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**Eleventh North American, Central American and Caribbean Directors of Civil Aviation Meeting
(NACC/DCA/11)**

Varadero, Cuba, 28-30 June 2023

**Agenda Item 4: NAM/CAR Regional Safety/Air Navigation Implementation
4.2 Air Navigation Implementation Matters**

**AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST (ADS-B) REGULATORY FRAMEWORK IN
CENTRAL AMERICA**

(Presented by Belize, Costa Rica, the Salvador, Guatemala, Honduras and Nicaragua)

EXECUTIVE SUMMARY	
This paper reports on actions by COCESNA and the Central American States made to improve air traffic services in the different airspaces of the Central American Flight Information Region (FIR), through the implementation of air ADS-B and the establishment of a regulation to ensure aircraft equipment with the required features.	
Action:	Refer to Section 4.
Strategic Objectives:	<ul style="list-style-type: none">• Strategic Objective 2 – Air Navigation Capacity and Efficiency• Strategic Objective 4 – Economic Development of Air Transport• Strategic Objective 5 – Environmental Protection
References:	Central American ADS-B panel <ul style="list-style-type: none">• RLA08901 Project Technical Assistance Mission, Meeting of the Air navigation services Surveillance (SURV) Task Force

1. Introduction

- 1.1 COCESNA, as part of its strategic and investment planning, upgraded the air surveillance systems with ADS-B reception capacity and updated Air Traffic Service (ATS) Control Centres, both Route (Area Control Centre (ACC) CENAMER), Approach (APP), and Aerodrome control tower (TWR), to integrate ADS-B messages considering the processing of versions ADS-B 0, 1 and 2, and using the last versions of Asterix CAT 021 surveillance data format. It is expected that new hired updates will be incorporated, including processing of the new ADS-B version and of figures of merit.
- 1.2 Currently, ADS-B data allow to have an additional surveillance layer over the one provided by radars in continental and oceanic parts where coverage exists. Said information is used in the Control Centres for surveillance purposes and to monitor aircraft capacities within the Central American FIR.

- 1.3 In the Pacific oceanic airspace of the Central American FIR, where it is impossible to have radar coverage and ground-based ADS-B, COCESNA hired satellite ADS-B data, in order to improve surveillance and safety at that airspace, achieving reduction of Large Height Deviations (LHDs) in said airspace as well as aircraft separation.
- 1.4 As part of the investment initiatives, a feature assurance system was implemented, that allows monitoring overall performance of radar sensors and ADS-B periodically, apart from developing a software that allows from ADS-B data to monitor ADS-B avionics capabilities and to perform statistical analysis of the figures of merit reported by the aircraft in the ADS-B messages.
- 1.5 Since 2019 said system has allowed monitoring how aircraft have been equipped with version 2 (DO-260B), mainly due to the mandate established by United States as at 1 January 2020, a situation that has been positive in Central America. According to the aircraft registry under review by member States, important progress in the equipment of aircraft with ADS-B is observed.
- 1.6 Through Project RLA/09/801 – Multi-Regional Civil Aviation Assistance Programme (MCAAP), the Technical Assistance Mission Meeting of the Surveillance (SURV) Task Force of the Air Navigation Services (ANS) was held in Mexico City, Mexico, from 13 to 15 July 2022, where COCESNA participated as member of the TF.
- 1.7 The SURV/TF of surveillance analysed the status of implementation of the data of the surveillance systems, among which the ADS-B data. As part of this process, it was identified that the Central American subregion already has operational implementation of ADS-B, both on the ground and satellite-based, and important recommendations were made that were considered by COCESNA and its member States, among which the following is worthwhile mentioning:

“Recommendation 3: Take advantage of the use of ADS-B as the primary way to obtain aircraft parameters and complement the information using Mode S interrogations.”
- 1.8 Through GREPECAS Conclusion 20/03 on the study of operational priorities for ADS-B implementation and aspects of the use of ADS-B in the ATC units, it is indicated that the Secretariat, in coordination with the industry, executes a study on the operational priorities for the implementation of ADS-B and on aspects of the use of ADS-B in ATC units, based on the technical guidance documentation available for the CAR/SAM Regions by GREPECAS/21, to promote the coherent and harmonized implementation of ADS-B in the CAR/SAM Regions, within the framework of the Alternative Surveillance (ASUR) module of the Global Air Navigation Plan (GANP), recognizing the priorities of airspace optimization and the provision of ATS services in the region

- 1.9 Concerning ADS-B operational use, and in order to obtain all the benefits and current and future capabilities established the GANP to provide ATS in radar and non radar airspace and, it is necessary to develop regional regulation on operational implementation of ADS-B and to foster that all aircraft be equipped and comply with the required features for the different airspaces.
- 1.10 Through a resolution of COCESNA's Board, a panel was integrated composed by experts from each State to develop a roadmap to analyse and implement ADS-B regulation in the subregion.

2 Roadmap for ADS-B Regulation

- 2.1 The Panel, supported by the ICAO NACC Regional Office and of the SURV/TF, developed a roadmap to analyse and implement ADS-B regulation.
- 2.2 Said roadmap considers an avionics status analysis regarding equipment, including aircraft registry, an ADS-B implementation and certification cost analysis, identification and participation from the industry, review of ICAO standards on ADS-B and of the regulatory framework of each one of the Central American States, implementation of the regulation in other States case study, definition and review of ADS-B operational concept, assessment of safety aspects, and definition of ADS-B performance requirements, in order to finalize the analysis and to present a proposal on ADS-B regulation.
- 2.3 The data uplift and gathering process continues currently by the States and information analysis has begun.
- 2.4 Progress and obtained results will be reported at the next meetings.

3. Recommended Actions

- 3.1 The Meeting is invited to:
- a) review the information provided in this paper; and
 - b) the industry and States are invited to contribute and collaborate with the ADS-B regulation initiative in Central America.