INTERNATIONAL CIVIL AVIATION ORGANIZATION

Second meeting of the Africa-Indian Ocean Aviation System Planning and Implementation Group (AASPG/2)

Livingstone, Zambia , November 2 - 6 , 2026

Agenda item 4: Implementation of safety and air navigation objectives, targets and indicators, including priorities set out in regional safety and air navigation plans

Modernizing the processing, validation and transmission of meteorological observations messages from conventional meteorological observation stations in Senegal

(Note submitted by Senegal)

CONTINUE	
This information paper concerns a System for the Processing, Validation and Transmission of Meteorological Observations messages (TRANSMET), developed by the National Agency for Civil Aviation and Meteorology of Senegal (ANACIM). TRANSMET processes meteorological observations made at conventional weather stations, centralizes the data, automatically generates METAR and SYNOP messages validated by the observer, and transmits them to the WMO Information System via WIS 2.0. The follow-up to be taken by the meeting is outlined in paragraph 3.	
REFERENCE(S)	➢ WMO-No. 306, Manual of Codes – International Codes, Volume I.1, Part A ➢ ICAO, Annex 3 to the Convention on International Civil Aviation – Meteorological Service for International Air Navigation ➢ WMO-No. 1060, WMO Information System Manual, Volume II – WIS 2.0
Strategic objectives	*C - Aviation ensures smooth, accessible and reliable mobility for all*

1 INTRODUCTION

1.1. Conventional meteorological observation stations in Senegal play a key role in collecting observational data used for aeronautical meteorology, forecasting and climatology.

1.2. Until recently, observation forms were filled out on paper at the stations and then sent once a month to the data collection office in Dakar, where they were manually re-entered. Exchanges by email and telephone supplemented the process. Data acquisition was therefore slow, labor-intensive, and prone to transcription errors.

1.3. To address these difficulties, ANACIM has developed an in-house web application called TRANSMET which automates the processing, archiving and dissemination of messages and data from meteorological stations.

1.4. For data entry for processing by TRANSMET, an existing meteorological data collection form was consolidated by adding some meteorological parameters to complete the information needed for coding METAR and SYNOP messages.

2. ANALYZE

2.1 The TRANSMET application aims to:

a) modernize the collection, processing and dissemination of data from conventional meteorological observation stations;
b) ensure the reliability of information and make it accessible to all departments; and
c) facilitate the analysis of climatological data through automated calculations.

2.2 TRANSMET manages the complete data flow in four stages:

a) Input and import: every hour, the observer fills out the dedicated electronic form (temperature, wind, humidity, etc.), which is exported in CSV format and then imported via a simple web interface.
b) Automatic processing: the entered data is integrated into a centralized database (COLLECTE). TRANSMET also generates a file in the format required by the ANACIM climatological database. This file is then automatically transferred via SMB/FTP to this database for data updates.
c) Message generation: SYNOP and METAR messages are automatically encoded from the data provided in the system. The observer has the option to review, correct if necessary, and validate the messages.
d) Distribution: validated messages are grouped into a text file, automatically sent via SMB/FTP to the WIS 2.0 server for transmission to the WMO Information System.

2.3 Key changes. Compared to the old process:

a) The data is entered only once, directly at the station, without re-entry in Dakar.
b) SYNOP and METAR messages are generated automatically instead of being coded manually.
c) Validated messages are automatically transmitted to the WIS 2.0 server.
d) The recorded data is archived on the server and no longer on paper.

2.4 Quality control: It is the observer's responsibility to review and validate each message before it is published. The application eliminates manual coding without replacing the observer's expertise.

2.5 Synoptic visualization: The COLLECTE application displays the latest observations from each station, SYNOP and METAR messages, and a map of Senegal with recorded values, updated with each import. This provides management with an immediate overview of the manual station network.

2.6 Added value: TRANSMET provides three main benefits: speed (data available immediately upon import), reliability (less trial and error, each message validated), accessibility (centralized database, distributed via WIS 2.0).

2.7 Centralized platform: The COLLECTE application serves as a central platform where all services find the same data in the same place (observations from classic weather stations and SYNOP and METAR messages).

2.8 Perspectives. Based on this centralized data, ANACIM plans to develop new products and automatically produce statistics, in order to lighten some of the tasks of meteorological staff.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) take note of the information contained in this note; and
b) encourage States whose data collection from meteorological observation stations still relies on paper to consider similar digital solutions and share their experiences.