SEVENTH MEETINGS OF THE SAT IMPLEMENTATION MANAGEMENT GROUP (SAT IMG/7)
AND
SAT SAFETY OVERSIGHT GROUP (SAT SOG/7)

Dakar, 6-10 April 2026

Agenda Item 3: Airspace and ATS Route improvements

3.d) REDDIG III and CNS Enablers

REDDIG: Regional Experience and Interregional Cooperation Opportunities in Aeronautical Telecommunications

(Presented by Secretariat)

SUMMARY	
This information paper presents the status, operational experience and evolution of the South American Digital Network (REDDIG), including its governance, architecture and services. It also highlights ongoing developments towards REDDIG III and outlines potential opportunities for enhancing interregional connectivity and resilience, particularly between the SAM and WACAF Regions, as well as enabling future global interconnection scenarios in support of seamless air navigation services.	
Strategic goals	*A-Every Flight is safe and secure* *C- Aviation Delivers Seamless, Accessible, and Reliable Mobility for All*

1 INTRODUCTION

1.1 The South American Digital Network for Aeronautical Telecommunications (REDDIG), implemented under ICAO Technical Cooperation Project RLA/03/901, constitutes a key infrastructure for the provision of CNS/ATM services in the South American (SAM) Region, enabling the integration of voice, data, surveillance, and meteorological communications within a highly resilient multiservice platform

1.2 In the context of the SAT meeting, this Information Paper aims to share the SAM Region's experience in the development and operation of REDDIG, describe its current status and evolution, and identify potential opportunities for interregional cooperation and interoperability for the benefit of international civil aviation.

2. Description of the current REDDIG network

2.1 The current REDDIG (REDDIG II) constitutes a regional multiservice network supporting critical aeronautical communications for air navigation services in the SAM Region.

2.2 From a technical perspective, REDDIG operates under a hybrid architecture combining:

- A terrestrial backbone based on IP/MPLS technology;
- A complementary satellite segment, primarily used for contingency and specific operational scenarios.

2.3 The network interconnects multiple States in the SAM Region, including Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela, as well as strategic extra-regional nodes in North America, Central America, the Caribbean, Europe and Africa, thereby consolidating a global connectivity infrastructure.

2.4 The operation of REDDIG is structured around:

- A primary Network Control Centre (NCC) located in Manaus;
- A backup NCC located in Ezeiza;
- Continuous monitoring mechanisms and coordination with telecommunications service providers.

2.5 From a functional standpoint, REDDIG supports critical CNS/ATM services, including:

- Aeronautical message handling (AMHS);
- ATS interfacility data communication (AIDC);
- ATS voice communications (including VoIP);
- Surveillance services (ADS-B and radar, interchange between States);
- Meteorological information exchange (including IWXXM);
- Preparedness to support System Wide Information Management (SWIM).

2.6 This model has enabled the consolidation of a highly resilient regional platform, ensuring high levels of availability, operational continuity and interoperability between FIRs, and is recognized as an effective example of regional cooperation in the field of aeronautical telecommunications, as illustrated in the following figures.

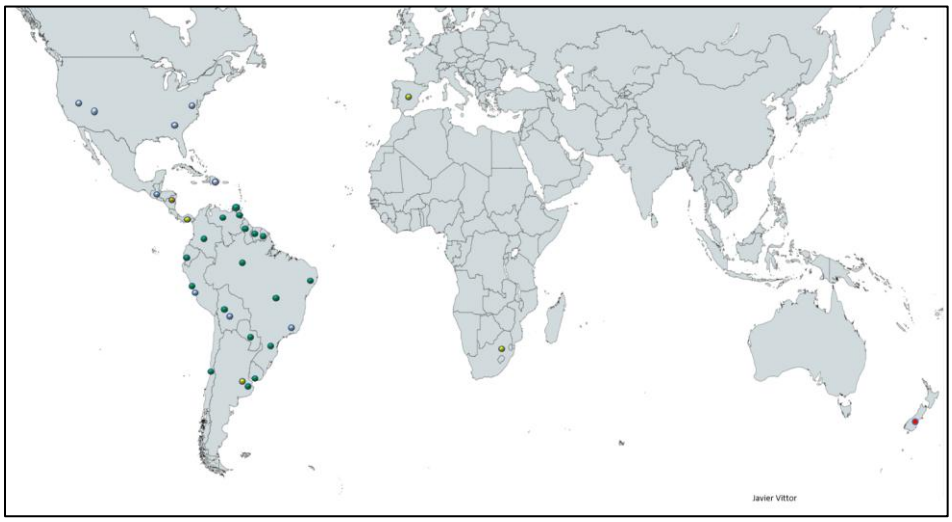

Figure 1. Geographical distribution of REDDIG nodes and interconnections.

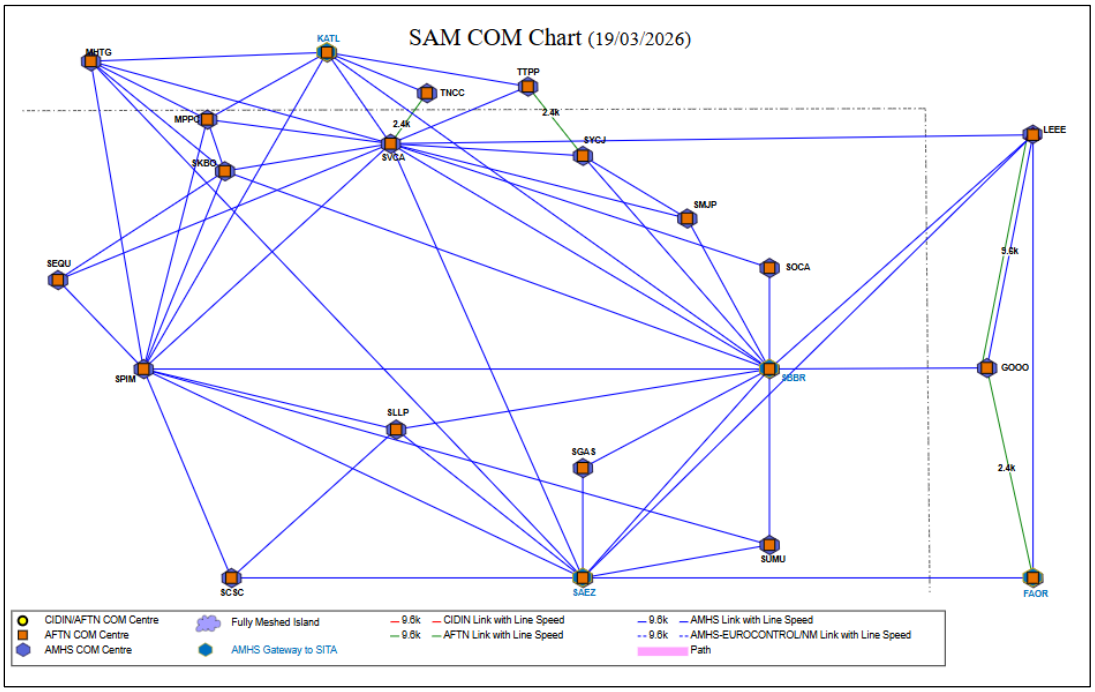

Figure 2. SAM COM Chart showing AFTN, AMHS and CIDIN connectivity across the SAM Region. (Source: AMC)

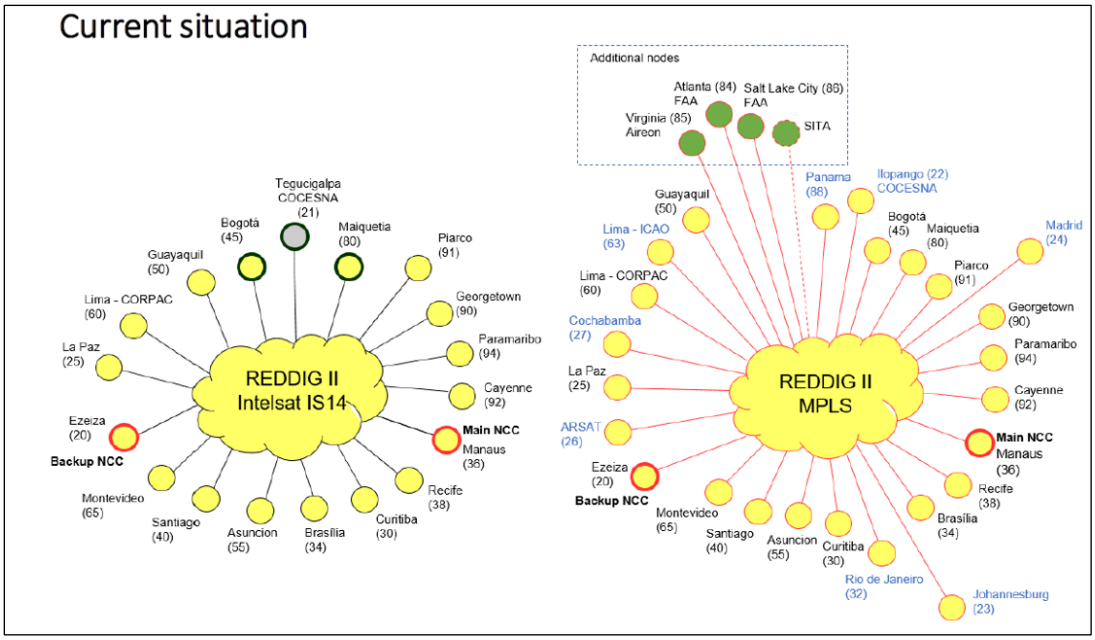

Figure 3. Current REDDIG II architecture showing satellite (Intelsat IS-14) and MPLS network components.

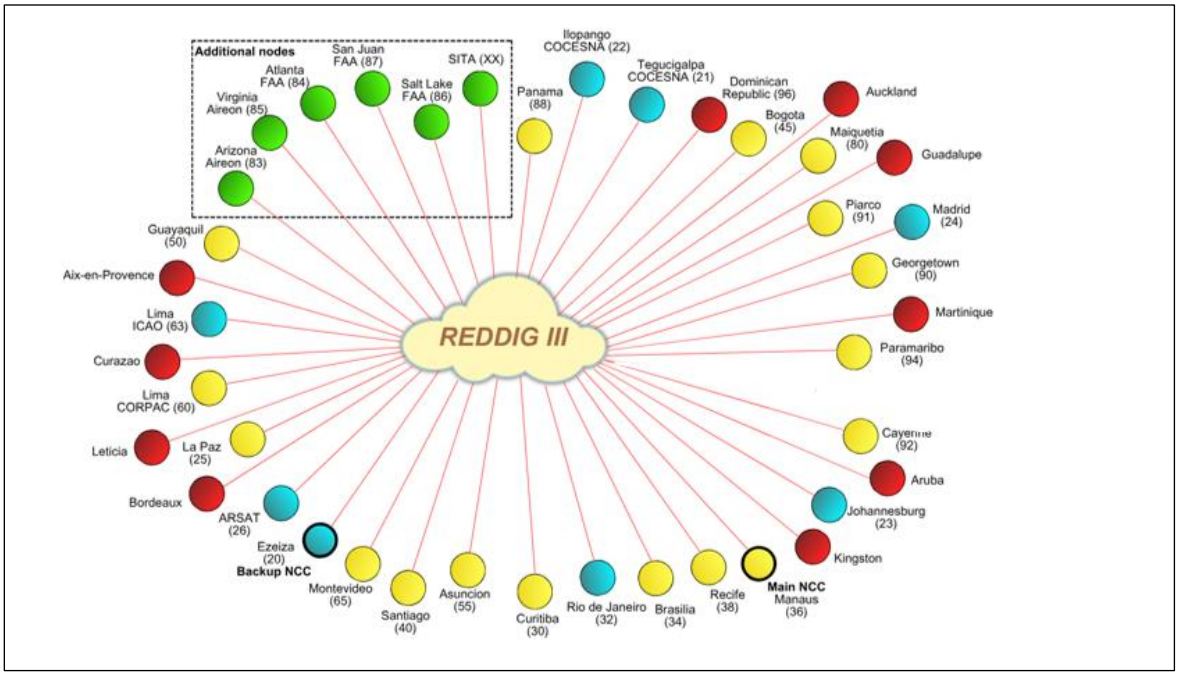

Figure 4. Future REDDIG III network architecture.

3. System Governance

3.1 The governance of REDDIG is carried out through ICAO Technical Cooperation Project RLA/03/901, under which ICAO acts on behalf of the participating States for the coordination, management, modernization and administration of the network.

3.2 Strategic, technical and financial decisions are taken by the REDDIG Coordination Committee (RCC), composed of the Member States, ensuring a collaborative, transparent framework aligned with the operational needs of the Region.

3.3 This governance scheme has enabled the sustainability of the project, alignment with ICAO regional and global plans, and the coordinated implementation of technological improvements.

4. Interoperability and Interregional Cooperation

4.1 REDDIG maintains interconnections with various regional and global networks. These interconnections have enabled progress towards a globally interoperable aeronautical communications environment, facilitating the exchange of services between regions and contributing to the overall resilience of the system.

4.2 In this context, previous experiences involving the implementation of interconnections within the AFISNET framework, in nodes such as Piarco (Trinidad and Tobago), Cayenne (French Guiana) and Recife (Brazil), have been developed in a cooperative technical environment and have been positively assessed for their contribution to strengthening regional redundancy.

5. Evolution towards REDDIG III

5.1 In continuity with this technological and operational evolution, the SAM Region is currently progressing towards the implementation of REDDIG III.

5.2 Within this process, the technical evaluation phase of the received proposals has been completed, with

the active participation of Member States through a Technical Evaluation Committee, under the leadership of ICAO Headquarters and with the support of the ICAO SAM Regional Office.

5.3 REDDIG III envisages an evolution towards a more flexible, scalable and service-oriented architecture, based on next-generation IP networks, with enhanced capabilities in resilience, cybersecurity and traffic management, in line with the ICAO ATN/IPS concept.

6. Considerations for strengthening interregional resilience

6.1 Within the framework of the principles of technical cooperation and mutual benefit that characterize ICAO, and considering the importance of strengthening the resilience of aeronautical communications at an interregional level, it may be appropriate to explore, through joint analysis, alternatives that could complement and enhance existing interconnections between regions.

6.2 In this context, and without prejudice to other options that may emerge, it could be appropriate to examine the potential for additional capabilities in West Africa, particularly in Dakar, which could:

- Complement existing interconnections through AFISNET and CAFSAT;
- Increase redundancy and route diversity between regions;
- Strengthen interregional contingency mechanisms;
- Optimize connectivity options between Africa, Europe and other regions.

6.3 It is worth noting that previous initiatives, such as the implementation of AFISNET nodes within the SAM Region, were positively received by the States, as they contributed to strengthening regional connectivity and resilience.

6.4 In a spirit of reciprocity and interregional cooperation, it may be appropriate to explore similar approaches, including the potential development of additional interconnection capabilities in strategic locations, to further enhance connectivity towards the WACAF Region.

6.5 This approach does not imply the creation of parallel structures, but rather the complementarity and strengthening of existing capabilities, fully respecting current institutional and operational frameworks, and in line with ICAO principles of interoperability and resilience.

6.6 Furthermore, and in accordance with the REDDIG implementation model, any such developments could be considered within the framework of the participating States, maintaining their voluntary and collaborative nature.

7. Strategic perspective

7.1 The evolution towards REDDIG III, together with the increasing global interconnectivity between regional networks, allows for the identification of a scenario in which:

- The resilience of aeronautical communications is further strengthened;
- Critical connectivity routes are diversified;
- Interoperability among ICAO regions is enhanced;
- Contributions are made towards GANP objectives and the implementation of ASBU modules.

8. Conclusion

8.1 REDDIG constitutes a concrete example of the value of regional cooperation in the development of CNS/ATM infrastructures.

8.2 In the context of the SAT meeting, this experience is presented with the objective of contributing to knowledge exchange and exploring, in a joint and constructive manner, potential opportunities to further strengthen the resilience, interoperability and efficiency of aeronautical communications at a global level.

9. Suggested action

9.1 The meeting is invited to:

a) Take note of the information presented; and
b) Consider potential opportunities for interregional cooperation, to be assessed by CNS Committee.

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