



# ICAO

*International Civil Aviation Organization*

## INFORMATION PAPER

### Twenty-fourth Meeting of the Meteorology Sub-group (MET SG/24) of the Asia and Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG)

Web-conference, 16 – 20 November 2020

Agenda Item 3: Planning and monitoring

## ACTIVITIES OF THE ICAO METP WG-MOG IAVW AND WG-MISD VASD

(Presented by New Zealand)

### SUMMARY

This paper presents an overview of the activities of the Meteorology Panel (METP) Working Group on Meteorological Operations Group (WG-MOG) International Airways Volcano Watch (IAVW) Work Stream. Further, a brief summary is provided of the activities of the METP Working Group on Meteorological Information and Service Development (WG-MISD) Volcanic Ash and Sulphur Dioxide (VASD) Work Stream.

## 1. INTRODUCTION

1.1 The METP WG-MOG IAVW work stream met in Washington, D.C. in November 2019, agreeing on fourteen actions to continue progressing the development of the International Airways Volcano Watch. These actions included:

- Progress on the research into the use of infrasound to detect explosive volcanic eruptions.
- Further development of the Roadmap and Concept of Operations (ConOps) of the IAVW.
- Inclusion of re-suspended volcanic ash information in NOTAM and ASHTAM messages.
- Further development of the combined VAAC management report.
- Further development of the Key Performance Indicators for the VAACs.
- Update of the volcanic ash aircraft encounter database.
- Reviewing the volcanic activity report form to ensure that it is easy to use.
- Review of guidance for including volcanic ash deposition information in METAR and TAF.
- Ensure consistency in the use of headers for issuing back-up volcanic ash advisories
- Elevation of the Volcano Observatory Notice for Aviation (VONA) to a recommended practice in Annex 3 and development of guidance on VONA creation and use.

Further detail on the final two actions above are provided for the awareness of the MET SG/24 meeting.

1.2 The WG-MOG IAVW meeting was immediately followed by a meeting of the METP WG-MISD VASD, where work on the development of a quantitative volcanic ash information service was progressed, and the development of a trial global sulphur dioxide information service was agreed.

**Agenda Item 3**

16-20/11/20

1.3 The full report of the WG-MOG IAVW meeting is available on the [ICAO public website](#), while the full report of the WG-MISD VASD meeting is available on the Meteorology Panel group site on the ICAO Secure Portal.

**2. DISCUSSION**VAAC Back-up Header Alignment

2.1 A review of bulletin headers used in the event of VAAC back-up was carried out, finding that there were inconsistencies across various VAAC back-up arrangements. It was thought that due to a variety of message header parsing options, users may not always receive the advisories issued during a back-up event.

2.2 It was agreed that having the VAAC providing the back-up services issuing advisories using the bulletin header of the VAAC being backed up (including the same location identifier) is probably the easiest way to ensure that users who regularly receive a standard bulletin would also receive a back-up bulletin. It was agreed that it would be useful for all VAACs to standardise this approach.

2.3 In this regard, the VAACs agreed that, when acting in a back-up capacity to another VAAC, that they shall use the same product and location ID in the bulletin header as used by the VAAC they are backing up (with header number *ii* as appropriate), and shall add a comment in the remarks section of the VAA when providing back-up to notify users in the form of “Issued by VAAC *nnnnn* on behalf of VAAC *nnnnn*”.

Elevation of the VONA

2.4 Annex 3 requires States that have active or potentially active volcanoes to arrange for State volcano observatories (SVOs) to monitor those volcanoes. These SVOs (which are required to be designated in the applicable regional Air Navigation Plan – volume 1, table MET I-1) must send information on significant pre-eruptive or eruptive activity to their associated ACC/FIC, MWO and VAAC. Annex 3 does not prescribe the format that this volcanic activity information should take.

2.5 *The Handbook on the International Airways Volcano Watch (IAVW) – Operational Procedures and Contact List* (ICAO Doc 9766) suggests that SVOs use the Volcano Observatory Notice to Aviation (VONA) template when providing information on volcanic activity. The WG-MOG IAVW have revised the VONA template and are now proposing to include the template in Annex 3, making its use by SVOs a recommended practice. Outreach to SVOs in each VAAC area of responsibility has been undertaken, with SVOs providing feedback on the proposed VONA template, and subsequent revisions to the template then made based on that feedback.

2.6 This recommendation will carry the additional requirement to disseminate the VONA in IWXXM format, as well as TAC. It was noted that many SVOs may find it difficult to disseminate VONA via AFS, particularly in IWXXM format, and that they may need to work with their associated MWOs to achieve this. In New Zealand, the State volcano observatory, GNS Science NZ, CAA NZ and MetService NZ, are collaborating on the development of a proposal for a South Pacific VONA web portal. The concept is a website that South Pacific volcano observatories can log into and both create and issue their VONA – in text and IWXXM format and disseminate via the usual aviation channels.

2.7 With the elevation of the VONA to a recommended practice, VAAs would no longer need to include the aviation colour code. A proposal by the WG-MOG IAVW group to the fourth Meteorology Panel meeting (planned for June 2021) will be to remove the colour code from the VAA template.

2.8 Regarding the issue of potential information overload for aviation users, it is expected that VONA information would not be relayed to pilots, except for when it provided imminent information of potentially dangerous pre-eruptive conditions (given that post-eruption, the VAAs will then be the primary source of information).

2.9 Guidance for SVOs and operators will be prepared for inclusion in the *Handbook on the International Airways Volcano Watch (IAVW) – Operational Procedures and Contact List* (ICAO Doc 9766) relating to the preparation, dissemination and use of the VONA.

#### Quantitative Volcanic Ash Information

2.10 The broad concept being developed by the WG-MISD VASD is for a SWIM-compliant data service that provides quantitative volcanic ash forecast information, detailing relevant forecast contamination concentration thresholds through both time and space, to enable users to make appropriate decisions regarding aircraft exposure to, or anticipated dosage, of volcanic ash.

2.11 The concept is proposed in two chronological phases of capability: 1) Initial Operating Capability (IOC) – Basic level of service providing a foundation approach to quantitative volcanic ash forecast information, for significant<sup>1</sup> eruptions only; and, 2) Full Operating Capability (FOC) – Full data service (for all eruptions) provided to meet determined user performance requirements, including quantified information of uncertainty.

2.12 Pilots and operators will need to have confidence in the service to utilise the data as a quantitative decision-making tool and must have an understanding of the uncertainty in the dispersion model output – therefore education will be a significant component of the service introduction.

#### Development of a Sulphur Dioxide Information Service

2.13 WG-MISD VASD has been tasked to develop a sulphur dioxide information service, advising when the concentration of sulphur dioxide is expected to exceed World Health Organisation advised thresholds. London VAAC is developing a production system and will trial a global sulphur dioxide forecast capability, with the result informing further development and the formulation of preliminary functional and performance requirements.

### **3. ACTION BY THE MEETING**

3.1 Note the information contained in this paper.

-----

---

<sup>1</sup> The definition of a significant eruption is yet to be determined.