

*International Civil Aviation Organization***WORKING PAPER****ICAO****Asia and Pacific (APAC)
Twenty-first Meeting of the Meteorological Information
Exchange Working Group (MET/IE WG/21)**

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Agenda Item 4: Meteorological information exchange in digital form**LATEST GLOBAL DEVELOPMENT OF IWXXM AND PLANNED RELEASES**

(Presented by Hong Kong, China)

SUMMARY

This paper highlights the latest development of ICAO Meteorological Information Exchange Model (IWXXM) since 2021, as well as planned releases of new versions in response to identified issues and proposed changes in Amendment 81 to ICAO Annex 3.

1. INTRODUCTION

1.1 Developed by the World Meteorological Organization (WMO) Task Team on Aviation Data (TT-AvData), an updated version of IWXXM (Version 2021-2) incorporating changes in Amendments 79 and 80 to ICAO Annex 3, was approved via the WMO Fast Track approval procedures and published on 15 November 2021. This paper highlights the changes made in this latest version of IWXXM, as well as planned releases of new versions in response to identified issues and proposed changes in Amendment 81 to ICAO Annex 3.

2. DISCUSSION**IWXXM Version 2021-2**

2.1 Apart from the updates induced by a change to the Traditional Alphanumeric Code (TAC) templates of METAR/SPECI, SIGMET, AIRMET, Tropical Cyclone Advisory and Volcanic Ash Advisory in Amendments 79 and 80, a new IWXXM schema was introduced to support the provision of new World Area Forecast System (WAFS) Significant Weather (SIGWX) forecast¹ data set².

2.2 Another major change in IWXXM 2021-2 is the adoption of a new versioning scheme in which IWXXM and individual report package are no longer sharing the same version number. The IWXXM version now reflects which WMO approval process has been involved (e.g. IWXXM 2021-2

¹ For more information please visit <https://www.metoffice.gov.uk/services/transport/aviation/regulated/wafs-2023>

² Test data sets are made available at <https://www.metoffice.gov.uk/services/transport/aviation/regulated/wafs-sigwx-test-data>

was approved via the second Fast Track (FT) approval procedures in 2021), whereas the version number of a report package now strictly follows Semantic Versioning 2.0.0³ according to the state of change of the package. In other words, if the version number of a package has not changed or only the patched number has changed from one IWXXM version to another, the schemas for the package are fundamentally the same, ditto the XML instances created from them. Table 1 shows a compatibility table and packages highlighted in colours are compatible across IWXXM versions.

Table 1: Compatibility table⁴ showing IWXXM versions, associated report packages, and relevant ICAO Annex 3 requirements

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 (undergoing WMO FT approval)	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

2.3 Producers of IWXXM reports should make sure that the schemas they are using complies with the latest amendment to ICAO Annex 3.

Known issues of IWXXM 2021-2 and follow up actions taken

2.4 Since IWXXM 2021-2 was approved, issues were identified which necessitate the publishing of a new version of IWXXM:

- There were bugs in a number of Schematron rules causing them to be incorrectly triggered during validation
- Representation of airframe icing phenomenon is missing in the WAFS SIGWX forecast package
- Notes in SIGMET and AIRMET schemas have to be aligned with those in the guidance document to avoid confusion

2.5 WMO TT-AvData has submitted a release candidate of an updated version of IWXXM⁵ for approval via the WMO Fast Track approval procedures (FT2023-1). If the procedures go smoothly, the new version is expected to be published in May 2023.

Plan for further development of IWXXM

2.6 Recently, ICAO issued State letter AN 10/1-23/1 to collect comments from the States regarding proposals for Amendment 81 to ICAO Annex 3. WMO TT-AvData analysed the proposed changes and noticed that the IWXXM Space Weather Advisory and Volcanic Ash Advisory packages will have to be revised. Furthermore, new IWXXM packages will have to be developed with the introduction of new IWXXM messages on Volcano Observatory Notice for Aviation (VONA) and Quantitative Volcanic Ash (QVA).

³ <https://github.com/wmo-im/iwxxm/wiki/Common-approaches-across-exchange-models>

⁴ The latest version of this table can be found at <https://community.wmo.int/en/activity-areas/wis/iwxxm>

⁵ See <https://schemas.wmo.int/iwxxm/2023-1RC1/>

2.7 In order to give States a better understanding on the changes to IWXXM induced by the proposals for Amendment 81 to ICAO Annex 3, TT-AvData has taken the liberty to prepare a draft version of IWXXM for public consultation. The public consultation is expected to be conducted between June and September 2023, with a view to finalizing and submitting the new version for WMO Fast Track approval procedures in 2024 subject to the final approval of Amendment 81 to ICAO Annex 3. Further details on the arrangement will be announced closer in time.

3. ACTION BY THE MEETING

3.1 The meeting is invited to

- a) note the information in this paper;
- b) note that IWXXM messages issued in version 3.0 will not be compliant with Amendments 79 & 80, which are already applicable, for some products as indicated in Table 1;
- c) discuss necessary follow-up actions arising from the activities mentioned in the paper.
