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WORKING PAPER

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(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**

IMPLEMENTATION OF THE AUTOMATIC DEPENDENT SURVEILLANCE SYSTEM (ADS-B) IN THE CAR REGION

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
This working paper summarizes the work done by the NACC/WG Surveillance Task Group, the recommendations made based on regional data, and the subsequent steps that the ICAO's NACC Office is coordinating to support regional implementation of ADS-B and the regional benefits expected from this implementation.	
Action:	Suggested actions are listed in section 4.
Strategic Objectives:	<ul style="list-style-type: none">• Strategic Objective 1 - Safety• Strategic Objective 2 - Air Navigation Capacity and Efficiency• Strategic Objective 4 - Economic Development of Air Transport
References:	<ul style="list-style-type: none">• Project RLA09801 – Technical Assistance Mission Meeting of the Surveillance Task Force (SURV) of the Air Navigation Services (ANS), ICAO NACC Regional Office, Mexico City, Mexico, July 2022.• Seventh North American, Central American and Caribbean Working Group Meeting (NACC/WG/7) - ICAO NACC Regional Office, Mexico City, Mexico, 29 August 29 01 September, 2022.

1. Introduction

1.1. The NACC/WG/SURV is the Task Group responsible for surveillance systems implementation activities, within the NACC/WG, North American, Central American and Caribbean Working Group - Technical Group responsible for leading regional air navigation implementation objectives.

1.2. During its last Task Force meeting at the ICAO office in Mexico City from July 13 to July 15, 2022, an analysis of the regional implementation of surveillance systems was developed to establish their status.

1.3. During the NACC/WG/07 meeting in September 2022, the NACC/WG/SURV presented the results of its analysis and recommendations to the NACC/WG that should be taken into account as a Working Group to further airspace optimization activities and, especially, to increase safety due to surveillance data.

1.4. One of the topics addressed during the NACC/WG/SURV and NACC/WG/07 meetings was the implementation of ADS-B surveillance systems owing to the regional benefit they provide and their being less costly in comparison to conventional radar systems.

1.5. During the GREPECAS/20 meeting in November 2022, the need for a regional approach to ADS-B implementation was discussed, and through GREPECAS/20/03 CONCLUSION the need to develop a study on the operational priorities for ADS-B implementation and its use in ATC units were addressed.

2. Discussion

2.1 ADS-B is a comprehensive system that requires several types of enablers to ensure the correct operation and use of its data. These enablers range from ground equipment, data integration in control centers, development of procedures, certification of onboard avionics, technical and operational training, as well as the establishment of correct regulations for their use.

2.2 ADS-B provides accurate position/velocity information throughout the airspace (accuracy is not range dependent as with radars). It also provides aircraft call sign and accurate position/speed information to nearby aircraft with ADS-B-In receivers. This information is paramount to support the implementation of other air navigation services, such as:

- Providing airborne collision avoidance as a last safety resort for pilots (GANP ACAS Module).
- Aerial separation (SCEP module of GANP)

2.3 As a result of the mandatory implementation of ADS-B in the United States on January 1, 2020, commercial aircraft fleets adapted the equipment on board their aircraft to comply with the requirements requested by that State. In this respect, statistics have been developed to date on the equipment on board commercial aircraft flying in the Caribbean, and it has been identified that the percentage of equipped aircraft is above 98%.

2.4 Statistical studies were conducted in Cuba, Mexico, the Dominican Republic and the Central American IRF, all of which yielded even higher data, reportedly 99% of the fleet fully equipped.

2.5 In this regard, the NACC/WG/SURV Task Force recommended the following in its Group Report:

- **Recommendation 1:** ICAO States shall work with stakeholders to determine a date for ADS-B outfitting and implementation.
- **Recommendation 2:** States should take advantage of current surveillance capabilities and primarily the ADS-B technology and adopt mandatory use of ADS-B as a standard.
- **Recommendation 3:** Take advantage of ADS-B utilization as the primary means to obtain aircraft parameters and supplement information using Mode S interrogations.

2.6 The NACC/WG/SURV identified that the States of Cuba, Mexico, Barbados, Trinidad and Tobago, COCESNA and its Member States have already installed ADS-B without there being any regulations from their States for its operational use.

2.7 The NACC/WG/07 established the need to address this issue in a more comprehensive, regional manner and establish a regional mandatory date for the use of ADS-B.

2.8 As a first step, it is necessary that the States that have the required ADS-B infrastructure ready for their operations implement the necessary regulations to ensure the use of ADS-B in the short term on a mandatory basis within their FIR's.

3. Workshop for the development of regulations for the operational use of ADS-B.

3.1 The ICAO NACC Office in coordination with the ICAO SAM Office, the U.S. Federal Aviation Administration (FAA) and the Air Navigation Services Corporation will develop a workshop to support CAR States from July 17 to 21, 2023, to assist them in the development of their regulations for the operational use of ADS-B.

3.2 Technical and operational personnel responsible for the implementation of ADS-B, operations and airworthiness personnel, and personnel responsible for the development of operational procedures for the use of ADS-B and especially for the development of State regulations have been invited to this workshop.

3.3 States ready for ADS-B implementation that already have their capacity in place are required to prioritize this workshop and send the personnel above listed to address the implementation of this facility in a comprehensive and multidisciplinary manner. Emphasis is also placed on the fact that other States should also take advantage of the information that will be covered during the workshop for their short-term surveillance projects.

3.4 With the en-route implementation of the aforementioned States and the support of the States that have surveillance systems, cutting-edge secondary radars, airspace optimization activities in the CAR region would be boosted.

4. Suggested actions:

4.1 CAR States are invited to:

- a) Those States that have their ADS-B systems ready are required to commit to developing their regulations in the short term and to make use of ADS-B.
- b) Encourage the participation of multidisciplinary personnel in the ADS-B regulation development workshop; and
- c) Make the use of ADS-B mandatory in their short-term FIRs.

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