



Agenda Item 6:

Other business

IMPLEMENTATION STATUS OF PBCS IN BRAZIL

(Prepared by Brazil)

SUMMARY

This paper provides information on the status of Performance-Based Communication and Surveillance (PBCS) implementation in the Atlantico FIR.

References:

- SAM/IG/33 - WP/6.3
- ICAO Doc 9869 – PBCS Manual, 2nd Edition
- ICAO Doc 10063 – Manual on Monitoring the Application of
- Performance Based Horizontal Separation Minima
- AIC-N 13/24 – Implementation of PBCS Concept in FIR SBAO, DECEA, 2024
- ICA 100-37 – ATS Services, DECEA

1. Background

1.1 The Atlantico FIR (SBAO) covers a vast portion of the South Atlantic, with over 13 million km² in extent, including key air routes between South America and Europe. This region is characterized by high traffic density, significant meteorological phenomena near the Intertropical Convergence Zone (ITCZ), and operational constraints due to the lack of conventional VHF and radar coverage.

1.2 Currently, the minimum horizontal separations applied in this oceanic airspace are 10 minutes or 80 NM longitudinally and 50 NM laterally. These conventional standards, while ensuring safety, restrict airspace capacity and limit flexibility for tactical management, especially during meteorological deviations.

1.3 To address this, DECEA is implementing the PBCS concept in alignment with the ICAO Global Air Navigation Plan (GANP, Doc 9750) and the ASBU framework, as well as with the ICAO 30/10 initiative (AN-Conf/14), which targets 30 NM longitudinal separation in oceanic and remote airspace. The project is further harmonized with the regional effort led by ICAO in the South Atlantic through the SAT Steering Group (SAT/SG).

2. Analysis

2.1 In accordance with ICAO Doc 9869 (PBCS Manual), Appendix A, Brazil used the following task groups as a reference for planning the implementation of PBCS in the Atlantico FIR.

Group A Tasks – State/Region Preparation

2.2 In September 2025, the Brazilian Civil Aviation Agency (ANAC) updated IS 91-010 to incorporate policies and objectives supporting the safety oversight of aircraft operator and system (PBCS) operations¹.

2.3 Two Aeronautical Information Circulars were published in June 2025 and updated in November 2025: AIC N 50/252 and AIC A 29/253, addressing the PBCS implementation in the Atlantico FIR (SBAO).

2.4 On 1 July 2026, the Letter of Agreement (LoA) between the Atlantic and Dakar FIRs (SBAO and GOOO) was signed, with its publication expected by the end of August 2026.

2.5 By 30 August 2026, the remaining internal documents, including the Atlântico ACC Operations Manual, are expected to be finalized. During the same month, DECEA will publish CIRCEA 81-3, a supplementary instruction establishing the data flow for the local monitoring of PBCS within DECEA.

2.6 By September 2026, the updated Brazilian AIP is expected to be published, consolidating all PBCS-related operational information for airspace users.

Group B tasks — ANSP general project development and management

2.7 DECEA instituted a dedicated PBCS implementation project under the SIRIUS Brazil Strategic Programme, with active stakeholder and end-user participation from the very beginning. Given the significant reduction in longitudinal separation minima, a three-phase approach was adopted to ensure a safe and gradual operational transition.

2.8 PBCS operations under RCP 240/RSP 180 will begin on October 29, 2026, with a Technical-Operational Validation Test preceding full Phase 1 implementation. The Tests will validate, in a real and supervised environment, the processes, procedures, and systems supporting PBCS operations, with continuous monitoring by ATC and ATFM system developers and CSP representatives to ensure prompt resolution of any identified issues.

2.9 The project is scheduled to launch on 26 November 2026 with the implementation of a 5-minute longitudinal separation, reflecting current practices at the Atlantico ACC and within the SAM region. Prior to this Phase 1, an extensive ATCO training program is planned to October 23, 2026, to be conducted after the delivery of the ATC system with the new PCBS functionalities.

2.10 The second phase, starting on 15 April 2027, will introduce 30 NM longitudinal separation and enable lateral separation of up to 23 NM.

2.11 The third and final phase will implement distance-based longitudinal separation minima using the ADS-C Climb/Descent Procedure (CDP) and is scheduled to be inaugurated on 3 October 2027.

2.12 Awareness-raising and collaboration have been fundamental to the project, with Brazil actively engaging stakeholders through project meetings, GEPEA (Airspace Planning Study Group) meetings, and disseminating project information through various platforms. Brazil also contributes to the development of relevant materials and the coordinated implementation of the PCBS in the South Atlantic through the ICAO SAT Steering Group, and addresses the topic in ICAO SAM/IG and GREPECAS meetings.

2.13 At the SAM/IG/33 meeting (August 2025), Brazil presented WP/6.3, outlining the PBCS operational concept, its expected benefits, the DECEA phased implementation plan, and the role of SAM States in the monitoring cycle. At GREPECAS/23 meeting (January 2026), Brazil presented WP/8.31 addressing the national implementation status and the regional responsibilities for CAR/SAM States.

2.14 In March 2026, a PBCS Implementation workshop gathered over 60 participants, both in person and via videoconference, including national and international airlines, airlines associations, industry stakeholders, and ICAO representatives from Montreal and Lima Offices.

Group C tasks — ANSP implementation activities — ATS provision

2.15 In November 2025, DECEA published the Concept of Operations for PBCS in the FIR SBAO (CIRCEA 63-12)⁴. Prior to its publication, the document underwent a public consultation open to the aviation community, during which several valuable contributions were received, most of which were incorporated into the final version.

2.16 Brazil has developed new PCBS functionalities for ATC and ATFM automated systems. Changes to the ATFM system were implemented in November 2025, while deployment of the PBCS-related ATC system is scheduled for June 2026 (simulation environment) and July 2026 (ACC-AO).

2.17 Once operational, the system will automatically verify each aircraft's PBCS eligibility (RNP 4, RNP 10, RCP 240, and RSP 180), enabling reduced separation minima for eligible pairs. A dedicated MTCD tool will alert controllers to potential separation infringements, while the system dynamically adjusts the ADS-C periodic contract interval upon conflict detection, reverting automatically once resolved. These capabilities are expected to enhance flight level flexibility and airspace use.

2.18 Continuous performance monitoring will be ensured through real-time non-conformance alerts for individual aircraft, assessing whether RCP and RSP requirements are effectively met during PBCS operations. The system will also support the automated filling of Large Lateral Deviation (LLD) and Large Longitudinal Error (LLE) reporting forms.

2.19 In order to obtain sufficient sampling to confirm that ACP and ASP comply with RCP and RSP specifications prior to the implementation of the specified ATM operations, and without waiting for the readiness of automated ATC system functionalities, DECEA developed a tool to extract data from the operational ATC system and generate the required data link performance statistics. The 2025 results are presented below in Table 1 and Table 2.

Period	Total of Msg	95% RCP 240s		99,9% RCP 240s		95% RCP PORT
		ACP ≤ 180s (end2end)	ACTP ≤ 120s (network)	ACP ≤ 210s (end2end)	ACTP ≤ 150s (network)	PORT ≤ 60s
JAN - MAR	30.812	99,79%	99,48%	99,86%	99,7%	100%
APR - JUN	14.171	99,63%	99,39%	99,79%	99,65%	99,75%
JUL - SEP	27.276	99,12%	99,18%	99,65%	99,52%	98,67%
OCT - DEC	48.806	98,75%	98,99%	99,55%	99,42%	98,32%

Table 1 - RCP240 / 2025 Performance Analysis

Period	Total of MSg	95% RSP 180s	99,9% RSP 180s
		ASP ≤ 90s (end2end)	ASP ≤ 180s (end2end)
JAN - MAR	400.928	98,99%	99,8%
APR - JUN	371.001	99,01%	99,82%
JUL - SEP	338.820	99,02%	99,79%
OCT - DEC	411.728	98,98%	99,78%

Table 2 – RSP180 / 2025 Performance Analysis

2.20 In all cases, the observed performance meets RCP/RSP specifications. Although the 99.9% operational continuity target was not fully achieved for RCP 240 or RSP 180, this is consistent with ICAO Doc 9869, which considers 99% operational continuity acceptable for early implementations. Continuity-related issues are currently under assessment to support performance improvement.

2.21 From a Safety Management System (SMS) perspective, hazards associated with the operationalization of PBCS have been identified and assessed, with mitigation measures implemented under a continuous monitoring process to ensure a safe transition to reduced separation minima.

Group D tasks — Aircraft operator, aircraft type/system (airworthiness) eligibility

2.22 ANAC has updated its regulatory framework for PBCS certification and operational approval across all relevant operational categories, including business aviation and commercial air transport.

2.23 According to 2025 data, 78.18% of all aircraft operating in the SBAO FIR declared RNP10, RCP240 and RSP180 capabilities in the flight plan, while 77.20% indicated readiness for operations with RNP4, RCP240 and RSP180.

Group E tasks — All stakeholders — post-implementation monitoring

2.24 At the national level, the procedures and responsibilities related to local monitoring (at the air navigation service provider level) will be established in a specific regulation to be published by July 2026. Full guidelines for post-implementation monitoring at the regional level are in the final stages of development within the EUR-SAM Corridor Implementation Team (ESCIT) and the ICAO South Atlantic Safety Oversight Group (SAT SOG).

3. Conclusion

3.1 Brazil continues to make progress in accordance with its PBCS implementation plan for the Atlantic FIR, with regulatory, operational and technical activities aligned with ICAO provisions. The planned phased implementation will increase the capacity and efficiency of the oceanic airspace while maintaining safety levels through the continuous monitoring of communication and surveillance performance.

4. Suggested actions

4.1 The meeting is invited to:

- a) note the information presented in this paper;
- b) encourage airlines using the Atlantic FIR airspace to seek PBCS certification of avionics and operational approval of crews;

- c) encourage air operators to declare existing PBCS and PBN capabilities in their flight plans, in order to support continuous monitoring of fleet compliance;
- d) encourage States to actively participate in the PBCS monitoring programme and designate appropriate Points of Contact (PoCs) to the ICAO CAR/SAM Regional Monitoring Agency (RMA) to support related coordination activities;

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