



Agenda Item 3: Report on activities, deliverables and implementation progress of the GT Interop and Subgroups

REGIONAL CNS/ATM FRAMEWORK FOR THE PROGRESSIVE IMPLEMENTATION OF 10 NM LONGITUDINAL SEPARATION IN THE REGION

(Prepared by the Secretariat)

SUMMARY

The First ATM/CNS Meeting for the implementation of a minimum 10 NM longitudinal separation in continental airspace enabled a regional analysis of the operational aspects of Air Traffic Management (ATM) and the Communications, Navigation and Surveillance (CNS) capabilities required to advance its progressive implementation in the SAM Region. Based on the presentations by States, the results of the regional survey, the background from SAM workshops, and the technical discussions held during the meeting, existing capabilities, gaps, requirements and common priorities were identified. The results indicate the desirability of establishing a regional ATM/CNS framework to guide, in a harmonized and progressive manner, the actions required to enable the implementation of a minimum 10 NM longitudinal separation in those airspaces where the corresponding operational and technical conditions are met.

References:

- Conclusion SAM/IG/33-02.
- Global Air Navigation Plan (GANP).
- SAM Regional Strategy 2035.
- BBB/ASBU framework.
- Report of the First ATM/CNS Meeting for the implementation of a minimum 10 NM longitudinal separation in continental airspace.

1. Background

1.1 The optimization of longitudinal separation between aircraft is one of the regional initiatives with the greatest potential to increase airspace capacity, improve operational efficiency, reduce fuel consumption and decrease emissions associated with air navigation. Over the past two decades, the SAM Region has undergone a continuous process of operational modernization that enabled a transition from separations based exclusively on time to the progressive application of 80 NM, 40 NM and subsequently 20 NM separations in numerous continental sectors. This process was made possible through the coordinated development of ATS procedures, the updating of Letters of Agreement (LOAs), the introduction of GNSS and DME technologies, and the gradual strengthening of communications and surveillance capabilities between Area Control Centres.

1.2 In this context, Conclusion SAM/IG/33-02 promoted the development of studies aimed at assessing the feasibility of moving towards the implementation of a minimum 10 NM longitudinal separation in continental airspace, through a performance-based approach and in line with the Global Air

Navigation Plan (GANP), the SAM Regional Strategy 2035, and the Basic Building Blocks (BBB) and Aviation System Block Upgrades (ASBU) frameworks.

1.3 As part of this process, the SAM Regional Office organized the First ATM/CNS Meeting for the implementation of a minimum 10 NM longitudinal separation, held virtually from 5 to 8 May 2026, with the participation of representatives from the ATM and CNS areas of States and international organizations in the Region. The meeting enabled an integrated consideration of the operational aspects and technical capabilities required to progressively move towards the implementation of this separation.

1.4 Unlike previous initiatives, this meeting incorporated an integrated ATM/CNS perspective, aimed at demonstrating that the implementation of 10 NM separation is not solely an ATS operational decision, but rather a capability enabled by the combined performance of ATM/CNS infrastructure and services. On this basis, existing capabilities, ongoing national projects and the main limitations currently affecting regional interoperability were analysed, with a view to identifying a common roadmap for the future evolution of the SAM Region.

2. Analysis

2.1 Regional situation. The evolution of ATM capabilities in the SAM Region has historically been linked to the progressive strengthening of CNS infrastructure and the harmonization of operational procedures among States. The implementation of 40 NM and subsequently 20 NM longitudinal separation was a gradual process that required significant regional coordination efforts, updating of ATS Letters of Agreement (LOAs), introduction of GNSS and DME technologies, improvement of air-ground communications, and strengthening of coordination mechanisms between Area Control Centres (ACCs). The review conducted during the First ATM/CNS Meeting confirmed that most of these capabilities are currently operational at a significant number of interfaces between FIRs in the SAM Region, although specific limitations persist that continue to require time-based separation or greater distance values, mainly due to constraints in aeronautical communications and surveillance coverage.

2.2 Performance-based approach. The analysis also established that the future implementation of a minimum 10 NM longitudinal separation represents a qualitatively different change from previous stages. While the reduction from 80 NM to 40 NM and subsequently to 20 NM was based mainly on procedural improvements and the availability of RNAV/GNSS navigation, the safe and sustainable application of 10 NM separation requires demonstrating that the ATM/CNS system as a whole provides adequate levels of availability, continuity, integrity, capacity and interoperability. Consequently, separation no longer depends solely on the ATS procedure, but becomes directly conditioned by the integrated performance of communications, surveillance, navigation and automated ATS data exchange mechanisms.

2.3 From this perspective, the meeting adopted as a conceptual reference the framework defined by the Global Air Navigation Plan (GANP), particularly the Basic Building Blocks (BBB) and Aviation System Block Upgrades (ASBU). This approach recognizes that the safe provision of ATS services first requires the basic infrastructure capabilities identified by the BBB and subsequently an evolution through performance-based operational improvements represented by the various ASBU modules. This perspective established that 10 NM longitudinal separation is not an isolated objective, but an operational capability that emerges as a consequence of the appropriate level of maturity achieved by the regional ATM/CNS system.

2.4 Communications. In the field of aeronautical communications, the presentations made by States showed significant progress in the modernization of VHF networks, the introduction of IP architectures, the progressive deployment of ED-137-compliant VoIP solutions, and the use of MPLS networks with quality-of-service and redundancy mechanisms. Nevertheless, recurring limitations

associated with VHF coverage in remote areas, Amazonian sectors and border areas were also identified, where difficulties remain in ensuring continuous and reliable pilot-controller communications. These limitations are currently among the main constraining factors for reducing longitudinal separation, particularly in sectors where communications continuity determines controllers' ability to safely manage aircraft at shorter longitudinal distances. The experiences presented by Uruguay, Paraguay, Bolivia, Peru, Brazil and Venezuela show that the expansion of extended-range VHF stations, migration towards resilient IP networks and the progressive introduction of digital communications are converging lines of action among the various States.

2.5 Surveillance. With regard to ATS surveillance, the information presented during the meeting showed significant growth in ADS-B coverage in the SAM Region, complemented by Mode S SSR networks and, in some cases, primary radars. Several States presented projects aimed at expanding coverage into sectors that are currently not under surveillance, particularly in Amazonian and border areas. Coverage studies developed by Peru show detailed planning to extend ADS-B surveillance towards the Guayaquil, Bogotá, Amazonica, La Paz and Antofagasta FIRs through the installation of new stations at strategic locations. Similarly, Bolivia presented the planned expansion of its ADS-B infrastructure and its integration with the national communications network, while Uruguay presented a plan to expand radar and ADS-B coverage towards the north of the country, accompanied by the technological upgrading of its surveillance systems in accordance with DO-260B. These initiatives reflect a regional trend towards strengthening cooperative surveillance as a key enabler for future separation reductions.

2.6 In this context, the experiences presented by Brazil and Chile are particularly relevant, demonstrating ATM/CNS environments with a high level of maturity and favourable conditions for the application of reduced longitudinal separation. Brazil reported that it already applies longitudinal separation of 10 NM or less in continental operations under its jurisdiction, supported by integrated VHF and CPDLC communications capabilities, radar and ADS-B surveillance, PBN navigation and automated ATS data exchange. Chile, for its part, presented an approach aimed at applying 10 NM longitudinal separation based on continuous communications and surveillance coverage, infrastructure redundancy and operational procedures aligned with ICAO provisions. Both experiences provide useful references to guide the progressive and harmonized development of equivalent conditions in other environments of the SAM Region.

2.7 Automated exchange. An equally relevant aspect identified during the meeting was the growing role of automated ATS data exchange as an essential element for ensuring coordination between adjacent ACCs. The expansion of AIDC use, consolidation of the AMHS service and continued development of REDDIG are advances that reduce dependence on voice-only coordination, improve the consistency of exchanged information and reduce the time associated with transfers of control. In this regard, several States reported projects aimed at expanding AIDC connectivity with neighbouring FIRs, while others presented initiatives to strengthen the resilience of the networks supporting these services. It was also recognized that the future evolution towards SWIM architectures should be carried out gradually and in a coordinated manner, while preserving interoperability with the infrastructure currently deployed in the Region.

2.8 Navigation and PNT resilience. From the navigation perspective, participants agreed that the implementation of 10 NM separation does not depend exclusively on GNSS accuracy, but on the overall resilience of the PBN environment. In this context, regional initiatives related to the development of a Minimum Operational Network (MON), mitigation of GNSS interference, and the availability of conventional navigation aids to ensure operational continuity in the event of satellite-system degradation became particularly relevant. This approach is consistent with recent activities undertaken by the SAM Region in the area of PNT resilience and reinforces the vision of a CNS infrastructure prepared to support performance-based operations.

2.9 Survey results. One of the most relevant outcomes of the meeting was the interactive survey conducted among the participating ATM and CNS specialists. Its results showed a high degree of consensus regarding the factors that will condition the future implementation of 10 NM separation. ATS surveillance based on ADS-B and radar, together with aeronautical communications, were identified as the most critical domains, followed by telecommunications infrastructure, automated ATS data exchange and GNSS-based navigation. Participants also identified as the main regional gaps insufficient VHF coverage in certain areas, the need to expand cooperative surveillance, modernization of telecommunications networks, harmonization of procedures between adjacent FIRs, and strengthening of regional coordination.

2.10 Rather than reflecting isolated situations, the national assessments presented during the meeting show a notable convergence in the priorities identified by States. Regardless of the level of development achieved by each ANSP, most national plans include projects related to expanding ADS-B coverage, modernizing VHF communications, strengthening IP networks, increasing automated ATS data exchange, introducing digital capabilities and improving operational resilience. This convergence provides an opportunity to establish a harmonized regional approach that can guide future investments towards common objectives and facilitate interoperability among national systems.

2.11 Consequently, the information collected during the meeting indicates that the SAM Region currently has a sufficiently solid technical basis to begin developing a Regional ATM/CNS Framework specifically aimed at enabling the progressive implementation of a minimum 10 NM longitudinal separation. This framework should integrate national assessments, establish regional development priorities, define common monitoring indicators, and serve as a reference for the coordinated planning of CNS capabilities over the coming years, fully aligned with the SAM Regional Strategy 2035, the GANP and the performance-based management principles promoted by ICAO.

3. **Suggested actions**

3.1 The Meeting is invited to:

a) take note of the results obtained during the First ATM/CNS Meeting for the implementation of a minimum 10 NM longitudinal separation in continental airspace and of the national assessments presented by States;

b) recognize that the future implementation of 10 NM longitudinal separation constitutes a performance-based operational improvement, the feasibility of which depends on the harmonized development of regional ATM/CNS capabilities;

c) support the development of a Regional CNS/ATM Framework for the progressive implementation of a minimum 10 NM longitudinal separation, aligned with the GANP, the BBB/ASBU framework and the SAM Regional Strategy 2035; and

d) request the Secretariat, in coordination with States, ANSPs and relevant international organizations, to develop this Regional Framework incorporating an assessment of CNS capabilities, harmonized maturity criteria, regional indicators, an implementation roadmap, interoperability mechanisms between adjacent FIRs, and operational resilience measures.

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