

Report of the ICAO Meteorological Panel

Presented by Eric Avila

SUMMARY

This paper provides a high-level update on the ICAO Meteorological Panel and its associated working groups.

1. INTRODUCTION

- 1.1. This report provides the status of the International Civil Aviation Organization (ICAO) Meteorological Panel (METP). METP membership consists of twenty-six ICAO Member States and seven international organizations. The METP working groups are preparing amendments for ICAO Annex 3 – Meteorological Service for International Air Navigation and the Procedures for Air Navigation Services – Meteorology (PANS-MET).
- 1.2. The METP is comprised of the following four work groups:
 - Work Group on Meteorological (MET) Requirements and Development (WG-MRAD)
 - Work Group on MET Information Exchange (WG-MIE)
 - Work Group on MET Operations (WG-MOG)
 - Work Group on MET Cost Recovery Governance and Guidance (WG-MCRGG)

2. DISCUSSION**2.1. WG-MRAD**

In 2014, a need was identified to provide a phenomenon-based globally consistent forecast. Several areas of the globe currently have little or no meteorological services. Deficiencies in Significant Meteorological Information (SIGMET) forecasting across Flight Information Regions (FIR) globally have been identified.

WG-MRAD in coordination with the World Meteorological Organization (WMO), is developing provisions to support the implementation of phenomenon-based regional advisory system for select en-route hazardous meteorological conditions. The work group is developing requirements for the Hazardous Weather Information Service (HWIS). HWIS will provide consistent hazardous meteorological hazards across Flight Information Region's.

ICAO Annex 3 will require updating to enable the implementation of HWIS.

Additionally, the WG-MRAD is developing new requirements for future aerodrome observation services and forecast. The future aerodrome observations will replace Meteorological Aerodrome Report (METAR), Special Weather Report (SPCI), Special, and Met Reports. The new product will be Aerodrome Meteorological Observation Information Service (AMOIS) and at a minimum will include all requirements that currently exist over the four products. The AMOIS will allow the weather providers to add additional optional weather elements that can be included by the state's meteorological provider. The AMOIS will also add Icing (IC) to the existing present weather codes. The IC phenomena is primarily an issue in arctic areas and results in reduced visibility of pilots during take-off and landing particularly at night.

The current aerodrome forecast products that include Terminal Area Forecast (TAF), landing/trend forecast, and forecast for take-off will be replaced with the Aerodrome Meteorological Forecast Information Service (AMFIS). The AMFIS will also at a minimum include all minimum requirements that currently exist for aerodrome forecast products. Any information beyond the current requirements will be seen as optional. The time horizon will remain unchanged but will allow the option for the meteorological provider to extend the forecast beyond thirty hours for ultra-long-haul flights. The probability30 (prob30) category will change to allow the meteorological provider to issue the probabilities from 10 through 100 depending on the confidence in the condition occurring.

The group is working to improve de-icing and long-haul requirements as they relate to aerodrome observations. In addition, improving forecasting capabilities of low-level and high-altitude ice crystals is ongoing.

2.2. WG-MIE

WG-MIE continues to work on developing the requirements for ICAO Meteorological Exchange Model (IWXXM). IWXXM became the global standard for reporting text weather products in 2020. Currently, text weather products are sent using Traditional Alphanumeric Code (TAC). TAC is designed to be read by humans, where IWXXM is designed to be read by computers. IWXXM provides text using extensible markup language (XML). The XML code is designed to be read by computers and provide users with the desired text product. The documentation and requirements for IWXXM will continue to be developed by the work group. While IWXXM has been the standard for over four years, some meteorological providers continue to only product products in TAC.

TAC is planned to be removed as a standard in ICAO Annex 3 and PANS-MET in November 2030. TAC was originally scheduled to be retired in 2026 but the date was moved to 2030. The panel supported keeping the 2030 date to allow states five years to prepare for the cessation of TAC as the ICAO standard. States can continue to use and generate TAC post 2030 but the requirement for IWXXM information to be generated and shared with other states in November 2030.

The WG-MIE is also working to develop the standards for exchanging

meteorological services using System Wide Information Management (SWIM). SWIM is a global initiative that provides the exchange of meteorological information across FIR's.

2.3. WG-MOG

The ICAO and WMO have requested that Volcanic Ash Advisory Centers (VAAC) provide detailed information on volcanic ash clouds to inform users how volcanic ash impacts aviation. Recent improvements in remote sensing and improved science have allowed VAAC forecasters to provide improved detailed volcanic ash forecasts.

Quantitative Volcanic Ash (QVA) will provide high-resolution volcanic ash forecasts every three hours. Additionally, QVA forecasts will provide ash concentration values in 5,000' layers. This new improved resolution will support using airspace above volcanic ash clouds (when applicable), which will improve efficiency and reduce air traffic delays. WG-MOG is working with the VAAC's to define QVA requirements along with updating the appropriate ICAO documents.

The World Area Forecast System (WAFS) is developing probabilistic data for turbulence, icing, and cumulonimbus. The forecast will show probabilities of Eddy Dissipation Rate (EDR) at multiple flight levels of exceeding pre-defined thresholds. The WAFS turbulence guidance will provide turbulence guidance using EDR to identify areas of significant turbulence. Additionally, probabilities will be provided for moderate or greater icing and the percentage of cumulonimbus exceeding multiple altitude thresholds. The WAFS will be preoperational in November 2027 and fully operational in November 2028.

The WG-MOG is also working on developing requirements and performance indicators for regional space weather centers.

2.4. WG-MCRGG

The WG-MCRGG is finalizing a proposed cost recovery mechanism for space weather. The work group is analysing and addressing data governance issues.

3. CONCLUSION

The work groups presented their final amendments to ICAO Annex 3 and PANS-MET at the 6th METP meeting in March 2025.

4. RECOMMENDATIONS

It is recommended that this report be accepted as information paper.

--END--