



ICAO

International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

NACC/WG/11— WP/18

18/09/26

Eleventh Meeting of the North American, Central American and the Caribbean Working Group (NACC/WG/11)

Guatemala City, Guatemala, September 21-25, 2026

Agenda Item 3: Presentation of the progress of the action plans of the NACC/WG Task Forces and the progress in the regional work

ENHANCING AIRCRAFT-BASED OBSERVATIONS (ABO) THROUGH REGIONAL COORDINATION AND COLLABORATION (Presented by the SURV/TF and MET/TF Rapporteurs)

EXECUTIVE SUMMARY

This Working Paper presents progress in the implementation of Task T02, Aircraft-Based Observations (ABO), of the MET/TF 2026 Work Programme and in the follow-up to NACC/WG/10 Decision 10/05. Coordination with the World Meteorological Organization (WMO), its expert teams and the Surveillance Task Force (SURV/TF), together with technical exchanges with COCESNA and SENEAM, enabled the identification of capabilities and potential data sources for future ABO initiatives, as well as the role of Air Navigation Service Providers. The paper proposes broadening their participation and considering a regional ABO activity involving WMO, CANSO and other relevant stakeholders.

Action:	As presented in Section 5.
Strategic Objectives:	• Every Flight is Safe and Secure • Aviation is Environmentally Sustainable • Aviation Delivers Seamless, Accessible, and Reliable Mobility for All • No Country Left Behind • The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All
References:	• Summary of Discussions of NACC/WG/10 • Summary of Discussions of MET/TF/4 • Annex 3 — Aeronautical Meteorological Service for International Air Navigation • Procedures for Air Navigation Services — Meteorology (PANS-MET, Doc 10157)

1. Introduction

1.1 The Tenth Meeting of the North American, Central American and Caribbean Working Group (NACC/WG/10) and the subsequent Third Meeting of the Aeronautical Meteorology Implementation Task Force (MET/TF/3) identified Aircraft-Based Observations (ABO) as a priority activity

to support the evolution of aeronautical meteorological services in the NAM/CAR Regions. Consequently, MET/TF/3 approved Task T02, ABO (AMDAR/Others), of the 2026 Work Programme in follow-up to NACC/WG/10 Decision 10/05.

1.2 During MET/TF/3, several States highlighted the importance of aircraft-derived meteorological observations in strengthening atmospheric observing capabilities, supporting weather forecasting and improving services provided to international air navigation. The need to undertake awareness-raising activities and explore emerging technologies that could support implementation was also recognized.

1.3 Aircraft-based meteorological observations are a recognized component of the framework established by Annex 3 and the PANS-MET, contributing to enhanced meteorological watch, numerical weather prediction and operational decision-making. These observations can be obtained from different sources and capabilities. Therefore, regional activities are not limited to Aircraft Meteorological Data Relay (AMDAR).

1.4 In follow-up to this mandate, the Secretariat initiated coordination activities with the World Meteorological Organization (WMO), including the Expert Team on Aircraft-Based Observations (ET-ABO) and the Expert Team on Aviation Services (ET-AVI), to identify practical implementation opportunities in the NAM/CAR Regions. In parallel, it promoted collaboration with the Surveillance Task Force (SURV/TF) to assess the potential of regional surveillance and aeronautical data exchange capabilities. Consequently, technical exchanges were conducted with the Central American Corporation for Air Navigation Services (COCESNA), and exploratory activities were initiated with Mexican Air Navigation Services (SENEAM) to assess potential implementation opportunities.

1.5 The results of these activities were reviewed during MET/TF/4 and are presented to NACC/WG/11 to support the continuation of the technical assessments, broaden the participation of air navigation service providers and guide subsequent regional activities in follow-up to NACC/WG/10 Decision 10/05.

2. Activities Undertaken

2.1 **ICAO-WMO Coordination.** The Secretariat conducted technical exchanges with specialists from the World Meteorological Organization (WMO) to review the evolution of the Aircraft-Based Observations (ABO) Programme and assess the regional applicability of initiatives related to Aircraft Meteorological Data Relay (AMDAR), Mode S Enhanced Surveillance, Meteorological Routine Air Reports, Automatic Dependent Surveillance-Contract (ADS-C), and other emerging sources of aircraft-based meteorological observations.

2.2 **Coordination with the SURV/TF.** The Secretariat established close coordination with the NACC/WG Surveillance Task Force (SURV/TF), which contributed its technical expertise to assess the potential of regional surveillance and aeronautical data exchange capabilities in support of future ABO initiatives. This collaboration incorporated specialized knowledge of Automatic Dependent Surveillance-Broadcast (ADS-B), ADS-C, Mode S Enhanced Surveillance, regional data exchange, and other relevant capabilities, facilitating a preliminary assessment of their potential contribution to the collection of aircraft-based meteorological observations in the NAM/CAR Regions. This activity constitutes an example

of collaboration among NACC/WG Task Forces in support of cross-cutting regional implementation initiatives.

2.3 Technical Exchanges with COCESNA. A series of technical exchanges was conducted with the Central American Corporation for Air Navigation Services (COCESNA) to undertake a preliminary assessment of the potential of selected operational and surveillance infrastructure to support future ABO initiatives. The discussions included considerations related to:

- Automatic Dependent Surveillance-Broadcast (ADS-B);
- Mode S Enhanced Surveillance;
- Meteorological Routine Air Reports (MRAR);
- Automatic Dependent Surveillance-Contract (ADS-C);
- ASTERIX-based information exchange mechanisms; and
- regional data exchange and data-sharing architectures.

The exchanges identified capabilities requiring further technical assessment to determine the availability, quality, format, accessibility, and potential use of aircraft-based meteorological data.

2.4 Initial Coordination with SENEAM. In parallel, preliminary exchanges were initiated with Mexican Air Navigation Services (SENEAM) to explore similar opportunities in the Mexican context. Although these activities remain at an early stage, they confirmed SENEAM's interest in assessing the potential contribution of its existing capabilities to the future development of ABO initiatives.

2.5 The results of the above activities were reviewed during MET/TF/4. The discussions confirmed the value of continuing the technical assessments and progressively broadening the participation of air navigation service providers, considering that some potential sources of meteorological observations depend on surveillance, communication, and data exchange systems managed by those organizations.

3. Preliminary Observations

3.1 The activities undertaken indicate that the Aircraft-Based Observations (ABO) concept continues to evolve beyond traditional approaches based exclusively on Aircraft Meteorological Data Relay (AMDAR).

3.2 Information published by the World Meteorological Organization (WMO) indicates growing international interest in leveraging surveillance and communication capabilities, as well as other aircraft-derived data sources, to enhance the availability of meteorological observations, particularly in regions with limited observational coverage.

3.3 The exchanges conducted with WMO, the Surveillance Task Force (SURV/TF), the MET/TF, COCESNA and SENEAM helped identify the role that air navigation service providers may play in the assessment and development of future ABO initiatives. Although the assessments remain ongoing, the results achieved may inform similar assessments in other States and organizations within the NAM/CAR Regions.

3.4 The implementation of ABO initiatives requires coordination among civil aviation authorities, meteorological services, air navigation service providers, aircraft operators, data-link service providers and other relevant stakeholders, given the technical, operational and institutional responsibilities associated with the generation, transmission, access and use of the data.

3.5 More active participation by air navigation service providers would enable the assessment of existing surveillance, communication and data exchange capabilities, the identification of potential sources of meteorological observations, and the determination of the technical and coordination requirements for future implementation activities.

4. Next Steps

4.1 The Secretariat will continue coordinating with the World Meteorological Organization (WMO), the Surveillance Task Force (SURV/TF), the MET/TF and interested participants to:

- a) complete the technical assessments initiated with COCESNA and SENEAM;
- b) identify new opportunities for cooperation and implementation;
- c) promote the participation of other air navigation service providers in assessing surveillance, communication and data exchange capabilities that could support future initiatives;
- d) share experiences and lessons learned within the framework of the NACC/WG; and
- e) provide periodic updates on the progress achieved.

4.2 The Secretariat will continue coordinating with WMO to consider holding a regional ABO activity involving civil aviation authorities, meteorological services, air navigation service providers, aircraft operators, data-link service providers, CANSO and other relevant stakeholders.

4.3 The regional activity would provide an opportunity to examine existing and emerging sources of aircraft-based meteorological observations, available capabilities within the NAM/CAR Regions, and the technical, operational, institutional and financial requirements associated with potential implementation initiatives.

5. Action by the Meeting

5.1 The Meeting is invited to:

- a) note the progress achieved in the implementation of Task T02, Aircraft-Based Observations (ABO), and in the follow-up to NACC/WG/10 Decision 10/05;
- b) support the continuation of technical assessments and coordination among ICAO, the World Meteorological Organization (WMO), the MET/TF, the Surveillance Task Force (SURV/TF), air navigation service providers and other relevant stakeholders;
- c) encourage air navigation service providers to assess existing surveillance, communication and data exchange capabilities that could contribute to future ABO initiatives; and
- d) support coordination with WMO to consider holding a regional ABO activity involving civil aviation authorities, meteorological services, air navigation service providers, aircraft operators, data-link service providers, CANSO and other relevant stakeholders.