



International Civil Aviation Organization

**The First Meeting of the Asia/Pacific Volcanic Ash Exercises Steering Group
(VOLCEX/SG/1)**

Manila, Philippines, 27-29 May 2015

Agenda Item 3: Review Background Information

ATM VOLCANIC ASH CLOUD CONTINGENCY PLAN TEMPLATE

(Presented by the Secretariat)

SUMMARY

This paper presents an overview of the ICAO ATM Volcanic Ash Contingency Plan Template

1. INTRODUCTION

1.1 The ICAO Volcanic Ash Contingency Plan Template sets out standardized guidelines and procedures for the provision of information to airlines and en-route aircraft before and during a volcanic eruption. Mitigating the hazards posed by volcanic ash in the atmosphere and/or at the aerodrome cannot be resolved in isolation; it requires collaborative decision-making (CDM) involving all stakeholders.

1.2 Operators are required¹ to implement appropriate mitigation measures for safety risks such as volcanic ash) in accordance with their safety management system (SMS), as approved by the State of the operator or State of Registry. The guidelines provided in the Volcanic Ash Contingency Plan Template assume that ICAO requirements for safety management systems have been implemented by the aircraft operator.

1.3 The Volcanic Ash Contingency Plan Template provides guidance primarily directed at provider States for the development of ATM contingency plans, including interfaces with supporting services such as Aeronautical Information Service (AIS) and Aviation Meteorology (MET).

2. DISCUSSION

Foreword

2.1 The document sets out standardized guidelines and procedures for the provision of information to airlines and en-route aircraft before and during a volcanic eruption through collaborative decision-making involving all stakeholders. The foreword provides a summary of the hazards of encounters with volcanic ash, and clarifies that the document is an Air Traffic Management (ATM) contingency plan.

¹ At the time of publication of the ICAO ATM Volcanic Ash Contingency Plan Template this requirement was specified in Annex 6 – *Operation of Aircraft*. The requirement has since been moved into the new Annex 19 – *Safety Management*

Chapter 1 - Terminology

2.2 Section 1 of the document provides detailed explanations of relevant terminology, including:

- Areas of Contamination;
- Danger Areas; and
- Phases of an Event.

Areas of Contamination

2.3 Information on areas of observed and/or forecast volcanic ash in the atmosphere is provided by means of appropriate MET messages in accordance with Annex 3 – *Meteorological Service for International Air Navigation*

Danger Areas

2.4 A danger area may be declared, and promulgated by NOTAM. This should only be applied over and in the proximity of the volcanic source. Clearances will not normally be issued through a danger area unless explicitly requested by the flight crew. In this context it should be noted that the final responsibility for aircraft safety rests with the flight crew, as does the final decision on whether to avoid or proceed through an area of volcanic activity.

2.5 States are not restricted from establishing restricted or prohibited areas over the sovereign territory of the State, if considered necessary by the State concerned.

Pre-Eruption Phase

2.6 The template explains the focus of this phase, the first of four distinct phases of volcanic activity detailed in the document.

2.7 Appropriate AIS and MET messages may be issued in accordance with Annex 15 and Annex 3 respectively, and disseminated to affected aircraft in flight by the most expeditious means.

2.8 As volcanoes may erupt unexpectedly without any alert being raised, the pre-eruption phase may not occur.

Start of Eruption Phase

2.9 The start of eruption phase commences at the outbreak of the volcanic eruption and entrance of volcanic ash into the atmosphere and mainly pertains to aircraft in flight.

2.10 Appropriate AIS and MET messages may be issued as appropriate in accordance with Annex 15 and Annex 3 respectively, and a danger area may be declared by NOTAM. Normally, clearances will not be issued through the danger area unless explicitly requested by the flight crew.

On-going Eruption Phase

2.11 The on-going eruption phase commences with the issuance of the first volcanic ash advisory (VAA) containing information on the extent and movement of the volcanic ash cloud following completion of the previous reactive responses. Appropriate AIS and MET messages may be issued as appropriate in accordance with Annex 15 and Annex 3 respectively.

Recovery Phase

2.12 The recovery phase commences with the issuance of the first VAA containing a statement that “NO VA EXP” (i.e. “no volcanic ash expected”) which normally occurs when it is determined that no volcanic ash is expected in the atmosphere and the volcanic activity has reverted to its pre-eruption state.

Chapter 2 – Pre-Eruption Phase

2.13 This chapter provides information on:

- Information from flight crews that may be received at ATS units, and introduces the ICAO Volcanic Activity Report (VAR) form, published in Appendix 1 of ICAO Doc 4444 – *Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM)*;
- The focus of the phase being to gain early recognition of volcanic events;
- Originating ACC actions in response to significant pre-eruption volcanic activity which could pose a hazard to aviation;
- Adjacent ACC actions;
- Air Traffic Flow Management (ATFM) Unit actions to support collaborative decision-making (CDM) between ANSPs, meteorological watch offices (MWOs), VAACs and aircraft operators concerned.

Note: Not mentioned in the template is the fact that many States with airspace susceptible to volcanic activity do not have an ATFM unit. Such States should identify the ACC or other authority responsible for these actions.

Chapter 3 – Start of Eruption Phase

2.14 Details actions in response to the outbreak of volcanic eruption, with a focus on protecting aircraft in flight and at aerodromes from the hazards of the eruption through the provision of information and assistance to airborne traffic, collection and use of relevant information, particularly in the issuance of relevant AIS and MET messages in accordance with Annexes 15 and 3, and the declaration and promulgation of a danger area where necessary.

2.15 Actions by the originating ACC are detailed:

- Origination of NOTAM defining a danger area with the purpose of ensuring safety of flight in the absence of any prediction of the extent of contamination from a competent authority;
- Liaison with MET facilities, for the purpose of issuance of MET messages in accordance with Annex 3;
- Devising and updating ATFM measures and engaging in CDM processes;
- Forwarding of received information;
- Planning for the on-going eruption phase; and
- Actions in the event of a reduction in the intensity of the volcanic activity;

- 2.16 Adjacent ACC actions include:
- Close liaison with the appropriate ATFM unit and the originating ACC to coordinate ATFM measures;
 - Additional tactical ATC actions;
 - Maintaining awareness of the affected area; and
 - Planning for the on-going eruption phase.

2.17 The template proposes that the ATFM unit should organize the exchange of latest information on the developments with the associated VAACs, ANSPs, MWOs and airspace users.

Note: The meeting should consider how this is achieved in cases where there is no ATFM unit, or where the ATFM unit does not have full network management capability.

Chapter 4 – On-going Eruption Phase

2.18 This phase commences with the issuance of the first VAA by the lead VAAC, containing information on the extent and movement of the VAC in accordance with Annex 3 provisions. The VAA is used to prepare appropriate AIS and MET messages in accordance with Annexes 15 and 3., and to plan and apply appropriate ATFM measures.

2.19 The template notes that the volcanic contamination may affect any combination of airspace, and therefore it is not possible to prescribe measures to be taken or to detail the actions to be taken by any particular ACC. Some guidance is provided on further actions by affected ACCs and ATFM units relating to information promulgation, CDM, possible aircraft operator behaviors and the on-forwarding of information received.

Chapter 5 - Recovery Phase

2.20 This chapter describes the commencement of the recovery phase as the issuance of the first VAA containing a statement that no volcanic ash is expected.

Chapter 6 - Air Traffic Control Procedures

2.21 Brief Guidelines for ATC procedures are provided, relating to the relay of information, tactical management of aircraft in flight, and requests for information from aircraft in flight.

2.22 The template provides recommended ATS actions in the event that an aircraft has inadvertently entered a VAC.

Chapter 7 - ATFM Procedures

2.23 This section of the document provides a brief statement on ATFM units organizing the exchange of information with associated VAACs, ANSPs, MWOs and operators.

Refer to the notes in paragraphs 2.13 and 2.17 above.

Appendices

2.24 More substantial information is provided in the 3 appendices provided in the documents:

Appendix A – General guidance for the development of an ATM volcanic ash contingency plan.

Appendix B – Anticipated flight crew issues when encountering volcanic ash.

Appendix C – Communication and dissemination of pilots’ reports of volcanic activity.

2.25 The template also suggests optional appendices that may be determined for inclusion in regional contingency plans by the Planning and Implementation Regional Group (PIRG):

Appendix D – Actions to be taken by MWOs;

Appendix E – Actions to be taken by VAACs;

Appendix F – Recommended actions by States of Registry or States of the Operator with regards to aircraft operations;

Appendix G – Example safety risk assessment process;

Appendix H – Example table of considerations for planned operations in airspace and at aerodromes affected by volcanic ash;

Appendix I – Example of a hazard log (risk register);

Appendix J- Examples of AIS and MET products.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss any relevant matters as appropriate.

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