



**Agenda Item 1A: Current situation and regional priorities**

**PBCS IMPLEMENTATION TO SUPPORT AIR NAVIGATION SERVICES IN OCEANIC  
AND/OR REMOTE AIRSPACES**

(Presented by Chile)

**SUMMARY**

This working paper proposes to assess the implementation of performance-based communications and surveillance (PBCS) in oceanic and/or remote airspace with a regional approach, aiming at air navigation safety, increased airspace efficiency and capacity; and the harmonisation of SAM States' capabilities with those of neighbouring Regions.

<i>ICAO strategic objectives:</i>	<ul style="list-style-type: none"><li>• Air navigation capacity and efficiency</li><li>• Economic development of air transport</li><li>• Environmental protection</li></ul>
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**1. Background**

1.1 The performance-based communications and surveillance (PBCS) concept provides a framework for communications and surveillance performance management in accordance with globally accepted specifications; forming, together with the performance-based navigation (PBN) concept, a virtuous triangle to raise safety levels and maximise the operational benefits of the technology supporting air traffic management (ATM).

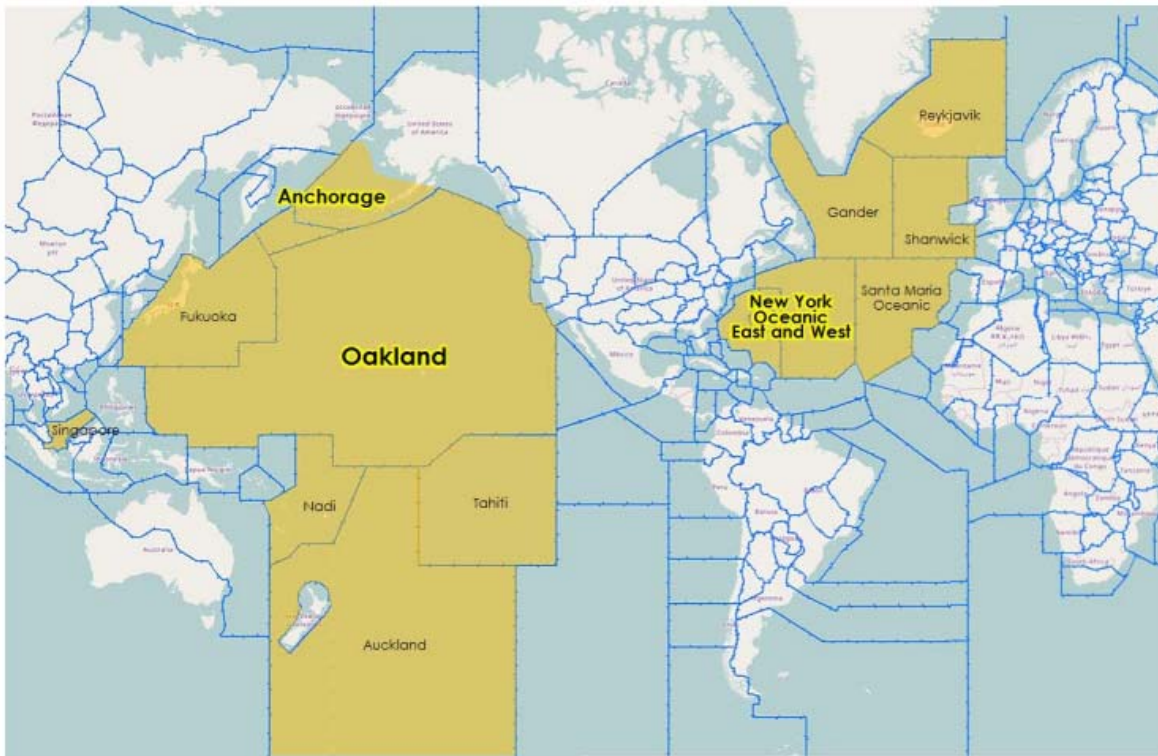
1.2 The PBCS concept originated in 1983 with the decision of the ICAO Council to establish the future air navigation systems (FANS) special committee to study, identify and evaluate new technologies and propose recommendations for the development of civil air navigation.

1.3 The development of the PBCS concept is outlined in multiple decisions made over more than 20 years in various forums such as: Air Navigation Conference (AN-Conf/10-11), Aeronautical Mobile Communications Panel (AMCP/4), Air Navigation Commission (ANC), Automatic Dependent Surveillance Panel (ADSP / OPLINKP 2014). The decisions derived from the aforementioned instances include, among others, the incorporation of required communications performance (RCP) and required surveillance performance (RSP) specifications; policies, procedures and criteria for approval of aircraft systems, operators and navigation service providers and post-implementation monitoring system.

## 2 Discussion

2.1 PBCS is currently supported in the Global Air Navigation Plan through technology solutions at a maturity level defined as "*ready for implementation*", *i.e.* the development of the system has been completed and is now in a phase of initial operational capability at the global level.

2.2 The worldwide deployment of PBCS can be seen in Fig. 1 below, showing that many States in Regions around the SAM Region are already benefitting from the implementation of the concept.



*Fig. 1: PBCS global deployment*

*Source: FAA PBCS: ANSP Concept of Ops United States NAT PBCS Workshop/3 20-21 February 2018 Paris, France*

2.3 Without detriment to the above, the use of data link applications such as controller-pilot data link communications (CPDLC) and automatic dependent surveillance - contract (ADS-C) has not been alien to our Region. As early as 2013, the Chilean State Oceanic Area Control Centre incorporated the use of data link technology into its communication and surveillance processes by means of the FANS 1/A system. Brazil, in turn, since 2021, incorporated CPDLC in an area of more than 3.5 million km<sup>2</sup> of the Amazon FIR and the Recife FIR and has declared its plan to expand this technology to more FIRs under its responsibility until 2024<sup>1</sup>. Now, the implementation of PBCS appears as the logical evolution that will allow us to make the most of our capabilities.

<sup>1</sup> Working paper presented by Brazil at the 41st Session of the ICAO Assembly, Montreal, 2022. A41-WP/291 TE/111 5/8/22

2.4 The implementation of the technology described in the previous paragraph and its supporting enablers, as described in the *Performance-Based Communications and Surveillance (PBCS) Manual* (Doc 9869), involves the participation of several stakeholders: the regulating State, air navigation service providers, operators, communication and surveillance service providers (CSPs/SSPs) and aircraft manufacturers. In order to implement the PBCS concept in the SAM Region, coordinated work between the aforementioned stakeholders and any others that may be required is imperative.

2.5 Although the PBCS concept is comparable to PBN, important differences can be identified between the two. One of them is that the PBCS concept requires post-implementation monitoring programmes at local and regional level, with global information exchange. It is also necessary to consider that the regional monitoring and reporting system should have a collaborative, secure and agreed-upon IT platform that includes all stakeholders.

2.6 In conclusion, the implementation of the PBCS concept can bring benefits to SAM States with current and future FANS 1/A capabilities, leading to a balance between demand and capacity, contributing to air navigation safety, airspace user efficiency and thus to the reduction of greenhouse gases.

### **3 Suggested action**

3.1 The Meeting is invited to:

- a) promote actions to enable SAM States to assess the desirability of implementing the performance-based communications and surveillance concept with a regional approach, to support area navigation services in oceanic and/or remote airspace.
- b) consider the establishment of an *ad hoc* group for the purpose of determining the merits of regional implementation of PBCS, from a cost-benefit, opportunity, feasibility and relevance point of view.

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