

Nineteenth Meeting of the Cross Polar Trans East Air Traffic Management Providers' Work Group (CPWG/19)

(Tokyo, Japan 11-15 May 2015)

Agenda Item 3: Summary of Pertinent Issues from the ANSPs Meeting and Other Relevant Meetings

Outcomes from 2014 ICAO MET Divisional Meeting Pertaining to Space Weather and Volcanic Ash

(Presented by the United States)

SUMMARY

This paper presents information on the outcomes of ICAO's Meteorology Divisional Meeting (2014) (MET/14) pertaining to developments for Space Weather and Volcanic Ash services in support of international air navigation.

1 Introduction

1.1. The International Civil Aviation Organization (ICAO) convened the Meteorology Divisional Meeting (2014) (MET/14) in Montreal, Canada from 9 July 2014 through 18 July 2014. The meeting was held part conjointly with the World Meteorological Organization's (WMO) Fifteenth Session of the Commission for Aeronautical Meteorology (CAeM-15).

1.2. MET/14 meeting was attended by 293 participants from 89 States and seven (7) international organizations.

1.3. MET/14 produced twenty-nine (29) recommendations serving as future guidance and direction for all aviation meteorological programs. Details of the meeting including summary discussion and recommendations can be found in the MET/14 final report: Doc 10045 – *Meteorology (MET) Divisional Meeting (2014)*.

1.4. This Information Paper summarizes the outcomes of MET/14 pertaining to developments for Space Weather and Volcanic Ash services in support of international air navigation.

2 Discussion

2.1. Space Weather

2.1.2 Three (3) member States, Australia, China and United States, and two (2) organizations, CANSO and WMO, presented Working Papers (WP) on space weather. Most of the papers addressed proposed service and organizational concepts for the meeting to consider. The draft *Concept of Operations for Space Weather Information Services* was presented as Information Paper 4 (IP/4).

2.1.2 Taking into account the advice of WMO, including the WMO Inter-Programme Coordination Team on Space Weather (ICTSW) and others concerned, the meeting was of the view that space weather information services which serve international air navigation should be organized through the establishment of an optimal number of global canterers (for solar radiation storms and solar flares, as well as for geomagnetic storms and ionospheric disturbances at the predictive stage) augmented by an optimal number of regional canterers (for geomagnetic storms and ionospheric disturbances at the observation stage). The meeting agreed that the roles, requirements and capabilities of the global and regional centers (together with the optimal number of centers) had not been fully elaborated. The meeting agreed therefore that further consideration should be given to the aforementioned, including the development of a process for the designation of global and regional centers, their governance (including cost recovery for provision of service and competency standards) and duration of mandate. Furthermore, the overall understanding of how space weather information would be used needed to be elaborated in detail and appropriately reflected in appropriate documentation for space weather.

2.1.3 In view of the foregoing, the meeting agreed to not include draft initial provisions in the draft Amendment 77 to Annex 3 in view of the need for the further development of service requirements and capabilities and any additional related guidance material. However, the meeting agreed that ICAO should work towards enabling space weather services for aviation by developing Annex 3 provisions for inclusion in 2018 (i.e. ASBU Block 1).

2.1.4 The meeting formulated the following recommendation:

Recommendation 2/7— Development of provisions information concerning space weather

That an appropriate ICAO expert group, in close coordination with WMO, be tasked to develop provisions for information on space weather to international air navigation consistent with the Global Air Navigation Plan (GANP) (Doc 9750), including the integration of the information produced into the future system-wide information management (SWIM) environment underpinning the future globally interoperable air traffic management system, specifically addressing:

- a) requirements for space weather information services consistent with the draft concept of operations for space weather information services;
- b) selection criteria and associated capability for the designation of global and regional space weather centers, including the optimum number thereof;
- c) appropriate governance and cost recovery arrangements for the provision of space weather information services on a global and regional basis; and
- d) considerations on the use of space weather information and the various impacts space weather events could have on international air navigation.

2.2. Volcanic Ash

2.2.1 Only one (1) paper specifically addressed volcanic ash, which was WP/6, by the Secretariat, which presented the *Roadmap for International Airways Volcano Watch IAVW) in Support of International Air Navigation*, as well as proposed one recommendation relating to the IAVW. The roadmap was included in the final report to the MET/14 meeting under Appendix C.

2.2.2 The meeting noted the significant enhancements of the IAVW since the Meteorology Divisional Meeting in 2002 (MET/02) including the development of a roadmap to facilitate the future requirements for the IAVW. The meeting noted that, in line with the future evolution of the GANP, it was to be expected that the roadmap for the IAVW would evolve through the coming years to ensure that service levels fulfil current and future needs. The meeting therefore agreed that it was vital that the IAVW continue to evolve in line with the GANP and that the information produced within the framework of the IAVW should be integrated into the future SWIM environment. The meeting agreed that the roadmap provided in the final report of MET/14 as Appendix C should be used as a basis for the development of the future requirements of the IAVW.

2.2.3 The meeting formulated the following recommendation accordingly:

Recommendation 2/6— Further development of the international airways volcano watch (IAVW)

That an appropriate ICAO expert group, in close coordination with WMO, be tasked to further develop the requirements for the international airways volcano watch (IAVW) consistent with the Global Air Navigation Plan (GANP) (Doc 9750), including the integration of the information produced by the system into the future system-wide information management (SWIM) environment underpinning the future globally interoperable air traffic management system using, as a basis, the roadmap provided at Appendix C.

2.3. The above recommendations were agreed by the Air Navigation Commission and are part of the development of the job cards to be assigned to the newly established MET Panel to work operational solutions. Note the METP recently met to organize themselves into working groups to address not only these recommendations but other issues assigned to them.

3 Recommendation

3.1. The Meeting is invited to note the information provided in this paper.