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ASSEMBLY — 41ST SESSION

TECHNICAL COMMISSION

Agenda Item 31: Aviation Safety and Air Navigation Standardization

IMPLEMENTATION OF THE ICAO WEATHER INFORMATION EXCHANGE MODEL (IWXXM) BY BRAZIL OPMET DATABASE

(Presented by Brazil)

EXECUTIVE SUMMARY

This information document aims to announce the implementation of the ICAO Weather Information Exchange Model (IWXXM) by the OPMET database in Brazil, as well as the new functionalities of the OPMET database. The IWXXM format provides some benefits, such as reducing the size of files transferred over the network and making it easier for users to understand. The new OPMET allows simple and secure sharing of meteorological information in digital format, XML, according to the new SWIM (System Wide Information Management) model, meeting the ICAO IWXXM protocols, and includes an evolution, which is the web service functionality, associated with the use of the internet, which enables receiving and sending weather messages

Strategic Objectives:	This working paper relates to the Air Navigation Capacity and Efficiency Strategic Objective.
Financial implications:	None.
References:	Annex 3 — *Meteorological Service for International Air Navigation*, Attachment 3

1. INTRODUCTION

1.1 The OPMET database of Brazil is a regional (RODB) and international (IROG) databank. This allows the system to receive and transmit weather messages using the AFTN and AMHS NETWORK. In the new OPMET design it is also possible to receive and transmit messages via web services using the Internet.

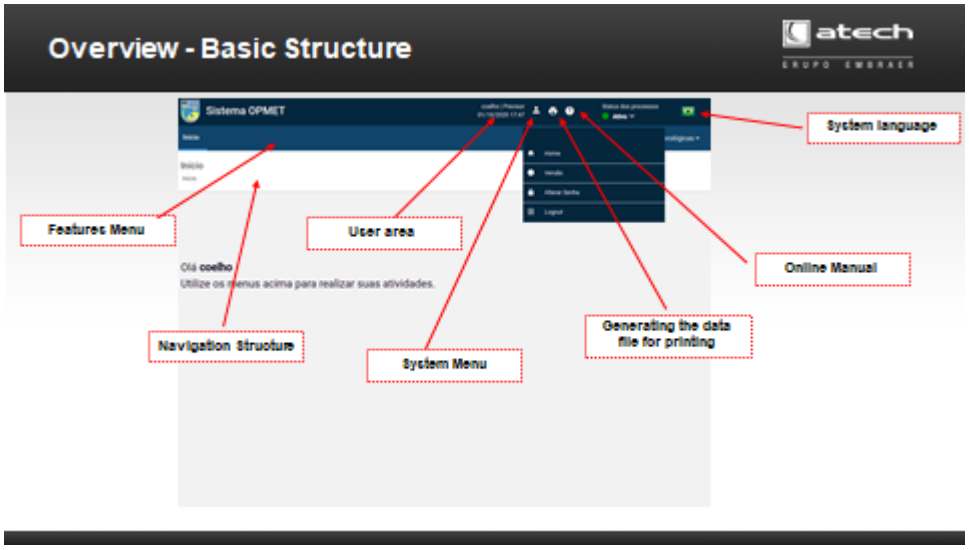


Figure 1. OPMET System Overview and Basic Structure

1.2 The OPMET System includes the functionalities to compose forecast and observation messages and to receive, process, store and retransmit operational meteorological messages. The messages received are METAR, SPECI, TAF, TAF AMD, SIGMET, AIRMET, Airfield Warning, Wind Shear Warning, Tropical Cyclone Warning, Hurricane Warning, Typhoon Warning, Tornado Warning, Tsunami Warning, Severe Storm Warning, AIREP, AREA FCST, AREA FCST AMD, GAMET, GAMET AMD, Tropical Cyclone Advisory, Volcanic Ash Advisory, Space Weather, WINTEM, WINTEM AMD, SYNOP, SHIP, BUOY, TEMP, and PILOT. These messages are received through various channels, such as AMHS, WAFS, Webservices, and the Aeronautics Command Meteorology Network (REDEMET).

1.3 After the messages are received, they are processed and reviewed for their consistency according to the standards in effect, and if they are rejected, the system sends an error message to the sender with the error messages. If no errors are found in message processing, the message is stored and retransmitted to the senders of interest, and can also be requested at any time. In addition, the OPMET System allows the generation of several management and operational control reports.

1.4 The administration of the Brazilian OPMET Database, carried out by the Department of Airspace Control (DECEA), after three years of joint work with the company ATECH, has finalized the modernization process of the OPMET Databank in May 2021. The modernization process aimed to adapt OPMET to the new ICAO requirements, such as the processing of meteorological messages in the IWXXM format, the improvement of existing functionalities and the insertion of new ones....

2. IWXXM IMPLEMENTATION AND TESTING WITH OTHER COUNTRIES

2.1 The implementation of the Meteorological Information Exchange Model (IWXXM), defined by ICAO, is of utmost importance, and the activities developed by Brazil in 2021 highlighted this, through participation in meetings and webinars that dealt with the theme, as well as conducting tests of the OPMET database in Brasilia with the OPMET database of Brussels, Cuba, Uruguay, and Argentina. Testing will continue in 2022.

2.2 Some States reported difficulties in implementing the IWXXM in their countries and most noted that the COVID-19 pandemic affected development progress. Brazil has finalized its modernization process of the system implemented in Brasilia (Regional OPMET database), adapting it to the IWXXM format in version 3.0, which is the most recent one in effect. It is also worth mentioning that the feasibility of testing the use of the Webservice facility by only 1 weather center from each State is being analyzed, as well as the release of this new functionality to the interested countries, as long as they develop their systems to communicate with the Brazilian OPMET.

2.3 It was agreed in previous meetings that the release of the Web service to other countries, which is currently only available to users in Brazil, will be in three phases:

a) registration of users who show interest, through ICAO, by the DECEA (Brazil) administration;

b) release of registered users to consult weather messages; and

c) allowing registered users to enter weather messages into OPMET.

3. IMPROVEMENTS AND STRUCTURE OF THE NEW OPMET SYSTEM

3.1 We can highlight the main improvements developed in the OPMET System, after its modernization:

a) modernization of the IHM leaving the use of the system friendlier to its users;

b) use of a single MMI including the WEB SERVICES and OPMET functionalities;

c) a single database of location and synoptic station data that currently includes OPMET data;

d) creation of a new role for system users called "Previsor";

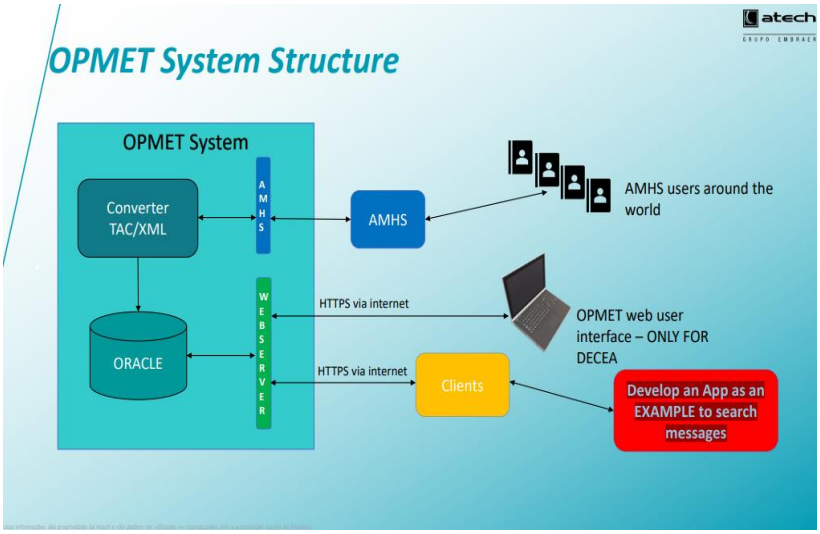
e) complete validation of all the meteorological messages that OPMET recognizes;

f) the system is prepared to receive and transmit messages in the IWXXM standard;

g) graphic visualization of weather message data;

h) simplification of the steps to record a surface observation;

i) use of template to create forecast messages; and



j) Building new integrations with other systems using WEB SERVICES.

Figure 2. OPMET System Structure

3.2 The availability of the Webservice functionality to the other States is being coordinated by DECEA and ICAO, through the Lima-Peru Office. In previous meetings, it was agreed that the States will develop their systems to communicate with OPMET and may follow the example of the system demonstrated by Brazil.

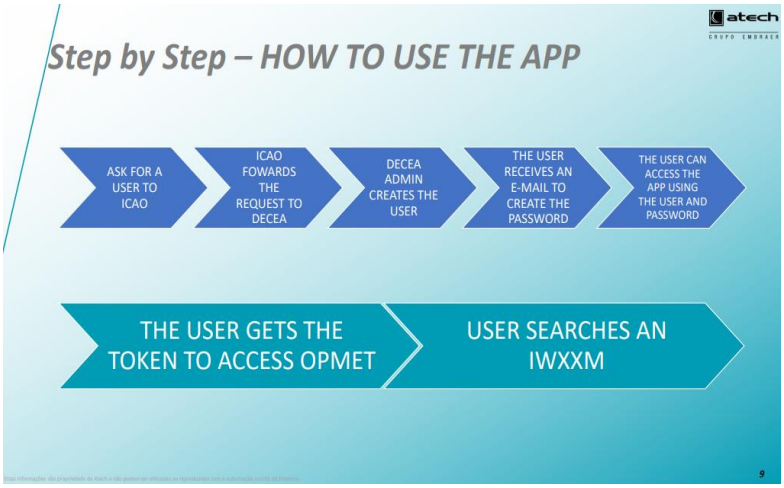


Figure 3. Step-by-Step – HOW TO USE THE APP

4. CONCLUSION

4.1 The modernization of the OPMET Databank and the adaptation to process weather messages in the IWXXM Model and 3.0 format, conducted by Brazil (DECEA), is contributing to improve the safety, capacity and efficiency of air operations.

4.2 The Meeting is invited to take note of the information provided.

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