



ICAO

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WORKING PAPER

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21/02/24

**Second Meeting of the North American, Central American and Caribbean Working Group
(NACC/WG) Aeronautical Meteorology (MET) Task Force (TF) (MET/TF/02)**

Mexico City, Mexico, 27 February to 1 March 2024

Agenda Item 3: Implementation needs and expectations.

**IMPLEMENTATION ANALYSIS OF THE BASIC BUILDING BLOCKS BBB OF THE
METEOROLOGICAL SERVICE FOR INTERNATIONAL AIR NAVIGATION**

(Presented by the Secretariat)

EXECUTIVE SUMMARY

This working paper presents the MET/TF progress to develop the BBB verification process, and the prototype of forms and dashboard needed to gather, process, and monitor the implementation of the Meteorological Services for the International Air Navigation.

Action:	In accordance with number 4
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency• Environmental Protection
<i>References:</i>	<ul style="list-style-type: none">• Twentieth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/20), Salvador, Brazil, 16 to 18 November 2022• Second Meeting of Rapporteurs of the North American, Central American and Caribbean Working Group (NACC/WG/RAP/02), Mexico City, 28 to 31 March 2023• Eighth North American, Central American and Caribbean Working Group Meeting (NACC/WG/8) ICAO NACC Regional Office, Mexico City, Mexico, 29 August to 1 September 2023

1. Introduction

1.1 GREPECAS Conclusion 19/09 required States to support the establishment of a CAR/SAM Regional Dashboard to be implemented for GREPECAS/20, as well as to provide ICAO with the information and data sets necessary for its implementation.

1.2 GREPECAS Conclusion 19/02 requested States to determine the necessary mechanisms to verify the effective implementation of the BBB corresponding to the Meteorological Service for international air navigation (MET).

1.3 GREPECAS 20 discussed the progress of the GREPECAS Dashboard that seeks to serve the States and the Regional Implementation Groups to monitoring the implementation progress and support the Annual Regional Safety Reports and Air Navigation Reports among other activities. Similarly, GREPECAS 20 discussed the dashboard' expectations and implementation goals, highlighting:

- a) be able to support tasks that require continuous data collection and measurements to establish a data report that is representative,
- b) the implementation status be shown through dynamic and interactive graphics that are available in the Dashboard,
- c) generate ad-hoc reports that will illustrate the data collected in the Dashboard, and,
- d) make available for each State access to the secure portal of the GREPECAS Dashboard for its use and reporting

1.4 The second meeting of NACC/WG rapporteurs (NACC/WG/RP02) required the task forces to initiate the BBB' verification, by consolidating States' reports using the template provided as appendix to the meeting report indicating the necessary modifications or implementing a strategy that better adapt to the purpose. Decision NACC/WG/RAP/02/01 refers.

1.5 The NACC/WG/08 decided to promote the BBBs verification process requesting the Regional Office to continue developing the verification process and in cooperation with the States, Territories and Organizations, strengthen the verification process to feed the dashboard.

2. Analysis

2.1 The MET/TF worked to define the process to facilitate the data collection, analysis of information, storage and management, and the visualization of reports. Using the Microsoft's business intelligence platform (Power BI) two prototypes were developed to include users' feedback and optimize the dashboard visualization, as presented in numeral 3. Of this WP.

2.2 When considering the verification process of the [MET BBB Framework](#), the MET/TF discussed and integrated the following aspects:

2.2.1 **Structure based on global systems, supporting centres and meteorological offices:** the GANP portal grouped essential services based on Aerodrome Meteorological Offices (AMO), Meteorological Watch Offices (MWO), Global Systems and Supporting Centres, associating the corresponding ICAO standards and guide material. The MET/TF identified the inclusion of an essential service named RMM, without references to the Annex 3 standards and recommended practices (SARPs), therefore it is not in the context of the verification process.

2.2.2 **Regional Air Navigation Plan (eANP):** Volumes I and II Part V, describes the facilities, services, and procedures to be implemented by States for the provision of meteorological service; the verification process involves reviewing and updating said volumes and creating the corresponding proposals for amendments (PfA).

2.2.3 **Regulatory context and national methods:** It was considered as necessary for the verification, to analyse the application of three articles of the Chicago Convention that support the national regulatory process, Art 12 - Implementation and enforcement of SARPs, Art 37 - Collaboration in ensuring the highest practical degree of uniformity in regulations, standards, procedures and Art 38 - Immediate notification of differences between national practices and those established by international standards. The review of the National Regulation associated with Annex 3 and the use of the ICAO electronic filing of differences (EFOD) system, facilitates the verification process, and ensure results reliability.

2.2.4 **Degree of compliance or deviation from the Annex 3 Standards:** associated to 2.2.3, the verification process integrates the notification of differences through the Aeronautical Information Publication (AIP) in the Gen. 1.7 part, likewise, the description of the meteorological service responsible for the facilities, services, and procedures to provide meteorological information in accordance with AIP part Gen 3.5. Correlating the information of the eANP, AIP and EFOD, is a fundamental step for reliability of the verification process.

2.2.5 **Air Navigation Deficiencies:** The ICAO Council definition "...a situation in which a facility, service or procedure does not comply with a regional air navigation plan approved by the Council, or with the standards and recommended practices related ICAO regulations, and whose situation has a negative impact on the safety, regularity and/or efficiency of international civil aviation..."; the Uniform Methodology for the Identification, Assessment and Reporting of Air Navigation Deficiencies is described on the GREPECAS website ([access here](#)) same that offers the GREPECAS air navigation deficiencies database (GANDD). (USOAP CMA PQ 7.045 refers).

2.2.6 **Relationship with the state safety oversight system (SSO):** when conducted by national inspectors, the BBBs verification is part of the surveillance activities in accordance with ICAO Document 9734 part A. It was identified that establishing a verification cycle would allow the identification of deficiencies and their resolution, recording necessary changes in the implementation status. This cyclic process creates efficiency and synergy for the operation of the meteorological service and for the strengthening of the SSO.

2.2.7 **Universal Safety Oversight Audit Program (USOAP):** Eight critical elements (CE) constitute an effective SSO. The implementation CE, CE-6 and CE-7 address the State's capability to monitor compliance with its licensing and certification obligations, as well as surveillance and oversight; CE-8 address the States' capability to resolve any safety issues that could also be related to deficiencies in the provision of the Service. Protocol Questions (PQs) are the primary tool used in the ICAO USOAP Continuous Monitoring Approach (CMA) to assess the effective implementation of CEs. The verification process allows the State to collect evidence of its surveillance activities on the service provider.

2.2.8 **Standardized classification of the implementation status:** A range of five implementation ranks was determined as presented below, to facilitate the recording of the reality faced by the States. It also provides realistic and relevant information for planning and deploying assistance activities in accordance with States' needs.

Status	Explanation
N/A	The BBB element is not Applicable
Planning	Implementation of this BBB element is planned, but not yet started
Developing	Implementation of this BBB element is in the development phase, but not yet operational
Partially Implemented	Implementation of this BBB Element is partially completed and/or operational but all planned implementations are not yet completed
Implemented	Implementation of this BBB Element has been completed and/or is fully operational

2.3 Collaborative work between Civil Aviation Authorities, Meteorological Authorities and entities that provide the meteorological service, has shown great potential to facilitate the verification process consistently with the dynamic nature of the MET essential services implementation.

3. Preliminary results

3.1 In addition to the work conducted by the MET/TF, ICAO NACC Regional Office received reports from Costa Rica, Cuba, and Santa Lucia in accordance with the template provided by NACC/WG/RP02; similarly, a specific discussion teleconferences were held with COCESNA in July 2023, and other States and Territories have been covered through three MET/TF teleconferences held in May and August 2023.

3.2 Sample data gathered from an assistance mission held in November 2022 to the Eastern Caribbean Civil Aviation Authority (ECCAA) and five of six ICAO Member States participating of the ECCAA, have been used as a trial for the verification process. The data collection needs to be reviewed and updated based on ECCAA and ECCAA participating States efforts to streamline and enhance the BBB implementation.

3.3 A sample of the developed template to gather information and the currently operational dashboard is shown below:

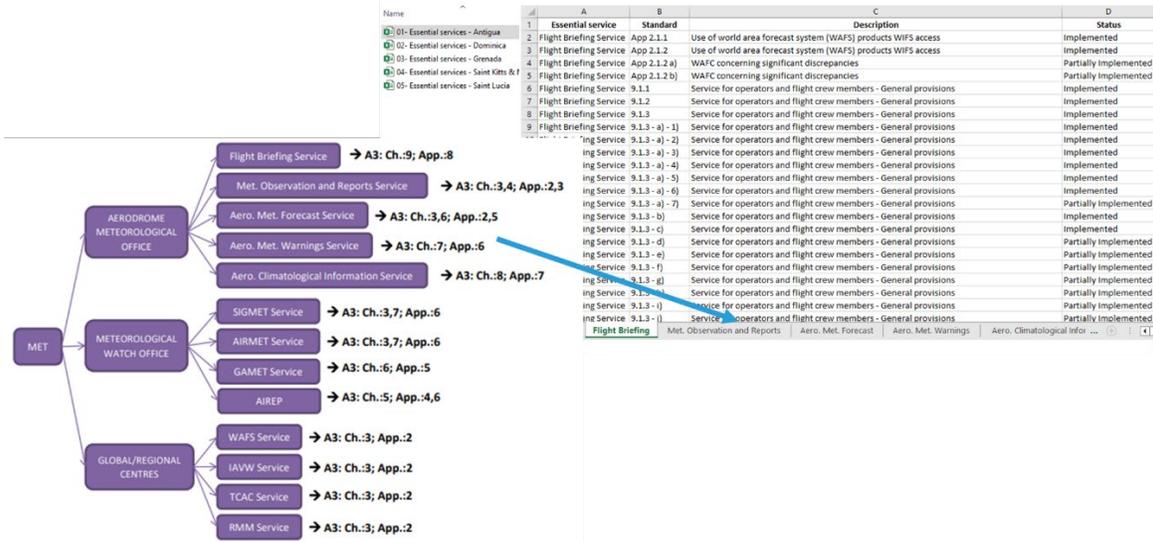


Figure 1. Template for data capture of essential services linked to Aerodrome Meteorological Offices

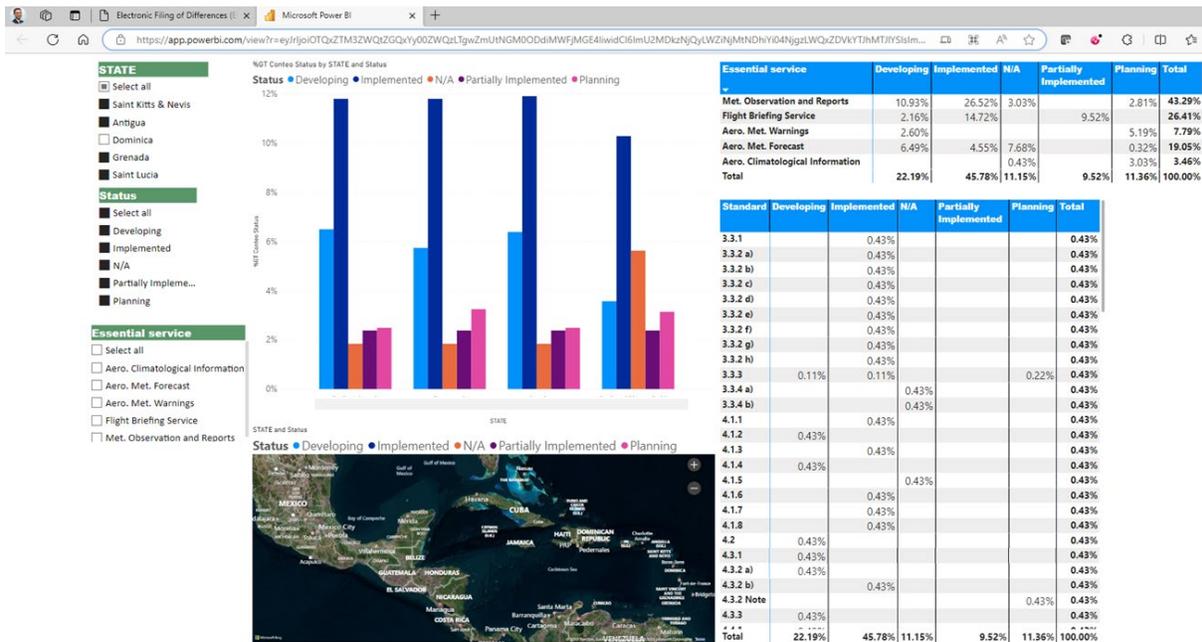


Figure 2. Dashboard of essential services linked to the Aerodrome Meteorological Offices

3.4 The dashboard will provide objective and relevant information on the MET implementation status, to improve the planning and deployment of assistance activities. Collaborative work between Civil Aviation Authorities, Meteorological Authorities and entities providing the meteorological service, is fundamental to facilitate the data collection, analysis of information, storage, and visualization of reports, consistently with the dynamic nature of the essential services provision.

4. Suggested action:

4.1 The Meeting is invited to:

- a) Note the achievements in preparation for the NACC/WG/9;
- b) support the work to continue the development of the verification process;
- c) Urge the States, Territories and Organizations to strengthen the verification process and join national efforts to apply it and feed the dashboard.

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