



International Civil Aviation Organization

**The First Meeting of the APANPIRG ATM Sub-Group  
(ATM /SG/1)**

Bangkok, Thailand, 20 – 24 May 2013

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**Agenda Item 6: AOP, MET, AIM, SAR**

**MET ISSUES RELEVANT TO ATM**

(Presented by the Secretariat)

**SUMMARY**

This working paper addresses issues concerning aeronautical meteorology that are relevant to ATM, including issues addressed through the regional MET sub-group of APANPIRG and other global MET groups.

This paper relates to –

**Strategic Objectives:**

A: *Safety – Enhance global civil aviation safety*

C: *Environmental Protection and Sustainable Development of Air Transport – Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment*

**Global Plan Initiatives:**

GPI-19 Meteorological Systems

**1. INTRODUCTION**

1.1 Under its terms of reference, APANPIRG is responsible for the development of the APAC regional air navigation plan and other relevant regional documentation and for the facilitation of systems and services to support international air navigation in the APAC region. The Meteorology Sub Group (MET SG)<sup>1</sup> (of APANPIRG) oversees and coordinates those aspects of the APANPIRG work plan that relate to the exchange and use of meteorological information in the APAC region.

1.2 Within the structure of APANPIRG, the MET SG coordinates regional exchange and use of meteorological information – including OPMET information (such as METAR/SPECI, TAF, SIGMET), World Area Forecast System (WAFS), meteorological advisories and warnings, and meteorological information tailored to meet the regional needs of ATM – through a network of smaller expert groups formed to address the specific tasks. These groups are known as the Regional OPMET Bulletins Exchange Working Group (ROBEX WG)<sup>2</sup>, WAFS Task Force (WAFS TF)<sup>3</sup>, Meteorological Hazards Task Force (MET/H TF)<sup>4</sup> and the Meteorological Requirements Task Force (MET/R TF)<sup>5</sup>.

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<sup>1</sup>Formerly part of the Communications, Navigation and Surveillance/Meteorology APANPIRG Sub-Group

<sup>2</sup>Formerly the OPMET/M TF

<sup>3</sup>Formerly the WAFS/I TF

<sup>4</sup>Formerly the METWARN/I TF

<sup>5</sup>Formerly the MET/ATM TF

1.3 APANPIRG and its contributory bodies are primarily focused on regional planning and implementation issues. Global ICAO groups in the MET field provide coordination on a number of planning, implementation and development issues from a global and inter-regional perspective. The global groups include the: International Airways Volcano Watch Operations Group (IAVWOPSG), Meteorological Warnings Study Group (METWSG), Aerodrome Meteorological Observation and Forecast Study Group (AMOFSG), Satellite Distribution System Operations Group (SADISOPSG) and World Area Forecast System Operations Group (WAFSOPSG).

1.4 The outcomes of these global groups typically drive the formulation and adoption of amendments to the ICAO standards and recommended practices concerning meteorological information contained in Annex 3 – *Meteorological Service for International Air Navigation* and the development of related guidance material in the MET field for implementation by the regional groups. In addition, a Meteorological Aeronautical Requirements and Information Exchange Project Team (MARIE-PT) is assisting the Secretariat, at a global level, in the determination of ATM requirements for MET information and in the transition of MET information to a digital form to support the future system-wide information management (SWIM) environment.

## 2. DISCUSSION

### Current MET issues relevant to ATM

2.1 A number of issues concerning aeronautical meteorology that are relevant to ATM, including issues addressed through the regional MET sub-group of APANPIRG and other global MET groups, include:

- a) Proposal for a MET Divisional Meeting (planned for July 2014)
- b) Adoption of Amendment 76 to Annex 3 (applicability 14 November 2013)
- c) Digital exchange of aeronautical meteorological information
- d) Improved issuance of SIGMET
- e) Cessation of WAFS gridded global forecasts in WMO GRIB Edition 1 code form in view of the availability of superior WAFS forecasts in WMO GRIB 2 code form
- f) Quality management of aeronautical meteorological service provision
- g) Space Weather

### MET Divisional Meeting

2.2 ICAO is proposing to convene a Meteorology (MET) Divisional Meeting in 2014 at ICAO Headquarters, Montreal. Such global meetings are held typically once every twelve years – the last MET Divisional Meeting was in 2002 and prior to that in 1990. The proposed MET Divisional Meeting in 2014 would be held in part conjointly with the Fifteenth Session of the World Meteorological Organization (WMO) Commission for Aeronautical Meteorology (CAeM-XV), including a WMO CAeM Technical Conference.

2.3 Discussions would be held during the proposed MET Divisional Meeting with a view to recommending provisions for the transition from traditional message-based to net-centric provision of meteorological information recognized as a key enabler for the global ATM system within the future SWIM environment. During its 199th Session, the ICAO Council is expected to endorse the convening of a MET Divisional meeting between 7 and 18 July 2014.

### Amendment 76 to Annex 3

2.4 Amendment 76 to Annex 3 – *Meteorological Service for International Air Navigation* was adopted by the Council at the fifth meeting of its 198<sup>th</sup> Session on 27 February 2013. Subject to there being no notifications of disapproval expressed, the Amendment will become effective on 15 July 2013 and applicable on 14 November 2013.

2.4 Significant changes introduced by Amendment 76 to Annex 3 include:

- a) a revised definition of “alternate aerodrome” in relation to extended diversion time operations (EDTO);
- b) proposed changes to WAFS-related provisions that will have a positive effect on efficiency and cost-effectiveness by improving the accuracy of the flight planning information provided by the system;
- c) changes to provisions related to aerodrome observations and forecasts, meteorological warnings and ATM requirements that will contribute to greater levels of safety and provide a basis for the migration to digital information exchange within the future system-wide information management (SWIM) environment; and
- d) changes developed by the IAVWOPSG that will have a positive effect on safety by improving the content of volcanic ash safety-related information.

2.5 Further details concerning the Amendment 76 to Annex 3 can be found in State letter AN10/1.1-13/39.

### Digital exchange of aeronautical meteorological information

2.6 As a precursor to the transition from traditional message-based to net-centric provision of meteorological information, Amendment 76 to Annex 3 (applicability 14 November 2013) will enable the dissemination of OPMET information (initially METAR/SPECI, TAF and SIGMET), under bilateral agreements between States in a position to do so, in digital form.

2.7 The aeronautical meteorological information exchanged in digital form will be required to be formatted in accordance with a globally interoperable information exchange model, known as the ICAO meteorological information exchange model (IWXXM), and will be required to use extensible markup language (XML)/geography markup language (GML).

2.8 Guidance on the information exchange model, XML/GML and the associated metadata profile will be provided in the Manual on the Digital Exchange of Aeronautical Meteorological Information (Doc 10003), currently in development under the guidance of the MARIE-PT with a view to publication in time for the applicability of Amendment 76.

2.9 It is envisaged that the provisions enabling the exchange of OPMET information in digital form being introduced under Amendment 76 to Annex 3 will become a recommended practice in Amendment 77 to Annex 3 (November 2016) and standard in Amendment 78 to Annex 3 (November 2019). The medium term intentions are to also include other types of aeronautical meteorological information (existing and future) in such developments to support the future SWIM environment.

### Improved issuance of SIGMET

2.10 The METWSG is developing a proposal (based on experience gained from the SIGMET advisory trials in Africa and Asia) for presentation at the proposed MET Divisional Meeting for a global or multi-regional SIGMET advisory system that would help improve the level of implementation of SIGMET information.

2.11 The METWSG is also developing generic guidance on the issuance of SIGMET for each ICAO Region to consider for use in their respective SIGMET guides<sup>1</sup> to remove inconsistencies between Regions. A draft of the generic SIGMET guide template will be discussed at the 5<sup>th</sup> meeting of the METWSG in June 2013.

2.12 The ROBEX WG and MET/H TF coordinate and analyze the results of annual SIGMET tests in the APAC Region to facilitate the monitoring of SIGMET availability and the identification of deficiencies in the dissemination procedures. Based on the results of the tests, States are provided with specific advice aimed at improving their SIGMET-related practices and procedures.

### Cessation of WAFS gridded global forecasts in WMO GRIB Edition 1 format

2.13 In accordance with Conclusion 7/10 of the Seventh Meeting of the WAFSOPSG, the World Area Forecast Centre (WAFS) Provider States have been invited to cease the preparation and issuance of WAFS gridded global forecasts in WMO GRIB Edition 1 code form at 0000 UTC on 14 November 2013 in view of the superior temporal and spatial resolution provided by the WAFS gridded global forecasts in WMO GRIB Edition 2 code form.

2.14 WAFS GRIB2 forecasts provide superior temporal and spatial resolution, and broader product specification, when compared to WAFS GRIB1 forecasts, are prepared by the WAFCs in accordance with Amendment 76 to Annex 3 and have been available on the WAFS broadcast since November 2010.

2.15 Users of the satellite distribution system for information relating to air navigation (SADIS) or of the WAFS Internet File Service (WIFS) are urged to migrate to receiving, decoding and using the WAFS gridded global forecasts in WMO GRIB Edition 2 code form as soon as possible, if not already done so. Users requiring assistance in the migration to WAFS gridded global forecasts in WMO GRIB Edition 2 code form are requested to contact the WAFS Provider States or appropriate WAFS workstation software provider. Further details concerning the cessation of WAFS gridded global forecasts in WMO GRIB Edition 1 code form can be found in State letters AN10/3.1-13/2 and AP029/13 (MET).

### Quality management of aeronautical meteorological service provision

2.16 The provisions in Annex 3 concerning quality management of meteorological information became a Standard as of 15 November 2012 requiring that each Contracting State shall ensure that the designated meteorological authority establishes and implements a properly organized quality system comprising procedures, processes and resources necessary to provide for the quality management of the meteorological information to be supplied to the designated users.

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<sup>1</sup> The APAC Regional SIGMET Guide provides guidance for preparation and issuance of SIGMET information; it is complementary to Annex 3 SARPs and related provisions of the APAC Regional Air Navigation Plan

Space Weather

2.17 In addition to its principle function for overseeing the operation and the development of the international airways volcano watch (IAVW), the IAVWOPSG is also overseeing the development of operational requirements for space weather products intended for international air navigation flight planning purposes and proposed for inclusion in Amendment 77 of Annex 3 (applicability November 2016). Guidelines/guidance to support potential future provisions on space weather is also under development.

2.18 A draft concept of operations for the provision of space weather information in support of international air navigation is intended to be finalized in time for the proposed MET Divisional Meeting (July 2014).

**3 ACTION BY THE MEETING**

3.1 The meeting is invited to discuss the information contained in this paper.

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