International Civil Aviation Organization

EIGHTH MEETING OF THE ASIA/PACIFIC OPMET MANAGEMENT TASK FORCE (OPMET/M TF/8)

Bangkok, Thailand, 23 – 25 March 2010

Agenda Item 5a: Future exchange and reception of OPMET information
Update on XML coded OPMET information

REVIEW STATUS OF OPMET DATA REPRESENTATION

(Prepared by the Secretariat)

SUMMARY

This paper provides an attached report that describes the status of Extensible Mark-up Language (XML) developments and possible future migration.

1. INTRODUCTION

1.1 The WMO Commission for Aeronautical Meteorology (CAEM)/Commission for Basic Systems (CBS) Expert Team on the OPMET Data Representation was held in Paris, France on 26 October 2009. The full report may be accessed at http://www.wmo.int/pages/prog/www/WDM/ET-ODR-2/Documents.html.

2. XML DEVELOPMENTS AND TIMELINES

2.1 The report on attendance is attached and provides information on XML developments with regards to the pilot test of METAR/TAF exchange and future timelines of further developments, endorsements and possible migration. The attached paper was produced by the ICAO Chief of Meteorology/Aeronautical Information Management Section, Dr. Olli M. Turpeinen.

3. ACTION BY THE MEETING

3.1 The meeting is invited to review the contents of the attached report.

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Review Status of OPMET Data Representation

REPORT ON ATTENDANCE AT THE WMO COMMISSION FOR AERONAUTICAL METEOROLOGY (CAEM)/ COMMISSION FOR BASIC SYSTEMS (CBS) EXPERT TEAM ON THE OPMET DATA REPRESENTATIOIN

Paris, France, 26 October 2009

by

ICAO representative (as observer):
Dr. Olli M. Turpeinen, Chief,
Meteorology/Aeronautical Information Management Section,
Air Navigation Bureau

1. GENERAL

1.1 Purpose of the meeting

1.1.1 In accordance with Doc 7475, *Working Arrangements between the International Civil Aviation Organization and the World Meteorological Organization*, WMO is the organization responsible for developing aeronautical MET codes and data representation (which are to be based on aeronautical requirements stated by ICAO). During the next ten years, it may be expected that all the codes used today for operational meteorological (OPMET) data will be replaced by Extensible Mark-up Language (XML), which will be the code used also in the "weather information exchange model (WXXM)", an essential enabler for the NexGen/SESAR Programmes; therefore planning for the foreseen code/data representation change must be undertaken by WMO. The meeting dealt with this change as far as METAR/SPECI and TAF are concerned.

1.2 Purpose of the attendance

1.2.1 The purpose of attendance was to harmonize the migration plans within ICAO and WMO related to the use of the XML for OPMET data, in order to ensure that the specific needs of aviation are taken into account.

1.2.2 The objectives of ICAO were met since:

a) WMO would pursue work on XML, including the development of necessary provisions for an across-the-board use of XML for OPMET data, in view of their inclusion in the *Manual on Codes* (WMO – No. 306); and

b) WMO road map related to the development of XML-related provisions was rendered compatible with ICAO plans (i.e. the use of the WXXM of the NextGen/SESAR Programmes).

1.3 Agenda of the meeting

1.3.1 The agenda of the meeting is in the attachment to this report.

1.4 **Attendance**

1.4.1 The meeting was attended by two participants from two WMO Member States (representing the Commission for Basic Systems (CBS) and Commission for Aeronautical Meteorology (CAeM)), two members from the WMO Secretariat and by one observer from ICAO.

2. REPORT ON DISCUSSIONS

2.1 A concise report is available at the following website:

http://www.wmo.int/pages/prog/www/WDM/ET-ODR-2/Documents.html

A summary of the main points of discussion on items of interest to ICAO is given below.

2.2 Development of the pilot project for the presentation of OPMET data in XML (Agenda Item 2)

2.2.1 The pilot project had been undertaken by Belgocontrol on 23 July 2009, in close coordination with WMO. During the project, Belgocontrol had sent simple METAR messages (i.e. with no trend forecasts) to Lido (Lufthansa) and Hong Kong Observatory (Hong Kong, China); the messages had been dispatched through the NATS (United Kingdom), Singapore COM Centre (Singapore) and Bangkok AFTN Centre (Thailand). The limit of 1 800 characters imposed by the aeronautical fixed telecommunication network (AFTN) had not been exceeded.

2.2.2 The purpose of the pilot project had been to demonstrate the feasibility of sending METAR, coded in XML, on the AFTN and for the receiver to visualize the message in the form prescribed in Annex 3, i.e. as if it were an alphanumeric message. The results were considered successful: the METAR messages displayed by the receiver in Hong Kong, China were identical to the ones sent by the originator, Belgocontrol. The pilot project demonstrated that the AFTN can indeed be used for disseminating XML-coded messages, provided that:

c) the full IA-5 character set be supported by the aeronautical fixed service (AFS) equipment; and

d) the messages be kept small (less than 1 800 characters).

2.2.3 The group realized that the model used for creating the XML-coded METAR messages exchanged during the pilot project had been based on BUFR templates developed earlier by WMO. In the future, however, the operational OPMET data exchanges would be based on the NextGen/SESAR WXXM.

2.2.4 The ICAO Observer expressed ICAO's gratitude to Belgocontrol, WMO Secretariat and the other services involved in organizing and undertaking this important pilot project which would pave the way for the future migration to the use of the WXXM.

2.3 Models for the representation of OPMET data (Agenda Item 3)

2.3.1 In view of the expected future use of the WXXM, the group considered that there was no need to pursue developing models based on BUFR code tables for the representation of OPMET data in the XML within the ET-ODR.

2.4 **Future work programme (Agenda Item 4)**

2.4.1 The group when considering its future work programme, took into account the following milestones envisaged by ICAO (years in brackets):

a) replacement of the BUFR code form by XML as far as the bilateral use of table-driven codes for METAR/SPECI and TAF are concerned (2013);

b) endorsement of the future use of WXXM by the planned conjoint ICAO/WMO MET/AIM Divisional Meeting (2014);

c) start of implementation of WXXM (2016); and

d) completion of implementation (2019/2022).

2.4.2 The group concurred that a number of steps would be required to enable the above transition. In particular, the following intermediate milestones (completion dates and the responsible organization in brackets) were considered necessary for:

a) Air Navigation Commission to consider the results of the pilot project and to agree that the BUFR code form, used on a bilateral basis for METAR/SPECI and TAF, be replaced by XML as of Amendment 76 to Annex 3 (first half of 2010; ICAO);

b) CBS IPET-MDI (Inter-Programme Expert Team on Metadata and Data Interoperability) to undertake further tests using various models, including the WXXM, and to prepare documentation for the CBS-Ext. (2010) (second half of 2010; WMO);

c) CBS-Ext.(2010) to endorse the XML model(s) for MET data in general, including OPMET, and to agree that WMO be responsible for the future governance and maintenance of these data models (second half of 2010; WMO);

d) WMO Executive Committee to approve the use of the XML model(s) (first half of 2011; WMO); and

e) CBS IPET-DRC (Inter-Programme Expert Team on Data Representation on Codes) to begin the maintenance of the data models, ensuring that an appropriate provisions and/or references be included in the *Manual on Codes* (WMO – No. 306) (second half of 2011; WMO).

2.4.3 In view of the above, the group concluded that the ET-ODR had attained its objectives (by completing the successful pilot project) and that its work could thus be discontinued. A CAeM Member, Bart Nicolai would continue to be the focal point with the CBS IPET- MDI. It was agreed that the ET-ODR could be re-activated in the future, when necessary.

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ATTACHMENT

AGENDA FOR THE WMO COMMISSION FOR AERONAUTICAL METEOROLOGY (CAEM)/ COMMISSION FOR BASIC SYSTEMS (CBS) EXPERT TEAM ON THE OPMET DATA REPRESENTATIOIN

(Paris, France, 26 October 2009)

1. ORGANIZATION OF THE MEETING

2. DEVELOPMENT OF THE PILOT PROJECT FOR THE PRESENTATION OF OPMET DATA IN XML

3. MODELS FOR THE REPRESENTATION OF OPMET DATA

4. FUTURE WORK PROGRAMME

5. CLOSURE OF THE MEETING

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