



International Civil Aviation Organization

SECOND MEETING OF THE ASIA/PACIFIC (APAC) VOLCANIC ASH EXERCISES STEERING GROUP (VOLCEX/SG/2)

Bangkok, Thailand, 14 – 16 September 2015

Agenda Item 4: Planning for future volcanic ash exercise/s

AIRSPACE AND AIRPORT MANAGEMENT DURING VOLCANIC ASH EVENTS

(Presented by the Secretariat)

SUMMARY

This paper presents information on airspace and airport management during volcanic ash cloud events, with a view to inclusion in future volcanic ash exercises and the development of recommended regional guidance that may be considered for the Regional ATM Contingency Plan.

1. INTRODUCTION

1.1 The APAC Regional ATM Contingency Plan, currently in draft form, will include regional guidance and performance objectives for coordinated responses to volcanic eruptions and volcanic ash cloud (VAC). The Plan is being developed by the Asia/Pacific Regional ATM Contingency Plan Task Force (RACP/TF), which will hold its 5th meeting in early December 2015.

1.2 Development of the regional contingency guidance and performance objectives will be dependent on the outcomes of volcanic ash exercises conducted under the Volcanic Ash Exercises Steering Group. The guidance will also be applicable to the operational responses to radioactive cloud and toxic chemical cloud.

1.3 The issue of airspace closure was raised during the VOLPHIN/15-01 exercise. This issue requires clarification for the purposes of future exercises, and for the development regional guidance for contingency response to VAC events.

2. DISCUSSION

2.1 The Exercise Directive for the first APAC volcanic ash exercise, VOLPHIN/15-01, included sample NOTAMS containing the following text:

Add here any advice on air routes or portions of air routes and flight levels affected or expected to become affected; closure of airspace, air routes or portions of air routes, and availability of alternate routes.

2.2 The closure of airspace was included in VOLPHIN/15-01 exercise NOTAMSs, and subsequently queried in-exercise by a number of observers.

2.3 ICAO Doc 4444 – PANS-ATM includes *inter alia* the following in relation to volcanic ash clouds:

15.8 PROCEDURES FOR ATS UNITS WHEN A VOLCANIC ASH CLOUD IS REPORTED OR FORECAST

15.8.1 If a volcanic ash cloud is reported or forecast in the airspace for which the ATS unit is responsible, the following actions should be taken:

- c) suggest re-routing to avoid or exit areas of reported or forecast ash clouds when requested by the pilot or deemed necessary by the controller;

Note 2.— The final authority as to the disposition of the aircraft, whether to avoid or proceed through a reported or forecast ash cloud, rests with the pilot-in-command, as prescribed in Annex 2, 2.4.

2.4 Annex 2 – Rules of the Air paragraph 2.4 states: *The pilot-in-command of an aircraft shall have final authority as to the disposition of the aircraft while in command.*

2.5 In addition to the ICAO SARPS and PANS, global guidance on volcanic ash is primarily included in three documents:

- ICAO Doc 9974 – *Flight Safety and Volcanic Ash – First Edition 2012*;
- ICAO Doc 9691 – *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds – Third Edition 2015*; and
- *ICAO Air Traffic Management Volcanic Ash Contingency Plan Template – First Edition August 2012*

2.6 The guidance, which is currently being studied by RACP/TF to develop regionally agreed guidance for volcanic ash contingency responses, has some information that may be contradictory.

2.7 Doc 9961, in particular, includes the following text:

- *.....it does not take that much ash to be deposited on an aerodrome (in fact as little as 1 mm) before the aerodrome may have to be closed completely to aircraft operations.*
- *Eventually, it may be necessary to close the airport entirely. The worst situation is a protracted series of volcanic eruptions which could close the airport for weeks.*
- *Airspace congestion on many of the busier air routes can limit the available upper levels, leaving the pilot little operational flexibility. General messages (especially NOTAM) that effectively close airspace for long periods cause considerable difficulty to the user. Regular updates of SIGMETs and NOTAM are therefore essential.*
- *.....the NOTAM would normally include information on the air routes closed and alternative routing to avoid the ash cloud.*

2.8 There are a number of operational responses to volcanic ash events that may be available to air navigation service providers and airport operators, depending on State regulations. These may include:

- declaration of danger area or restricted area (territorial airspace only) for the airspace over and in proximity to the volcanic source;
- Re-routing of all traffic around affected airspace (effectively airspace closure);
- promulgation of amended routes available to avoid the affected airspace, for operators choosing to do so;
- air traffic flow management measures; and
- aerodrome closure.

2.9 Pending the development of regional contingency guidance, it is proposed that meeting consider the following airspace and airport management principles for volcanic ash exercises:

Airspace

1. Declaration of danger area or, if required by State regulations, restricted area (territorial airspace only) containing the pre-eruptive or erupting volcano and it's forecast/observed ejecta
2. Inclusion in relevant NOTAM of proposed alternate ATS routes to avoid the volcanic ash cloud and assure regularity of ATM;
3. Inclusion in relevant NOTAM of air traffic flow management (ATFM) measures where applicable;

Airports

4. Inclusion in relevant NOTAM of requirements for pilots to plan for alternate aerodromes and/or additional fuel to allow for delays; and
5. Closure of aerodromes only during periods of volcanic ash contamination of the movement area.

2.10 The meeting should consider the above in further development of the Exercise Directive and NOTAM templates for exercises.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) agree to the principles proposed for airspace and airport management during volcanic ash exercises;
- c) amend exercise NOTAM templates to include appropriate text according to the principles;
- d) agree to develop recommendations for consideration by RACP/TF; and
- e) discuss any relevant matters as appropriate.
