

Interoperability test of IWXXM OPMET data dissemination over AMHS between the United States and CAR region States/Organizations

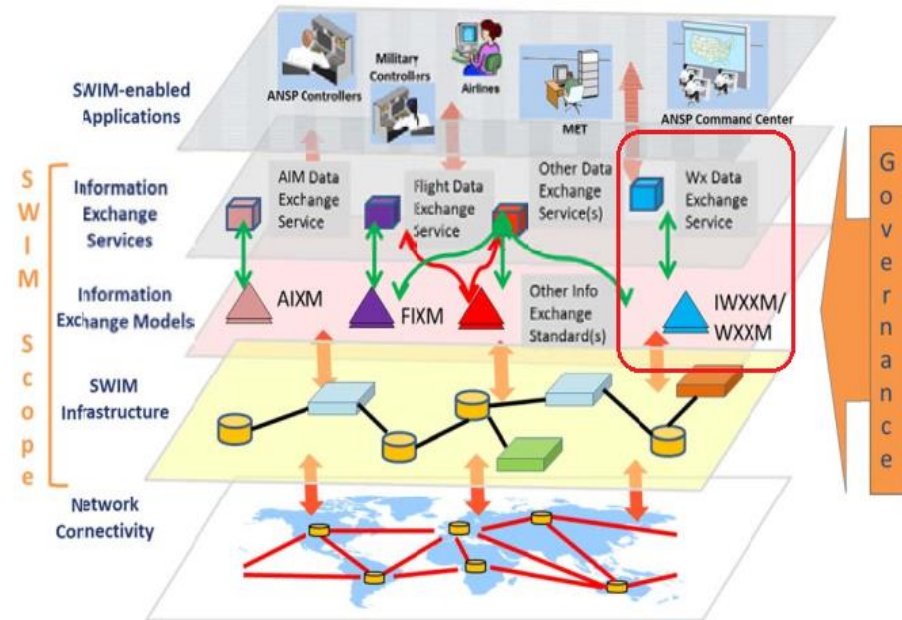
Mexico City, Mexico, December 9 to 12, 2025

Topics

1. Introduction to the International Civil Aviation Organization (ICAO) Meteorological Information Exchange Model (IWXXM)
2. Implementation of operational meteorological (OPMET) data dissemination using IWXXM
3. Regional advances in the implementation of OPMET IWXXM data dissemination
4. Next Steps toward the dissemination of OPMET IWXXM Data via AMHS to the Washington Regional OPMET Centre (ROC)

Introduction

- The availability of aeronautical meteorological information in a **globally interoperable digital format** is seen as a key enabler for future global air traffic management within a system-wide information management (SWIM) environment.



- The introduction of IWXXM as an **international standard format** for the exchange of meteorological information represented **the start of a significant change** from the provision and exchange of textual operational meteorological (OPMET) data **towards a digital environment**, in support of the ICAO Global Air Navigation Plan (GANP) and a transition towards a SWIM environment.

Introduction

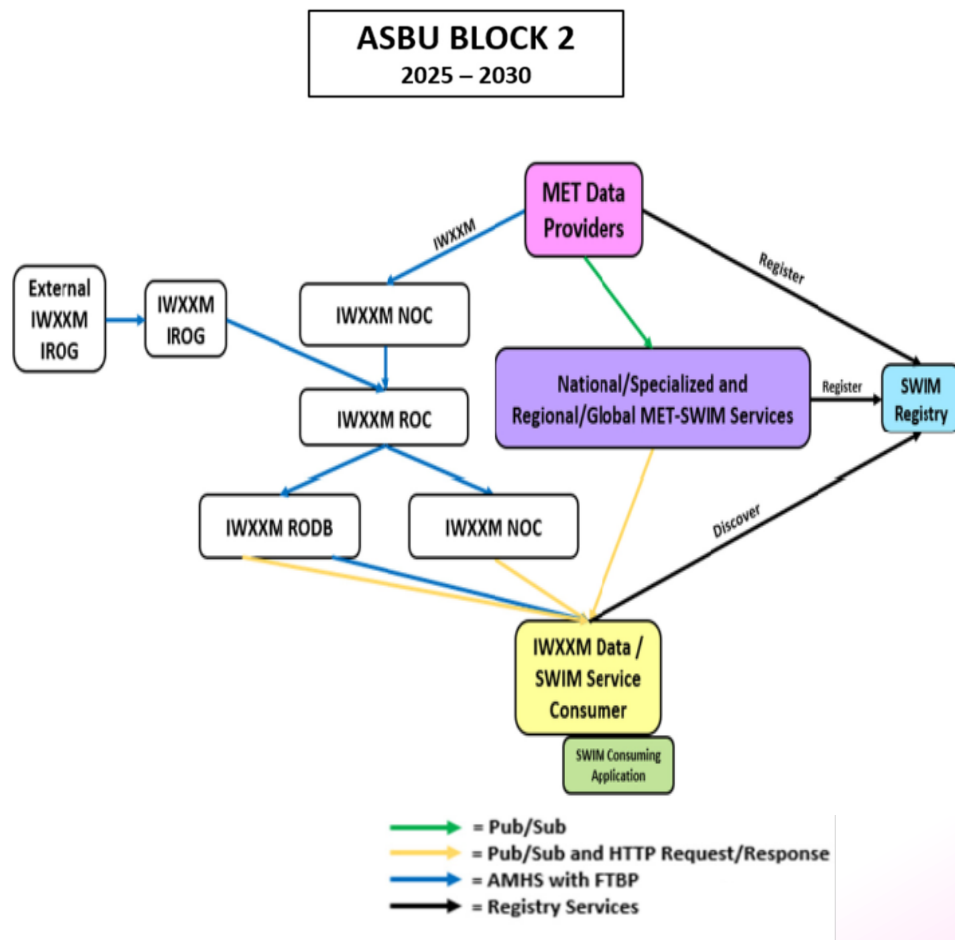
- Unlike the TAC forms of the ICAO Annex 3 to the Convention on International Civil Aviation, Meteorological Service for International Air Navigation, ***IWXXM is not intended to be directly used by consumers*** like pilots. IWXXM is designed to be consumed by software acting on behalf of the consumers, such as display software.

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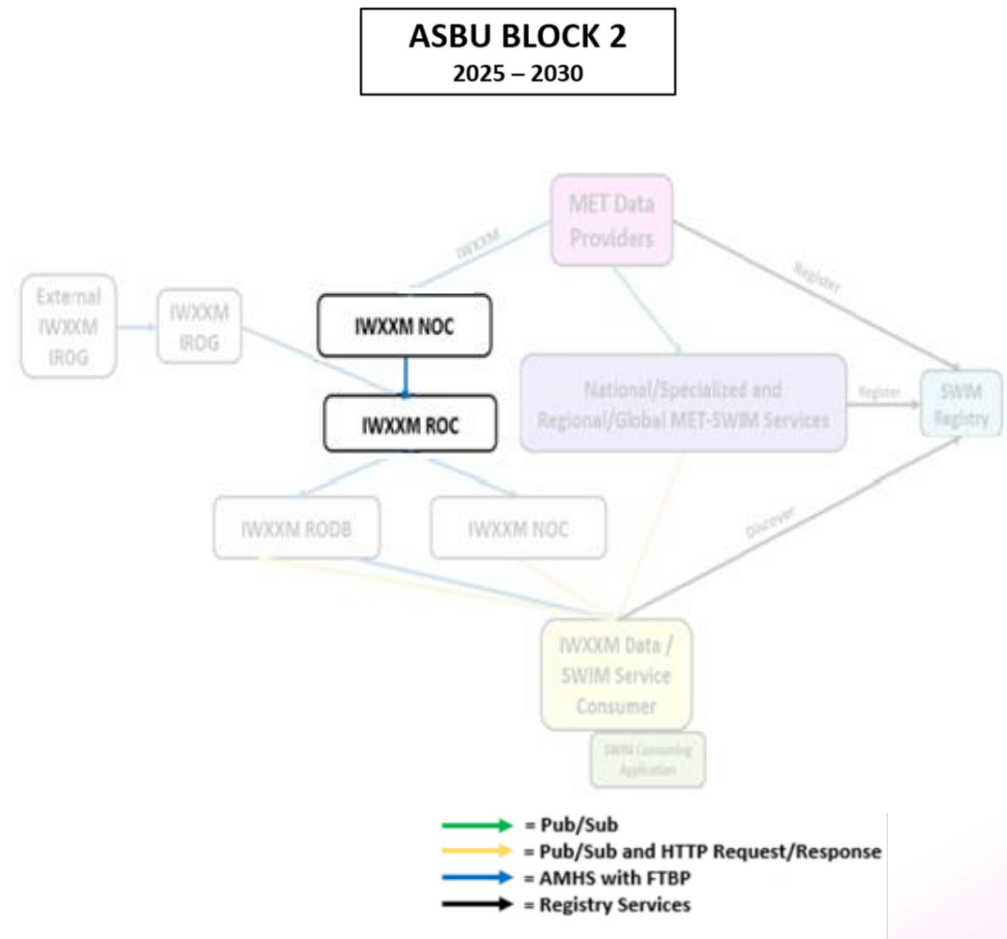
Implementation of OPMET IWXXM Data Dissemination

- *MET data providers are producing meteorological information in IWXXM format* and continuing dissemination through NOCs, ROCs and RODBs as in Block 1.
- *MET data providers are also using publish/subscribe connections* to exchange MET information with National / Specialized and Regional / Global MET SWIM services.



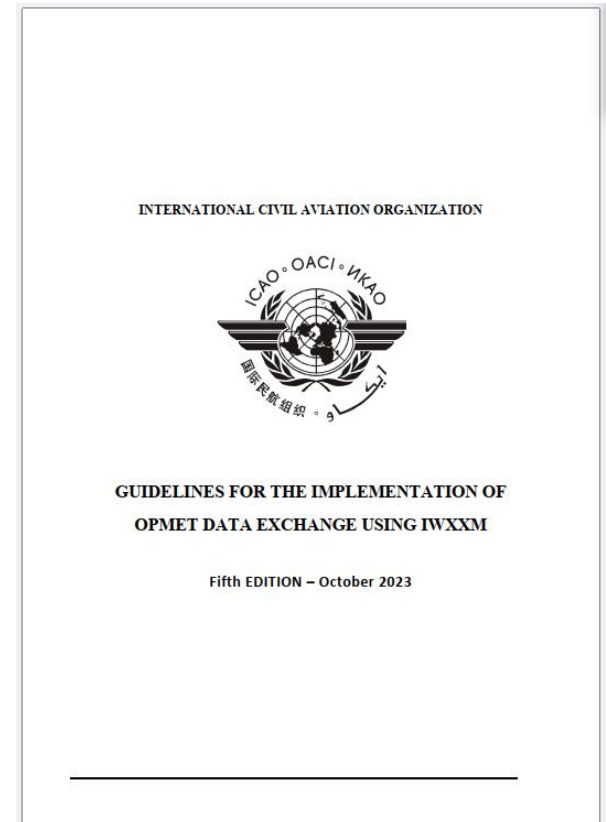
Implementation of OPMET IWXXM Data Dissemination

- IWXXM OPMET Data provision from CAR NOCs to Washington ROC needs testing in preparation of operational dissemination.



Implementation of OPMET Data Exchange using IWXXM

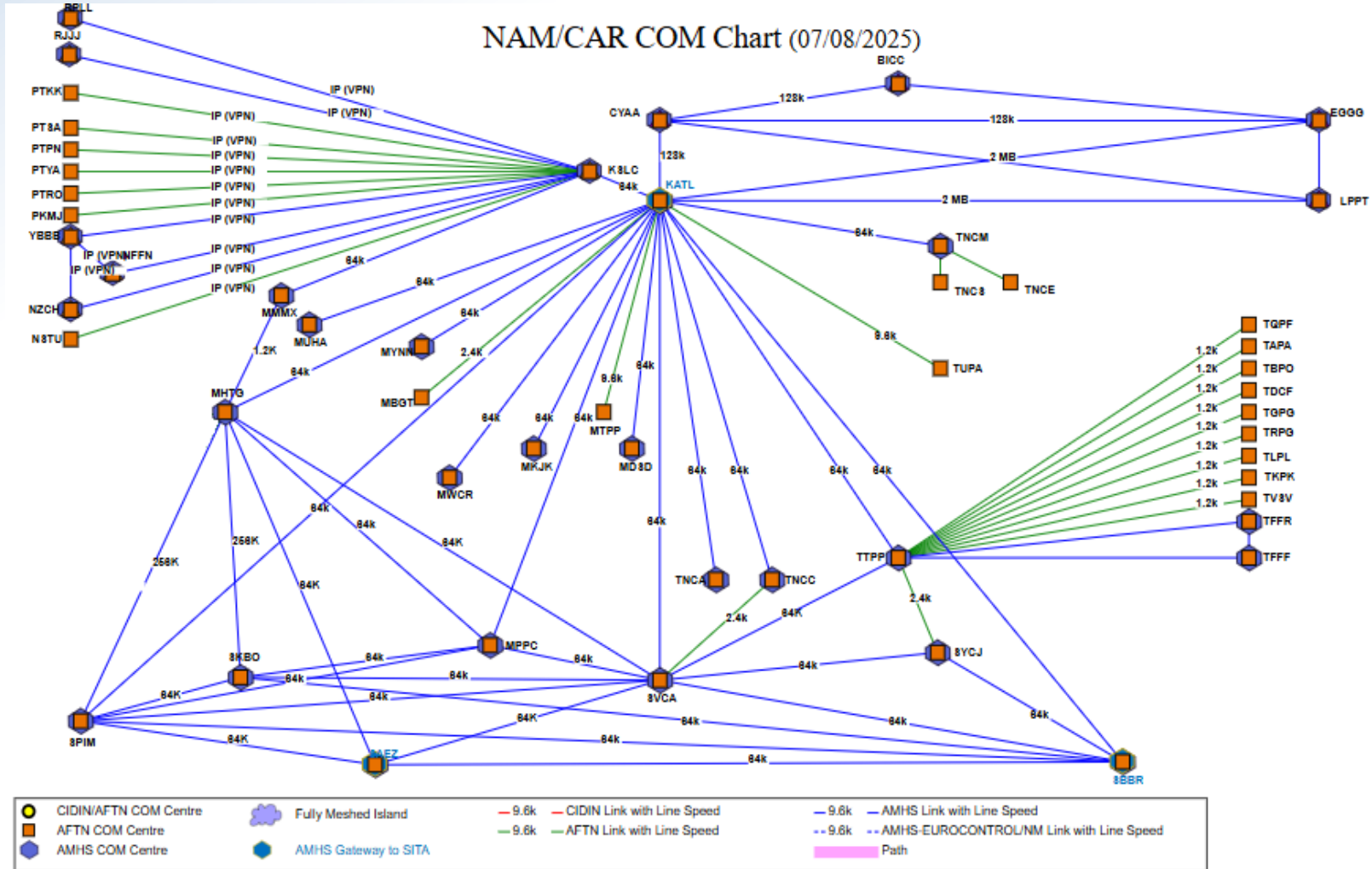
- ICAO guidance identifies the Air Traffic Services Message Handling System (AMHS) as a *mechanism for the exchange of IWXXM information* using *the extended AMHS File Transfer Body Part* (FTBP) over the Aeronautical Fixed Service (AFS).



Implementation of OPMET Data Exchange using IWXXM

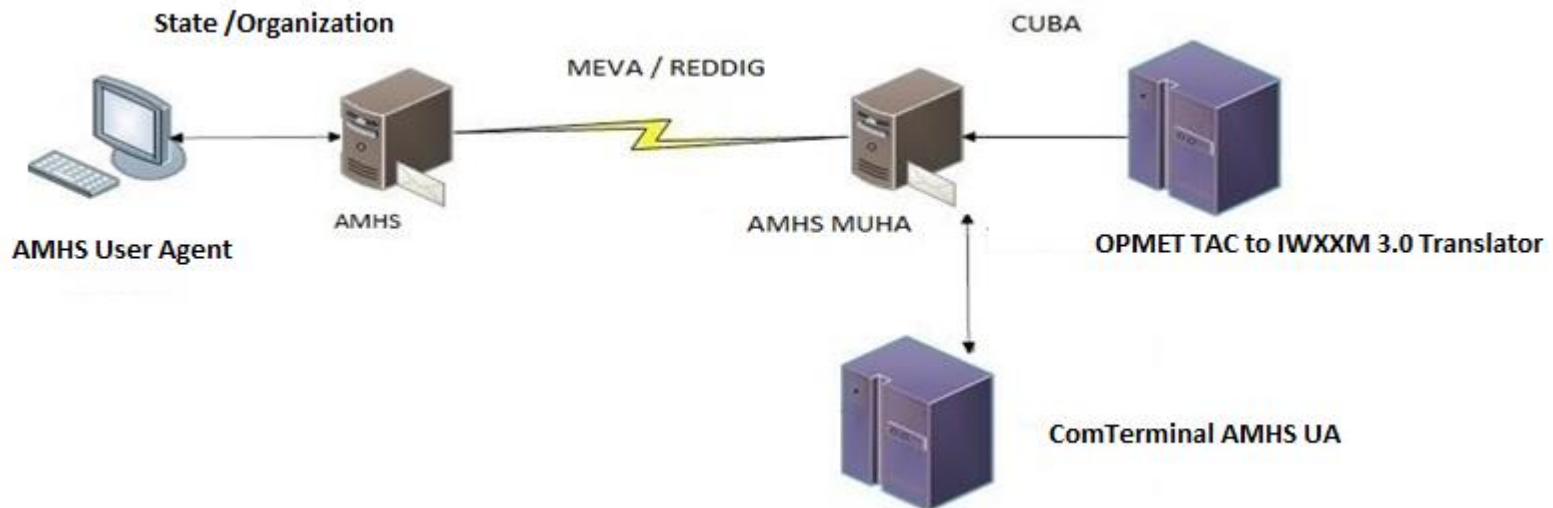
- The OPMET data dissemination implementation process according to the IWXXM model must be preceded by tests whose objectives are:
 - Verify that the **AMHS message centres** participating in the test *successfully exchange messages containing FTBPs*.
 - Verify that the applications of each **party generates XMLs** and **create compressed FTBPs** for the exchange through AMHS.
 - Verify the **generation of AMHS messages according** to the **AMHS profile to the exchange of IWXXM OPMET data** [1].
 - **Demonstrate the validity and correct conformation**, according to the IWXXM 3.0.0 model (or later), of the generated XML files.

Advances in the implementation of OPMET IWXXM data dissemination in the CAR Region



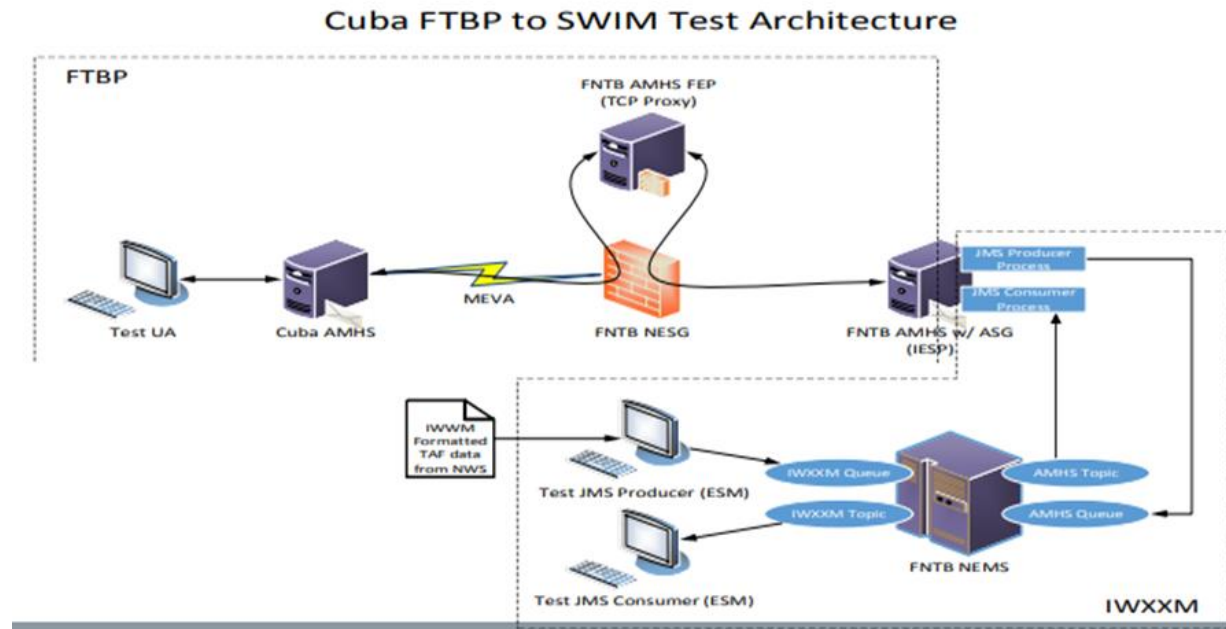
Advances in the implementation of OPMET IWXXM data dissemination in the CAR Region

- Various states/organizations have conducted tests [2] that include:
 - ✓ Interoperability tests for the exchange of OPMET data IWXXM over AMHS: Cuba - COCESNA, Cuba - FAA, Cuba - RODB Brasilia.



Regional advances in the implementation of OPMET IWXXM data dissemination

- ✓ Tests for data dissemination from the SWIM environment to AMHS, and vice versa, reaching the FAA AMHS-SWIM Gateway (ASG): Cuba-FAA.



FAA National Test Bed (FNTB) National Airspace System (NAS) Enterprise Security Gateway (NESG)
National Airspace System (NAS) Enterprise Messaging Service (NEMS)
Integrated Enterprise Services Platform (IESP)

Implementation of the AMHS FTBP in the NAM/CAR region

Component	Year	State / Organization	Planned 0: No 1: Yes	Implemented 0: No 1: Yes 2: under test	Progress	FTBP FG Available 0: No 1: Yes
AMHS	2025	Aruba	1	1	1	1
AMHS	2025	Antigua and Barbuda	1	0	0	0
AMHS	2025	Bahamas	1	1	1	1
AMHS	2025	Barbados	1	1	1	0
AMHS		Belize (COCESNA)	1	1	1	1
AMHS	2025	Cayman Islands	1	1	1	0
		Cuba	1	1	1	1
AMHS	2025	Costa Rica (COCESNA)	1	1	1	1
AMHS	2025	Curacao	1	1	1	1
AMHS	2025	Dominica	1	0	0	0
AMHS	2025	Dominican Republic	1	1	1	1
AMHS	2025	El Salvador (COCESNA)	1	1	1	1
AMHS	2025	Grenada	1	0	0	0
AMHS	2025	Guatemala (COCESNA)	1	1	1	1
AMHS	2025	Haiti	1	2	0	0
AMHS	2025	Honduras (COCESNA)	1	1	1	1
AMHS	2025	Jamaica	1	1	1	1
AMHS	2025	Mexico	1	1	1	1
AMHS	2025	Nicaragua (COCESNA)	1	1	1	1
AMHS	2025	Saint Kitts and Nevis	1	0	0	0
AMHS	2025	Saint Lucia	1	0	0	0
AMHS	2025	Saint Vincent and the Grenadines	1	0	0	0
AMHS	2025	Trinidad and Tobago	1	1	1	0
AMHS	2025	San Martin	1	1	1	
AMHS	2025	United States (FAA)	1	1	1	1

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OPMET data encoding according to the IWXXM model in the NAM/CAR region

OPMET Data Codification	Year	State	Planned 0: No 1: Yes	Implemented 0: No 1: Yes 2: Under test (version)	Progress	Communication Support 0: None 1: AMHS 2: SWIM Services 3: Both
IWXXM	2025	Aruba	1	0	0	1
IWXXM	2025	Ancient and Barbuda				
IWXXM	2025	Bahamas	0	0	0	0
IWXXM	2025	Barbados				
IWXXM	2025	Belize (COCESNA)	1	0	0	1
IWXXM	2025	Cayman Island	0	0	0	0
IWXXM	2025	Cuba	1	1* (v3.0.0)	1	1
IWXXM	2025	Costa Rica (COCESNA)	1	0	0	1
IWXXM	2025	Curacao	1 (2026)	0	0	3
IWXXM	2025	Dominica				
IWXXM	2025	Dominican Republic	1	0	0	1
IWXXM	2025	El Salvador (COCESNA)	1	0	0	1
IWXXM	2025	Grenada				
IWXXM	2025	Guatemala (COCESNA)	1	0	0	1
IWXXM	2025	Haiti	0	0	0	0
IWXXM	2025	Honduras (COCESNA)	1	0	0	1
IWXXM	2025	Jamaica	1	0	0	1
IWXXM	2025	Mexico	1	0	0	1
IWXXM	2025	Nicaragua (COCESNA)	1	0	0	1
IWXXM	2025	Saint Kitts and Nevis				
IWXXM	2025	Saint Lucia				
IWXXM	2025	Saint Vincent and the Grenadines				
IWXXM	2025	Sint Maarten				
IWXXM	2025	United States (FAA)	1	2	0	3

Current IWXXM data dissemination status in the CAR region

- To date, progress toward availability of IWXXM and associated exchange has been slow. ***Actions need to be taken in the CAR region in order to speed up the IWXXM data dissemination*** in preparation for the plan to remove TAC as a Standard.
- Taking into account the AMHS implementation level in the CAR region is possible ***to widely disseminate IWXXM OPMET data over AFS towards SWIM environments***, upon meeting some technical conditions in the NOCs:
 - ✓ AMHS COM centre able to manage X400 messages with a FTBP
 - ✓ IWXXM OPMET data production
 - ✓ Successful interoperability test for the OPMET IWXXM data exchange

Next steps in preparation of IWXXM OPMET data dissemination towards Washington ROC

- Conduct Interoperability Tests for IWXXM dissemination over AMHS between the FAA and the CAR COMM centres with the capacity to manage FTBP FG of AMHS.
- Conduct interoperability tests for the provision of OPMET IWXXM data to applications within the SWIM environment, through the AMHS-SWIM gateways available in the NAM/CAR region.[2]

References

- [1] Guidelines for the Implementation of OPMET Data Exchange using IWXXM. Fifth Edition – October 2023. [Online]. Available: [GUIDELINES FOR THE IMPLEMENTATION OF OPMET DATA EXCHANGE USING IWXXM](#)
- [2] Interoperability tests for the exchange of OPMET data IWXXM over AMHS. [Online]. Available: https://www2023.icao.int/NACC/Documents/Meetings/2023/WGRAP02/NACC_WGRAP02-WP17.pdf

**THANK
YOU**





Questions