



Agenda Item 3: Implementation of the International Airways Volcano Watch (IAVW)

(Presented by the Secretariat)

SUMMARY

This working paper presents information on the worldwide development of the International Airways Volcano Watch (IAVW) and its implementation status in the CAR/SAM States/Territories.

Reference:

- Report of the Fourth Meeting of the International Airways Volcano Watch Operations Group (IAVWOPSG/4, 15 to 19 September 2008, Paris, France).

1. Introduction

1.1 The IAVWOPSG was established in response to Recommendation 1/22 of the Meteorology (MET) Divisional Meeting (2002), to ensure that the operation and development of the IAVW continue, in order to meet current and evolving operational requirements in a cost effective manner. The group should also develop proposals for the development of the IAVW in order to ensure that it continues to meet evolving operational requirements, under ICAO procedures for the amendments to Annex 3.

1.2 The Air Navigation Planning and Implementation Groups (PIRGs) should review the results of the IAVWOPSG meetings and identify any necessary follow-up action at regional level. Additionally, issues related to IAVW implementation raised by the PIRGs should be referred to the IAVWOPSG for consideration.

2. Discussion

a) Review the outcome of IAVWOPSG/4 Meeting

2.1 The Fourth Meeting of the International Airways Volcano Watch Operations Group (IAVWOPSG/4) was carried out from 15 to 19 September 2008 in Paris, France. The meeting formulated 29 conclusions and 2 decisions. The executive summary is reproduced in **Appendix A** to this working paper (only in English). In addition, complete information regarding IAVWOPSG meetings can also be found at IAVWOSG website: <http://www.icao.int/anb/iavwopsg>, available in English only.

2.2 At the Fourth Meeting of the Group (IAVWOPSG/4), the IAVW-related regional procedures were reviewed and Conclusion 4/2 – Amendment to the IAVW-related regional procedures in the ANP/FASID was formulated. In this regard, it was considered necessary to amend Table MET 3A, 3B and 3C.

2.3 Following the referred conclusion, the Lima Regional Office consolidated and processed these amendments (SAM 09/01-MET to ANP, Volume I Basic and SAM 09/02 MET to ANP, Volume II, FASID), in accordance with the procedures approved by ICAO Council, which included, among others, amendments to CAR/SAM FASID Tables MET 3A, 3B and MET 3C and to ANP Basic, with regard to International Airways Volcanic Watch (IAVW). The State Letters with the approval of these amendments was sent on 23 June and 14 July 2009, respectively.

b) Review the status of implementation of IAVW

2.4 The Meeting could note that even though the AERMET Subgroup Secretariat makes a follow up and takes actions with regard to IAVWOPSG conclusions, the States could also access directly into the referred Operations Group website in order to be aware and take the required actions arisen from the updates of Doc 9766, *Handbook on the International Airways Volcano Watch (IAVW) – Operational Procedures and Contact List*, carried out with the implementation of the conclusions related to this issue.

2.5 In this regard, the Meeting could agree in the need to have Doc 9766 available in Spanish and if this could not be possible, the Secretariat could develop guidance on the international airways volcano watch, which could be placed in ICAO Lima and Mexico Offices websites. In view of the above, the Meeting could formulate the following draft conclusion:

DRAFT
CONCLUSION 10/XX - GUIDE ON THE INTERNATIONAL AIRWAYS VOLCANO WATCH (IAVW)

That the Secretariat develops regional guidance in Spanish, to explain the contents of Doc 9766, *Handbook on the International Airways Volcano Watch (IAVW) – Operational Procedures and Contact List*.

3. **Action required**

3.1 The subgroup is invited to:

- a) consider the information presented in this working paper, as well as in **Appendix A**; and
- b) based on the deliberations, the Meeting may wish to approve the draft conclusion presented in paragraph 2.7.

APÉNDICE/APPENDIX A

CUARTA REUNIÓN DEL GRUPO DE OPERACIONES DE LA IAVW /

FOURTH MEETING IAVW OPERATIONS GROUP

(IAVW)

(Paris, France, 15 - 19 setiembre/September 2008)

RESUMEN EJECUTIVO /

EXECUTIVE SUMMARY

(Disponible solamente en inglés / Available only in English)

APÉNDICE/APPENDIX A**FOURTH MEETING****IAVW OPERATIONS GROUP**

(Paris, France, 15 to 19 September 2008)

EXECUTIVE SUMMARY¹**1 INTRODUCTION**

1.1 The fourth meeting of the International Airways Volcano Watch Operations Group (IAVWOPSG/4), held at the ICAO European and North Atlantic Office (EUR/NAT) from 15 to 19 September 2008, was attended by eighteen experts from the eight volcanic ash advisory centres (VAACs) Provider States, the International Air Transport Association (IATA), the International Federation of Air Line Pilot's Associations (IFALPA), the International Union of Geodesy and Geophysics (IUGG) and the World Meteorological Organization (WMO).

1.2 Mr P. Lechner, the Chairman of the IAVWOPSG, presided over the meeting throughout its duration. Mr. R. Romero, Technical Officer, Meteorology from ICAO Headquarters, Montréal, was Secretary of the meeting, assisted by Mr. Dimitar Ivanov, Regional Officer, Air Navigation Systems Implementation (Meteorology) from the European and North Atlantic Office.

2. FOLLOW-UP OF IAVWOPSG/3 CONCLUSIONS

2.1 Regarding the follow-up action of IAVWOPSG/3 Conclusions, the group noted that action was completed on all the issues (Decision 4/1 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) facilities and services implementation document (FASID) which would render them compatible with Annex 3 — *Meteorological Service for International Air Navigation*. The amended procedures would be referred to the ICAO Regional Offices for processing (Decision 4/2 refers).

3.3 The group reviewed and endorsed a draft amendment to Annex 3 (Conclusion 4/3 refers) regarding the use of PNG charts for graphical volcanic ash advisories; the template for advisory messages for volcanic ash; and the focal point for the notification to ACCs regarding the release of the radioactive material into the atmosphere. In addition, the group endorsed a draft amendment to Annex 15 — *Aeronautical Information Services* regarding the reporting of volcanic ash deposition (Conclusion 4/4 refers).

4 Operation of the IAVW

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

4.2 In order to improve the timeliness of volcanic ash advisory information, the group considered that the distribution of the volcanic ash advisories according to the extent of the volcanic ash cloud would be ideal; however, it would require the development of dedicated tools, in particular, access to a real-time database containing limits of FIRs (Conclusion 4/5 refers).

¹ The full report is available in English at the following open website: www.icao.int/anb/IAVWOPSG.

4.3 The group was pleased to note that a training video on volcanic ash had been developed by Airline Dispatchers' Federation (ADF), Air Line Pilots' Associations (ALPA), United States Geological Survey, VAACs Anchorage and Washington and United Airlines. The group agreed to establish a link in the IAVWOPSG and VAACs websites to allow access to the training video (Conclusion 4/6 refers).

4.4 Concerning the harmonization of the display of volcanic ash information on the VAACs websites, the group agreed that in the provision by VAACs, a direct link should be provided on the front pages of the VAAC websites to a web page that provides access to ICAO volcanic ash products in compliance with *Guidelines on the Use of the Public Internet for Aeronautical Applications* (Doc 9855) (Conclusion 4/7 refers).

4.5 The group reviewed a trial graphical and a text form of a daily volcano status product developed by selected VAAC. Based on positive user feedback, VAAC Darwin was invited to further develop the product (Conclusion 4/8 refers).

4.6 In order to foster the use of the volcanic ash reporting template by the selected vulcanological observatories, the group agreed that draft guidance on the recovery of costs related to the transmission of volcanic information to aviation should be included in the *Manual on Air Navigation Services Economics* (Doc 9161), (Conclusion 4/9 refers). To ensure the ease of the use of the volcanic ash reporting template, it was agreed that its suitability in providing timely information to ACC, MWO and VAAC be assessed (Conclusion 4/10 refers).

4.7 In order to ensure that test messages related to volcanic ash exercises are not considered to be related to a real eruption; to facilitate monitoring and to avoid rejection from message switch systems and databases, the group agreed on the preparation of guidance material regarding a standard format for test VA advisories and test VA SIGMETs for inclusion in the *Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List* (Doc 9766) (Conclusion 4/11 refers).

4.8 The group agreed to include the requirement for the issuance of volcanic ash advisories in alphanumeric and graphical format in Amendment 75 to Annex 3 and to include guidance on the *Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List* (Doc 9766) (Conclusion 4/12 refers).

4.9 In order to ensure the timelines of information, the group agreed to amend Annex 3 to allow the issuance of a VA advisory without the forecast part in the first advisory and to include appropriate guidance material in the *Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List* (Doc 9766) (Conclusion 4/13 refers).

4.10 To facilitate access to volcanic ash advisories and the quick identification by users during volcanic eruptions, the group agreed to include in Doc 9766 the list of WMO bulletin headers being used by each VAAC for the VA advisories (Conclusion 4/14 refers).

4.11 In order to align information provided by graphical volcanic ash advisories (Model VAG) and the VA advisories in alphanumeric format, the group developed an appropriate draft amendments to Annex 3 (Conclusion 4/15 refers).

4.12 The group agreed that to ensure a full review by the WMO Commission for Aeronautical Meteorology, the IAVWOPSG Member of WMO, in coordination with the Secretary, should be invited to review the processing of draft amendments to Appendix 1 to Annex 3 (Conclusion 4/16 refers).

4.13 The group noted that new sources of observation were available; some of the information may not be “observed” in the traditional sense of the word. Therefore, the group agreed to develop a proposal for replacing the term “observation” used in Table A2-1 of Annex 3 with a more appropriate term (Conclusion 4/17 refers).

4.14 The group agreed to draft appropriate guidance material clarifying the procedures to be followed by meteorological watch offices (MWOs) for the reporting of complex volcanic ash events in SIGMET messages. (Conclusion 4/18 refers). In a related issue, the group agreed to invite WMO to consider the inclusion of indication of the movement of the volcanic ash clouds in the model chart for graphical volcanic ash SIGMET (Model SVA) (Conclusion 4/19 refers).

4.15 The group agreed to draft appropriate guidance material enabling gradual advisory cessation in case of long-lived volcanic ash clouds. (Conclusion 4/20 refers).

4.16 The group reviewed a proposal for guidance material regarding the smell of sulphur (SO₂) at cruise altitudes for the use of flight crew members. The group agreed to include such guidance in Doc 9766 (Conclusion 4/21 refers).

4.17 To provide a means to notify ATC and other aircraft in the vicinity of possible ash in the atmosphere, the group agreed to modify the Model VAR in Appendix 1 to the *Procedures for Air Navigation services – Air Traffic Management* (Doc 4444) to include the reporting of SO₂ and to identify VAAC Darwin as a central repository for these reports (Conclusion 4/22 refers).

5 DEVELOPMENT OF THE IAVW

5.1 To encourage VAAC Provider States to continue research on volcanic ash clouds using satellite data, the group agreed to invite WMO to reconstitute the appropriate sub-group (Conclusion 4/23 refers).

5.2 The group considered that with improving remote sensing techniques, progress on the definition of the lower limit on “safe” ash concentration could be achieved and could contribute to the future operation of the IAVW. In this regard, the group agreed to invite WMO to further explore the concentration of volcanic ash from the scientific viewpoint (Conclusion 4/24 refers).

5.3 With regard to the evaluation of infrasound data and seismic data to help detection of volcanic eruptions, the group reviewed the project Ecuadorian Acoustic Surveillance for Hazardous Eruptions and the scientific collaboration between VAAC Toulouse and Comprehensive Nuclear Test-Ban Treaty Organization (CTBTO) to detect volcanic eruptions in Africa, Italy and Indian Ocean and agreed to continue work on the assessment of the feasibility of the use of infrasound to identify volcanic eruptions (Conclusion 4/25 refers).

5.4 Regarding volcanic ash deposition at aerodromes and the information to be included in a NOTAM, the group agreed to develop guidance material for inclusion in Doc 9766 (Conclusion 4/26 refers).

5.5 The group agreed to distribute the classification matrix of eleven eruption types and attendant values of eruption source parameters (ESP) for approximately 1 500 volcanoes for use in atmospheric volcanic-ash transport and dispersion models to the parties concerned and to express recognition to IUGG for their fundamental work (Conclusion 4/27 refers).

6. MATTERS RELATED TO THE MONITORING AND PROVISION OF WARNINGS TO AIRCRAFT OF RADIOACTIVE DEBRIS AND TOXIC CHEMICAL CLOUDS

6.1 Regarding the release of radioactive material into the atmosphere, the group endorsed the corresponding draft amendment to Annex 3 and agreed on the use of a template which will be included in an AFTN message by VAAC London. The group also agreed that for safety and flight planning, the notification should also be distributed to the adjacent ACCs where the release of radioactive material took place (Conclusion 4/28 refers).

6.2 The group noted that there was not yet a complete understanding between the users community of the products regarding space weather which could be used in support of operational decisions. The group agreed to develop guidance material to improve knowledge as a precursor of the introduction of formal requirements for information related to space weather (Conclusion 4/29 refers).

7 FUTURE WORK PROGRAMME

7.1 Regarding the future work programme, the group reviewed the work programme and proposed additional changes based on the discussions under Agenda Items 4, 5 and 6 (Decision 3/30 refers).