



*International Civil Aviation Organization*

**THIRD MEETING OF THE METEOROLOGICAL REQUIREMENTS  
TASK FORCE (MET/R TF/3)**

28 – 29 November 2013, Bangkok, Thailand

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**Agenda Item 2: Review:**

b) Other relevant meetings

**REVIEW OF OTHER RELEVANT MEETINGS**

(Presented by the Secretary)

**SUMMARY**

This paper presents a brief summary of some of the outcomes from other relevant meetings of interest to the MET/R TF including MARIE-PT/2 and ATMRPP WG/WHL/17 as well as IAVWOPSG/7, SADISOPSG/18, METWSG/5 and WAFSOPSG/8. Additionally, an introduction is provided to the MET Divisional Meeting to be held in July 2014, which will address issues vital to the current and future provision of aeronautical meteorological services.

**1. Introduction**

1.1 The Second Meeting of the Meteorological Aeronautical Requirements and Information Exchange Project Team (MARIE-PT/2) was held in Brussels, Belgium, from 6 to 8 March 2013. Agenda items discussed by MARIE-PT/2 included air traffic management (ATM) requirements for aeronautical meteorological (MET) information, the digital representation of MET information and coordination with the ATMRPP.

1.2 The ATM Requirements and Performance Panel Working Group of the Whole Seventeenth Meeting (ATMRPP WG/WHL/17) was held in Montréal, Canada, from 21 to 25 October 2013. The meeting reviewed the development of a draft concept of operations and roadmap for MET information to support trajectory-based operations, which could be used to develop the appropriate service level expectations (requirements and capabilities) for MET information.

1.3 The Seventh Meeting of the International Airways Volcano Watch (IAVW) Operations Group (IAVWOPSG/7) was held in Bangkok, Thailand, from 18 to 22 March 2013. The meeting addressed issues concerning ICAO provisions related to the IAVW, the operation and development of the IAVW, the accidental release of radioactive material into the atmosphere and the need to provide information on solar radiation storms and other bio-hazards.

1.4 The Eighteenth Meeting of the Satellite Distribution System Operations Group (SADISOPSG/18) was held in Dakar, Senegal, from 29 to 31 May 2013. The meeting addressed issues concerning the operation of the SADIS, content of the SADIS broadcast, development and long-term planning of the SADIS, and the SADIS User Guide.

1.5 The Fifth Meeting of the MET Warnings Study Group (METWSG/5) was held in Montréal, Canada, from 20 to 21 June 2013. The meeting mainly addressed issues relating to SIGMET and AIRMET information and aerodrome warnings. Significantly, the meeting discussed possible future options for the provision of advisory information on hazardous MET conditions.

1.6 The Eighth Meeting of the World Area Forecast System (WAFS) Operations Group (WAFSOPSG/8) was held in Bangkok, Thailand, from 2 to 5 September 2013. The meeting addressed issues concerning ICAO provisions related to the WAFS, the operation and development of the WAFS and long-term planning of the WAFS implementation.

1.7 Finally, a MET Divisional Meeting of the International Civil Aviation Organization (ICAO) will be held in Montréal, Canada, between 7 and 18 July 2014, in part conjointly with the Fifteenth Session of the World Meteorological Organization (WMO) Commission for Aeronautical Meteorology (CAeM-XV). This meeting will provide the international civil aviation community the opportunity to address issues vital to the current and future provision of MET services. For further information, a copy of the MET Divisional Meeting agenda is provided in **the Attachment** to this paper.

## 2. Discussion

### MARIE-PT/2

2.1 The MARIE-PT, which in coordination with the ATMRPP had developed a draft concept of operations and roadmap for MET information to support trajectory-based operations, agreed in its second meeting on further developments to the draft concept of operations and roadmap in preparation so that the MET Divisional Meeting in 2014 may consider the document for use as the basis for ongoing development of MET requirements and capabilities to support trajectory-based operations. In relation to the development of the roadmap for the migration to the use of MET information in a future system-wide information management (SWIM) environment, MARIE-PT/2 agreed to identify tasks that should be undertaken in order to achieve the stated goals, which would also be presented for further consideration by the MET Divisional Meeting.

2.2 MARIE-PT/2 also agreed on the development of a list of MET products recommended for inclusion in the provisions for digital exchange of MET information as part of Amendment 77 to Annex 3 – *Meteorological Service for International Air Navigation* (with intended applicability in November 2016), in preparation for consideration and possible adoption by the MET Divisional Meeting. The proposed new provisions in Annex 3 would include the upgrade to recommended practice for the digital (XML/GML-based) exchange format for OPMET (METAR, SPECI, TREND, TAF and SIGMET) and the introduction of new recommended practice for the digital exchange of volcanic ash and tropical cyclone advisory information and AIRMET information.

2.3 The supporting documentation from MARIE-PT/2 can be reviewed at the following website: <http://www.icao.int/safety/meteorology/MARIE-PT/Pages/default.aspx>, including the key outcomes from the meeting listed in the “Follow-up table”.

ATMRPP WG/WHL/17

2.4 ATMRPP WG/WHL/17 provided further review and discussion on the draft concept of operations and roadmap for MET information to support trajectory-based operations, which was developed in coordination with the MARIE-PT and was intended to provide guidance to stakeholders to better understand MET information integration in the context of MET support required to improve trajectory-based operations and to form a baseline to develop the required provisions. Comments were incorporated from the working group into a baseline version of the document (Edition 00.01.00) subsequently endorsed by the ATMRPP in preparation for further consideration and possible adoption as a recommendation by the MET Divisional Meeting in 2014 as the basis for future development of MET information to support trajectory-based operations.

2.5 The supporting documentation from ATMRPP WG/WHL/17 may be reviewed via the ATMRPP website, which is accessible on the ICAO Secure (web) Portal<sup>1</sup>.

IAVWOPSG/7

2.6 Among the outcomes from IAVWOPSG/7 was a conclusion (7/13) for all volcanic ash advisory centre (VAAC) Provider States to be invited to consider the provision of situational awareness information on volcanic activity relative to their area of coverage and ways it can be proactively obtained and presented in a consistent manner to support operators' safety management systems and safety risk assessments.

2.7 In another conclusion (7/17), IAVWOPSG/7 agreed to develop an IAVW roadmap for the provision of information services in support of the ASBU methodology, which would be submitted for further consideration by the MET Divisional Meeting in 2014.

2.8 The meeting adopted a decision (7/25) and conclusion (7/26) endorsing the development of a digital format of the volcanic ash advisory, in XML/GML, for implementation as part of draft Amendment 77 to Annex 3.

2.9 In relation to radioactive material, IAVWOPSG/7 adopted a conclusion (7/37) to further develop the draft concept of operations in support of international air navigation on how best to provide information on the release of radioactive material into the atmosphere with a view to having a mature proposal in time for MET Divisional Meeting.

2.10 In relation to space weather, IAVWOPSG/7 adopted conclusions (7/38, 7/39 and 7/40) to include proposed space weather provisions in draft Amendment 77 to Annex 3, to review guidance material in the document "Space Weather Impacts on International Air Navigation" supporting possible future provisions on space weather, and to further develop the draft concept of operations for the provision of space weather information in support of international air navigation for consideration by the MET Divisional Meeting.

2.11 The supporting documentation and outcomes from IAVWOPSG/7 can be reviewed at the following website: <http://www.icao.int/safety/meteorology/iavwopsg/Pages/default.aspx>.

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<sup>1</sup> Please refer to your State/Organization's ICAO point of contact for access details.

#### SADISOPSG/18

2.12 Outcomes from SADISOPSG/18 included a conclusion (18/16) to forward recommendations developed by the SADISOPSG concerning the provision of the SADIS second-generation satellite distribution system (SADIS 2G) for OPMET information and WAFS forecasts beyond 2015, and other associated developments including the distribution of information on the aeronautical message handling system (AMHS), to the MET Divisional Meeting in 2014 for further consideration and possible adoption.

#### METWSG/5

2.13 Outcomes from METWSG/5 included actions agreed (5/1) to develop a high-level strategic statement relating to the short- and long-term vision for the provision of information for hazardous MET conditions, (5/2) to further develop the concept of operations for a regional SIGMET advisory system for hazardous MET conditions that reflects the views of users and regulatory authorities and the short- and long-term vision stated above; and (5/3) to develop a plan for the future governance and equitable cost recovery of a regional SIGMET advisory system for hazardous MET conditions – all in preparation for consideration by the MET Divisional Meeting in 2014 as the possible basis for further development of information for hazardous MET conditions.

2.14 The supporting documentation and outcomes from METWSG/5 can be reviewed at the following website: <http://www.icao.int/safety/meteorology/metwsg/Pages/default.aspx>.

#### WAFSOPSG/8

2.15 Among the outcomes from WAFSOPSG/8 was a conclusion (8/5) to propose in Amendment 77 to Annex 3 the inclusion of additional flight levels to WAFS forecasts that would improve the ability of operators to meet expected waypoint times and air traffic control (ATC) requests for required time of arrival, which was useful in air traffic flow management (ATFM). Also, the accuracy of the vertical interpolation would be improved not only for flights at the new flight levels, but also during the ascent and descent phase of a flight.

2.16 In another conclusion (8/16), WAFSOPSG/8 agreed to develop a roadmap, in coordination with the MARIE-PT and the ATMRPP, for MET information and integration in the context of the WAFS to take account of trajectory-based operations in support of the ASBU methodology for operational improvements, which would be submitted for further consideration by the MET Divisional Meeting in 2014.

2.17 The supporting documentation and outcomes from WAFSOPSG/8 can be reviewed at the following website: <http://www.icao.int/safety/meteorology/wafsopsg/Pages/default.aspx>.

#### MET Divisional Meeting

2.18 The MET Divisional Meeting in July 2014 will consider the adoption of recommendations that will set forth global objectives and implementation timelines, and direct the course of work for enhancing the provision of MET service to international air navigation for the next decade or more. Some of the recommendations that may be adopted are discussed further, below.

2.19 It's envisaged that the MET Divisional Meeting will adopt a recommendation to ensure the future evolution of MET service provisions are in the spirit of the "One Sky" concept for international air navigation and consistent with the rolling fifteen-year strategy for improvements contained in the Global Air Navigation Plan (GANP) (Doc 9750) framework and aviation system block upgrades (ASBU) methodology.

2.20 Specific recommendations may be adopted for the ongoing development of MET information and MET services in line with the principles of the GANP (e.g., the SADIS, WAFS and IAVW, information on space weather for international air navigation, information on the release of radioactive material into the atmosphere and the implementation of a regional advisory system for select en-route hazardous MET conditions) and for the integration of the information produced by these systems into the future globally interoperable ATM system. The roadmaps developed by the IAVWOPSG and WAFSOPSG could possibly be adopted as the basis for the development of the IAVW and WAFS.

2.21 Recommendations may be adopted to finalize the draft concept of operations and roadmap for MET information to support trajectory-based operations (that was developed by the MARIE-PT and ATMRPP) for use as the basis for further development of ATM requirements and MET service capabilities to support trajectory-based operations, and to use the tasks identified by the MARIE-PT as a basis for enabling the inclusion of aeronautical meteorological information in the future SWIM environment consistent with the GANP.

2.22 In support of a more collaborative and more automated operating environment, recommendations may be adopted to ensure that provisions for MET service support the concept of collaborative decision making and common situational awareness among the ATM community and that human factors consideration are central to the development of MET service provisions, including the visualization of MET information.

2.23 A recommendation may be adopted to undertake advanced planning of the technological requirements and aeronautical MET service capabilities needed to support the implementation of ASBU Block 3 modules, which would support the full integration of aeronautical MET information into a globally interoperable and largely automatic decision making system through the implementation of SWIM.

2.24 Finally, as means to underpin MET service provision in the context of the "One Sky" concept and the rolling 15-year strategy for improvements in the GANP, the MET Divisional Meeting may also adopt a recommendation to (a) restructure Annex 3 and (b) develop a *Procedures for Air Navigation Services — Meteorology* (PANS-MET) document, to be effected in conjunction with Amendment 78 to Annex 3.

2.25 All supporting documentation for the MET Divisional Meeting will be posted on the following website: [www.icao.int/meetings/METDIV14](http://www.icao.int/meetings/METDIV14).

### **3. Action by the Meeting**

3.1 The meeting is invited to:

- a) note the information contained in this paper and
- b) discuss any relevant matters as appropriate.

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## METEOROLOGY DIVISIONAL MEETING (2014)

### AGENDA

Agenda Item 1: Supporting the “One Sky” concept through the enhancement of meteorological service for international air navigation

- 1.1: The Global Air Navigation Plan (GANP) — a framework for global planning
- 1.2: Realizing the “One Sky” concept through the GANP framework and Aviation System Block Upgrade (ASBU) methodology
- 1.3: The meteorological (MET) component of the ASBU methodology
- 1.4: The need for a restructuring of Annex 3/Technical Regulations [C3.1] and the development of a new PANS-MET to underpin the “One Sky” concept

Agenda Item 2: Improving the safety and efficiency of international air navigation through enhanced meteorological service provision

- 2.1: Enhancement of existing meteorological service provision to support current strategic, pre-tactical and tactical operational decision-making (including ASBU Module B0-AMET)
- 2.2: Enhanced integrated meteorological information to support strategic, pre-tactical and tactical operational decision-making from 2018 (including ASBU Module B1-AMET)
- 2.3: Enhanced integrated meteorological information to support strategic, pre-tactical and tactical operational decision-making from 2028 (including ASBU Module B3-AMET)
- 2.4: Collaborative decision-making and common situational awareness – automation and human-factors considerations

Agenda Item 3: Integrating meteorological information exchange developments into the future system-wide information management environment

- 3.1: Meteorological information exchange developments in support of future international air navigation requirements
- 3.2: Integration of meteorological information in the future system-wide information management (SWIM) environment through the development of new forms of data representation

Agenda Item 4: Institutional issues

- 4.1: Review of the working arrangements between ICAO and WMO (Doc 7475)
- 4.2: Other institutional issues

Agenda Item 5: Standards, Recommended Practices and Procedures

- 5.1: Amendment 77 to Annex 3/Technical Regulations [C3.1]
- 5.2: Proposed *Procedures for Air Navigation Services — Meteorology* (PANS-MET, Doc xxxx), First Edition (not later than 2019)
- 5.3: Consequential amendments, if any, to other Annexes or PANS