

International Civil Aviation Organization

ICAO

WORKING PAPER**ICAO Asia and Pacific (APAC)**Twenty-Seventh Meeting of the Meteorology Sub-Group
(MET SG/27)

Bangkok, Thailand, 04 to 08 September 2023

Agenda Item 6: Research, development and other initiatives**IWXXM PLANNED RELEASE FOR AMENDMENT OF ICAO ANNEX 3**

(Presented by Hong Kong, China)

SUMMARY

This paper highlights the latest development of ICAO Meteorological Information Exchange Model (IWXXM) in 2023, as well as planned release of a new version in response to 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), IWXXM Version 2021-2 incorporating changes in Amendments 79 and 80 to ICAO Annex 3, was published on 15 November 2021. This paper highlights the changes made in the latest version of IWXXM (Version 2023-1) that was approved via the WMO Fast Track approval procedures on 2 June 2023 and implemented on 15 June 2023, as well as planned release of new version in response to proposed changes in Amendment 81 to ICAO Annex 3.

2. DISCUSSIONFrom IWXXM Version 2021-2 to Version 2023-1

2.1 IWXXM Version 2021-2 was introduced to support the change to the Traditional Alphanumeric Code (TAC) templates of METAR/SPECI, SIGMET, AIRMET, Tropical Cyclone Advisory (TCA) and Volcanic Ash Advisory (VAA) in Amendments 79 and 80 as well as the provision of new World Area Forecast System (WAFS) Significant Weather (SIGWX) forecast¹ data set².

2.2 In addition, IWXXM Version 2021-2 adopted 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 2023-1 was approved via

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>

the first Fast Track (FT) approval procedures in 2023), 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.

2.3 Since the approval of IWXXM Version 2021-2, the following issues were identified which necessitate the publishing of a new version of IWXXM Version 2023-1 for rectifying the issues:

- 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

2.4 Table 1 shows a compatibility table summarising the existing⁴ and planned IWXXM versions and the version number of the associated packages. Packages highlighted in the same colours are compatible across IWXXM versions. 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.

Table 1: Compatibility table 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	VONA	QVA	Requirements
1.1	1.1.0	1.1.0	1.1.0	N/A	N/A	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	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	N/A	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	N/A	N/A	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	N/A	N/A	Am79 + Am80
Planned release in 2024	3.1.0	3.0.1	4.0.1	3.1.1	3.1.0	3.2.0	3.1.0	1.1.0	1.0.0	1.0.0	Am81

Development of a new version of IWXXM for Amendment 81 to be published in 2024

2.5 ICAO issued State letter AN 10/1-23/1 on 26 January 2023 to collect comments by 26 July 2023 from the States regarding proposals for Amendment 81 to ICAO Annex 3. These proposals are envisaged for applicability on 28 November 2024, except for quantitative volcanic ash concentration information on 27 November 2025. 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 Concentration Information (QVA).

2.6 The planned new version of IWXXM for Amendment 81 to be released in 2024 and its compatibility with IWXXM Version 2023-1 for various products is also shown in Table 1 for easy reference. It is expected that there will be no major or minor changes for METAR/SPECI, TAF, SIGMET, AIRMET, TCA and WAFS SIGWX forecast. Updates to the existing MET products in future IWXXM versions are expected to be less frequent as they become more mature.

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

⁴ Reference for the existing IWXXM versions: <https://github.com/wmo-im/iwxxm/wiki/Package-Compatibility>

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 August and October 2023, with a view to finalising and submitting the new IWXXM version for WMO Fast Track approval procedures in 2024 subject to the final approval of Amendment 81 to ICAO Annex 3.

3. ACTION BY THE MEETING

3.1 The meeting is invited to

- a) note the information in this paper;
- b) note the schedule of the planned release of a new version of IWXXM for Amendment 81, and the likely compatibility with Version 2023-1 for various products as indicated in Table 1;
- c) consider reminding States to ensure systems developed or procured will work with current and future versions of IWXXM; and
- d) discuss necessary follow-up actions arising from the activities mentioned in the paper.
