International Civil Aviation Organization

Twenty Fourth Meeting of the Communications/ Navigation and Surveillance Sub-group (CNS SG/24) of APANPIRG

Web-conference, 30 November – 4 December 2020

Agenda Item 3: Aeronautical Fixed Service (AFS)

3.2 Review the AMHS readiness status for supporting IWXXM Traffic of the States/Administrations

UPDATES ON APAC IMPLEMENTATION OF IWXXM EXCHANGE OVER AMHS

(Presented by Australia, Hong Kong, China and the Secretariat)

SUMMARY

This paper presents the updates on the implementation of IWXXM exchange over AMHS in APAC Region based on the outcome of MET SG/24 meeting, and invites the meeting to request the States to urgently complete the implementation of AMHS to support IWXXM exchange.

1. INTRODUCTION

1.1 Digital exchange of METAR/SPECI, TAF, SIGMET, AIRMET, Volcanic Ash Advisory, Tropical Cyclone Advisory and Space Weather Advisory, in IWXXM GML form has become an Annex 3 standard since 5 November 2020. This paper presents the latest update on the implementation of IWXXM exchange over AMHS in the APAC Region based on the outcome of MET SG/24 meeting held on 16-20 November 2020, including a new approach for IWXXM exchange and the development of online register of current status IWXXM exchange.

2. DISCUSSION

Approach for IWXXM exchange over AMHS in APAC

2.1 MET SG/24 meeting noted that, due to technical differences between the old and new formats, OPMET information in IWXXM GML form cannot be transmitted in the same way as it is in Traditional Alphanumeric Code (TAC) form via the Aeronautical Fixed Telecommunication Network (AFTN). The transmission of IWXXM messages requires States to implement AMHS (with File Transfer Body Part (FTBP)) and the management of IWXXM exchange requires States to use unique AMHS addresses, which are different from the existing listed AFTN addresses for TAC formatted OPMET exchange.

2.2 According to the Section 2.6 of the *Guidelines for the Implementation of OPMET Data Exchange using IWXXM*, (fourth edition) (IWXXM Guidelines) a Regional OPMET Centre (ROC) is responsible for collecting data from National OPMET Centres (NOCs) and validating all required data in its area of responsibility (AoR), according to the regional distribution schema. Each ROC is responsible for the collection of required OPMET data from the other ROCs in the Region, and for the dissemination to the other ROCs of the required data from its AoR.

2.3 IWXXM exchange between NOCs and ROCs and between ROCs requires full AMHS pathways. Unless the AMHS is enhanced with "AMHS profile for OPMET IWXXM data"[1] in order to cover exactly one body-part being a File Transfer Body Part (FTBP) with Inter-personal Message Header Extension (IHE) to carry ATS priority and Filing time, the originating and the receiving centres will not be able to disseminate or receive IWXXM messages. However, not all Aeronautical Fixed Services (AFS) connections in the APAC Region support AMHS with FTBP and IHE features at the moment.

2.4 These complexities make it difficult to implement IWXXM message dissemination by following the current dissemination schemes in the APAC Region. Consolidating the IWXXM exchange, through ROCs, will greatly simplify the gradual implementation of Region-wide IWXXM exchange over AMHS and will increase the reliability of IWXXM exchange throughout the Region.

2.5 In view of the above, the MET SG/24 meeting adopted the following Conclusion:

Conclusion MET SG/24-11: *IWXXM Exchange Approach*	
What: That, IWXXM exchange in APAC Region shall be aligned with *Guidelines for the Implementation of OPMET Data Exchange using IWXXM* (fourth edition, November 2020) and, specifically, that Regional OPMET Centres (ROCs) are responsible for the distribution of all types of IWXXM formatted OPMET data to States within the Asia Pacific Region.	
Why: While the ICAO provisions for the dissemination of meteorological information in both TAC and IWXXM form coexist, due to technical differences between the old and new formats, the Regional OPMET exchange scheme for IWXXM formatted data shall necessarily differ from the traditional OPMET exchange scheme for TAC messages.	
Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical	
Follow-up: ☒Required from States	
When: As soon as practicable	**Status:** Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other: MET/IE WG	

Online register of IWXXM exchange over AMHS in APAC

2.6 Furthermore, given IWXXM exchange over AMHS currently being a mandatory requirement, States need to share their unique address for receiving IWXXM messages and information on the capabilities for transmitting IWXXM messages.

2.7 Recognizing that, at a Regional level, such information would need relatively frequent updates, to reflect the evolving status of States, especially during the transition period to Regionwide implementation of IWXXM exchange, MET SG/24 meeting considered that the current process for

[1] AMHS profile for IWXXM exchange is specified in the Appendix A of "*Guidelines for the Implementation of OPMET Data Exchange using IWXXM*"

annual updates to the ROBEX Handbook would not be sufficient. The meeting noted that the proposal presented by Australia and Hong Kong, China, on the development of an online register of the status of IWXXM exchange in the APAC Region (Figure 1), would provide a suitable, alternative solution during the transition to IWXXM exchange.

2.8 In view of the above, the MET SG/24 meeting adopted the following Conclusion:

Conclusion MET SG/24-12: *Development of Online Register of the status of IWXXM Exchange*	
What: That, the MET SG supports the development of an online register of the status of IWXXM exchange in the APAC Region to collate and maintain reliable information about implementation status of AMHS and FTBP between the annual ROBEX Handbook update, and to facilitates the States to identify the possible alternate dissemination paths for IWXXM exchange so that ROCs could distribute the IWXXM to other capable ROCs in the APAC region as far as possible.	
Why: ROCs need a channel to share timely updates of their status of implementation of IWXXM exchange, including their IWXXM-capable AMHS addresses and readiness to receive IWXXM, supported file size, AMHS status and the status in transmitting NOC's IWXXM report.	
Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical	
Follow-up: ☒Required from States	
When: As soon as practicable	**Status:** Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other: MET/IE WG	

2.9 The meeting also agreed to include to link to the online register in the ROBEX Handbook as indicated in **Decision MET SG/24-15**: *Updates to ROBEX Handbook*.

The way forward

2.10 MET SG/24 meeting recalled that APANPIRG had previously adopted Conclusions (30/17 and 30/18), initiated by MET SG, to facilitate the planning and implementation, by APAC States, of dissemination of meteorological information in IWXXM GML form.

2.11 It was noted that recent OPMET monitoring conducted by RODB Brisbane indicated that IWXXM was only being received from four States in APAC. It was also noticed that some States are ready for generating IWXXM MET reports, but not able to exchange them internationally as AMHS with FTPB and IHE is not yet implemented.

2.12 Considering the apparent, ongoing need for urgent progress by States on the Regional implementation of the SARPs concerning IWXXM exchange over AMHS, MET SG/24 meeting adopted the following Draft Conclusion:

Draft Conclusion MET SG/24-10: *Implementation of IWXXM*
What: That, to support the dissemination by States of the required meteorological information in IWXXM GML form, in accordance with Amendment 79 to Annex 3, Member States/Special Administrative Regions, in particular those which host the designated APAC Regional OPMET Centres (ROCs) and Regional OPMET Databanks (RODBs), that have not already done so, urgently complete the necessary steps including the following: a) For the generation and dissemination of required meteorological information in IWXXM GML form to the local ROC to manage the onward dissemination within the Region, use only IWXXM Version 3 (or a later version);

b) To support the exchange of IWXXM formatted data, implement the Air Traffic Services Message Handling System (AMHS) with File Transfer Body Part (FTBP) and the Interpersonal Message Heading Extension (IHE) and include support for AMHS message exchange of a maximum size of 4-MB for IWXXM formatted messages with maximum size of 2-MB for FTBP; c) To support the exchange of the required meteorological information in both IWXXM GML form and traditional alphanumeric code (TAC) form, ensure there is adequate capacity in the operational Aeronautical Fixed Service (AFS) links; d) When ingesting FTBP messages, as a minimum, utilize appropriate malware and anti-virus precautions; and e) For any requirements States have for further technical assistance to achieve compliance with the Annex 3 requirements for disseminating meteorological information in IWXXM GML form and/or differences that exist between the national regulations or practices and the above Annex 3 provisions, inform ICAO via the appropriate channels.
Why: a) Amendment 79 to Annex 3 specifies that, applicable 5 November 2020, States shall disseminate specific meteorological information (i.e., METAR/SPECI, TAF, SIGMET, AIRMET and volcanic ash, tropical cyclone and space weather advisory information) in IWXXM GML form; b) ICAO Doc 10003 – *Manual on the Digital Exchange of Aeronautical Meteorological Information*, stipulates that, to meet the requirements of Amendment 79 to Annex 3, only Version 3 of IWXXM formatted data, or later, shall be exchanged on operational networks from 5 November 2020; c) IWXXM GML form is far more verbose than the existing TAC format and, as a result, compression is required. However, to support the exchange of compressed IWXXM files, AMHS links with FTBP and IHE are required; and d) In accordance with Annex 3, States shall disseminate both IWXXM and TAC data over the AFS in parallel, and given the significant increase in data volumes, operational links will, therefore, require adequate capacity to support both data sets; and e) The regional and global exchange of the required meteorological information in IWXXM GML form depends on the ROCs and RODBs being capable of exchanging IWXXM formatted messages.
Expected impact: ☐ Political / Global ☒ Inter-regional ☒ Economic ☐ Environmental ☒ Ops/Technical
Follow-up: ☒Required from States
When: Now — **Status:** Draft to be adopted by PIRG
Who: ☐Sub groups ☒APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other:

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) support the **Draft Conclusion MET SG/24-10** and request the States to urgently complete the implementation of AMHS with FTBP and IHE for IWXXM exchange.

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Attachment

Online Register of APAC IWXXM Exchange Status [Trial]

Updated: 25 November 2020

Ready to receive IWXXM	ROC location indicator	ROC name	Address to receive IWXXM	FTBP file size limit	AMHS supporting FTBP+IHE*	Transmitting NOC's IWXXM report
READY	VTBB	Bangkok	VTBBYPYL	6 KB	YES	YES
TESTING	ZBBB	Beijing	ZBBBYPYL	?	?	NOT YET
READY	YBBN	Brisbane	YBBBYPYL	4 MB	YES	YES
NOT READY	VCCC	Colombo				
NOT READY	VIDP	Delhi				
NOT READY	VECC	Kolkata				
NOT READY	VABB	Mumbai				
READY	VHHH	Hong Kong	VHHHYPYL	4 MB	YES	YES
NOT READY	RKSI	Incheon				
NOT READY	WIII	Jakarta				
NOT READY	OPKC	Karachi				
NOT READY	WMKK	Kuala Lumpur				
NOT READY	NFFF	Nadi				
READY	WSSS	Singapore	WSSSYPYL	4 MB	YES	NOT YET
April 2021	RJTD	Tokyo	RJTDYZYA	2 MB	YES	April 2021
READY	NZKL	Wellington	NZKLYMYL	?	YES	YES

* AMHS profile for IWXXM exchange is specified in the Appendix A of "Guidelines for the Implementation of OPMET Data Exchange using IWXXM"

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Figure 1: The online register for IWXXM exchange over AMHS in APAC Region (Trial)