International Civil Aviation Organization

THE FIFTH MEETING OF AERONAUTICAL TELECOMMUNICATION NETWORK (ATN) IMPLEMENTATION CO-ORDINATION GROUP OF APANPIRG (ATNICG/5)

Kuala Lumpur, Malaysia, 31 May – 4 June 2010

Agenda Item 16: Any other Business

MIGRATION TOWARDS THE USE OF TABLE DRIVEN CODES FOR OPMET

(Presented by the Secretariat)

SUMMARY

Based on WMO recommendations, BUFR code was adopted for exchange of METAR/SPECI and TAF as a part of implementation of table-driven codes. Implementation of BUFR code was shelved pending WMO decision on using XML code instead. Usage of XML code for exchange of OPMET information has now been validated. Paper presents the status of deployment of XML and invites the meeting to assess if AMHS can be used for exchange of MET data on XML.

1. Introduction

1.1 In response to MET Divisional Meeting (2002) Recommendation 2/5 inviting the World Meteorological Organization (WMO) to develop a migration plan to use table-driven codes for the dissemination of METAR/SPECI and TAF, the WMO Commission for Basic Systems developed a migration plan that ultimately led to the global implementation of binary universal form (BUFR) for the representation of meteorological data. The development was included in Amendment 77 to Annex 3 – *Meteorological Service for International Air Navigation* that would become operational in November 2016.

1.2 In addition, the first stage of that migration plan to exchange METAR/SPECI and TAF under voluntary bilateral agreement between States using BUFT code-form was adopted by ICAO Council (C-Min. 180/3) as a part of Amendment 74 to Annex 3, applicable on 7 November 2007.

1.3 Subsequently, the Commission agreed (AN Min. 176-4) that Secretariat should suspend all the work on migration to the BUFR code-form until the results of a study being carried out by a WMO Expert Team on the use of XML for the dissemination of METAR/SPECI and TAF were known. This action was taken in response to the concerns expressed regarding the possible negative economic, operational and safety impacts of the migration and in particular to the fact that the aeronautical fixed telecommunication network (AFTN), the existing communication system in use was unable to handle binary codes such as BUFR, as raised by European Air Navigation Planning Group (EANPG) through its Conclusions 45/12 and 47/27 and by APNPIRG through its Conclusion 17/39.

2. Discussion

2.1 In response to the concerns raised by ICAO regarding the use of table driven codes for exchange of meteorological data in general and BUFR in particular, WMO Commission for Basic Systems (CBS) and Aeronautical Meteorology (CAeM), in coordination with ICAO, jointly established an Expert Team on Operational Meteorological (OPMET) Date Representation (ET-ODR). ET-ODR carried out a successful pilot project ("proof of concept") on the use of XML for the purpose during 2009. There was a strong consensus that an overall migration of all OPMET information was expected towards a weather information exchange model (WXXM) essentially based on the use of extensible mark-up language or XML. The WXXM is expected to form an integral component of both the United States Federal Aviation Administration (FAA) NextGen and European Organization for Safety of Air Navigation (EUROCONTROL) SESAR programmes.

2.2 The most recent meeting of the ET-ODR held in Paris, France on 26 October 2009 agreed that the following major milestones would be necessary in order to complete a successful migration to WXXM including the use of XML:

a) Replacement of BUFR code-form by XML as far as the bi-lateral use of table-driven codes for METAR/SPECI and TAF are concerned (Amendment 76 to Annex 3, applicable 2013);

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

c) Start of implementation of WXXM (Amendment 77 to Annex 3, applicable 2016); and

d) Completion of implementation of WXXM (Amendment 78 and 79 to Annex 3, applicable 2019, 2022 respectively)

2.3 It may be noted that although the current AFTN is able to handle non-binary codes such as XML, the likely data volumes involve in the creation of a WXXM (and thus the supporting data functions of both NextGen and SESAR) would pose the requirement of considerable communication capacity issues for the systems that are currently available.

2.4 Issues mentioned above were raised with the ICAO Air Navigation Commission by Director, Air Navigation Bureau through a Working Paper (AN-WP/8475) and the Commission was invited to agree that the work relating to the migration to the table-driven codes be resumed with specific regard to the use of a weather information exchange model (WXXM) based on the use of XML.

3. Action Required

3.1 The meeting is invited to:

a) note the developments that have taken place in the adoption of table-driven codes for the exchange of meteorological information;

b) note that though AFTN, the existing medium of communication for meteorological information can be used for exchange of messages in XML code but excessive capacity requirement may become a handicap; and

c) assess if usage of AMHS for exchange of meteorological information over XML will mitigate all the problems of communication