

SIXTH MEETING

INTERNATIONAL AIRWAYS VOLCANO WATCH OPERATIONS GROUP (IAVWOPSG)

(Dakar, Senegal, 19 to 23 September 2011)

EXECUTIVE SUMMARY

1. INTRODUCTION

1.1 The Sixth Meeting of the International Airways Volcano Watch Operations Group (IAVWOPSG/6), held at the ICAO Western and Central African Office (WACAF) from 19 to 23 September 2011, was attended by thirty experts from seven volcanic ash advisory centre (VAAC) Provider States, the Comprehensive Nuclear Test-Ban Treaty Organization (CTBTO), the International Air Transport Association (IATA), the International Union of Geodesy and Geophysics (IUGG), the International Federation of Air Line Pilots' Associations (IFALPA) and the World Meteorological Organization (WMO).

1.2 Mr. Peter Lechner, the Chairman of the IAVWOPSG, presided over the meeting throughout its duration. Mr. Raul Romero, Technical Officer, Meteorology from ICAO Headquarters, Montréal, was Secretary of the meeting, assisted by Mr. Akoa Okossi, Regional Officer Meteorology from the Western and Central African Office and Mr. Vitalis Ahago, Regional Officer Meteorology from the Eastern and Southern African Office.

2. FOLLOW-UP OF IAVWOPSG/5 CONCLUSIONS

2.1 Regarding the follow-up action of IAVWOPSG/5 conclusions, the group noted that, except for Conclusions 4/23, 4/24 and 5/16 which had been overtaken by events, action was considered to be complete on all the issues (Decision 6/1 refers).

3. REVIEW OF ICAO PROVISIONS RELATED TO IAVW

3.1 The group reviewed the IAVW-related regional procedures contained in the Air Navigation Plan (ANP) and Facilities And Services Implementation Document (FASID) to render them compatible with Annex 3 — *Meteorological Service for International Air Navigation*. The amended procedures will be referred to the ICAO Regional Offices for processing (Conclusion 6/2 refers).

3.2 The group reviewed and endorsed a draft amendment to Annex 3 (Conclusions 6/3 and 6/4 refer) regarding:

- a) the introduction of a reference to the Volcano Observatory Notice for Aviation;
- b) an amendment to Table A2-1 — *Template for advisory message for volcanic ash*; and
- c) the alignment of Appendix 1, Model SN (radioactive material and volcanic eruption symbols in WAFS forecasts and related requirements).

3.3 With regard to IAVW-related guidance material, the group agreed to amend the procedures for coordination and transfer of responsibility between VAACs included in the *Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List* (Doc 9766) to add new possibilities for the issuance of volcanic ash advisories when a long lasting eruption impacts several VAACs' areas of responsibility (Conclusion 6/5 refers).

4. OPERATION OF THE IAVW

4.1 The group reviewed the management reports prepared by all the VAAC Provider States, noted their content and expressed satisfaction with the scope of the information provided.

4.2 In order to improve support to international aviation users, VAAC Buenos Aires was invited to ensure that the volcanic ash related information available at its public internet website is provided in the English language (Conclusion 6/6 refers).

4.3 In order to continue the work regarding improvement of the situational awareness of users of the IAVW, the group agreed that further development of daily volcano status briefing information and related concepts should be done in partnership with the International Volcanic Ash Task Force (IVATF) (Conclusion 6/7 refers).

4.4 Regarding the need to report on processes and methodologies used by each VAAC to provide information to airline operators and regulators regarding the way in which the VAACs operate and for staff at all VAACs to ensure better consistency in the products they issue, the group agreed to carry out further work in the development of a best practices guide, initially through a workshop comprising representatives from all the VAACs (Conclusion 6/8 refers), and to provide a detailed report on processes and methodologies (Conclusion 6/9 refers).

4.5 The group reviewed and endorsed a draft amendment to the *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds* (Doc 9691), Chapter 3 — *Observation/Detection and Forecasting Movement of Volcanic Ash in the Atmosphere* and Chapter 4 — *Effect of Volcanic Ash on Aircraft* stemming from the IVATF (Conclusion 6/10 refers).

4.6 Concerning the operational procedures for the coordination and transfer of responsibility between VAACs during large-scale volcanic ash events, the group agreed that fine-tuning of the role of the "lead VAAC" was necessary and also that its relationship with other VAACs should be clarified (Conclusion 6/11 refers).

4.7 Regarding the development of procedures on how to improve the sharing of information from WMO Member States (such as radar reports, satellite imagery and ground-based measurements) with volcano observatories in an effort to improve collaborative forecasting, the group agreed to invite WMO to support collaborative forecasting through enhanced information sharing (Conclusion 6/12 refers).

4.8 To improve collaborative decision making between VAACs and volcano observatories, the group agreed to amend the operational procedures for the dissemination of information on volcanic eruptions and associated volcanic ash clouds included in Part 4 of Doc 9766 (Conclusion 6/13 refers).

4.9 Regarding a list of recommendations developed by IATA related to the promotion of safe and efficient operations in or near airspace subject to volcanic ash contamination, the group agreed to pursue additional work to ensure that, in light of the IAVWOPSG and IVATF work programmes, each of

the matters raised is adequately covered or clearly allocated to an appropriate body (Conclusion 6/14 refers).

4.10 The group agreed to upgrade to a Standard the Recommended Practice for the monitoring, by selected State volcano observatories, of active or potentially active volcanoes which could affect international airways (Conclusion 6/15 refers).

4.11 Due to known implementation issues in the various ICAO Regions, the group agreed to invite ICAO to urgently consider the establishment of special implementation projects for all the ICAO Regions, but in particular for Asia, and Central and South America, to promote improvements in volcano observatory products for aviation and improvements in communications between volcano observatories and the aviation community (Conclusion 6/16 refers).

4.12 Regarding the detailed results of the investigation into flight planning information dissemination prepared by the IVATF, the group agreed to establish an ad-hoc working group to assess the findings (Conclusion 6/17 refers).

4.13 With regard to a proposal to modify the existing template for advisory messages for volcanic ash (Annex 3, Table A2-1 — *Template for advisory message for volcanic ash*) to allow each forecast time step to be self-contained within its own message bulletin, the group agreed to undertake further work to consider issues related to the composition and length of the advisory message for volcanic ash to improve its utility (Conclusion 6/18 refers).

4.14 To ensure consistency between the VAACs in their production of volcanic ash advisories, the group agreed to invite ICAO to generate a digital database of VAAC areas of responsibility and flight information regions (FIRs)(Conclusion 6/19 refers).

4.15 With regard to the need for standardization of an international volcano database to be used by the VAACs and the willingness of the Smithsonian Institution's Global Volcanism Program to produce such database adapted to VAAC needs, the group agreed that the members from Canada and IUGG will assist the Smithsonian Institution to finalize the database (Conclusion 6/20 refers).

4.16 Concerning the development of guidance material related to the reporting of complex volcanic ash events (multiple layers and/or more than one eruption within a FIR) in SIGMET, the group agreed to assess, inter alia, if the volcanic ash advisory/volcanic ash advisories in graphical format (VAA/VAG) could be used to replace the SIGMET for volcanic ash and the capability of the nine VAACs to provide global service in this regard (Conclusion 6/21 refers).

4.17 To facilitate the description of the observed and/or forecasted position of volcanic ash clouds in SIGMET messages, the group agreed to introduce the terms "ENTIRE FIR (or CTA)" and "NO VA EXP" in Annex 3, Table A6-1 — *Template for SIGMET and AIRMET messages and special air-reports (uplink)* (Conclusion 6/22 refers).

4.18 Concerning the need to improve the situational awareness (in terms of volcano monitoring and alerting methods) of impending volcanic eruptions, which was recognized to be of value for aviation risk management, the group agreed to invite IUGG to promote the use of the volcano observatory notice for aviation (VONA) and to produce a list of volcanoes which pose a threat to aviation and are unmonitored or inadequately monitored (Conclusion 6/23 refers).

4.19 The group agreed to consider closed the work related to the implementation, on a trial basis, of a central repository for collection of volcanic activity report (VAR), in view of the associated work being addressed by the IVATF (Conclusion 6/24 refers).

5. DEVELOPMENT OF THE IAVW

5.1 Concerning the use of infrasound data in support of the VAACs, the group agreed to pursue the development and testing of a prototype real-time eruption notification system for the VAACs and to pursue the ongoing collaborative work between VAACs and the CTBTO (Conclusion 6/25 refers).

5.2 Agreeing with a list of seven recommendations made by the IVATF in the field of the volcanic ash science, the group decided to refer them as quickly as possible to the WMO-IUGG Volcanic Ash Scientific Advisory Group (VASAG) to allow them to initiate appropriate follow-up action (Conclusion 6/26 refers).

5.3 To support engine testing, the group agreed that the preliminary guidance information on volcanic material for engine testing was mature and agreed to include it in Doc 9691 (Conclusion 6/27 refers).

5.4 In an effort to reduce uncertainty and to improve volcanic ash dispersion forecasts, the group agreed to invite the VAACs to take into account in their current practices the approaches suggested by the Workshop on Ash Dispersion Forecasting and Aviation (Geneva, 18–20 October 2010) (Conclusion 6/28 refers).

6. IMPROVED NOTIFICATION CONCERNING THE ACCIDENTAL RELEASE OF RADIOACTIVE MATERIAL INTO THE ATMOSPHERE

6.1 With regard to the provision of information on the release of radioactive material into the atmosphere, the group agreed to establish an ad-hoc group to develop a concept of operations for the provision of such information, to review Annex 3 provisions and related guidance material and to coordinate, in view of an evaluation of the role of regional specialized meteorological centres (RSMCs) in the provision of related guidance, with the WMO Commission for Basic Systems (CBS) Coordination Group on Nuclear Emergency Response Activities (Conclusion 6/29 refers).

6.2 In a related issue, the group reviewed the overall structure for the provision of information regarding the release of radioactive material into the atmosphere, and agreed to study alternative provisions for replacement of the SIGMET for radioactive cloud and to assess the possibility of the provision of such information by centres with the necessary expertise (Conclusion 6/30 refers).

7. MATTERS RELATED TO THE ASSESSMENT OF THE NEED TO PROVIDE INFORMATION ON SOLAR RADIATION STORMS AND OTHER BIO-HAZARDS

7.1 The ad hoc working group tasked to develop requirements for space weather proposed the development of a concept of operations to further promote the formulation of such requirements. After review of a proposed concept of operations, the group agreed: that IATA be invited to develop high-level requirements on space weather; to include the draft user requirements and the concept of operations on the IAVW website to obtain States' views; and to consolidate the replies and develop a draft set of requirements for review by the next meeting in 2013 (Conclusion 6/31 refers).

8. **FUTURE WORK PROGRAMME**

8.1 Regarding the future work programme, the group reviewed the terms of reference and the work programme and proposed changes based on the discussions under Agenda Items 2 to 10 (Decision 6/32 refers).

9. **OTHER BUSINESS**

9.1 The group noted that the issue of re-suspended volcanic ash is becoming an issue that deserves further attention and therefore agreed to invite the VAAC Buenos Aires Provider State to report on its experience on the management of re-suspended ash during the 2011 Puyehue-Cordón Caulle eruption (Conclusion 6/33 refers).

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