> </ul>

## 1. Overview of CNS CAR/SAM Activities

1.1 During the 2024–2025 biennium, the CAR and SAM Regions continued to strengthen interregional cooperation in the CNS field, focusing on the modernisation of critical infrastructure, technical interoperability and the operational resilience of aeronautical services.

1.2 The main areas of work include:

- a) **Communications:** progress in modernising regional networks through the REDDIG III and CANSNET projects, aimed at providing resilient, interoperable, multi-service IP/MPLS infrastructures with greater capacity to support critical aeronautical services.
- b) **Navigation:** strengthening the resilience of air navigation services through regional actions aimed at mitigating GNSS interference and the progressive development of a Minimum Operational Network (MON), in line with ICAO guidelines.
- c) **Surveillance:** expansion of cooperative surveillance capabilities, in particular through the deployment of ground-based and satellite-based ADS-B, as well as the development of regional tools for monitoring coverage and data quality.

1.3 In order to ensure the technical and operational coherence required by the GANP and the consolidation of GREPECAS-prioritized programmes, the coordination mechanisms among CNS, ATM, AIM and MET were systematically strengthened. This ensured that CNS initiatives were not developed in isolation, but fully integrated with operational, information-management, and meteorological support requirements. In particular:

- a) the needs of the ATM component (AIDC, separation, RVSM, automation);
- b) the processes of the AIM component (digitalization, AMHS/IWXXM exchange, transition to SWIM);
- c) MET services (OPMET/IWXXM distribution, interoperability);
- d) CNS modernization as a fundamental enabler; and
- e) this integration constitutes the foundation for full CAR/SAM interoperability and for compliance with the ASBU modules

1.4 These activities were complemented by cross-cutting actions aimed at strengthening CNS/ATM interoperability, radio spectrum management and the continuity of aeronautical services, contributing to the safety and efficiency of air operations in both regions.

1.5 In addition to the CAR/SAM interregional overview described above, it is worth highlighting the specific progress made at the Tenth Meeting of the North American, Central American and Caribbean Working Group (NACC/WG/10), held in September 2025, which contributes directly to strengthening CNS cooperation at the regional and interregional levels.

1.6 During the period 2024–2025, the NACC/WG of the NAM/CAR region consolidated its role as a technical-operational mechanism for the implementation of CNS/ATM systems in the CAR Region, ensuring consistency with the GREPECAS Conclusions, the Global Air Navigation Plan (GANP – Doc. 9750) and ICAO strategic guidance, incorporating into CNS work:

- a) critical CNS infrastructure and operational continuity
- b) the integration of cyber resilience into contingency planning and the NACC/WG 2025–2026 work programme.

## 2. Strategic Alignment

2.1 The CNS activities carried out jointly by the CAR and SAM Regions are aligned with: The current GREPECAS Conclusions and Decisions related to CNS systems

- a) The technical and operational priorities addressed within the SAM/IG framework, including the results of SAM/IG/33
- b) The strategic guidelines issued by the 42nd ICAO Assembly, particularly with regard to the modernisation, digitisation and resilience of air navigation services
- c) The Global Air Navigation Plan (GANP – Doc. 9750) and the applicable regional strategic plans.

2.2 Integration with the CAR/SAM RANP: the NANPs, and GANP Volume III CNS planning was integrated into a structured regional framework through:

- a) strengthening the linkage between GREPECAS Conclusions and the work programmes of the NACC/WG and SAM/IG,
- b) harmonization with the States' National Air Navigation Plans (NANPs), and
- c) the progressive adoption of methodologies derived from GANP Volume III, which introduces a performance-based planning approach.

This enabled the consolidation of a unified CAR/SAM vision, essential for the regional digital modernization of CNS infrastructure in support of air navigation services and operational improvements.

2.3 In the area of strategic planning, in the CNS area, NACC/WG/10 was integrated into a structured regional planning framework through:

- a) Updating the NACC/WG Work Programme, aligned with the ICAO Strategic Plan 2026–2050.
- b) Strengthening the follow-up to GREPECAS Conclusions and Decisions related to CNS.
- c) Using the NACC regional Dashboard and updating the Global Air Navigation Deficiencies Database (GANDD) as regional management and monitoring tools.

## 3. Relationship with Working Papers

3.1 The technical details of the activities summarised in this Information Paper are presented in the following working papers submitted for consideration by GREPECAS/23:

- a) Working paper WP/8.5 on Communications: status and modernisation of the CANSNET and REDDIG regional networks.
- b) Working paper WP8.6 on Navigation: GNSS resilience and Minimum Operational Network (MON).
- c) Working paper WP8.13 on Surveillance: expansion of ADS-B capabilities and regional monitoring tools.

## 4. Progress of the Interoperability Task Force (GT INTEROP) – SAM Region

4.1 During 2025, the Interoperability Task Force (GT INTEROP) consolidated its role as a technical mechanism for regional coordination in the SAM Region, supporting interoperability between ATM, CNS and MET systems within the framework of Project RLA/06/901. The activities carried out contributed to the progressive modernisation of CNS/ATM services and regional harmonisation, in line

with the priorities of SAM/IG, including SAM/IG/33, and GREPECAS Conclusions 21/06, 21/11 and 21/12.

4.2 In terms of surveillance, the CNS/SUR Subgroup led the review of the CONOPS ADS-B CAR/SAM and organised the ADS-B CNS/SUR/1 Workshop in Lima (May 2025), with participation of SAM states, EASA and COCESNA, which addressed technical and operational aspects of ADS-B, the use of the ASTERIX CAT021 format, the application of artificial intelligence for performance monitoring and KPIs management, and the integration of the REDDIG infrastructure as transport support. At the same time, ad hoc groups (CONOPS, Regulation, and Technical Implementation) were established, reaffirming the regional objective of reducing longitudinal separation to 10 nautical miles in continental airspace.

4.3 With regard to surveillance, the CAR Region made significant progress in:

- a) The expansion and consolidation of ADS-B, both terrestrial and satellite-based, including coverage and data quality monitoring.
- b) Monitoring the implementation of ADS-C/CPDLC in CAR oceanic airspace, as well as national experiences of implementation in continental airspace.
- c) Strengthening surveillance-communications coordination as a measure to mitigate altitude deviation events (LHD) and improve RVSM performance.

4.4 In the CAR Region, in the field of aeronautical communications, progress was made in the modernisation and digitisation of ATS services through:

- a) The strengthening of AMHS services, including the implementation of the FTBP functional group of the extended service level, as a basis for the exchange of aeronautical and meteorological information.
- b) The adoption of a regional Action Plan for the implementation of OPMET data exchange under the IWXXM model, aligned with the SWIM concept, including interoperability testing between NAM/CAR AMHS centres.
- c) The initiation of the process of regional dissemination of IWXXM OPMET data from Cuba to the Washington RODB, following validation of the interoperability phases between IACC-ECNA and the FAA.

4.5 These actions strengthen technical interoperability, automation and continuity of critical aeronautical communications services in the CAR Region.

4.6 The CNS activities of NACC/WG/10 for the NAM/CAR regions were integrated into a structured regional planning framework through:

- a) Updating the NACC/WG Work Programme, aligned with the ICAO Strategic Plan 2026–2050.
- b) Strengthening the follow-up to GREPECAS Conclusions and Decisions related to CNS.
- c) Use of the NACC regional dashboard and updating of the Global Air Navigation Deficiencies Database (GANDD) as regional management and monitoring tools.
- d) Together, the advances of NACC/WG/10 complement and reinforce the initiatives developed in the SAM Region, consolidating a coherent, interoperable CAR/SAM approach aligned with the GANP, which directly contributes to the operational safety, efficiency and sustainability of air navigation in the Americas.

4.7 In communications in the SAM region, the CNS/AMHS Subgroup consolidated the P1/AMHS interconnection between Georgetown and Piarco and made progress in planning the Caracas–Curaçao link through the CANSNET network. For its part, the CNS/VOIP Subgroup developed technical

guidelines for VoIP interoperability and cybersecurity (ED-137), promoting bilateral testing and the organisation of a regional technical workshop. Simultaneously, the CNS/ANP Subgroup continued updating Volume II (CNS) of the ANP CAR/SAM, and the MET/IWXXM Subgroup completed the third update of the Regional OPMET Bank, incorporating the most recent versions of the IWXXM schemes.

4.8 In the ATM component, AIDC links between adjacent control centres (Amazonico–Maiquetia, Barranquilla–Maiquetia, Asunción–Curitiba, among others) were strengthened, reaching 77% of the planned interconnections, while the ATM/FPL Subgroup made progress in harmonising CADAS-ATS messages and SID/STAR nomenclatures. Taken together, these results reflect tangible progress toward full regional interoperability, supported by the training of more than 100 specialists in ADS-B, AMHS, VoIP, and SWIM, and the cross-cutting incorporation of cybersecurity policies.

4.9 Overall, the activities carried out within the framework of the INTEROP WG during 2025 contributed to establishing a common technical and operational basis for the evolution of the CNS/ATM environment in the SAM Region, promoting regional integration and alignment with the principles of the GANP and the ASBU modules with a horizon of 2035.

## 5. CNS/ATM Contingencies and Cyber Resilience

5.1 During the period under review, the CAR and SAM Regions continued to strengthen the resilience and operational continuity capabilities of CNS/ATM systems through the progressive implementation of redundant network architectures, contingency mechanisms, and operational cyber resilience practices.

5.2 In this context, regional networks incorporate redundancy and contingency mechanisms that strengthen the availability and continuity of CNS/ATM services, supporting the operational resilience of critical infrastructures. Progress was also made in strengthening regional operational cyber-resilience frameworks, in line with ICAO guidelines and relevant GREPECAS conclusions.

5.3 Likewise, the general follow-up of the CNS/ATM conclusions and activities implemented by the NACC and SAM Regions is presented, for information purposes only, in Annex A to this Information Note.

5.4 Across the board, the NACC/WG incorporated cybersecurity as an essential element of CNS modernisation, highlighting:

- Identification of cyber risks associated with the automation and digitisation of CNS/ATM systems.
- Promotion of regional best practices for the protection of critical CNS infrastructure and operational continuity.
- Integration of cyber resilience into contingency planning and the NACC/WG's 2025–2026 work programme.

5.5 The CAR region began cybersecurity analyses of air navigation services, focusing on the entire ATM/CNS technology and services platform.

5.6 **Operational Cybersecurity Coordination:** Cross-cutting efforts are integrating cybersecurity as a central element of the modernization of CNS, ATM, AIM and MET, as well as other aviation domains, enabling:

- a) the alignment of cyber risk assessments with the operation of critical systems;
- b) the incorporation of cyber-resilience measures into regional contingency plans;

- c) the adoption of best practices based on ICAO documentation (Doc 10146, Doc 9985), ensuring the protection of critical infrastructure and the continuity of aeronautical services.

This unified approach reinforces the digital modernization vision established in the GANP.

## **6. Final Consideration**

6.1 The purpose of this Information Paper is to provide GREPECAS with a comprehensive and coherent overview of the CNS work carried out jointly by the CAR and SAM Regions, highlighting the complementarity of the initiatives underway and their contribution to ICAO's regional and global objectives. As well as their coordinated linkage in the implementation of AN services with the other ANS domains

## **7. Suggested Action**

7.1 The Meeting is invited to take note of the information presented.

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**APPENDIX****CNS AREAS AND TOPICS COVERED (REFERENCE – CAR/SAM)**

<b>CNS Area</b>	<b>Topic</b>	<b>Brief description</b>
Communications	Regional networks	Modernisation and interconnection of REDDIG and CANSNET
Navigation	GNSS resilience	MON strategies and RFI mitigation
Surveillance	ADS-B	Expansion and monitoring of cooperative capabilities
Interoperability	CNS/ATM	Regional technical coordination (GT INTEROP) NACC/WG, SAM/IG
Cyber resilience	Continuity	Operational resilience measures
Frequencies	Spectrum	Regional use of Frequency Finder
Digitalisation	AIM/MET/SWIM	Progressive transition to digital services