



**WORKING PAPER**

**INTERNATIONAL VOLCANIC ASH TASK FORCE (IVATF)**

**FIRST MEETING**

**Montréal, 27 to 30 July 2010**

**Agenda Item 4: Review of operational response to volcanic ash aircraft encounter and notification and warning for VA (ATM sub-group)**

**4.1: Assessment of current contingency procedures and reporting criteria to detect and mitigate risk**

**4.2: Assessment of existing notification and warning procedures**

**REVIEW OF CONTINGENCY PROCEDURES, REPORTING CRITERIA, AND  
NOTIFICATION AND WARNING PROCEDURES**

(Presented by the Secretariat)

**SUMMARY**

This working paper presents an overview of current contingency procedures and existing IAVW-related procedures and reporting criteria for review and assessment by the TF.

**1. INTRODUCTION**

1.1 This paper provides an overview of existing contingency procedures, and existing requirements for notification and warning. The task force (TF) is expected to assess them in the light of the recent Icelandic eruption and to identify volcanic ash (VA)-related ATC procedures which need to be updated, together with an assessment for the need of guidance on information sharing and decision making.

1.2 During the review, the TF is invited to take note of the extensive guidance material related to the “Impact of volcanic ash on aviation operational and support services” including aerodromes; Air Traffic Management (ATM); meteorological services; and flight planning, dispatch and operational control contained in the *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds* (Doc 9691) (Chapter 5 refers).

## 2. ASSESSEMENT OF CONTINGENCY PROCEDURES AND REPORTING CRITERIA

### 2.1 Contingency procedures

2.1.1 The TF will be aware that currently formal contingency procedures have only been established for three ICAO Regions, i.e. CAR, EUR and NAT Regions (IP/4 and IP/7refer). Furthermore, it may be noted that national contingency procedures have been included in the *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds* (Doc 9691) which includes an appendix regarding procedures for mitigation of the effect of volcanic ash at airports (Appendix A refers) and two examples of States contingency planning with regard to volcanic ash events (Appendices B and C refer).

2.1.2 The TF will be aware that during the Icelandic eruption some concerns were expressed regarding the non-standardized approaches followed in various ICAO regions in case of volcanic ash clouds. It was suggested that consideration should be given to standardize contingency plans through all ICAO Regions. In this regard, the TF will realize that there are inherent difficulties to do so, since the regions are very different due to geographical and political configurations, e.g. the EUR Region, a given area affected by volcanic ash would be under the jurisdiction of a large number of States and hence a considerable number of flight information regions (FIRs) while in the PAC Region, a similar area could correspond only to a proportion of one FIR. In spite of these differences, the TF may wish to agree that there could be some merit in studying the possibility of standardizing the contingency planning by developing a template for VA contingency plans for global application. Therefore the TF may wish to agree to task the ATM Sub-group to address this issue and to formulate the following Action agreed:

#### **Action agreed 1/... — Contingency plans**

That the ATM sub-group be tasked to assess the need and feasibility for a template (model) for volcanic ash contingency.

### 2.2 Reporting criteria

2.2.1 With regard to reporting of VA, the TF may wish to note that currently the procedures related to the reporting of VA by aircraft are contained in the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444), which require that special air-reports be made when a volcanic ash cloud is encountered by aircraft or pre-eruption volcanic activity or volcanic eruption is observed (Doc 4444, 4.12.3 refers). Furthermore, special air reports containing observations of volcanic activity are required (Doc 4444, 4.12.5 refers) to be recorded on the special air-report of VA form (“VAR form”). It may be noted that when receiving special air-reports on VA by voice communication, ATS units must forward them to the associated meteorological watch office (MWO) without delay (Doc 4444, 4.12.6.3 refers).

2.2.2 In addition to the aircraft reports, the TF is invited to note that Annex 3 — *Meteorological Service for International Air* requires that selected State volcano observatories provide information about pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds to its associated area control centre (ACC), meteorological watch office (MWO) and volcanic ash advisory centre (VAAC) (Annex 3, 3.6 refers). Finally, the VAACs monitor relevant geostationary and polar-orbiting satellite data to detect existence and extent of VA in the atmosphere in their areas of responsibility.

2.2.3 The foregoing procedures should in principle ensure the availability of up-to-date and relevant information on VA in the atmosphere. However, the TF may wish to note that there is one weak link in the observing/reporting of VA: due to non-technical reasons, special air-reports on VA are seldom issued by aircraft in flight; in fact, the lack of special air-reports on VA has prompted two requests by the first and third meetings of the International Airways Volcano Watch Operations Group (IAVWOPSG) addressed to IATA and its member airlines emphasizing the importance of timely reporting and recording and post-flight recording. In parallel, the IAVWOPSG has worked on the refinement of existing provisions and guidance material in view of facilitating this reporting. It appears that additional work should be done with the aim to improve air-reporting related to volcanic ash; therefore, the group may wish to formulate the following Action agreed:

**Action agreed 1/... — Enhancement of air-reporting related to volcanic ash (including encounters)**

That, the ATM sub-group be tasked to study ways and means how to improve and enhance the issuance of special air-reports by aircraft for volcanic ash, including the reporting of volcanic ash encounters.

**3. ASSESSMENT OF EXISTING NOTIFICATION AND WARNING PROCEDURES**

**3.1 Overview of the existing notification and warning mechanism**

3.1.1 Concerning the notification and warning related to VA, the TF will be aware that the VA-related information provided to aviation can be grouped under three headings as follows:

- 1) *advisory information.* This consists of volcanic ash advisories which contain information regarding the lateral and vertical extent and forecast movement of VA in the atmosphere(Annex 3, 3.5 refers);
- 2) *notification information.* This consists of NOTAM for volcanic ash (Annex Annex 15 — *Aeronautical Information Services*, 5.1 refers) and ASHTAM (Annex 15, 5.2 refers), both intended to provide notification about significant changes on volcanic activity, VA clouds and flight levels and airways affected; and,
- 3) *warning information.* It consists of SIGMET intended to warn about en-route VA clouds which may affect the safety of aircraft operations (Annex 3, Chapter 7 refers).

3.1.2 The TF will note that all the information listed under 3.1.1 is provided to aircraft operations both at the pre-flight planning stage and during flight. This requirement is clearly stated in Annex 11 — *Air Traffic Services* (4.2.1 b) refers) which requires that flight information services include the provision of information regarding pre-eruption volcanic activity, volcanic eruptions and VA clouds. Accordingly, information concerning pre-eruption volcanic activity or volcanic eruption and VA clouds, including position and flight levels affected, shall be disseminated to aircraft (Doc 4444, 9.1.3.3 refers). With regard to the transmission of SIGMET and special air-reports which have not been used for the

preparation of a SIGMET, they be disseminated to aircraft on the basis of regional air navigation agreements (Doc 4444, 9.1.3.2.1 refers).

### **3.2 Simplification of notification and warning mechanism**

3.2.1 The TF may wish to note that the products related to notification and warning on VA have been included in ICAO provisions as a result of a long development and refinement process over the last 25 years undertaken by relevant ICAO bodies, in particular the IAVWOPSG; furthermore it may wish to agree that if fully implemented, the notification and warning system is comprehensive and meets in principle the requirements of aviation. However, it may be postulated that the system is too complex with too many products, some of which overlap. There are at least two areas for potential simplifications which would merit consideration:

- a) *Overlap of information contained in VA advisory and SIGMET for VA.* The TF is invited to note that the advisory information was initially intended to assist MWOs in the preparation of SIGMET. However, since the advisories often represents the best and most comprehensive available information related to VA, airline and other users have started over the years to rely on these advisories rather than SIGMET which contain less information and are not fully implemented in a number of ICAO Regions with the result that the VA advisories have *de facto* become the primary source of VA information for most aviation users;
- b) *Overlap between NOTAM for VA and ASHTAM.* The two types of NOTAMs contain similar information; therefore, for simplicity, it could be argued that only one series of NOTAMs should be used internationally for notification purposes.

3.2.2 Taking into account the potential redundancies and overlaps outlined in 3.2.1 the TF may wish to task its ATM sub-group to look into these issues. In this regard the TF may wish to formulate the following Action agreed:

#### **Action agreed 1/... — Simplification of notification/warning mechanisms related to volcanic ash**

That the ATM sub-group be tasked to study notification and warning provisions in view of proposing simplifications to the information provided in order to eliminate redundancies and overlapping between VA-related products.

## **4. ACTION BY THE IVATF**

4.1 The IVATF is invited to:

- a) note the information in this working paper; and
- b) endorse the draft “Action agreed” contained therein.

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