



THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

Agenda Item 2: Enabling the global air navigation system

2.3: Future provision of aeronautical meteorological service

IMPACT ASSESSMENT ON FLIGHT DISPATCH SYSTEMS WITH THE DEPLOYMENT OF IWXXM FOR THE ISSUE AND EXCHANGE OF AERONAUTICAL METEOROLOGICAL INFORMATION

(Presented by the International Federation of Airline Dispatchers Associations (IFALDA))

EXECUTIVE SUMMARY

ICAO provisions and implementation guidance governing the development of ICAO meteorological information exchange model (IWXXM) Standards and Recommended Practices (SARPs) have taken on a rapid deployment pace. Many States reportedly remain unaware of these provisions for their planning and implementation purposes, while others are in fairly advanced stages in meeting the 2020 deadline. Air operators and their designated dispatch functions however are yet to appreciate the impact that these impending changes will carry on their systems, processes and flights. Being one of the primary end-users of meteorological services for international air navigation, the airline dispatch community remains concerned at the impact that impending SARPs for IWXXM format and the associated discontinuity of the same information in the traditional alpha-numeric code (TAC) format will carry on global acceptability and internationally harmonized services. Finally, the compatibility and use of the IWXXM format in airline operations centers needs to be reviewed for adaptability and use in final dispatch products and its impact on data quality assurances for safety services.

Action: The Conference is invited to agree to the recommendation in paragraph 3.2.

1. INTRODUCTION

1.1 The flight dispatcher can be casually referred to as the third pilot - on the ground. Annex 6 — *Operation of Aircraft* defines the role of a flight dispatcher/flight operations officer as one who “supports, briefs and/or assists the pilot-in-command in the safe conduct of the flight”. Annex 1 - *Personnel Licensing* defines the personnel & licensing requirements which include training and competency, knowledge, experience and skills. Annex 6 is explicit in the duties of flight dispatchers to cover normal operations whereby the pilot in command is assisted with flight preparation and assembling and filing the operational flight plan. When stated in the airline operations manual, the dispatcher is also responsible for inflight support for the safe conduct of flight. In any event, Annex 6 also requires airline operations manuals to provide clear and unambiguous procedures so that Dispatchers can initiate emergency procedures and convey safety related information.

1.2 Assignment of flight dispatcher duties as contained in Annex 6, Chapter 10 prescribe operator-specific training, qualification flights, and demonstration of knowledge to the aircraft operator. A large part of that knowledge as it relates to operator's area of responsibility and the dispatcher's individual authority to exercise flight supervision are related to a good understanding, application and use of meteorological data.

1.3 The availability and use of aeronautical meteorological services in an airline flight dispatch function plays a central role and is critical to the safety and efficiency of flight. Use varies from planning support to critical decision making functions. Critical flight planning safety decisions are made by dispatchers using their decision making authority related to routings to avoid inclement significant weather events such as hurricanes, volcanic activity, frontal and convective systems to name a few. Efficiency decisions are also made with respect to optimizing 4D flight trajectories (lateral, vertical and speed) through flight planning software that manipulates upper air data forecast at geopotential heights. MET products are also used in compiling flight crew briefing packages that support destination and alternate (enroute and destination) aerodrome planning decisions and fuel load calculations thereof.

1.4 Several airline dispatch systems around the world extend the authority of the flight dispatcher to the operational stage – i.e. while in-flight. In some States such as in Canada and the United States, the aircraft dispatcher carries the sole responsibility to authorize the flight before it can operate and also carries joint responsibility with the pilot-in-command for the overall operation of the flight till landing.

1.5 The above said, IFALDA would like to strongly advocate the principle and intention of Annex 6, Part 1, Chapter 3.1. Any Member State that implements a flight dispatch system, regardless of job titles they assign, must follow the competency, qualification, training and standards of a flight dispatch system as prescribed in Annex 1.

2. DISCUSSION

2.1 Airline dispatchers rely entirely on ICAO Annex 3 — *Meteorological Service for International Air Navigation* defined aeronautical meteorological services and products based on a globally harmonized set of Standards and protocols governing production, dissemination and exchange of information. Moreover, airline dispatchers are trained, qualified and licensed to read and process traditional alpha-numeric code (TAC) products and chart renderings.

2.2 As flights operate across multiple flight information regions (FIRs), airports and airspace jurisdictions, dispatchers ever more so stand to be impacted by any significant impact or changes in requirements, formats, distribution and compilation in meteorological products & data, MET being the cornerstone of safe flight operations. The ICAO meteorological information exchange model (IWXXM) in particular, using extensible markup language (XML)/geography markup language (GML) introduces a major shift in the manner by which flight dispatch activities are currently run and the impact on the cognitive capabilities on dispatchers for the training, standard operating procedures and work practices in using this new data format is significant.

2.3 Effective with Amendment 76 to Annex 3, ICAO introduced a Recommended Practice for the exchange of aerodrome routine meteorological report (in meteorological code form (METAR), aerodrome special meteorological report (in meteorological code form) (SPECI), aerodrome forecast (in meteorological code form) (TAF) and SIGMET information with a view to it becoming a Standard in 2020. The requirement entails that it is done in digital format under bilateral agreements between individual States and those in a position to do so. The SARP also includes Volcanic Ash Advisory (VA

Advisory), Tropical Cyclone Advisory (TC Advisory) and AIRMET in IWXXM format as also operational meteorological (OPMET) data.

2.4 Central to these changes is that a globally interoperable information exchange model be built and that it shall use XML/ GML. The IWXXM provides such a logical data model for promulgation and exchange of aeronautical meteorological data in support of international air navigation (*Manual on the Digital Exchange of Aeronautical Meteorological Information* (Doc 10003) refers).

2.5 It is also understood that in doing so, States through their local MET agencies are likely to encounter several difficulties in producing and disseminating such information. These range from the incompatibility of the legacy aeronautical fixed telecommunication network (AFTN) due to size and character set and requiring an extended ATS message handling system (AMHS). The linkups between the MET service provider and the air navigation services provider (ANSP) at this point is unknown and whether this link-up would be facilitated with an extended AHMS connection could add to the complexity.

2.6 It is also understood that ICAO States could be at varying stages of preparation towards meeting the 2020 SARP process for IWXXM deployment and exchange of OPMET information, some not having yet started the planning process, while others might be closer to an operational system.

2.7 Moreover a large degree of complexity arises in relation to the area of international dispatch, given that the IWXXM Standards are jointly developed by ICAO and the World Meteorological Organization (WMO), the latter governing delivery of State meteorological services. Not only are the changes in Standards required to two UN organizations complex but are lengthy. A non-harmonized implementation of IWXXM will impact flight dispatch and in turn flight crew significantly.

2.8 Further, that those States that are unable to transition to IWXXM at the local level will necessarily be required to translate TAC-formatted information into IWXXM format for the purpose of data exchange is problematic for the global airline dispatch community as whole. A situation that in most certainty would cause the airline flight dispatch function to be “left behind” under these circumstances while States plan to migrate to IWXXM as is the intention of the SARPs.

2.9 It is also understood that some States have not yet made a determination on the designated entities entrusted with the generation of OPMET information in IWXXM. Questions whether it would be the meteorological service provider, the ANSP, the Regional OPMET Databank (RODB) or perhaps from another State?

2.10 The transition from TAC to a universal system-wide information management (SWIM) compliant IWXXM format can in itself result in an incompatibility within a SARP compliant State where domestic weather information will continue to be provided in the TAC format. This creates a logistical challenge in effort and resources to States for TAC to IWXXM conversion but also creates two different data formats and products for flight dispatchers to deal with at their desks.

2.11 Unlike the more advanced domains of the ATS world such as the EU/ECAC States, Eurocontrol and the United States, airlines awareness of SWIM-compliant ICAO products such as aeronautical information exchange model (AIXM) and flight and flow information for a collaborative environment (FF-ICE) is only surfacing in dispatch centers. Awareness is low and acceptance into daily work practices is even lower. That ICAO is mandating (via SARPs) that all MET information in TAC format currently in Annex 3 be discontinued globally in 2020 by all member States can be considered aggressive in terms of timelines but also that plans if any for dispatch desks to work with direct XML feeds are both limited and challenging with consequences unknown at this stage.

2.12 The majority of the world's airlines dispatch desks currently stands with limited exposure to and even lesser access and use for weather information via SWIM-enabled systems. On the flight planning side, the data is accessed through vendor software and if anything, the benefits of XML and GML are 'dumbed down' to mimic the legacy TAC formatted data. The incompatibility between IWXXM and TAC use by domestic dispatchers is further exacerbated due to possible corruption of IWXXM back to TAC, as there is no assurance that the conversion will create the same content as the original TAC and users have no way to identify the original TAC from converted TAC when they differ.

2.13 Finally, with the proliferation of commercial MET service providers leveraging such data feeds to market commercial products to airlines, it begs the question to ensure if adequate standards for data quality and accuracy exist and that safeguards are needed through State agencies that would otherwise be present in TAC data. The commercial implications of rising costs will also compromise on what is eventually "affordable" by an airline's financial outlays to its Dispatchers within electronic tools to carry out their safety related activities in flight planning and exercising operational control. Consideration also needs to be given for regulatory approval to operators in order to use IWXXM/SWIM data for operational aeronautical decision-making by dispatchers and pilots.

3. CONCLUSION

3.1 To ensure the smooth transition of a globally safe and harmonized deployment with this major migration from the traditional alpha-numeric code (TAC) data to the IWXXM format, ICAO needs to equally consider the incompatibility and lack of preparedness of airline dispatch offices worldwide to fully understand the impending changes and the transition and adaptation process consequently required. While States proceed towards an irreversible transformation towards IWXXM, flight dispatch is unlikely to comply with these changes at an equal pace and so that there is "no airline left behind". The risk of the inability of some States and their associated WMO backed MET offices will exacerbate the problem for airline dispatchers further. The incompatibility of continued use of domestic TAC products on the one hand and the use of IWXXM for international flights on the other will further increase the complexity of working with MET products for the principle goal of ensuring flight safety. That the XML/GML data feed will now open new commercial opportunities to the industry will require oversight by ICAO to cover for liability issues affecting flight safety and other commercial implications thereof.

3.2 In view of the above, the Conference is invited to agree to the following recommendations:

Recommendation 2.3/x — Further Development of IWXXM for the Exchange of Aeronautical Meteorological Information

That the Conference:

- a) request ICAO in close collaboration with its member States and WMO affiliates to promote awareness of the changes brought about by the IWXXM data format, production, dissemination and data exchange among aircraft operators;
- b) request ICAO through its member States and Regional Offices to survey and publish a list of States that will be fully compliant with the 2020 Annex 3 SARPs; and
- c) propose a means to ensure adequate safeguards in data quality and cost control with commercial services as end-providers of data products replacing current TAC products