



ICAO

International Civil Aviation Organization**Twenty Seventh Meeting of the Communications/
Navigation and Surveillance Sub-group (CNS SG/27)
of APANPIRG**

Bangkok, Thailand, 28 August – 01 September 2023

Agenda Item 2: Review outcomes of 41st Session of ICAO Assembly, APANPIRG, APAC ANSP Committee, ATM Sub-group, MET Sub-group and other meetings relevant to CNS Sub-group

REVIEW RELEVANT OUTCOMES OF THE MET SG

(Presented by the Secretariat)

SUMMARY

This paper presents relevant outcomes from the Meteorology Sub-Group (MET SG), and in particular its contributory Meteorological Information Exchange Working Group (MET/IE WG), which proposes action to facilitate the implementation of the communication network connections needed to support the required global dissemination of meteorological information in the ICAO Meteorological Information Exchange Model (IWXXM) form.

1. INTRODUCTION

1.1. Outcomes of the Twenty-Sixth Meeting of the Meteorology Sub-group (MET SG/26), which was held online from 1 to 5 August 2022, were previously reviewed by CNS SG/26 (in CNS SG/26 WP/34). The Twenty-Seventh Meeting of the Meteorology Sub-group (MET SG/27) will be held in Bangkok, Thailand, from 4 to 8 September 2023.

1.2. In the interim, ICAO hosted the Twenty-first Meeting of the Meteorological Information Exchange Working Group (MET/IE WG/21) at the APAC Office in Bangkok, Thailand, from 27 to 29 March 2023 (<https://www.icao.int/APAC/Meetings/Pages/2023-MET-IE-WG21.aspx>).

1.3. MET/IE WG/21 reviewed progress by the MET SG and considered additional proposals for action to facilitate the implementation of the communication network connections needed to support the required global dissemination of meteorological information in the ICAO Meteorological Information Exchange Model (IWXXM) form.

1.4. In particular, Draft Conclusion MET/IE WG/21-01: IWXXM VERSION COMPATIBILITY, proposes that States ensure systems are upgraded to support the IWXXM version which complies with the latest amendment to Annex 3, and Draft Conclusion MET/IE WG/21-03: GLOBAL EXCHANGE OF IWXXM, proposes that the ACSICG prioritizes implementation of

network circuits necessary to support the global exchange of meteorological information in IWXXM form.

2. DISCUSSION

IWXXM Version compatibility

2.1. The last two approved versions of IWXXM, i.e., Version 2021-2 published on 15 November 2021 and Version 2023-1 published on 15 June 2023, are compatible with Amendments 79 and 80 to ICAO Annex 3. A compatibility table (Table 1) highlights the compatibility of IWXXM packages across IWXXM versions. In addition, a new version of IWXXM (under development) to comply with Amendment 81 to ICAO Annex 3 is expected to be approved in 2024 (subject to the final approval of Amendment 81).

Table 1: Compatibility table showing IWXXM versions, associated report packages, and relevant ICAO Annex 3 requirements (<https://github.com/wmo-im/iwxxm/wiki/Package-Compatibility>)

IWXXM Version	METAR/SPECI	TAF	SIGMET	AIRMET	TCA	VAA	SWA	WAFS SIGWX F/C	Requirements
1.1	1.1.0	1.1.0	1.1.0	N/A	N/A	N/A	N/A	N/A	Am76
2.1	2.1.1	2.1.1	2.1.1	2.1.1	2.1.1	2.1.1	N/A	N/A	Am77
3.0	3.0.0	3.0.0	3.0.0	3.0.0	3.0.0	3.0.0	3.0.0	N/A	Am78
2021-2	3.1.0	3.0.1	4.0.0	3.1.0	3.1.0	3.1.0	3.0.1	1.0.0	Am79 + Am80
2023-1	3.1.0	3.0.1	4.0.1	3.1.1	3.1.0	3.1.0	3.0.1	1.1.0	Am79 + Am80

2.2. According to the compatibility table, IWXXM formatted meteorological information (specifically, METAR/SPECI¹, SIGMET², AIRMET³, TCA⁴, VAA⁵, and SWA⁶) issued in IWXXM Version 3.0 will not comply with the latest amendment (i.e., Amendment 80) to ICAO Annex 3.

2.3. Considering the need for States to ensure compliance with ICAO Annex 3, MET/IE WG/21 noted that the producers of IWXXM reports should implement or upgrade their systems (including systems for exchanging IWXXM reports) to support at least IWXXM Version 2021-2. Therefore, MET/IE WG/21 formulated the following Draft Conclusion (which is also discussed in CNS SG/27, WP/08 – REVIEW REPORT OF SWIM TF/7):

Draft Conclusion MET/IE WG/21-01: IWXXM VERSION COMPATIBILITY		
What:	That, States are requested to ensure that MET service providers, air navigation service providers (ANSPs), airlines and other end users do the following: a) make the necessary system upgrades to support the IWXXM	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional

¹ METAR/SPECI – Aerodrome routine meteorological report/aerodrome special meteorological report (see ICAO Annex 3, Chapter 4 and Appendix 3 for further details).

² SIGMET – Information concerning specified en-route weather and other phenomena (see ICAO Annex 3, Chapter 7 and Appendix 6 for further details).

³ AIRMET – Information concerning specified en-route weather phenomena (see ICAO Annex 3, Chapter 7 and Appendix 6 for further details).

⁴ Tropical Cyclone Advisory – information regarding tropical cyclones (see ICAO Annex 3, Chapter 3 and Appendix 2 for further details).

⁵ Volcanic Ash Advisory – information regarding volcanic ash in the atmosphere (see ICAO Annex 3, Chapter 3 and Appendix 2 for further details).

⁶ Space Weather Advisory – information on space weather phenomena (see ICAO Annex 3, Chapter 3 and Appendix 2 for further details).

version which complies with the latest amendment to Annex 3 as stated in the IWXXM compatibility table*; and b) prepare for future system upgrades to support future IWXXM versions driven by further amendments to Annex 3. (*Link to the IWXXM capability table: https://github.com/wmo-im/iwxxm/wiki/Package-Compatibility)	<input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: Most States are generating and exchanging IWXXM OPMET data in version 3.0. With the evolution of ICAO Annex 3, IWXXM version 3.0, which complied with Amendments 78 to Annex 3, is no longer compliant with Amendments 80 to ICAO Annex 3. To avoid the potential impact to operations due to IWXXM version compatibility issues of the systems, States are required to upgrade the systems for generating, exchanging and consuming IWXXM reports to support the IWXXM version which complies with the latest amendment to Annex 3.	Follow-up: <input checked="" type="checkbox"/> Required from States
When: 8-Sep-23	Status: Draft to be adopted by PIRG
Who: <input checked="" type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other:	

Global exchange of IWXXM

2.4. MET/IE WG/21 discussed the development of the *Online Register of APAC IWXXM Exchange Status*, which was accessible via a link published⁷ in the ICAO APAC Regional OPMET Bulletin Exchange (ROBEX) Handbook and in which States indicated the current capabilities of the designated APAC Regional OPMET Centres (ROCs), National OPMET Centres (NOCs) and Inter-Regional OPMET Gateways (IROGs) to regularly receive and disseminate meteorological information in IWXXM form. A copy of the *Online Register* is provided in the **Attachment** to this paper.

2.5. To facilitate greater visibility and awareness of the *Online Register* as a tool to support the dissemination of meteorological information in IWXXM form and encourage States to share updates on their IWXXM exchange capabilities, MET/IE WG/21 requested the Secretariat to provide a link for States to access the *Online Register* directly via the ICAO APAC Office "eDocuments" website (<https://www.icao.int/APAC/Pages/eDocs.aspx>).

2.6. The *Online Register* indicated that several APAC NOCs and ROCs were not yet capable of exchanging meteorological information in IWXXM form regularly. In addition, only one of the five designated APAC IROG host States, Singapore, had indicated the capability of its IROG to exchange meteorological information in the IWXXM form regularly with another ICAO Region (i.e., EUR/IROG London). Noting that the global availability of meteorological information in IWXXM form depended on the capability of the APAC IROGs to exchange IWXXM messages with the other ICAO regions, MET/IE WG/21 considered the need for support from the ACSICG to facilitate the implementation of necessary network connections (primary circuits and backup paths) between the APAC and other ICAO Regions.

2.7. Given the discussion above, MET/IE WG/21 formulated the following Draft Conclusion (which is also discussed in CNS SG/27, WP/07 – REVIEW REPORT OF ACSICG/10, and supported by ACSICG/10 in a modified form and presented as Draft Conclusion ACSICG/10/05: Global Dissemination of IWXXM):

⁷ To facilitate OPMET Data Exchange using IWXXM in the APAC region, the MET SG decided to include in the APAC ROBEX Handbook the following link to the Online Register of APAC IWXXM Exchange Status [MET SG/24, Decision MET SG/24-15 and Conclusion MET SG/24-12, refer]:
<https://docs.google.com/spreadsheets/d/1WEcGfMRZq2dgHsfdpFhiefJEcA8OeMhfbCJHTqA7NX0/edit#gid=0>

Draft Conclusion MET/IE WG/21-03: GLOBAL EXCHANGE OF IWXXM	
What: That, ACSICG prioritise the implementation of intra- and inter-region network circuits, including support for the Air Traffic Services Message Handling System (AMHS) with File Transfer Body Part (FTBP) and Interpersonal Message Heading Extension (IHE), to support the global exchange of messages in the ICAO Meteorological Information Exchange Model (IWXXM) form.	Expected impact: <input checked="" type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: Aviation users require access to global OPMET information provided in IWXXM form. Without suitable communication network connections, global exchange will not be possible, preventing users from safely migrating from text to new IWXXM services.	Follow-up: <input checked="" type="checkbox"/> Required from States
When: 8-Sep-23	Status: Draft to be adopted by PIRG
Who: <input checked="" type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input checked="" type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Other: PIRGs in other Regions	

Conjoint meeting session between MET/IE WG and ACSICG

2.8. In addition, to further facilitate the regional discussion and progress on the matters above, MET/IE WG/21 proposed conducting a conjoint meeting session with ACSICG in 2024 (which was supported by ACSICG/10 and is also discussed in CNS SG/27, WP/07 – REVIEW REPORT OF ACSICG/10).

3. ACTION BY THE MEETING

3.1. The meeting is invited to:

- a) Note the information contained in this paper;
- b) Consider the Draft Conclusion in para 2.3, which will be presented for possible adoption by MET SG/27;
- c) Consider the Draft Conclusion in para 2.7, which will be presented for possible adoption by MET SG/27 (and note that in WP/07, CNS SG/27 is invited to adopt a modified version of the Draft Conclusion, in para. 2.73); and
- d) Discuss any relevant matters as appropriate.

Online Register of APAC IWXXM Exchange Status

Updated: 23 May 2023



ROC		ROC ready to receive IWXXM	ROC address to receive IWXXM	AMHS message size limit	AMHS supporting FTBP+IHE*	Disseminate IWXXM to ROCs	Disseminate IWXXM to NOCs	NOC		IWXXM generated	NOC ready to receive IWXXM	NOC address to receive IWXXM	Remarks
Bangkok	VTBB	YES	/C=XX/A=ICAO/ P=THAILAND/ O=VTBB/ OU1=VTBB/ CN=VTBBYPYL/	4 MB	YES	VHHH, WSSS, YBBB, ZBBB	YES	Bangkok	VTBB	YES	YES	VTBBYMYX	
								Phnom Penh	VDPP	YES	YES	VDPPYMYC	
								Vientiane	VLVT		NO		
								Ha Noi	VVNB	YES	NO		Translation service by VTBB
	Yangon	VYYY		NO									
Beijing	ZBBB	YES	/C=XX/A=ICAO/ P=CHINA/ O=HQ/ OU1=ZBBB/ CN=ZBBBYPYL/	4 MB	YES	RJTD, VHHH, WSSS, YBBB		Beijing	ZBBB	YES			
								Ulaanbaatar	ZMUB	PARTIAL			
Brisbane	YBBN	YES	/C=XX/A=ICAO/ P=AUSTRALIA/ O=YBBN/ OU1=YBBB/ CN=YBBBYPYL/	4 MB	YES	NZKL, RJTD, VHHH, VTBB, WMKK, WSSS, ZBBB	No recipients ready	Brisbane	YBBN	YES			
								Port Moresby	AYPY	YES	NO		Translation service by NZKL
								Nauru	ANYN	YES	NO		Translation service by NZKL
								Honiara	AGGH	YES	NO		Translation service by NZKL
	Dili	WPDL		NO	NO								
Colombo	VCCC	NO						Colombo	VCCC				
								Male	VRMM				
Delhi	VIDP	NO						Delhi	VIDP				
Kolkata	VECC	NO						Kolkata	VECC				
								Dhaka	VGZR				
								Paro	VQPR				
								Kathmandu	VNKT				
Mumbai	VABB	NO						Mumbai	VABB				
Hong Kong	VHHH	YES	/C=XX/A=ICAO/ P=HONGKONG/ O=HKGCAD/ OU1=VHHH/ CN=VHHHPYL/	4 MB	YES	NZKL, RJTD, VTBB, WMKK, WSSS, YBBB, ZBBB	YES	Hong Kong	VHHH	YES			
								Taipei City	RCTP	YES	YES	RCAAIWXM	
								Manila	RPLL	YES	NO		Translation service by VHHH
								Macao	VMMC	YES	NO		Translation service by VHHH
Incheon	RKSI	NO			Q4 2022			Incheon	RKSI	YES			Available through Open-API
Jakarta	WIII	NO						Jakarta	WIII	YES			
Karachi	OPKC	NO						Karachi	OPKC				
Kuala Lumpur	WMKK	YES	/C=XX/A=ICAO/ P=MALAYSIA/ O=WM/ OU1=WMKK/ CN=WMKKYMXM/	4 MB	YES	WSSS		Kuala Lumpur	WMKK	YES			
								Brunei	WBSB	NO			
Nadi	NFFN	NO				NZKL, VHHH, VTBB, WSSS, YBBB		Nadi	NFFN	YES	NO		Translation service by NZKL TCA in IWXXM available (TCAC Nadi)
								Cook Islands	NCRG	YES	NO		Translation service by NZKL
								Tonga	NFTF	YES	NO		Translation service by NZKL
								Tuvalu	NGFU	YES	NO		Translation service by NZKL
								Kiribati	NGTA	YES	NO		Translation service by NZKL
								Niue	NIUE	YES	NO		Translation service by NZKL
								Samoa	NSFA	YES	NO		Translation service by NZKL
								Vanuatu	NVVV	YES	NO		Translation service by NZKL
								New Caledonia	NWWW	YES	NO		Translation service by NZKL
								French Polynesia	NTAA	YES	NO		Translation service by NZKL
Singapore	WSSS	YES	/C=XX/A=ICAO/ P=SINGAPORE/ O=CAASS/ OU1=WSSS/ CN=WSSSYPYL/	4 MB	YES	NZKL, RJTD, VHHH, VTBB, WMKK, YBBB, ZBBB	---	American Samoa	NSTU	NO	NO		IWXXM by US NWS in the FT/SA/SPUS25 KBWC bulletins
								Singapore	WSSS	YES			
Tokyo	RJTD	YES	/C=XX/A=ICAO/ P=RJ/ O=AFTN/ OU1=RJTDZYA/	2 MB	YES	NZKL, WSSS, ZBBB		Tokyo	RJTD	YES			TC Advisory in IWXXM available via TCAC Tokyo website
Washington	KWBC	NO	/C=XX/A=ICAO/ P=K/ O=AFTN/ OU1=KWBCZYZ/	4 MB	YES		No recipients ready	Washington	KWBC	June 2023			New ROBB KWBC in Nov 2021. Open API will be available
Wellington	NZKL	YES	/C=XX/A=ICAO/ P=NZ/ O=NZCH/ OU1=NZKL/ CN=NZKLYMYL/	6 MB	YES	VHHH, VTBB, WSSS, YBBB		Wellington	NZKL	YES			

Inter-regional exchange	IROG in APAC		IROG address to receive IWXXM		IROG in another Region		IROG address to receive IWXXM		Active dissemination to another Region	Active reception from another Region	Remarks
APAC - EUR	Singapore	WSSS	/C=XX/A=ICAO/ P=SINGAPORE/ O=CAASG/ OU1=WSSS/ CN=WSSSYPYL/		London	EGGG	/C=XX/ADMD=ICAO/ PRMD=EG/ O=AFTN/ OU1=EGZZXSIN/		YES	YES	Bandwidth between the exchange services was increased to 2Mbps. Backup procedures for the alternate path EGGG – LSSS (Geneve) – LIII (Rome) – VTBB (Bangkok) – WSSS are in place. Secondary backup procedures being explored for alternate path EGGG - KATL (Atlanta) - KSLC (Salt Lake City) - YBBB (Brisbane) - WSSS
APAC - NAM	Tokyo	RJTD	/C=XX/A=ICAO/ P=RJ/ O=AFTN/ OU1=RJTDYZYA/		Washington	KWBC	/C=XX/A=ICAO/ P=K/ O=AFTN/ OU1=KWBCYZYZ/		NO	NO	Test of IWXXM exchange between IROG Tokyo and IROG Washington will be conducted in the near future.
APAC - AFI	Bangkok	VTBB	/C=XX/A=ICAO/ P=THAILAND/ O=VTBB/ OU1=VTBB/ CN=VTBBYPYL/		Pretoria	FAPR	/C=XX/A=ICAO/ P=FA/ O=AFTN/ OU1=FAPRYMYX/		NO	NO	No POC available / known at IROG Pretoria. Extended AMHS with FTBP in place via YBBN - FAOR. FAOR to FAPR (COMC to IROG) was not AMHS capable in 2020, nothing heard since
	Brisbane	YBBB	/C=XX/A=ICAO/ P=AUSTRALIA/ O=YBBN/ OU1=YBBB/ CN=YBBBYPYL/								
APAC - SAM	Brisbane	YBBB	/C=XX/A=ICAO/ P=AUSTRALIA/ O=YBBN/ OU1=YBBB/ CN=YBBBYPYL/		Brasilia	SBBR			NO	NO	No POC available / known at IROG Brasilia. Extended AMHS with FTBP in place via YBBN - KSLC - KATL - SBBR. Unknown what capability from COMC SBBR to IROG SBBR is ...
APAC - MID	Bangkok	VTBB	/C=XX/A=ICAO/ P=THAILAND/ O=VTBB/ OU1=VTBB/ CN=VTZZMMID/		Jeddah	OEJD	/C=XX/A=ICAO/ P=SAUDI/ O=OEJD/ OU1=OEJD/ CN=OEJDMYX/		NO	NO	Test of IWXXM exchange conducted since May 2022 but not successful due to COMC OOMS still AFTN, so Bangkok is awaiting COMC COMS migrate to Extended AMHS with FTBP connection.

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

For further information and update, please contact: Peter Dunda (pdunda@icao.int), Marco Kok (mhkok@hko.gov.hk) or Pierre Kemmers (pierre.kemmers@airservicesaustralia.com)