International Civil Aviation Organization

INFORMATION PAPER

Twenty-fourth Meeting of the Meteorology Sub-group (MET SG/24) of the Asia and Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG)

Web-conference, 16 – 20 November 2020

Agenda Item 5: Research, development and other initiatives

STATUS OF IWXXM IMPLEMENTATION IN HONG KONG, CHINA

(Presented by Hong Kong, China)

SUMMARY

This paper presents the latest status of implementation of OPMET exchange in ICAO Meteorological Information Exchange Model (IWXXM) in Hong Kong, China.

1. INTRODUCTION

1.1 The requirement of digital exchange of aeronautical meteorological information, including METAR/SPECI, TAF, SIGMET, AIRMET, Volcanic Ash Advisory, Tropical Cyclone Advisory and Space Weather Advisory, in IWXXM GML form became applicable on 5 November 2020 according to Amendment 79 to ICAO Annex 3. This paper reports the preparation of Hong Kong China in meeting this requirement.

2. DISCUSSION

Generation of MET reports in IWXXM

2.1 As the Meteorological Service Provider, the Hong Kong Observatory (HKO) takes the role of a "IWXXM Producer". HKO has completed the in-house development of the new METAR/SPECI and TAF message preparation system (Figure 1 and 2), which allows forecasters and observers to generate TAF and METAR/SPECI reports in both Traditional Alpha-numeric Code (TAC) and IWXXM version 3.0 from source. HKO forecasters have also started generating SIGMET in both TAC and IWXXM version 3.0 format using operational HKO SIGMET Coordination Platform. Forecasters will do a final check on the coverage of SIGMET generated in IWXXM through a preview page (Figure 3) before submission to AMHS.

2.2 HKO has also developed a software to interface the above IWXXM generating tools with the AMHS client software for the automatic preparation of AMHS messages with File Transfer Body Part (FTBP). The generated IWXXM reports automatically go through the XML schema validation before compression using GZIP. The GZIP file is then attached in an AMHS message as the single body part for subsequent dissemination to Hong Kong Regional OPMET Centre (ROC) of Hong Kong Civil Aviation Department (HKCAD).

IWXXM translation and aggregation services

2.3 Apart from generating the OPMET data in IWXXM from source, HKO and HKCAD have developed a TAC-to-IWXXM OPMET translation software, which supports the routine generation of OPMET data in IWXXM version 3.0 from OPMET data in TAC format.

2.4 Hong Kong ROC is now performing the function of "Translation Centre" and providing translation service for upstream National OPMET Centre (NOC) or associated MET service provider. Hong Kong ROC has made formal arrangement with PAGASA and Macao NOC to convert OPMET data disseminated by them from TAC to IWXXM.

2.5 HKO and HKCAD have also developed an IWXXM aggregator to compile IWXXM reports of METAR/SPECI and TAF. The IWXXM reports received from Taipei NOC and the translated IWXXM reports for Manila NOC and Macao NOC, after XML validation, are aggregated together into a single IWXXM report for subsequent dissemination by Hong Kong ROC to other ROCs and RODBs in the Region.

AMHS Implementation for IWXXM

2.6 Operational AMHS connection between Airport Meteorological Office of HKO and Hong Kong ROC of HKCAD has been established. While the AMHS of HKCAD supports FTBP, the testing and operational AMHS servers of HKCAD and the AMHS client software of HKO were upgraded successfully during mid-October to early November 2020 to support the Interpersonal Message (IPM) Heading Extension (IHE) capability to meet the requirement of the AMHS profile for IWXXM[1], as IHE is essential to carry the ATS priority, filing time and Optional Heading Information for IWXXM message exchange.

International dissemination of IWXXM reports by Hong Kong ROC

2.7 After a series of tests and pre-operational trials, FTBP-enabled AMHS connections of Hong Kong ROC with Bangkok (ATN[2]), Fukuoka (CRV[3]), Manila (CRV) and Taipei (CRV) had officially put into operation.

2.8 Hong Kong China has issued ROBEX Meteorological Notification (METNO) bulletin in late October to inform ROCs and RODBs the new IWXXM services by Hong Kong ROC would be available starting from 5 November 2020.

2.9 Hong Kong China has been disseminating IWXXM reports to the ROCs of Bangkok, Singapore, Brisbane and Wellington through operational AMHS network since 5 November 2020.

Destination (ROC)	AMHS path	Type of IWXXM report	Status
Bangkok	VHHH-VTBB	METAR/SPECI, SIGMET	Operational
Singapore	VHHH-RJJJ-WSSS	METAR/SPECI, TAF, SIGMET	Operational
Brisbane	VHHH-RJJJ-WSSS-YBBB	METAR/SPECI, TAF, SIGMET	Operational
Wellington	VHHH-VTBB-WSSS-YBBB-NZCH	METAR/SPECI, SIGMET	Operational

[1] AMHS profile for IWXXM exchange is specified in the Appendix A of Guidelines for the Implementation of OPMET Data Exchange using IWXXM.
[2] ATN: Aeronautical Telecommunication Network
[3] CRV: Common aeRonautical Virtual private network

The way forward

2.10 Hong Kong China will continue to conduct further IWXXM exchange with other ROCs and RODBs to identify possible operational issues associated with international exchange of IWXXM bulletin via AMHS.

2.11 Hong Kong China plans to develop new web service interfaces for airline users to retrieve IWXXM reports based on their operational requirements.

3. ACTION BY THE MEETING

3.1 Note the information contained in this paper.

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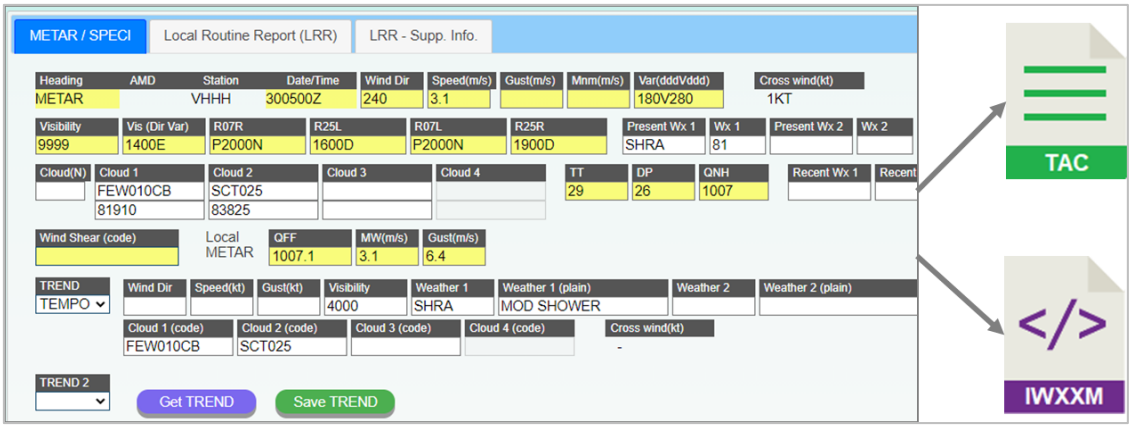

Figure 1: New METAR/SPECI preparation tool developed by HKO for observers to generate both TAC and IWXXM from source

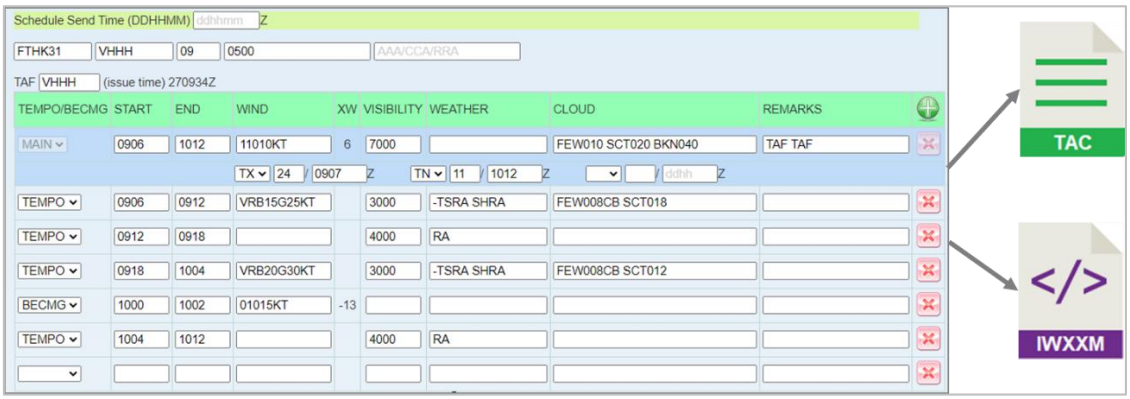

Figure 2: New TAF preparation tool developed by HKO for forecaster to generate both TAC and IWXXM from source

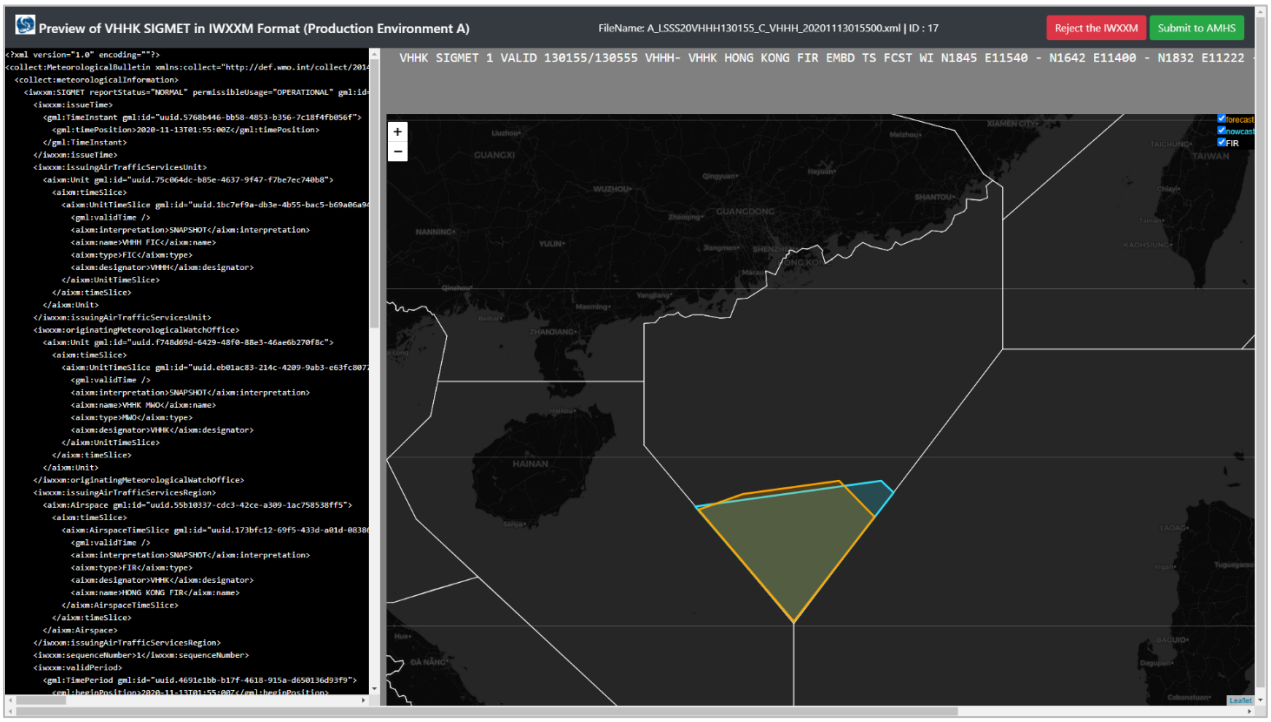

Figure 3: Tool for forecasters to preview SIGMET generated in IWXXM and submit it to AMHS