International Civil Aviation Organization

WORKING PAPER (WP/22)

ICAO Asia and Pacific (APAC)
Twenty-Ninth Meeting of the Meteorology Sub-Group
(MET SG/29)

Bangkok, Thailand, 18 to 22 August 2025

Agenda Item 6: Research, development and other initiatives

STATUS AND PLANS FOR IWXXM IMPLEMENTATION IN INDONESIA

(Presented by Indonesia)

SUMMARY

This paper presents the progress of IWXXM development in Indonesia, as well as the challenges related to its transmission to the RODB and other ROCs in the Asia/Pacific region. Furthermore, it outlines a brief plan for IWXXM implementation in Indonesia.

1. INTRODUCTION

1.1 As required and recommended in ICAO Annex 3, each State should disseminate and exchange its OPMET data in IWXXM GML format starting from November 2020. The APANPIRG forum has also recommended including IWXXM implementation as an indicator of air navigation deficiencies.

1.2 Referring to these provisions and Flimsy/01 of the ICAO Asia and Pacific (APAC) Twenty-third Meeting of the Meteorological Information Exchange Working Group (MET/IE WG/23), titled "Potential Air Navigation Deficiencies Related to IWXXM", it is necessary for Indonesia to report on the progress and plans for IWXXM implementation.

2. DISCUSSION

Initial Development of IWXXM in Indonesia

2.1 Indonesia has been developing an in-house IWXXM converter since 2019 (as reported in MET SG/24 IP/25), producing IWXXM version 3.0. These products have been successfully disseminated at the national level. However, our initial IWXXM data failed to be delivered to the RODB.

2.2 After thorough investigation, we identified that the failure was due to AMHS incompatibility. Our existing AMHS (Ubimex version 6.6) has a message size limit of only 2 MB, while IWXXM data dissemination requires an AMHS system with a 4 MB size limit.

Further Development of IWXXM in Indonesia

2.3 While coordinating with DGCA and AirNav Indonesia to procure a standardized AMHS system, BMKG has continued developing its IWXXM converter in alignment with regional developments in the ICAO Asia/Pacific region.

2.4 In 2023, Indonesia received technical support from Météo-France International for the development of IWXXM products. We attempted to convert data using their reference converter. However, validation failed due to scripting issues (see Attachment A). Additional validation assistance was provided by Hong Kong Observatory (HKO).

Current Status

2.5 Learning from our previous mistakes and drawing insights from Hong Kong's paper "IWXXM: Latest Developments and Future Plans" (MET/IE WG/23 WP/18), we have redeveloped our in-house converter based on the latest IWXXM versions 2025-2RC1 and 2025-2RC2.

2.6 We have successfully converted and validated our data in IWXXM 2025-2RC1 format, and are currently working on implementing 2025-2RC2. Our most recent IWXXM data has been validated successfully, with confirmation of validity also received from HKO (see Attachment B).

Plan to install new AMHS

2.7 Despite successfully developing IWXXM data, dissemination is still not possible due to AMHS limitations. However, through strong coordination among air navigation service units in Indonesia, a new AMHS system has been procured and is planned for installation by the end of this year.

2.8 If installation and data migration proceed without issues, **IWXXM data dissemination to RODB and designated ROCs is scheduled to begin in Q1 2026.**

2.9 We kindly request continued support from ICAO Asia/Pacific States, especially from RODBs, in facilitating the exchange of IWXXM data. Please inform us if Indonesia's IWXXM data does not meet expectations or has any shortcomings.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

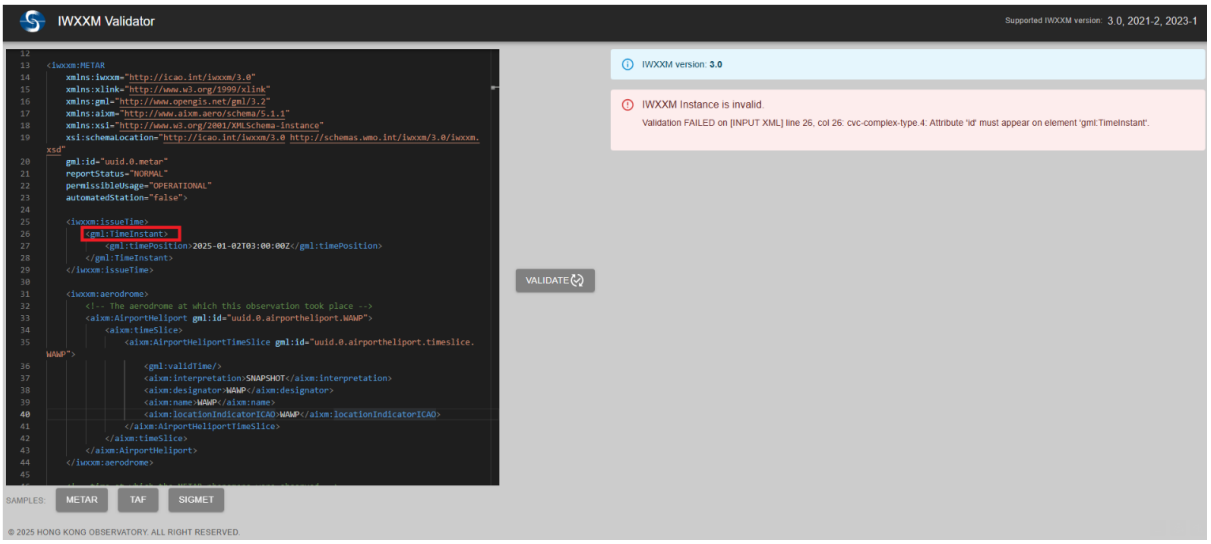
a) note the information contained in this paper;

b) discuss any relevant matters as appropriate.

– – – – – – – – – – – – – –

Appendix A

IWXXM Validation Version 3.0



Appendix B

IWXXM Validation Version 2025-2RC1

```
Found 2 XML files in /home/genomexyz/iwxxm_v2/iwxxm/IWXXM/examples
Checking /home/genomexyz/iwxxm_v2/iwxxm/IWXXM/examples/METAR.xml
        RESOLVING xlink:href http://codes.wmo.int/306/4678/-RA
        SUCCESSFULLY resolved http://codes.wmo.int/306/4678/-RA
        RESOLVING xlink:href http://codes.wmo.int/49-2/CloudAmountReportedAtAero
drome/FEW
        SUCCESSFULLY resolved http://codes.wmo.int/49-2/CloudAmountReportedAtAer
odrome/FEW
        RESOLVING xlink:href http://codes.wmo.int/49-2/SigConvectiveCloudType/CB
        SUCCESSFULLY resolved http://codes.wmo.int/49-2/SigConvectiveCloudType/C
B
        RESOLVING xlink:href http://codes.wmo.int/49-2/CloudAmountReportedAtAero
drome/SCT
        SUCCESSFULLY resolved http://codes.wmo.int/49-2/CloudAmountReportedAtAer
odrome/SCT
        RESOLVING xlink:href http://codes.wmo.int/306/4678/FG
        SUCCESSFULLY resolved http://codes.wmo.int/306/4678/FG
Checking /home/genomexyz/iwxxm_v2/iwxxm/IWXXM/examples/TAFOR.xml
        RESOLVING xlink:href http://codes.wmo.int/306/4678/RA
        SUCCESSFULLY resolved http://codes.wmo.int/306/4678/RA
CHECKING GML correctness finished successfuly
========= Validation SUCCESSFUL on /home/genomexyz/iwxxm_v2/iwxxm/IWXXM ========
=
```

```
Validating /home/genomexyz/iwxxm_v2/iwxxm/IWXXM against XML Schema and Schematron
17:43:23.446 INFO | Validating file /home/genomexyz/iwxxm_v2/iwxxm/IWXXM/examples/TAFOR.xml against XM
17:43:24.825 INFO | Validating file /home/genomexyz/iwxxm_v2/iwxxm/IWXXM/examples/TAFOR.xml against Sc
17:43:25.496 INFO | Validation successful, took 2051 ms
SUCCESSFUL validation
CHECKING GML correctness on IWXXM
Found 1 XML files in /home/genomexyz/iwxxm_v2/iwxxm/IWXXM/examples
Checking /home/genomexyz/iwxxm_v2/iwxxm/IWXXM/examples/TAFOR.xml
        RESOLVING xlink:href http://codes.wmo.int/49-2/CloudAmountReportedAtAerodrome/SCT
        SUCCESSFULLY resolved http://codes.wmo.int/49-2/CloudAmountReportedAtAerodrome/SCT
        RESOLVING xlink:href http://codes.wmo.int/306/4678/RA
        SUCCESSFULLY resolved http://codes.wmo.int/306/4678/RA
        RESOLVING xlink:href http://codes.wmo.int/49-2/CloudAmountReportedAtAerodrome/FEW
        SUCCESSFULLY resolved http://codes.wmo.int/49-2/CloudAmountReportedAtAerodrome/FEW
        RESOLVING xlink:href http://codes.wmo.int/49-2/SigConvectiveCloudType/CB
        SUCCESSFULLY resolved http://codes.wmo.int/49-2/SigConvectiveCloudType/CB
CHECKING GML correctness finished successfuly
========= Validation SUCCESSFUL on /home/genomexyz/iwxxm_v2/iwxxm/IWXXM =========
```