



International Civil Aviation Organization

The Second Meeting of the Asia/Pacific Volcanic Ash Exercises Steering Group (VOLCEX/SG/2)

Bangkok, Thailand, 14-16 September 2015

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

PROPOSAL FOR STRUCTURE TO CONDUCT MULTIPLE VOLCANIC ASH EXERCISES

(Presented by Exercise Leader)

SUMMARY

This paper presents a proposal for structure to conduct multiple volcanic ash exercises in parallel in APAC Region.

1. INTRODUCTION

1.1 The First Meeting of the Asia/Pacific Volcanic Ash Exercises Steering Group (APAC VOLCEX/SG/1) was held in Manila, Philippines, from 27 to 29 May 2015 and the First Asia/Pacific Volcanic Ash Exercise (VOLPHIN15/01) was conducted on 11 August 2015 with a scenario in which an eruption of Taal Volcano on the island of Luzon, Philippines, emits a volcanic ash cloud that spreads northwards and contaminates the Manila FIR.

1.2 At the APAC VOLCEX/SG/1, Japan proposed a two-stage approach where the first exercise scenario would be in the Philippines while the second exercise would involve parallel scenarios: one to enable follow-up work in the Manila FIR and the other to bring on volcanic ash exercises to Indonesian volcanoes. This type of approach, to incrementally expand the scope of volcanic ash exercises in the APAC Region, was supported by the meeting (refer to Report of VOLCEX/SG/1).

1.3 The meeting agreed at the APAC VOLCEX/SG/1, in view of the discussion above, that it would also be beneficial to the volcanic ash exercises to appoint ‘in-State’ leaders for the exercise scenarios in the Philippines and Indonesia to lead and facilitate the local planning and coordination necessary for the success of the exercise/s. Furthermore, the meeting noted the potential future need to establish more than one group of exercise directing staff in case more than one volcanic ash exercise is to be conducted in parallel.

2. DISCUSSION

Structure related to APAC Volcanic Ash Exercise Steering Group (VOLCEX/SG)

2.1 The Asia/Pacific Volcanic Ash Exercises Steering Group (APAC VOLCEX/SG) established based on the following Decision adopted by APANPIRG/25:

Decision APANPIRG 25/47 – Establishment of a Volcanic Ash Exercises Steering Group in the APAC Region

That, an APAC volcanic ash exercise steering group be established under the MET Sub-Group and in coordination with the ATM Sub-Group [...] to organize and conduct volcanic ash exercises in the APAC Region.

2.2 At the nineteenth meeting of the APANPIRG Meteorology Sub-group meeting (MET SG/19), the chair of the MET SG proposed the structure and working arrangements of MET SG, and the MET SG/19 agreed the proposal and adopted the following Decision (refer to Report of MET SG/19).

Decision MET SG 19/2 – Expert working group of the Meteorology Sub-group (MET SG)

That, in order to assist APANPIRG with its planning and implementation work in close alignment with the Global Air Navigation Plan (GANP) and Aviation System Block Upgrade (ASBU) strategies and the APAC regional priorities, and to facilitate coordination, where necessary, with the Meteorology Panel:

- a) The following expert working groups replace the existing structure of expert task forces and working group under the MET SG:
- i) Meteorological Requirements Working Group (MET/R WG)
 - ii) Meteorological Services Working Group (MET/S WG)
 - iii) Meteorological Information Exchange (MET/IE WG); and
- b) (Omitted)

Note: The Volcanic Ash Exercises Steering Group (VOLCEX/SG) will report to the MET/S WG.

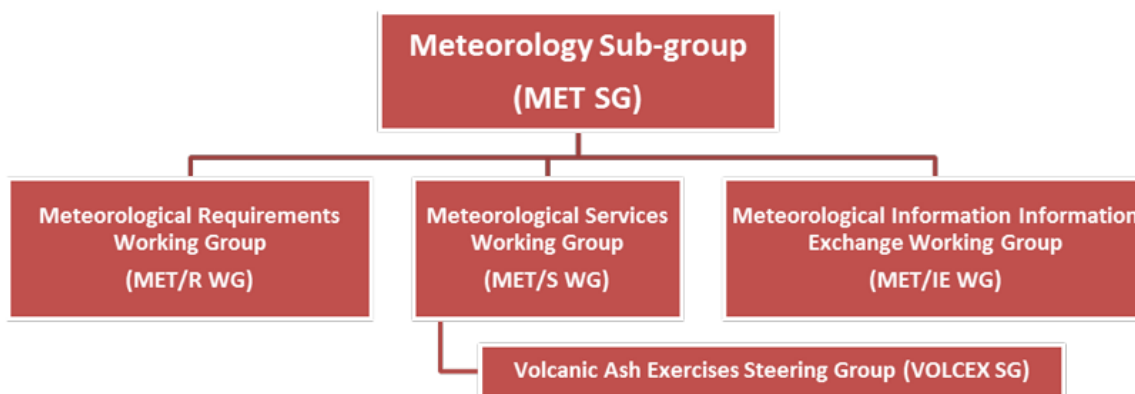


Figure 1 Proposed APANPIRG METSG Structure at the MET SG/19

Intervals of meetings of APAC VOLCEX/SG

2.3 In accordance with ICAO Doc 9766 – *Handbook on the International Airways Volcano Watch (IAVW)*, Second Edition 2004; Appendix F – *Guidance for Conducting Volcanic Ash Exercises in ICAO Regions*;

5.1 *Each ICAO region should establish an appropriate structure (e.g. focal point or steering group) for the conducting of regional volcanic ash exercises and system performance assessments. For each exercise, an exercise leader should be appointed and*

a planning meeting held approximately three months before the exercise is due to take place.

5.2 (omitted)

5.3 *After the exercise, initial exercise reports should be prepared by all participating agencies. A debrief meeting should be held soon after the exercise to discuss the exercise reports. The exercise leader should then produce a consolidated final report for consideration by the relevant ICAO group.*

2.4 However, through the experience of the First Asia/Pacific Volcanic Ash Exercise (VOLPHIN15/01), three months would be too short to prepare volcanic ash exercise/s, because there are many States/Organizations that would be involved in volcanic ash exercises in APAC Region.

2.5 Since there are many volcanos in APAC Region, it will be effective to conduct volcanic ash exercises in multiple areas. Meanwhile, it is desirable to conduct each volcanic ash exercise individually by setting a different day or different time because it will make aviation users confuse if multiple volcanic ash exercises are conducted at the same time in parallel.

2.6 It is suggested to hold a VOLCEX/SG meeting principally once a year, preferably before MET/S WG meeting, instead of holding planning and debriefing meetings each time for the individual exercises. The objective of the VOLCEX/SG meeting is to develop plans and summarize reports of volcanic ash exercises in APAC Region..

2.7 With respect to ICAO Doc 9766, Appendix F, 5.3 (debrief meeting), it is desirable that the result of each exercise should be reported to the exercise leader and ICAO Secretariat in coordination with exercise co-leaders.

Proposal of structure of APAC VOLCEX/SG

2.8 The role of the exercise leader and the (in-State) co-leader was not clear during the first volcanic ash exercise (VOLPHIN15/01).

2.9 To conduct multiple volcanic exercises in multiple areas in parallel, it is necessary to clarify the role of the exercise leader and the (in-State) co-leaders. For example;

- a) Exercise Leader
 - i) Conduct planning and debriefing meeting for volcanic ash exercises in APAC Region (usually as the VOLCEX/SG meeting)
 - ii) Publish exercise directive for each volcanic ash exercise
 - iii) Supervise volcanic ash exercise
 - iv) Report results of volcanic ash exercises including lessons learnt, as well as recommended improvements to the regional volcanic ash ATM contingency plan and global ICAO provisions, to appropriate groups in APANPIRG
- b) Exercise Co-Leader
 - i) Conduct volcanic ash exercise in coordination with directing staff
 - ii) Make GO/NO decision of the volcanic ash exercise
 - iii) Conduct CDM conference during the volcanic ash exercise

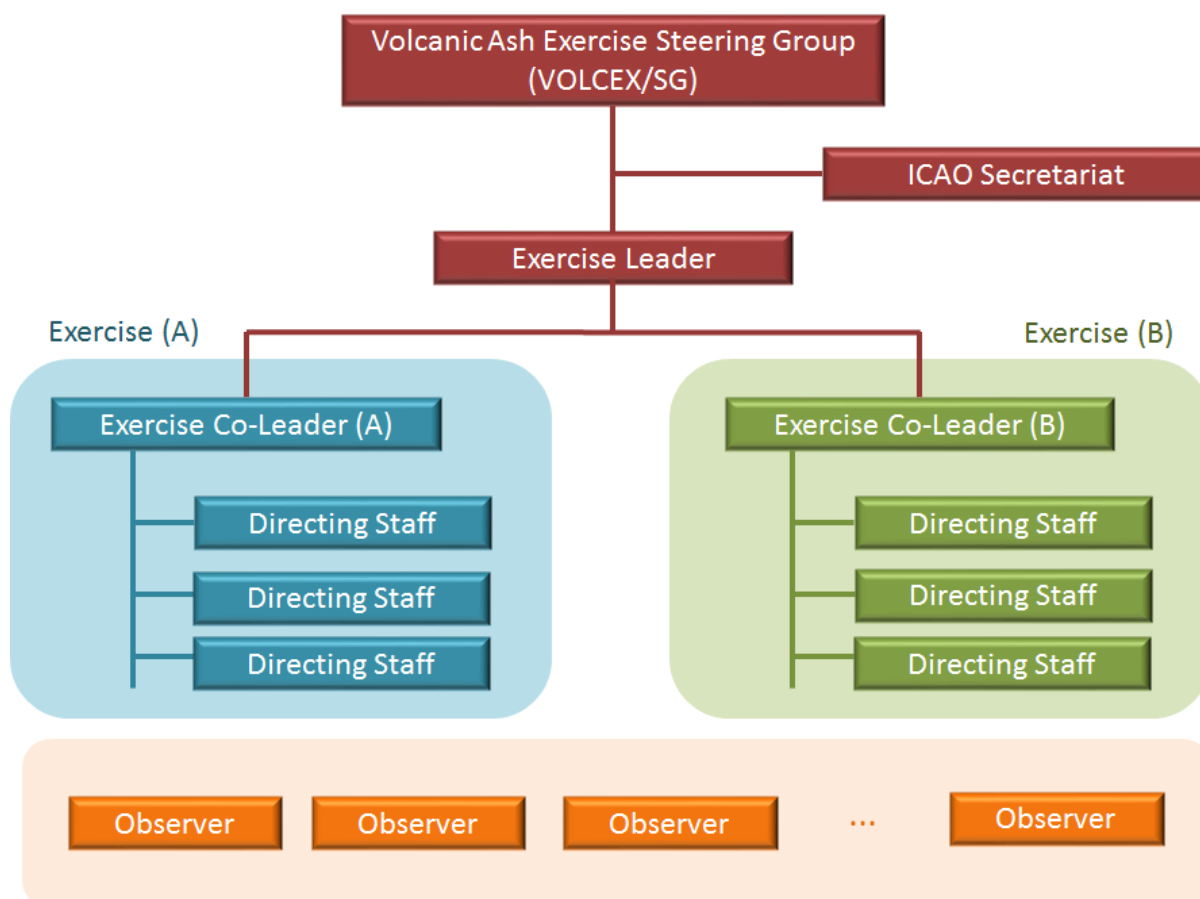


Figure 2 Proposal of VOLCEX/SG structure

Proposal of template of EXERCISE DIRECTIVE

2.10 In view of the discussion above, a template of EXERCISE DIRECTIVE for volcanic ash exercise in APAC Region is presented as Attachment of this paper.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) discuss any relevant matters as appropriate;
- c) consider the information at paragraphs 2.3 to 2.7 when formulating the future work plan of the APAC VOLCEX/SG; and
- d) adopt the template of EXERCISE DIRECTIVE presented in paragraph 2.10 (including the detailed responsibilities for Exercise Leader and Exercise Co-Leader, and development of additional guidance for CDM in the exercise directive).

ATTACHMENT

EXERCISE DIRECTIVE FOR ICAO APAC VOLCANIC ASH EXERCISE [exercise name]1. INTRODUCTION

1.1. Exercise date and time (UTC): [date and time]

1.2. Exercise Leader: [name, position, organization]

1.3. Exercise Leader is responsible for planning and report of APAC volcanic ash exercises and is expected to:

- a) Conduct planning and debriefing meeting for volcanic ash exercises in APAC Region (usually as the VOLCEX/SG meeting)
- b) Publish exercise directive for each volcanic ash exercise
- c) Supervise volcanic ash exercise
- d) Report results of volcanic ash exercises including lessons learnt, as well as recommended improvements to the regional volcanic ash ATM contingency plan and global ICAO provisions, to appropriate groups in APANPIRG

1.4. Exercise (in-State) Co-Leader : [name, position, organization]

1.5. Exercise Co-Leader is responsible for conducting each volcanic ash exercise and is expected to:

- a) Conduct volcanic ash exercise in coordination with directing staff
- b) Make GO/NO decision of the volcanic ash exercise
- c) Conduct CDM conference during the volcanic ash exercise

1.6. Debrief Meeting: VOLCEX/SG/2 (shall include Debrief for VOLPHIN15/01 and Planning for next exercise); [date, venue]

1.7. Debrief host and chairperson: (Host) [venue]; (Chairperson) Exercise Leader.

1.8. Exercise website: [URL]

2. PARTICIPATING AGENCIES

2.1. Agencies that have agreed to participate in the exercise are listed according to area of responsibility in **Appendix 1**.

2.2. Additional agencies that have agreed to observe in the exercise and provide input to the exercise debrief meeting are listed according to area of responsibility in **Appendix 2**.

3. AIMS AND OBJECTIVES

3.1. The overall objective of the exercise is to maintain enhanced safety, regularity and efficiency of aviation in the event of a volcanic eruption by demonstrating the provision and exchange of

volcanic ash information in support of flexible airspace management, improved situational awareness and collaborative decision making, and dynamically-optimized flight trajectory planning.

3.2. In particular, the exercise aims to demonstrate the practice of applicable global and regional procedures related to volcanic activity and volcanic ash, including:

- a) Distribution of alerts (e.g., VONA)
- b) Distribution of AIS and MET messages (e.g., VAA/VAG, SIGMET, NOTAM, AIREP)
- c) Response by VAACs including handover/back up procedure
- d) Responses by air traffic control and air traffic flow and capacity management units and aircraft operators (e.g., safety risk assessments, tactical re-routes)
- e) Enhanced situational awareness and CDM (e.g., via a teleconference, website, or other media)

3.3. The exercise shall be planned and conducted to ensure that detrimental effects on the aviation system performance are avoided, but that nevertheless useful experience and information is generated.

3.4. The objective of the exercise is to [...].

4. EXERCISE DURATION

4.1. The exercise shall be conducted over a period of approximately six (6) hours on [date], with the first VONA to be issued at [time] UTC and message/s to announce cessation of the exercise at [time] UTC.

5. EXERCISE VOLCANO¹

5.1. Name: [...], Number: [...], Position: [...], Area: [...]

6. EXERCISE SCENARIO

6.1. Eruption with volcanic ash cloud up to FL[flight level] and above moving [direction] at [speed] knots to impact ATS routes and airspace within [area].

6.2. Schematics of the information flow between operational units and across FIR boundaries in a volcanic ash exercise is provided in **Appendix 3**.

7. EXERCISE SCHEDULE

7.1. Participating agencies have agreed to the chronological list of the actions to be undertaken before and during the exercise, as provided in **Appendix 4**.

7.2. A schematic of the actions to be undertaken during the exercise is provided in **Appendix 5**.

8. EXERCISE SCENARIO MESSAGES

8.1. Example VONA message/s with destination list related to the exercise are provided in **Appendix 6**.

¹ Name and number as per Smithsonian database at <http://www.volcano.si.edu/>

8.2. Example VAA message/s with destination list related to the exercise are provided in **Appendix 7**.

8.3. Example VAG message/s with destination list related to the exercise are provided in **Appendix 8**.

8.4. Example SIGMET message/s with destination list related to the exercise are provided in **Appendix 9**.

8.5. Example NOTAM message/s with destination list related to the exercise are provided in **Appendix 10**.

8.6. Example AIREP SPECIAL message/s with destination list related to the exercise are provided in **Appendix 11**.

9. COMMUNICATIONS

9.1. The free text of all exercise messages, and any voice communicated exercise messages, starts and ends with:

EXERCISE EXERCISE EXERCISE

9.2. Exercise [tele-conferences/web-conferences] start with:

EXERCISE VOLPHIN15

10. DIRECTING STAFF

10.1. A list of all Directing Staff is provided at **Appendix 12**.

10.2. A list of contacts for agencies observing the exercise is provided at **Appendix 13**.

11. SPECIAL INSTRUCTIONS

11.1. Exercise GO/NO decision shall be made by the Exercise Co-Leader one day before the planned exercise commencement date/time. In case of unforeseen circumstances, such as a real volcanic eruption or other significant event affecting the air transport system, the Exercise Co-Leader may decide to either postpone the exercise to a back-up date or to cancel the exercise. A decision not to proceed, i.e., to postpone or cancel the exercise, shall be communicated to all participants and observers as early as possible before the exercise is due to commence.

11.2. Exercise CDM [tele-conference/web-conference] instructions:

A. Lead: The lead of teleconference calls should be the main ATM centre [name] of the State where the volcano is erupting (e.g. a volcano eruption in the Philippines – [name] Manila)

B. Expected participants and general information expected from each:

VO – brief update on eruption status, latest height information, source of height information; duration of event, expected activity

VAAC – brief update on VAA/VAG (are observations such as aircraft reports being used to update products)

MWO – brief update on SIGMET (if different from VAA/VAG, briefly explain why)

NOF – brief update on NOTAM and published reroutes

ACC – brief update on reroutes and coordination with ACCs and ATMC

ATMC – brief update on overall strategy (coordination with other ATMCs and ACCs)

Airlines – brief update on tactical reroutes, flight plan changes and satisfaction with reroutes

ATMC – response, if necessary, to airlines

ACC – response, if necessary, to ATMCs and airlines

*Note – script for the exercise CDM conference is provided in **Appendix 14**.*

C. Information sharing: The following web portal is available to obtain volcanic ash related products and information: [\[URL\]](#).

D. Language: Each State should arrange to have participants speak in English during the teleconferences.

E. Microphones: Each Participant should mute microphones to reduce background noise. The Leader of the teleconference will instruct the participant when to speak.

12. ABBREVIATIONS, ACRONYMS and DEFINITIONS

12.1. A list of abbreviations, acronyms and definitions used in this directive is provided at **Appendix 15**.