



ICAO

# INTERNATIONAL CIVIL AVIATION ORGANIZATION

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*Workshop on the Validation of the  
OPMET Data Exchange Scheme  
and Procedures for the AFI Region*

*(Accra, Ghana, 16 – 20 March 2026)*



## Session 2: Overview of AMBEX Scheme

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### **PPT2.3 2.3** Linkages with Annex 3, PANS-MET and GANP

Bureau WACAF OACI

# Introduction

- The Council of the International Civil Aviation Organization **adopted in April 2025** Amendment 82 to *Annex 3 – Meteorological Service for International Air Navigation* to the Convention on International Civil Aviation and the **first edition of the Procedures for Air Navigation Services – Meteorology** (PANS-MET, Doc 10157) with the aim of:
  - ◇ **facilitating the transition** in the provision of aeronautical meteorological information from a “**product-oriented environment**” to an “**information-centric environment**” within the framework of **System-Wide Information Management** (SWIM); and
  - ◇ **supporting the evolution of aeronautical meteorological service provision** in accordance with the Global Air Navigation Plan (GANP).
- The Updated AMBEX Scheme and Procedures for OPMET Data Exchange must be closely aligned with key ICAO global provisions governing aeronautical meteorological services and air navigation modernization. The main linkages are established with ICAO meteorological SARPs, operational procedures, and strategic planning frameworks.

# Linkage with Annex 3 – Meteorological Service for International Air Navigation

The AMBEX Scheme operationalizes several requirements of Annex 3 related to the collection, exchange, and dissemination of meteorological information.

Key linkages include:

- **Provision of OPMET information**

Annex 3 requires States to ensure the **timely availability of operational meteorological information** to end-users. (*Chapters 3, 4, 6, 7, 8, 9 and 10 of Annex 3 and Chapters 2, 4, 5, 6, 7, 8 and 9 of the PANS-MET (Doc 10157 refer)*)

The AMBEX Scheme provides /shall provide the **regional framework and procedures** for exchanging this information to/among stakeholders. (***Objectives of AMBEX Scheme refer:** The main purpose of the AFI Meteorological Bulletins Exchange (AMBEX) Scheme is to ensure the most efficient and economical exchange of operational meteorological (OPMET) information within the AFI Region as well as with the other ICAO regions to meet the requirements of users of OPMET information, and ensure the implementation of the OPMET-related SARPs in Annex 3 and Annex 10, and the relevant provisions of the ICAO Air Navigation Plan (ANP) for the AFI Region in a highly efficient and standardized way).*)

## Key linkages include (Cont'd):

- **Regional OPMET exchange arrangements**

Annex 3 requires/encourages the establishment of **regional arrangements for OPMET data exchange** (Chapter 3, §3.1, 3.2, 3.3, 3.4, 3.5, etc. of Annex 3 refers.)

*AMBEX functions as the **regional mechanism in the AFI Region** supporting this requirement (Establishment of RODBs under APIRG/13 Conclusion 13/67), Establishment of IROGs, establishment of ROCs, NOCs).*

- **Availability, timeliness and reliability of data**

Annex 3 specifies performance expectations for meteorological information (*Chapters 9, 10 and 11 of Annex 3 and PANS-MET (Doc 10157) refer*).

*The AMBEX procedures define **operational processes, routing tables and responsibilities** to ensure these performance requirements are met.*

- **Responsibilities of States**

Annex 3 assigns responsibilities to States for the **provision and dissemination of meteorological information**.

*The AMBEX Scheme clarifies how States fulfil these responsibilities through NOCs, IROGs, ROCs, RODBs.*

# Linkage with PANS-MET (Doc 10157)

PANS-MET provides the detailed operational procedures supporting the SARPs in Annex 3, and the AMBEX Scheme reflects these operational requirements.

Key linkages include:

- **Operational procedures for OPMET exchange**  
PANS-MET specifies procedures for **collection, processing, formatting and dissemination of meteorological information**.

*AMBEX translates these procedures into regional operational workflows and data exchange pathways.*

- **Data formats and information management**  
PANS-MET addresses the **standardization of meteorological data formats**, including the transition toward **digital information exchange (e.g., IWXXM)**.

*The updated AMBEX procedures must support interoperability and digital exchange mechanisms. NOCs should be able to generate OPMET data in IWXXM format /Convert TAC OPMET data in IWXXM format. IROG, RODBs, ROCs to develop capacity to support the IWXXM Format.*

- **Operational coordination between MET and other services**  
PANS-MET highlights coordination between **MET, ATS, and AIM services**.

*AMBEX supports this coordination by ensuring that OPMET information reaches aviation users and systems in a timely and reliable manner.*

# Linkage with Global Air Navigation Plan (GANP)

The GANP provides the global strategic framework for the modernization of air navigation systems, including digital information management and system interoperability.

Key linkages include:

- **Digital transformation of aeronautical information**

The GANP promotes **digital data exchange and system interoperability**.

*The updated AMBEX Scheme supports this by facilitating the transition from traditional message-based OPMET exchange to digital data exchange frameworks.*

- **System-wide information management (SWIM)**

GANP implementation encourages the use of **SWIM-enabled information sharing**.

*The evolution of AMBEX supports this objective by improving structured and standardized meteorological data distribution.*

- **Performance-based air navigation systems**

The GANP emphasizes **performance, efficiency, and resilience of air navigation services**.

*Reliable AMBEX OPMET exchanges contribute directly to operational decision-making and flight safety.*

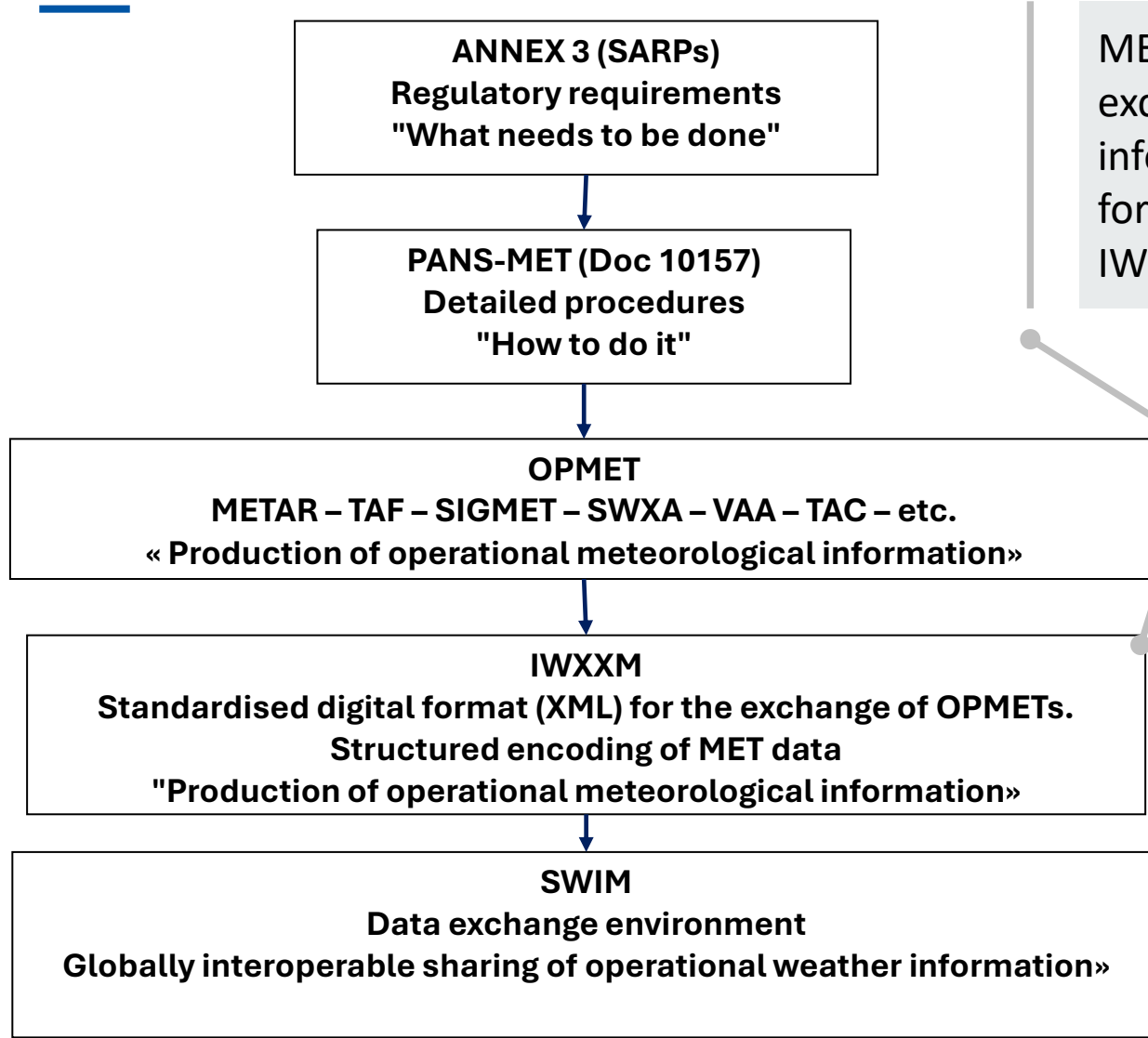
- **ASBU framework alignment**

Meteorological information exchange is linked to **Aviation System Block Upgrades (ASBU)** modules related to **meteorological information integration and digital data exchange**.

# ASBU framework alignment

AMET	/1	/2	/3	/4
B0	Meteorological observations products	Meteorological forecast and warning products	Climatological and historical meteorological products	Dissemination of meteorological products
B1	Meteorological observations information	Meteorological forecast and warning information	Climatological and historical meteorological information	Dissemination of meteorological information
B2	Meteorological observations information	Meteorological forecast and warning information	Climatological and historical meteorological information	Meteorological information service in SWIM
B3	Meteorological observations information	Meteorological forecast and warning information	Climatological and historical meteorological information	Meteorological information service in SWIM
B4	Meteorological observations information	Meteorological forecast and warning information	Climatological and historical meteorological information	Meteorological information service in SWIM

# Liens avec les concepts opérationnels SWIM, IWXXM and OPMET

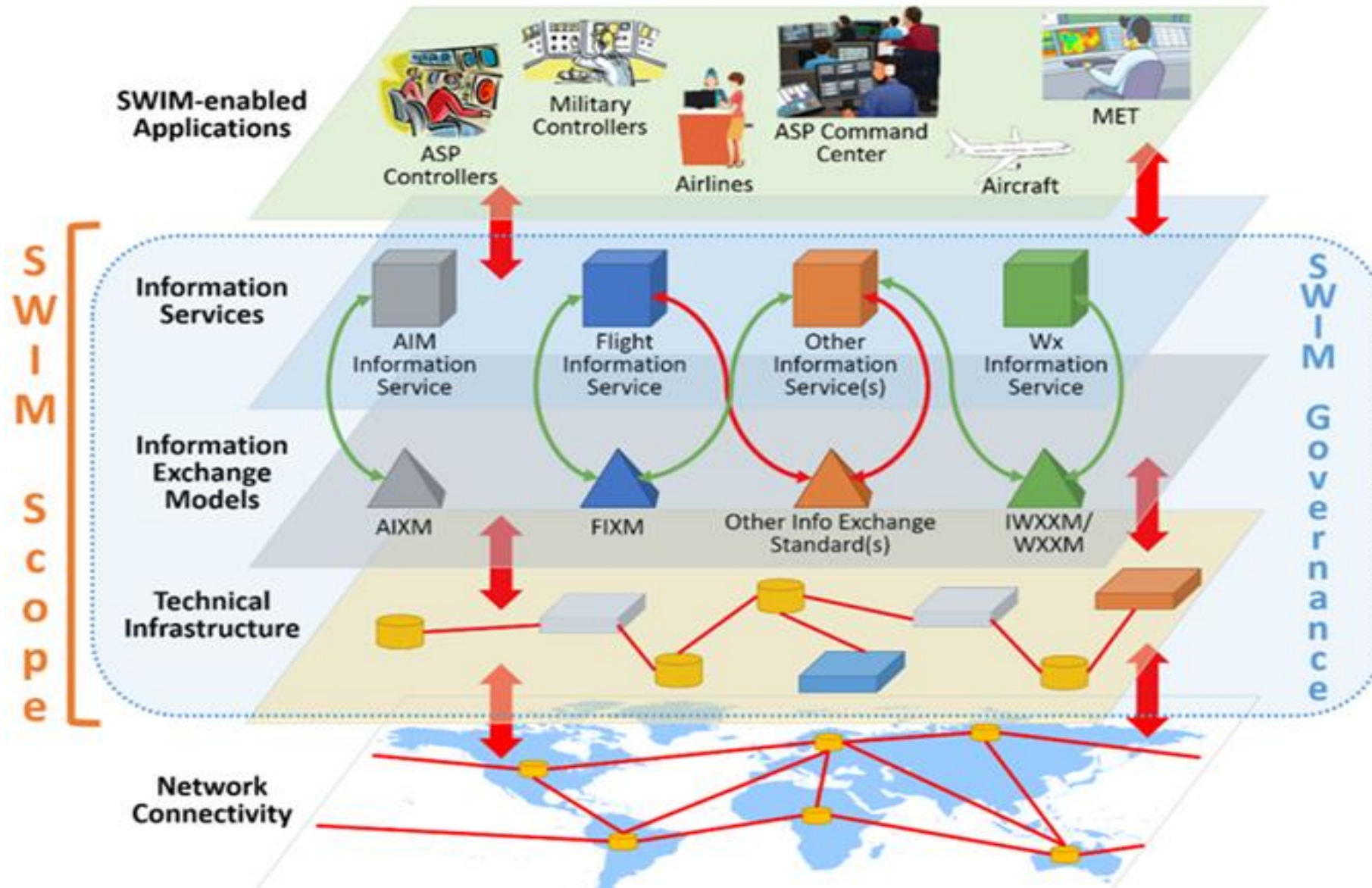


MET information is exchanged using a data exchange format, one type of which is an information exchange model. The main model for information exchange in MET-SWIM is the IWXXM

The **Updated AMBEX Scheme and Procedures** should serve as the **regional operational mechanism** that:

- **Implements** the meteorological related SARPs of ICAO Annex 3;
- **Applies** the operational procedures defined in PANS MET (Doc 10157); and
- **Supports** the strategic modernization objectives of the Global Air Navigation Plan (GANP).
- Updated AMBEX Scheme **should ensure** that OPMET data exchange in the AFI Region **remains standardized, reliable, and compatible** with global aviation information management developments.

# SWIM Framework





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Thank You!