



*International Civil Aviation Organization*

**NINETEENTH MEETING OF THE METEOROLOGY SUB-GROUP  
(MET SG/19) OF APANPIRG**

Bangkok, Thailand, 3 – 6 August 2015

---

**Agenda Item 6: Research, development and implementation issues in the MET field**

6.3) Forecasts, advisories and warnings

**REPORT ON APAC VOLCEX/SG/1**

(Presented by Chair of APAC VOLCEX/SG)

**SUMMARY**

This paper presents a summary of the first meeting of the Asia/Pacific Volcanic Ash Exercises Steering Group (APAC VOLCEX/SG/1) of the Meteorology Sub Group (MET SG) of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG), held in Manila, Philippines, from 27 to 29 May 2015.

**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.

1.2 The meeting was attended by forty-four participants from six States, one Special Administrative Region of China and three International Organizations, including Australia, Hong Kong China, Indonesia, Japan, Malaysia, Philippines, Singapore, the International Air Transport Association (IATA), the International Federation of Air Line Pilots' Associations (IFALPA) and ICAO.

1.3 Mr. Koichiro Kakihara presided as Chair of the meeting and Mr. Peter Dunda, ICAO RO MET, and Mr. Shane Sumner, ICAO RO ATM, acted as the Secretariat and ICAO Coordinators for the meeting.

1.4 The full report of the APAC VOLCEX/SG/1 can be accessed at the following website: [http://www.icao.int/APAC/Meetings/Pages/2015-VOLCEX\\_SG1.aspx](http://www.icao.int/APAC/Meetings/Pages/2015-VOLCEX_SG1.aspx)

## 2. DISCUSSION

### Establishment and Terms of Reference of the APAC VOLCEX/SG

2.1 Guidance material for conducting volcanic ash exercises in ICAO regions was introduced in 2010 in 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*.

2.2 In accordance with Doc 9766, Appendix F, “A volcanic ash exercises steering group may be established by a PIRG to coordinate all aspects of the organization and conduct of the exercises”.

2.3 The meeting reviewed the APAC VOLCEX/SG Terms of Reference (TOR) which was adopted by the Twenty-fifth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/25) in its Decision 25/47 – *Establishment of a Volcanic Ash Exercises Steering Group in the APAC Region*. The APAC VOLCEX/SG Terms of Reference is contained in **Attachment A** of this paper.

2.4 Furthermore, the meeting noted that the volcanic ash exercise/s should be planned and conducted as far as possible within the constraints of existing ICAO Standards and Recommended Practices (SARPs) and regional air navigation agreements.

### Planning for Volcanic Ash Exercise in 2015

2.5 The meeting duly noted that, in accordance with the TOR of the APAC VOLCEX/SG and guidance material concerned, an exercise leader should be appointed for each exercise to oversee the key components of planning, conducting and follow-up of the volcanic ash exercises, and Mr. Koichiro Kakihara, the Chair of the meeting, was appointed exercise leader for the first ICAO APAC volcanic ash exercise in 2015.

2.6 The meeting agreed that, as the first ICAO volcanic ash exercise in the APAC Region, a volcanic ash exercise scenario should be restricted to involve a reasonably small group of stakeholders and adopted a scenario in which an eruption of the Taal Volcano (volcano number: 273070, position: N1400 E12100), on the island of Luzon, Philippines, emits a volcanic ash cloud that spreads northwards and contaminates the Manila FIR.

2.7 In addition, the meeting agreed that it would be beneficial to the volcanic ash exercises to appoint ‘in-State’ co-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.

2.8 The Exercise Directive for Volcanic Ash Exercise VOLPHIN15/01, which would be conducted on 11 August 2015, is contained in **Attachment B** of this paper.

### Debrief Meeting and Future Planning Meetings

2.9 The second meeting of the APAC volcanic ash exercise steering group (APAC VOLCEX/SG/2), including the debriefing meeting for the first exercise and the planning meeting for future exercise/s, would be held in the ICAO Regional Office, Bangkok on 14 - 16 September 2015.

**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.

-----

ATTACHMENT A

**APAC VOLCANIC ASH EXERCISES STEERING GROUP**

**TERMS OF REFERENCE**

**VISION**

Maintain safety, regularity and efficiency of aviation in the event of a volcanic eruption.

**OBJECTIVES**

Coordinate all aspects of the organization and conduct of volcanic ash exercises in the APAC region in order to:

1. Test volcanic activity alerting, AIS and MET message routing, volcanic ash information, air traffic control procedures, air traffic flow and capacity management and aircraft operator response and the CDM between the various actors in accordance with regional and global procedures. The exercises should be designed to:
  - a) practice the conduct of volcanic activity response in accordance with the regional reference documents;
  - b) verify existing information, AIS and MET message routing via AFTN addresses, relevant e-mail addresses, telephone and fax numbers, and internet addresses (URLs);
  - c) maintain appropriate information and message routing between all involved agencies and organizations;
  - d) provide volcanic activity response training for key personnel involved;
  - e) allow regulators to assess the preparedness and operational response in terms of planning, process and procedures of operators; and
  - f) provide, when appropriate, recommendations for amendment of the reference documents, in accordance with the lessons learned and conclusions contained in the final exercise report.
2. Ensure that detrimental effects of exercises on the aviation system performance are avoided, but that nevertheless useful experience and information is generated; and
3. Practice and develop inter-agency response to volcanic activity.

## SCOPE

There is significant regional variation in the nature, frequency, observation of and response to volcanic eruptions. As the APAC region encompasses much of the volcanically active zone known as the “Ring of Fire”, there are several States where regular air traffic flow is at risk from encounters with volcanic ash.

The IAVW was established globally to mitigate the risks; however the diverse nature of the APAC region, in terms of both its geography and its communities, is reflected by the diverse challenges faced in responding to volcanic ash events. Therefore, each exercise may have different objectives, which the scenario will be designed to address. For example, any or all of the activities listed below may be tested depending on the scope of the individual exercise:

- a) AFTN, e-mail addresses, websites, message routing and voice communications;
- b) alerting and observation of ash (e.g. use of VONA and VAR);
- c) VAAC response (e.g. volcanic ash information);
- d) ATS response (including air traffic control and AIS for NOTAM issuance);
- e) ATM response;
- f) aircraft operator response (including safety risk assessment);
- g) MWO response (i.e. SIGMET); and
- h) suitability of information, its frequency, format and content.

## DELIVERABLES

The steering group is expected to:

1. Appoint an exercise leader for volcanic ash exercise/s
2. Conduct planning meetings for volcanic ash exercise/s (initial exercise to be conducted in 2015)
3. Publish volcanic ash exercise directive/s, including:
  - ✓ Scenario/s – location/s should cover an area/s that could be affected by volcanic ash and the time/period/s should ensure volcanic ash would impact international routes
  - ✓ Procedures/instructions
  - ✓ Participants
4. Conduct volcanic ash exercise/s (initial exercise to be conducted in 2015)
5. Conduct debrief meeting/s to review the volcanic ash exercise/s, including:
  - ✓ Discuss reports
  - ✓ Review the lessons learnt

- ✓ Revise and improve the volcanic ash exercise directive/s (based on lessons learnt)
- ✓ Recommend improvements to the regional volcanic ash ATM contingency plan
- ✓ Recommend improvements to global ICAO provisions and forward to APANPIRG and/or IAVWOPSG
- ✓ Update the future work plan – for subsequent volcanic ash exercise/s
- ✓ Consolidated report to the appropriate Sub-Group/s and APANPIRG

**STAKEHOLDERS, ROLES and RESPONSIBILITIES**

<b>STAKEHOLDERS / STAKEHOLDER GROUPS<sup>1</sup></b>	<b>ROLES</b>	<b>RESPONSIBILITIES</b>
<b><u>Air navigation service providers (ANSP)<sup>2</sup></u></b>	Participant	Inform aircraft, issue ASHTAM/NOTAM, activate contingencies, forward special air-reports
Airport operators	Participant	Tactical response
<b><u>Airspace users</u></b>	Participant	Tactical response
<b><u>ICAO</u></b>	Facilitator	Support the steering group, meetings and exercises
Meteorological watch offices (MWO)	Participant	Provide MET watch, issue SIGMET, supply information on volcanic ash (VA)
Regional OPMET Data Banks (RODB)	Support	OPMET exchange
<b><u>Regulators</u></b>	Participant	Regulations
<b><u>Volcanic ash advisory centres (VAAC)</u></b>	Participant	Issue volcanic ash advisory information (VAA) including graphical format (VAG)
Volcano observatories	Participant	Send information on volcanic activity including Volcano Observatory Notice for Aviation (VONA)

**Minimum representation** (bold type underlined) required for a quorum for the volcanic ash exercises steering group<sup>3</sup>.

-----

<sup>1</sup> Includes relevant industry organizations (CANSO, IATA, AIC, IFALPA)

<sup>2</sup> Includes air traffic management (ATM), area control centres (ACC), aeronautical information services (AIS) and NOTAM offices (NOF)

<sup>3</sup> Note: A representative from each stakeholder group should be involved as necessary during each phase (planning, conducting, debrief) of volcanic ash exercises.

**VOLCANIC ASH EXERCISE DIRECTIVE**  
**ICAO ASIA/PACIFIC VOLCANIC ASH EXERCISE**  
**VOLPHIN15/01**



**DOCUMENT CHANGE RECORD**

DATE	PAGE(S) AFFECTED	
4.8.15	All Appendices 1 to 3 3 Appendix B Appendix K	Rearranged all Appendices Updated references to Appendices in accordance with changes above. Inserted the list of abbreviations, acronyms and definitions (which was previously provided at Appendix N); removed reference to Appendix N. Removed INFORMATION FLOW DIAGRAM - JAPAN (old page C-3) Corrected and updated contact details
7.8.15	Appendix A Appendix C (C – 1) Appendix K	Added new participating agencies Changed time of GO/NO decision on 10/08/2015 to 04 UTC Added new contacts, added new tables for Email address lists



## **1. INTRODUCTION**

- 1.1. **Exercise date and time** (UTC): 11 August 2015, 0000 to 0645. Note: back-up date in case of exercise NO GO decision is 25 August 2015 (see 11.1 for more details).
- 1.2. **Exercise Leader:** Mr. KAKIHARA, Koichiro, Senior Coordinator for International Aeronautical Meteorology, JMA.
- 1.3. **Exercise (in-State) Co-Leader:** Mr. Michael Mapanao, Acting Chief Air Traffic Service, CAAP.
- 1.4. **Debrief Meeting:** VOLCEX/SG/2 (shall include Debrief for VOLPHIN15/01 and Planning for next exercise); 14-16 September 2015, Bangkok
- 1.5. **Debrief host and chairperson:** (Host) ICAO Asia and Pacific Office, Bangkok, Thailand, and (Chairperson) Exercise Leader.
- 1.6. **Exercise website:** <http://ds.data.jma.go.jp/svd/vaac/data/VOLPHIN15/index.html>.

## **2. PARTICIPATING AGENCIES**

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

## **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) Responses by air traffic control and air traffic flow and capacity management units and aircraft operators (e.g., safety risk assessments, tactical re-routes)
  - d) Enhanced situational awareness and CDM (e.g., via a tele-conference/web-conference, 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 exercise is envisaged as the first of two or more exercises based in Philippines, to identify and address local and sub-regional issues. The first exercise shall be confined to the Manila FIR. The primary objective of the first exercise is to test information flows by checking AFTN addressing, message distribution, information handling and coordination between agencies.

#### **4. EXERCISE DURATION**

4.1. The exercise shall be conducted over a period of approximately six (6) hours on 11 August 2015, with the first VONA to be issued at 0045 UTC and message/s to announce cessation of the exercise at 0645 UTC.

#### **5. EXERCISE VOLCANO<sup>1</sup>**

5.1. Name: TAAL, Number: 273070, Position: N1400 E12100, Area: Philippines

#### **6. EXERCISE SCENARIO**

6.1. Eruption with volcanic ash cloud up to FL370 and above moving north at 45 knots to impact ATS routes and airspace within the Manila FIR close to and north of Manila.

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

#### **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 C**.

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

#### **8. EXERCISE SCENARIO MESSAGES**

8.1. Example VONA message/s related to the exercise are provided in **Appendix E**.

8.2. Example VAA message/s related to the exercise are provided in **Appendix F**.

8.3. Example VAG message/s related to the exercise are provided in **Appendix G**.

8.4. Example SIGMET message/s related to the exercise are provided in **Appendix H**.

8.5. Example NOTAM message/s related to the exercise are provided in **Appendix I**.

8.6. Example AIREP SPECIAL message/s related to the exercise are provided in **Appendix J**.

#### **9. COMMUNICATIONS**

9.1. The free text of all exercise messages, and any voice communicated exercise messages, starts with: **EXERCISE VOLPHIN15/01** and ends with: **EXERCISE EXERCISE EXERCISE**.

9.2. Exercise tele-conferences/web-conferences start with: **EXERCISE VOLPHIN15/01**.

---

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

## 10. **DIRECTING STAFF**

- 10.1. A list of all Directing Staff is provided at **Appendix K**.
- 10.2. A list of contacts for agencies observing the exercise is provided at **Appendix K**.

## 11. **SPECIAL INSTRUCTIONS**

11.1. **Exercise GO/NO decision** shall be made by the Exercise 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 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 tele-conference/web-conference** instructions:

**A. Lead:** The lead of tele-conference/web-conference calls should be the main ATM centre 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

VAA/VAG – 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 ATFMU

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

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

ATMC – respond, if necessary, to AO

**To be finalized in consultation with CAAP**

ACC – respond, if necessary, to ATMC and AO

**C. Information sharing:** The following web portal is available to obtain volcanic ash related products and information: <http://ds.data.jma.go.jp/svd/vaac/data/VOLPHIN15/index.html>.

**D. Language:** Each State should arrange to have participants speak in English during the tele-conference/web-conferences.

**E. Microphones:** Each Participant should mute microphones to reduce background noise. The Leader of the tele-conference/web-conference 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 below:

**Abbreviation**

<b><u>/ acronym</u></b>	<b><u>Definition</u></b>
<b>ACC</b>	Area control centre
<b>AIS</b>	Aeronautical information service
<b>AO</b>	Aircraft operator
<b>ATFMU</b>	Air traffic flow management unit
<b>ATM</b>	Air traffic management
<b>ATS</b>	Air traffic services
<b>BMKG</b>	Indonesian Agency for Meteorology, Climatology and Geophysics (Badan Meteorologi, Klimatologi, dan Geofisika)
<b>BoM</b>	Bureau of Meteorology (Australian Government)
<b>CAAP</b>	Civil Aviation Authority of the Philippines
<b>CAAS</b>	Civil Aviation Authority of Singapore
<b>CAD</b>	Civil Aviation Department (Hong Kong, China)
<b>CDM</b>	Collaborative decision making
<b>FIR</b>	Flight information region
<b>FL</b>	Flight level
<b>HKO</b>	Hong Kong Observatory
<b>JCAB</b>	Japan Civil Aviation Bureau
<b>JMA</b>	Japan Meteorological Agency
<b>MWO</b>	Meteorological watch office
<b>MSS</b>	Meteorological Service Singapore
<b>NOF</b>	International NOTAM office
<b>NOTAM</b>	A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations
<b>PAGASA</b>	Philippine Atmospheric, Geophysical and Astronomical Services Administration
<b>PHIVOLCS</b>	Philippine Institute of Volcanology and Seismology
<b>SIGMET</b>	Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations
<b>UTC</b>	Coordinated universal time
<b>VA</b>	Volcanic ash
<b>VAA</b>	Volcanic ash advisory information – issued in abbreviated plain language
<b>VAAC</b>	Volcanic ash advisory centre
<b>VAG</b>	Volcanic ash advisory information – issued in graphical format
<b>VO</b>	Volcano observatory
<b>VONA</b>	Volcano observatory notice for aviation

Table 1: Participating agencies listed by area of responsibility

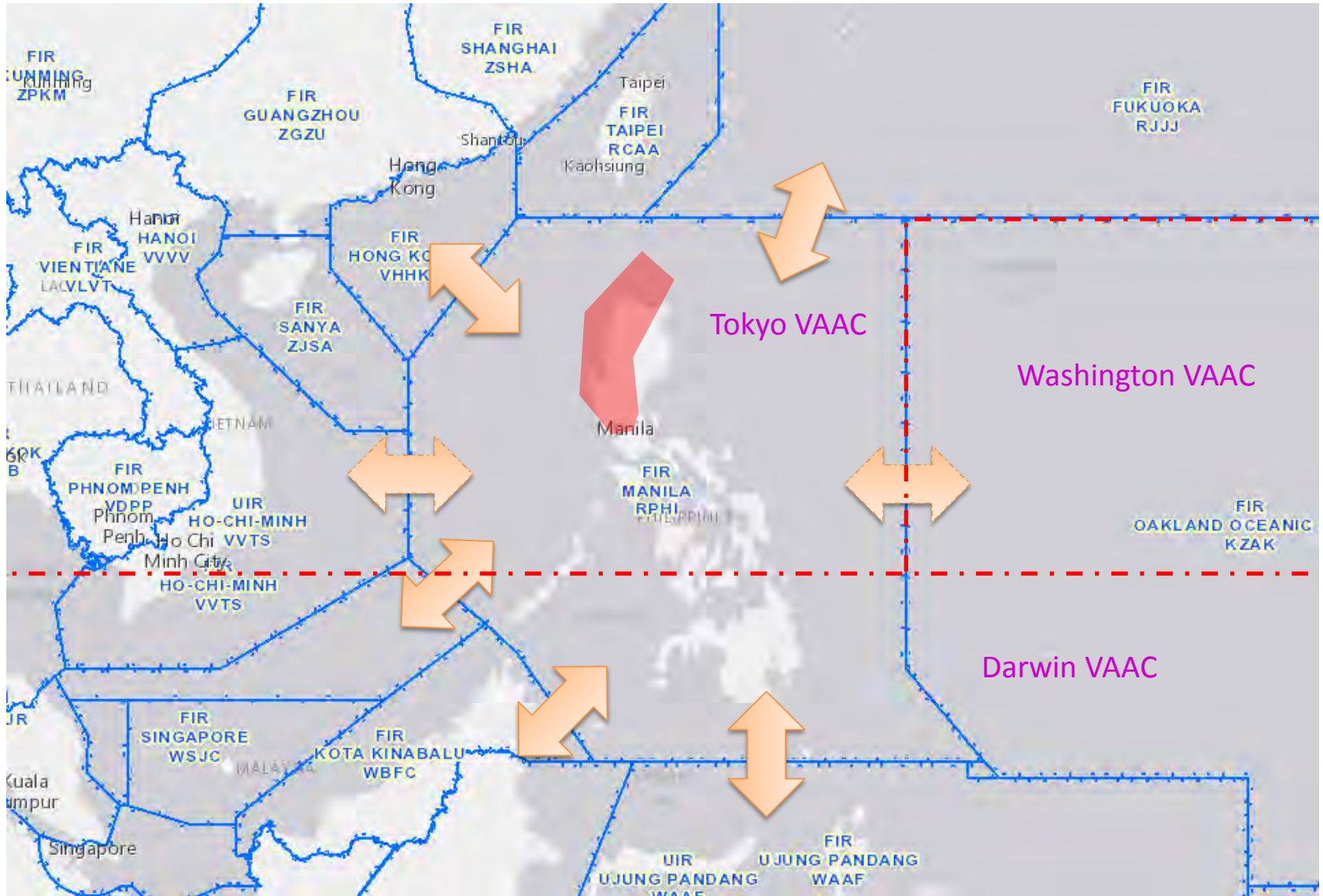
Area of responsibility	Agency	Unit/Division
Volcanic activity alerting	PHIVOLCS	VO Taal
Volcanic ash advisory information	JMA	VAAC Tokyo
SIGMET information	PAGASA	MWO Manila
Air traffic control	CAAP	ACC Manila
	CAD	ACC Hong Kong
	DCA	ACC Malaysia
Air traffic flow and capacity management	CAAP	ATFMU Manila
Aeronautical information service	CAAP	AIS – Operations
Aircraft operator response	Cebu Pacific	Dispatch Office
	AsiaAsia Indonesia	
	AirAsia X Malaysia	
	AirAsia X Thailand	
	Air Asia Group	
	Cathay Pacific Airways	
	Emirates Airlines	
	Malaysia Airlines	
	Qantas Airways	
	Philippine Airlines	
	Royal Brunei Airliens	
Singapore Airlines		
Tiger Airways Singapore		
Regulation	CAAP	Air navigation oversight and safety office
Exercise coordination	ICAO	Asia and Pacific Office

Table 2: Observing agencies listed by area of responsibility

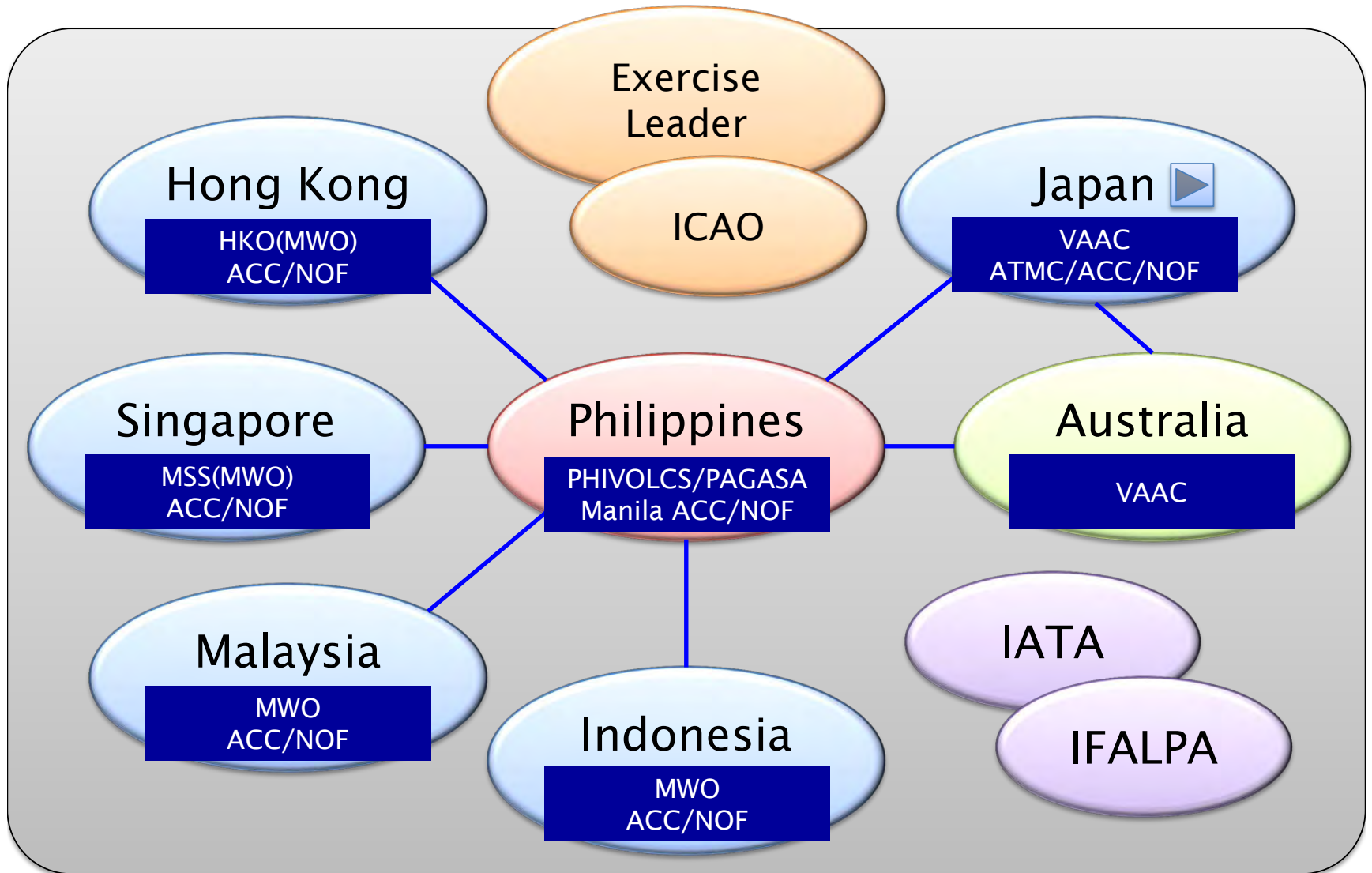
Area of responsibility	Agency	Unit/Division
Volcanic ash advisory information	BoM	VAAC Darwin
SIGMET information	JMA	MWO Tokyo
	MSS	MWO Singapore
	BMKG	MWO Jakarta
		MWO Ujung Pandang
HKO	MWO Hong Kong	
ANSP	JCAB	ATMC Fukuoka
	CAAS	ACC Singapore

Area of responsibility	Agency	Unit/Division
	CAD	ACC Hong Kong
	DCA	ACC Malaysia
Aircraft operator response	IFALPA	Asia East
	IATA	
	Philippines Airlines	
	Virgin Australia	
	Viet Nam Airlines	

# VOLPHIN15 NEIGHBORING FIR



# VOLPHIN15 EXERCISE INVOLVED PARTIES DIAGRAM

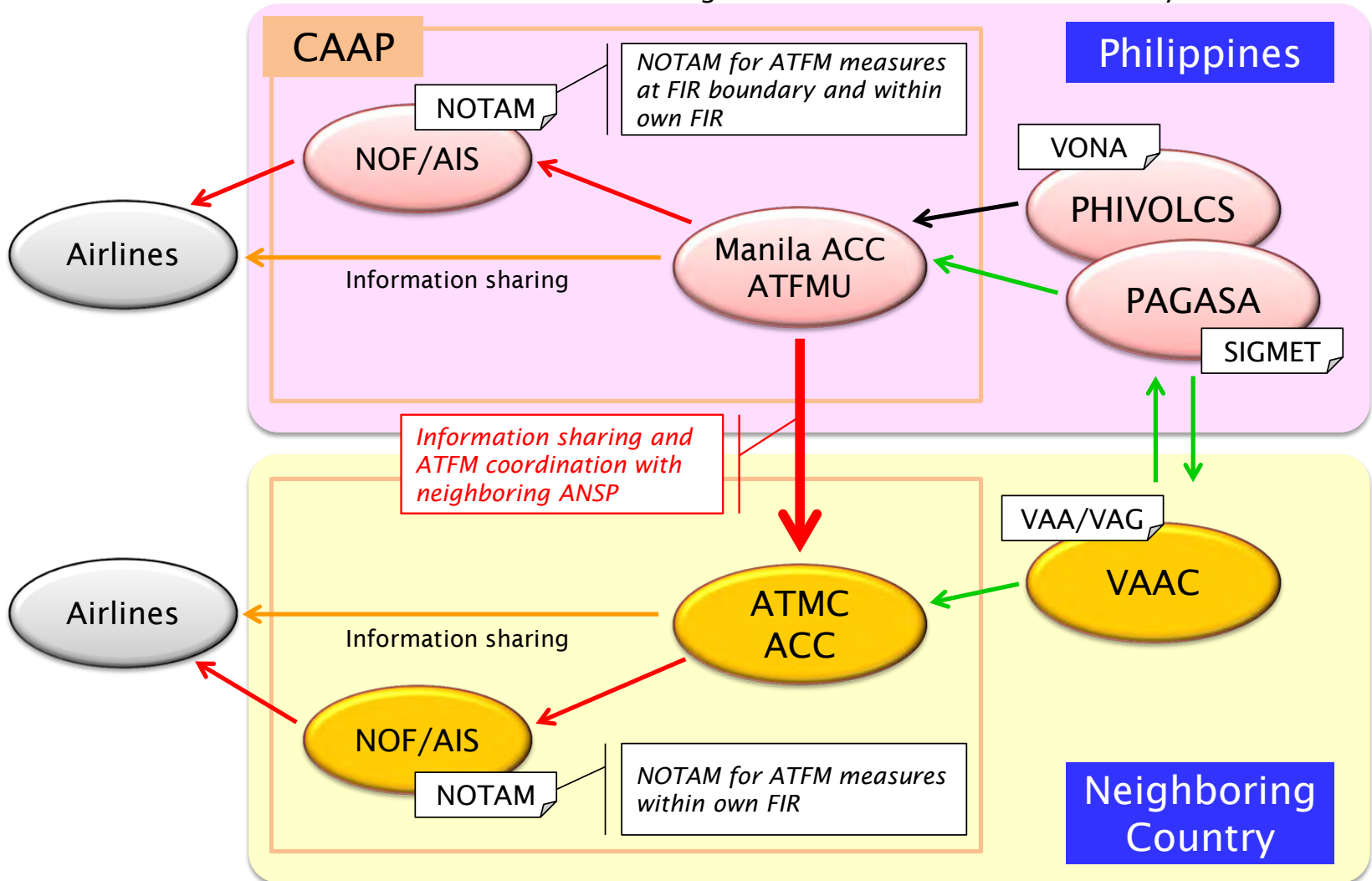




# VOLPHIN15 EXERCISE INFORMATION FLOW DIAGRAM

## - ATFM measures -

➤ Information exchange and coordination will be made by e-mail



# VOLPHIN15 EXERCISE INFORMATION FLOW DIAGRAM

## - Re-routing and Diversion -

➤ Information exchange and coordination will be made by e-mail

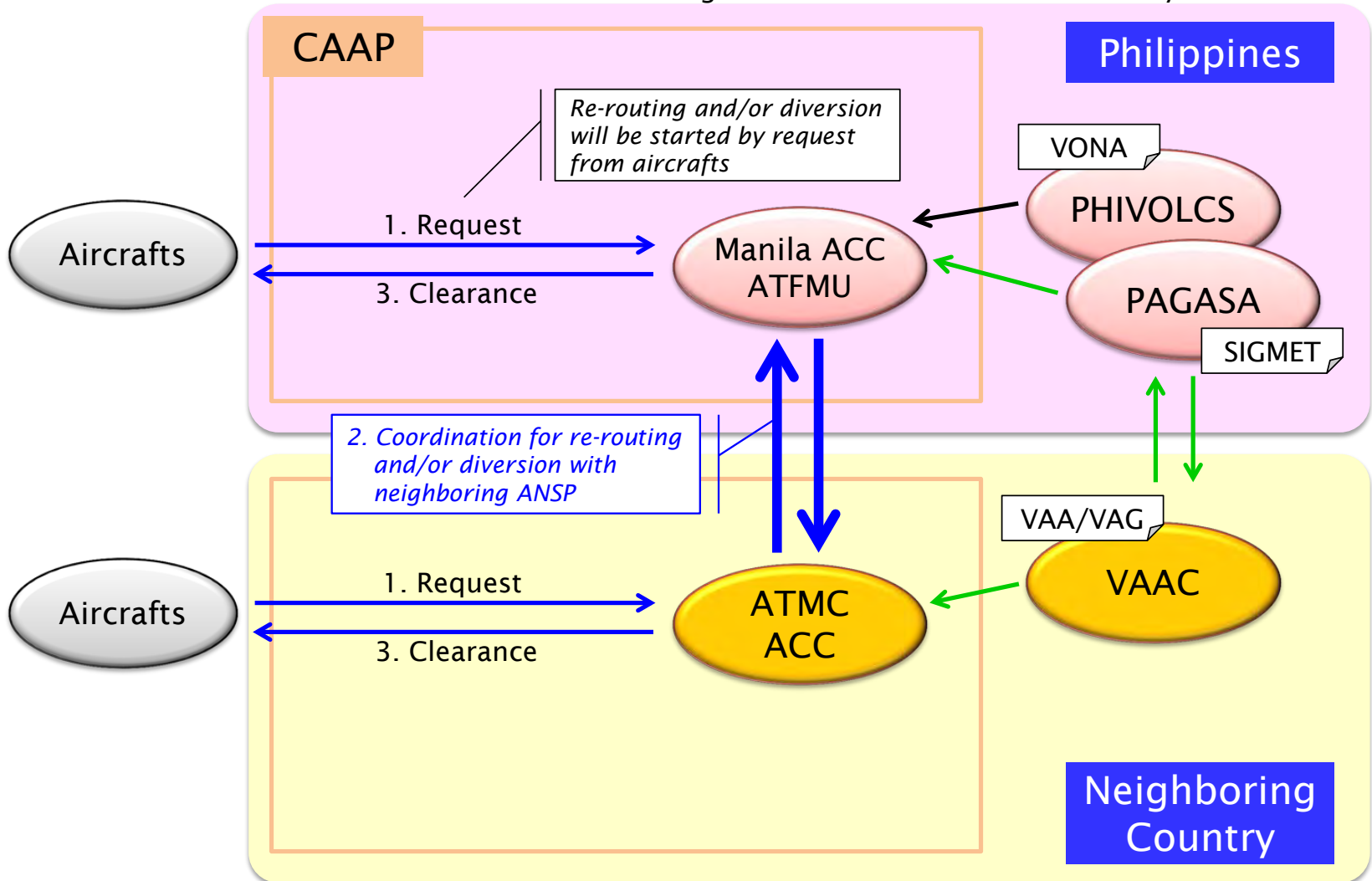


Table 1: Chronological list of Actions

<i>Date/Time (UTC)</i>	<i>Player/s</i>	<i>Event/Action</i>
<b>** Additional Actions All Units:</b> In addition to the actions listed below, all units are to take further action as necessary, in accordance with ICAO Doc 9766 <i>Handbook on International Airways Volcano Watch</i> Part 4, and any relevant local instructions/procedures.		
10/07/2015	Exercise leader, ICAO Secretariat	Publish final version of exercise directive
04/08/2015	NOF CAAP	Issue preparatory NOTAMs to inform the aviation community of the exercise
10/08/2015, 0400	Exercise Leader	GO/NO decision
11/08/2015, 0000	Exercise leader	Send email message to all players to announce commencement of the exercise
11/08/2015, 0035	—	Simulated Taal volcano eruption
11/08/2015, 0045	PHIVOLCS	Issue 1 <sup>st</sup> exercise VONA (initial eruption details)
Sequential	VAAC Tokyo, MWO Manila and ACC Manila/NOF Manila	Issue 1 <sup>st</sup> exercise VAA, SIGMET and NOTAM based on VONA
Sequential	ACC/ATFMU	Apply (simulated) ATFM measures – first response
11/08/2015, 0145	VAAC Tokyo	Issue 2 <sup>nd</sup> exercise VAA and 1 <sup>st</sup> exercise VAG based on observations/reports
Sequential	MWO Manila	Issue 2 <sup>nd</sup> exercise SIGMET based on VAA/VAG
Sequential	ACC Manila/ NOF Manila	Issue 2 <sup>nd</sup> exercise NOTAM based on SIGMET and VAA/VAG
Sequential	ACC Manila/ATFMU Manila	Apply (simulated) ATFM measures based on SIGMET
Sequential	Philippine Airlines/Cebu Pacific	Take appropriate (simulated) flight planning actions: e.g. reroute or cancel flights
Sequential	Manila ACC	Relay and record exercise special air-report
11/08/2015, 0145	Exercise leader	Send email message inviting [selected players] to join [teleconference/web conference] at 0230.
11/08/2015, 0200	AO [name]	Report aircraft observation [volcanic ash/no volcanic ash] as exercise special air-report
11/08/2015, 0230	[list selected players]	Exercise [teleconference/web conference] to discuss the latest situation This needs to be delegated to the ATM or other authority central coordinating authority e.g. ACC, ATFMU, that would normally carry out this activity (On Site Co-Leader?)
11/08/2015, 0300	VAAC Tokyo	Issue 3 <sup>rd</sup> exercise VAA and 2 <sup>nd</sup> exercise VAG based on observations/reports

<i>Date/Time (UTC)</i>	<i>Player/s</i>	<i>Event/Action</i>
Sequential	MWO Manila	Issue 3 <sup>rd</sup> exercise SIGMET based on VAA/VAG
Sequential	ACC/NOF [name/s]	Issue 3 <sup>rd</sup> exercise NOTAM based on SIGMET and VAA/VAG
Sequential	ACC/ATM Centre/s [names]	Apply (simulated) ATFM measures based on SIGMET
Sequential	AOs [name/s]	Take appropriate (simulated) flight planning actions: e.g. reroute or cancel flights
11/08/2015, 0600	VAAC Tokyo	Issue 4 <sup>th</sup> exercise VAA and 3 <sup>rd</sup> exercise VAG based on observations/reports
Sequential	MWO Manila	Issue 4 <sup>th</sup> exercise SIGMET based on VAA/VAG
Sequential	ACC/NOF [name/s]	Issue 4 <sup>th</sup> exercise NOTAM based on SIGMET and VAA/VAG
Sequential	ACC/ATM Centre/s [names]	Apply (simulated) ATFM measures based on SIGMET
Sequential	AOs [name/s]	Take appropriate (simulated) flight planning actions: e.g. reroute or cancel flights
11/08/2015, 0645	Exercise leader	Send email message to all players to announce cessation of the exercise
Sequential	PHIVOLCS	Issue VONA update (to effectively cease the exercise)
Sequential	VAAC Tokyo, MWO Manila and Manila ACC/Manila NOF	Issue final exercise VAA, cancellation exercise SIGMET and cancellation exercise NOTAM

# VOLPHIN15 actions

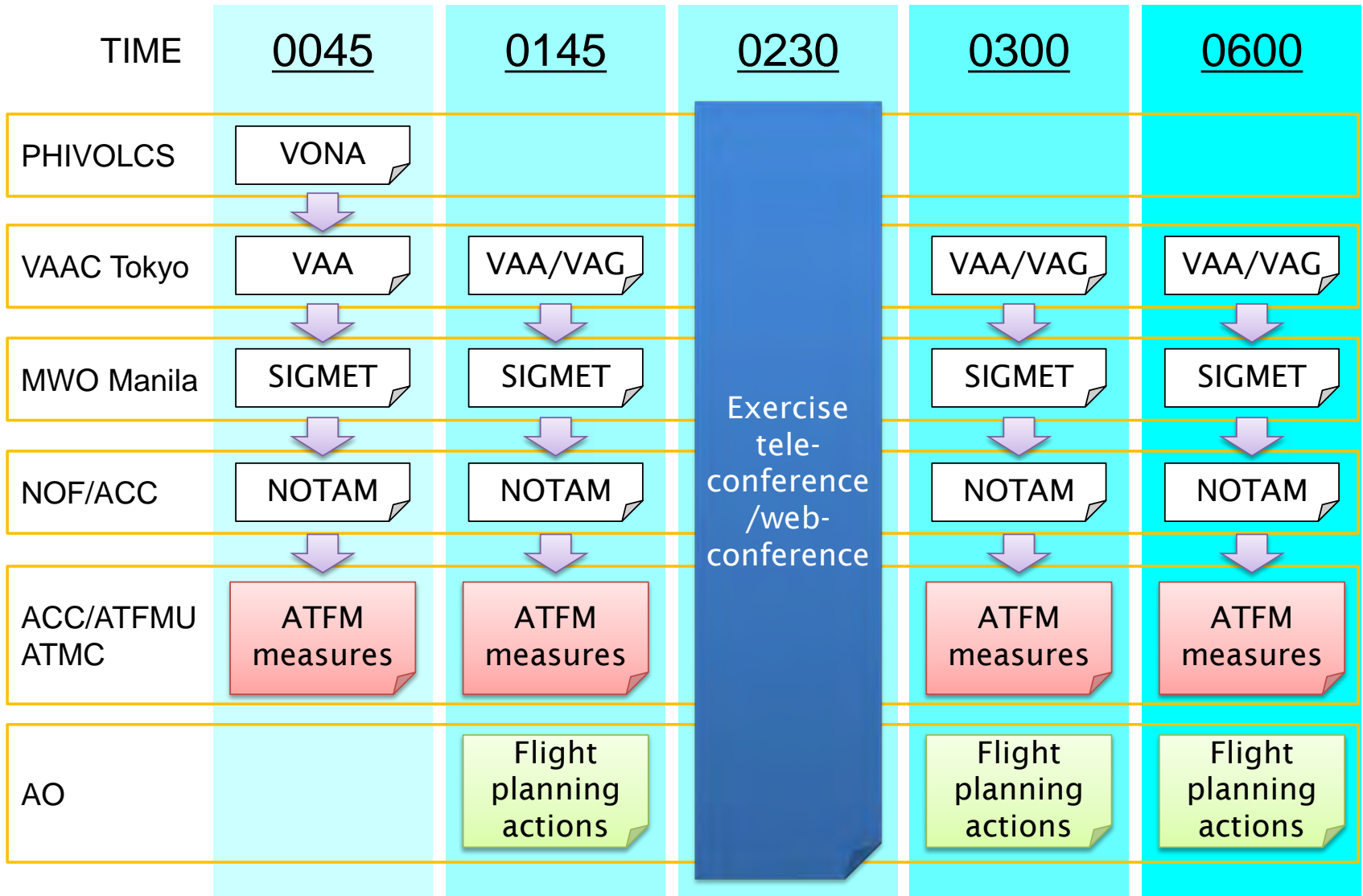


Table 1: 1<sup>st</sup> exercise VONA

EXERCISE EXERCISE EXERCISE	
(1)	VOLCANO OBSERVATORY NOTICE FOR AVIATION — VONA
(2)	Issued: 20150811/0045Z
(3)	Volcano: Taal (273070)
(4)	Current aviation colour code: <b>GREEN, YELLOW, ORANGE OR RED in upper-case bold font</b>
(5)	Previous aviation colour code: <b>Lower-case font, not bold</b>
(6)	Source: PHIVOLCS
(7)	Notice number: <b>Create unique number for each VONA that includes year</b>
(8)	Volcano location: N 14 00 E 121 00
(9)	Area: Philippines
(10)	Summit elevation: 1020 FT (311 M)
(11)	Volcanic activity summary: Eruption with volcanic ash cloud at 0035 UTC (0835 local). Eruption and ash emission is continuing.
(12)	Volcanic cloud height: Best estimate of ash-cloud top is more than 33000 FT (10000 M) above summit. Source of height data: ground observer.
(13)	Other volcanic cloud information: Ash-cloud moving to north; suspected to be higher than what can be observed clearly.
(14)	Remarks: <b>Optional. Brief comments on related topics (monitoring data, observatory actions, volcano's previous activity, etc.)</b>
(15)	Contacts: <b>Names, telephone and fax numbers, e-mail addresses.</b>
(16)	Next notice: A new VONA will be issued if conditions change significantly or the colour code is changed. <b>Latest volcanic information is posted at ????(website)</b>
EXERCISE EXERCISE EXERCISE	

Table 2: Final exercise VONA

EXERCISE EXERCISE EXERCISE	
(1)	VOLCANO OBSERVATORY NOTICE FOR AVIATION — VONA
(2)	Issued: 20150811/0645Z
(3)	Volcano: Taal (273070)
(4)	Current aviation colour code: <b>GREEN, YELLOW, ORANGE OR RED in upper-case bold font</b>
(5)	Previous aviation colour code: <b>Lower-case font, not bold</b>
(6)	Source: PHIVOLCS
(7)	Notice number: <b>Create unique number for each VONA that includes year</b>
(8)	Volcano location: N 14 00 E 121 00
(9)	Area: Philippines
(10)	Summit elevation: 1020 FT (311 M)
(11)	Volcanic activity summary: Eruption has ceased.
(12)	Volcanic cloud height: Ash-cloud not visible.
(13)	Other volcanic cloud information: Ash-cloud has dissipated.
(14)	Remarks: <b>Optional. Brief comments on related topics (monitoring data, observatory actions, volcano's previous activity, etc.)</b>
(15)	Contacts: <b>Names, telephone and fax numbers, e-mail addresses.</b>
(16)	Next notice: A new VONA will be issued if conditions change significantly or the colour code is changed. <b>Latest volcanic information is posted at ??? (website)</b>
EXERCISE EXERCISE EXERCISE	

**Table 1: 1<sup>st</sup> exercise VAA**

FVFE01 RJTD 110050  
 VA ADVISORY  
 DTG: 20150811/0050Z  
 VAAC: TOKYO  
 VOLCANO: TAAL 273070  
 PSN: N1400 E12100  
 AREA: PHILIPPINES  
 SUMMIT ELEV: 311M  
 ADVISORY NR: 9999/1  
 INFO SOURCE: EXERCISE VOLPHIN15 HIMAWARI-8 PHIVOLCS  
 AVIATION COLOUR CODE: NIL  
 ERUPTION DETAILS: EXERCISE ERUPTED AT 20150811/0035Z OVER FL370 EXTD N  
 OBS VA DTG: 11/0030Z  
 OBS VA CLD: VA NOT IDENTIFIABLE FM SATELLITE DATA WIND FL400 170/45KT  
 FCST VA CLD +6 HR: NOT AVBL  
 FCST VA CLD +12 HR: NOT AVBL  
 FCST VA CLD +18 HR: NOT AVBL  
 RMK: EXERCISE VOLPHIN15 WE WILL ISSUE FURTHER ADVISORY IF VA IS DETECTED IN SATELLITE IMAGERY EXERCISE EXERCISE EXERCISE  
 NXT ADVISORY: NO FURTHER ADVISORIES=

**Table 2: 2<sup>nd</sup> exercise VAA**

FVFE01 RJTD 110145  
 VA ADVISORY  
 DTG: 20150811/0145Z  
 VAAC: TOKYO  
 VOLCANO: TAAL 273070  
 PSN: N1400 E12100  
 AREA: PHILIPPINES  
 SUMMIT ELEV: 311M  
 ADVISORY NR: 9999/2  
 INFO SOURCE: EXERCISE VOLPHIN15 HIMAWARI-8 PHIVOLCS  
 AVIATION COLOUR CODE: NIL  
 ERUPTION DETAILS: EXERCISE ERUPTED AT 20150811/0035Z OVER FL370 EXTD N  
 OBS VA DTG: 11/0120Z  
 OBS VA CLD: SFC/FL370 N1424 E12101 - N1415 E12109 - N1405 E12105 - N1357 E12107 - N1403 E12055 - N1411 E12058 MOV N 45KT  
 FCST VA CLD +6 HR: 11/0720Z SFC/FL380 N1442 E11919 - N1629 E11926 - N1754 E12034 - N1707 E12114 - N1533 E12025 - N1355 E12044 - N1342 E11955  
 FCST VA CLD +12 HR: 11/1320Z SFC/FL380 N1915 E12058 - N1810 E12121 - N1613 E12006 - N1258 E12004 - N1300 E11903 - N1449 E11830 - N1731 E11859  
 FCST VA CLD +18 HR: 11/1920Z SFC/FL380 N1526 E11840 - N1813 E11913 - N2005 E12141 - N1857 E12148 - N1646 E12014 - N1308 E12006 - N1315 E11916  
 RMK: EXERCISE VOLPHIN15 NIL EXERCISE EXERCISE EXERCISE  
 NXT ADVISORY: 20150811/0300Z=



Table 3: 3<sup>rd</sup> exercise VAA

FVFE01 RJTD 110300  
 VA ADVISORY  
 DTG: 20150811/0300Z  
 VAAC: TOKYO  
 VOLCANO: TAAL 273070  
 PSN: N1400 E12100  
 AREA: PHILIPPINES  
 SUMMIT ELEV: 311M  
 ADVISORY NR: 9999/3  
 INFO SOURCE: EXERCISE VOLPHIN15 HIMAWARI-8  
 AVIATION COLOUR CODE: NIL  
 ERUPTION DETAILS: EXERCISE VA CONTINUOUSLY OBS ON SATELLITE IMAGERY  
 OBS VA DTG: 11/0230Z  
 OBS VA CLD: SFC/FL370 N1517 E12048 - N1453 E12113 - N1423 E12105 - N1354 E12105 - N1403 E12041 - N1440 E12035 MOV N 45KT  
 FCST VA CLD +6 HR: 11/0830Z SFC/FL380 N1705 E11926 - N1820 E12030 - N1733 E12110 - N1554 E12015 - N1356 E12031 - N1356 E11948 -  
 N1457 E11920  
 FCST VA CLD +12 HR: 11/1430Z SFC/FL390 N1518 E11835 - N1800 E11911 - N1939 E12107 - N1831 E12126 - N1654 E12009 - N1251 E12004 -  
 N1258 E11911  
 FCST VA CLD +18 HR: 11/2030Z SFC/FL380 N1540 E11842 - N1828 E11910 - N2016 E12141 - N1907 E12148 - N1705 E12012 - N1256 E12002 -  
 N1319 E11905  
 RMK: EXERCISE VOLPHIN15 NIL EXERCISE EXERCISE EXERCISE  
 NXT ADVISORY: 20150811/0600Z=

Table 4: 4<sup>th</sup> exercise VAA

```

FVFE01 RJTD 110600
VA ADVISORY
DTG: 20150811/0600Z
VAAC: TOKYO
VOLCANO: TAAL 273070
PSN: N1400 E12100
AREA: PHILIPPINES
SUMMIT ELEV: 311M
ADVISORY NR: 9999/4
INFO SOURCE: EXERCISE VOLPHIN15 HIMAWARI-8
AVIATION COLOUR CODE: NIL
ERUPTION DETAILS: EXERCISE VA CONTINUOUSLY OBS ON SATELLITE IMAGERY
OBS VA DTG: 11/0530Z
OBS VA CLD: SFC/FL370 N1651 E12034 - N1624 E12112 - N1524 E12059 - N1406 E12104 - N1406 E12035 - N1502 E12017 - N1606 E12022 MOV
N 45KT
FCST VA CLD +6 HR: 11/1130Z SFC/FL380 N1510 E11859 - N1746 E11938 - N1900 E12104 - N1754 E12130 - N1614 E12014 - N1324 E12015 -
N1339 E11922
FCST VA CLD +12 HR: 11/1730Z SFC/FL380 N1820 E11912 - N1949 E12116 - N1844 E12126 - N1647 E12008 - N1259 E11957 - N1319 E11907 -
N1522 E11837
FCST VA CLD +18 HR: 11/2330Z SFC/FL380 N1850 E11922 - N2037 E12206 - N1913 E12204 - N1714 E12012 - N1247 E12002 - N1319 E11910 -
N1615 E11834
RMK: EXERCISE VOLPHIN15 NIL EXERCISE EXERCISE EXERCISE
NXT ADVISORY: 20150811/0900Z=

```

Table 5: Final exercise VAA

FVFE01 RJTD 110650  
VA ADVISORY  
DTG: 20150811/0650Z  
VAAC: TOKYO  
VOLCANO: TAAL 273070  
PSN: N1400 E12100  
AREA: PHILIPPINES  
SUMMIT ELEV: 311M  
ADVISORY NR: 9999/5  
INFO SOURCE: EXERCISE VOLPHIN15 HIMAWARI-8  
AVIATION COLOUR CODE: NIL  
ERUPTION DETAILS: EXERCISE VA DISSIPATED ON SATELLITE IMAGERY  
OBS VA DTG: 11/0630Z  
OBS VA CLD: VA NOT IDENTIFIABLE FM SATELLITE DATA WIND FL180 170/40KT  
FCST VA CLD +6 HR: NO VA EXP  
FCST VA CLD +12 HR: NO VA EXP  
FCST VA CLD +18 HR: NO VA EXP  
RMK: EXERCISE VOLPHIN15 END EXERCISE EXERCISE EXERCISE  
NXT ADVISORY: NO FURTHER ADVISORIES=

Table 1: 1<sup>st</sup> exercise VAG

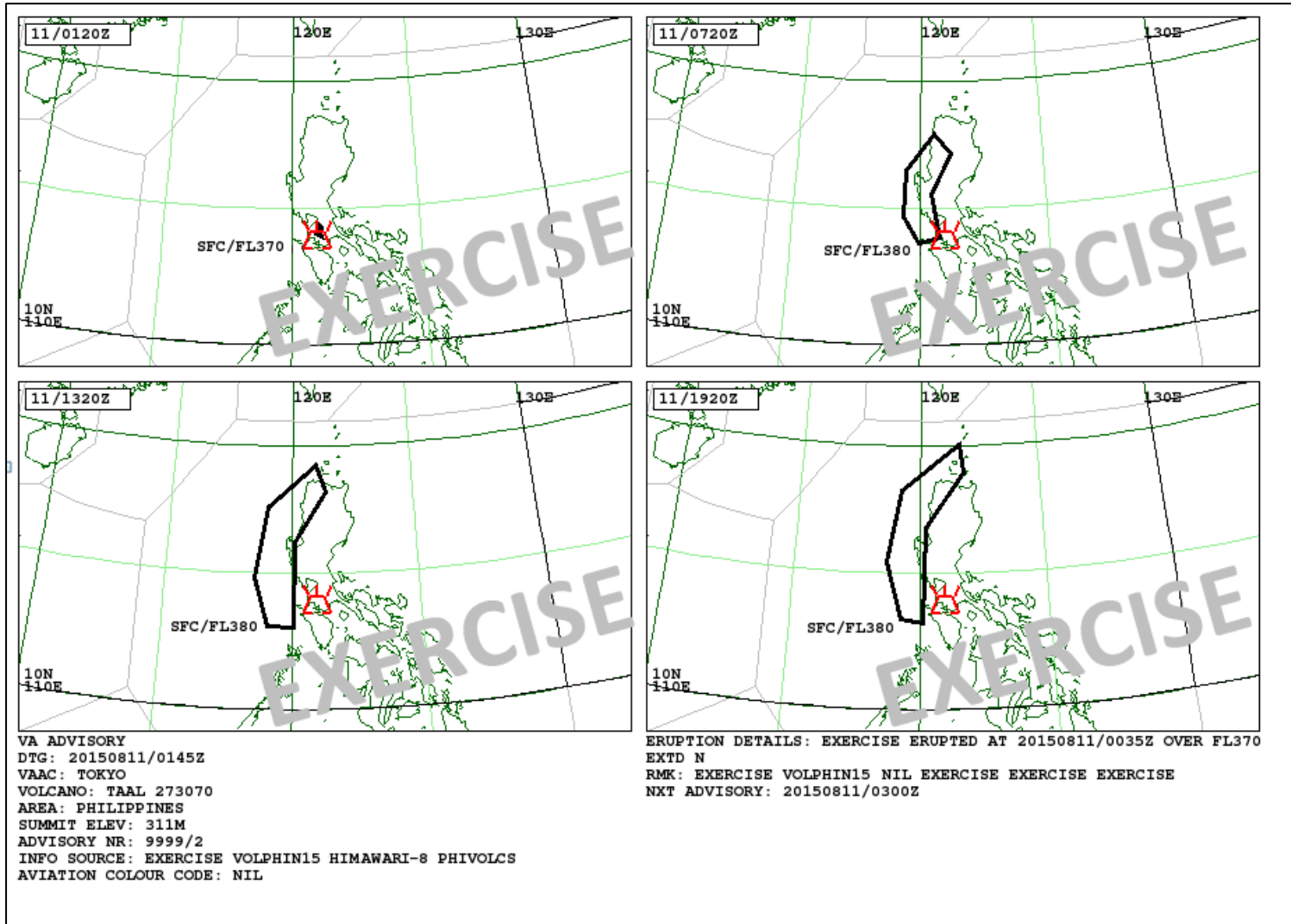


Table 2: 2<sup>nd</sup> exercise VAG

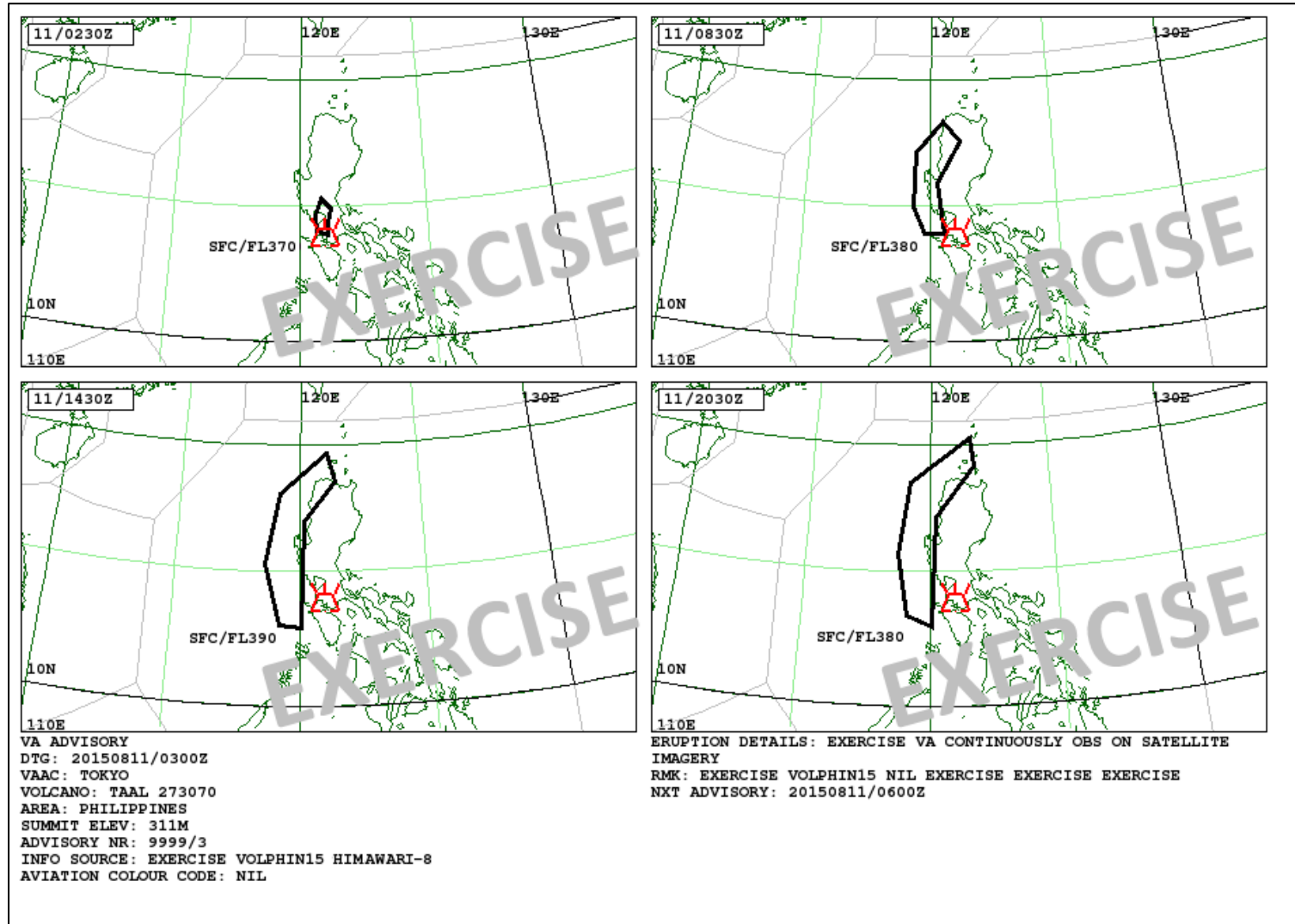
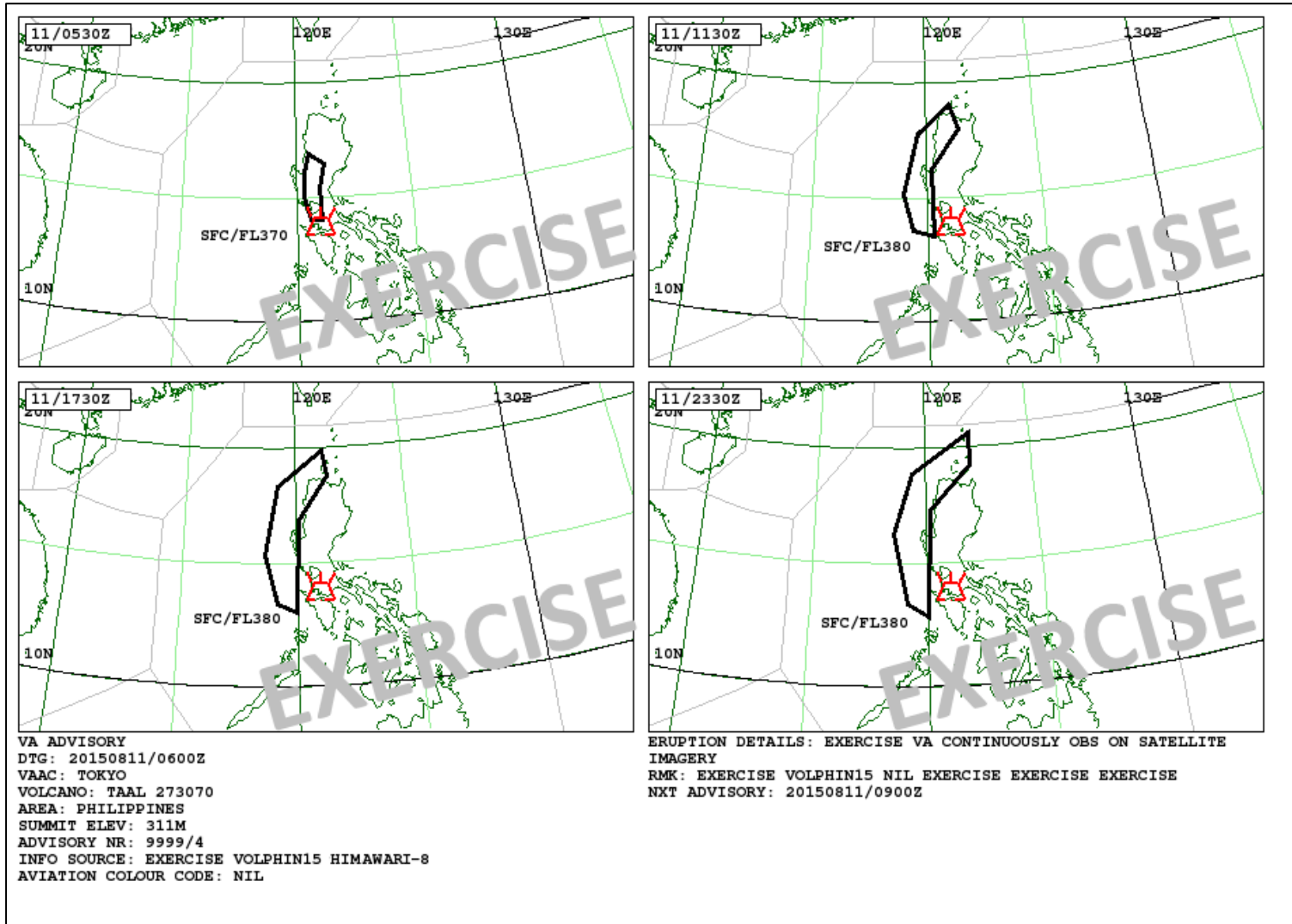


Table 3: 3<sup>rd</sup> exercise VAG



**Table 1: 1<sup>st</sup> exercise SIGMET**

WVPH31 RPLL 110055  
 RPHI SIGMET [nn]n VALID 110055/110155 RPLL-  
 RPHI MANILA FIR EXERCISE VOLPHIN15/01 VA ERUPTION MT TAAL PSN N1400 E12100 VA CLD OBS AT 0035Z SFC/FL370 MOV N 45KT  
 NC EXERCISE EXERCISE EXERCISE=

**Table 2: 2<sup>nd</sup> exercise SIGMET**

WVPH31 RPLL 110150  
 RPHI SIGMET [nn]n VALID 110150/110720 RPLL-  
 RPHI MANILA FIR EXERCISE VOLPHIN15/01 VA ERUPTION MT TAAL PSN N1400 E12100 VA CLD OBS AT 0120Z WI N1424 E12101 -  
 N1415 E12109 - N1405 E12105 - N1357 E12107 - N1403 E12055 - N1411 E12058 SFC/FL370 MOV N 45KT NC FCST 0720Z VA CLD  
 APRX N1442 E11919 - N1629 E11926 - N1754 E12034 - N1707 E12114 - N1533 E12025 - N1355 E12044 - N1342 E11955  
 SFC/FL380 EXERCISE EXERCISE EXERCISE=

**Table 3: 3<sup>rd</sup> exercise SIGMET**

WVPH31 RPLL 110305  
 RPHI SIGMET [nn]n VALID 110305/110830 RPLL-  
 RPHI MANILA FIR EXERCISE VOLPHIN15/01 VA ERUPTION MT TAAL PSN N1400 E12100 VA CLD OBS AT 0230Z WI N1517 E12048 -  
 N1453 E12113 - N1423 E12105 - N1354 E12105 - N1403 E12041 - N1440 E12035 SFC/FL370 MOV N 45KT NC FCST 0830Z VA CLD  
 APRX N1705 E11926 - N1820 E12030 - N1733 E12110 - N1554 E12015 - N1356 E12031 - N1356 E11948 - N1457 E11920  
 SFC/FL380 EXERCISE EXERCISE EXERCISE=

**Table 4: 4<sup>th</sup> exercise SIGMET**

WVPH31 RPLL 110605  
 RPHI SIGMET [nn]n VALID 110605/111130 RPLL-  
 RPHI MANILA FIR EXERCISE VOLPHIN15/01 VA ERUPTION MT TAAL PSN N1400 E12100 VA CLD OBS AT 0530Z WI N1651 E12034 -  
 N1624 E12112 - N1524 E12059 -  
 N1406 E12104 - N1406 E12035 - N1502 E12017 - N1606 E12022 SFC/FL370 MOV N 45KT NC FCST 1130Z VA CLD APRX N1510  
 E11859 - N1746 E11938 - N1900 E12104 - N1754 E12130 - N1614 E12014 - N1324 E12015 - N1339 E11922 SFC/FL380 EXERCISE  
 EXERCISE EXERCISE=

**Table 5: Final exercise SIGMET**

WVPH31 RPLL 110655  
 RPHI SIGMET [nn]n VALID 110605/111130 RPLL-  
 RPHI MANILA FIR EXERCISE VOLPHIN15/01 CANCEL SIGMET [nn]n 110605/111130 EXERCISE EXERCISE EXERCISE=

**Table 1: Preparatory NOTAM (issued 1 week prior to exercise)**

(Axxxx/15 NOTAMN Q) RPHI/QWWXX/IV/NBO/W/000/999/1400N12100E999  
A) RPHI  
B) 1508110035  
C) 1508110700  
D)  
E) EXERCISE VOLPHIN15/01 VOLCANIC ASH EXERCISE TAKES PLACE 11 AUGUST FROM 00:00 TO APPROX. 07:00UTC. EXERCISE NAME: VOLPHIN15/01. EXERCISE VOLCANO: TAAL 273070 N14 00 E121 00 PHILIPPINES. FREE TEXT OF PROMULGATED EXERCISE MESSAGES STARTS WITH: EXERCISE VOLPHIN15/01. FREE TEXT OF EXERCISE MESSAGES ENDS WITH: EXERCISE EXERCISE EXERCISE.  
F) SFC  
G) UNL)

**Table 2: 1<sup>st</sup> exercise NOTAM**

(Axxxx/15 NOTAMN Q) RPHI/QWWXX/IV/NBO/W/000/999/1400N12100E999  
A) RPHI  
B) 1508110035  
C) 1508110700EST  
D)  
E) EXERCISE VOLPHIN15/01. ERUPTION OF VOLCANO TAAL 273070 N14 00 E121 00 PHILIPPINES AS REPORTED BY VOLCANO OBSERVATORY AT 00:35 UTC. VOLCANIC ASH CLOUD OBSERVED BY GROUND OBSERVER. EXERCISE EXERCISE EXERCISE.  
F) SFC  
G) 34000FT AMSL)

**Table 3: 2<sup>nd</sup> exercise NOTAM**

(Axxxx/15 NOTAMR Q) Axxxx/15 RPHI/QWWXX/IV/NBO/W/000/999/1400N12100E999  
A) RPHI  
B) 1508110035  
C) 1508110700EST  
D)  
E) EXERCISE VOLPHIN15/01. ERUPTION OF VOLCANO TAAL 273070 N14 00 E121 00 PHILIPPINES AS REPORTED BY VOLCANO OBSERVATORY AT 00:35 UTC. VOLCANIC ASH CLOUD MOVING N. REFERENCE VOLCANIC ASH ADVISORY INFORMATION ISSUED BY VOLCANIC ASH ADVISORY CENTRE (VAAC) TOKYO IN ABBREVIATED PLAIN LANGUAGE (VAA) AND IN GRAPHICAL FORMAT (VAG) AS WELL AS SIGMET ISSUED BY METEOROLOGICAL WATCH OFFICE (MWO) MANILA. 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. EXERCISE EXERCISE EXERCISE.  
F) SFC  
G) FL380)



VOLPHIN15-01 - EXERCISE DIRECTIVE - APPENDIX-I (Version 7.08.15).docx

Table 4: 3<sup>rd</sup> exercise NOTAM

(Axxxx/15 NOTAMR Q) Axxxx/15 RPHI/QWWXX/IV/NBO/W/000/999/1400N12100E999  
A) RPHI  
B) 1508110035  
C) 1508110700EST  
D)  
E) EXERCISE VOLPHIN15/01. ERUPTION OF VOLCANO TAAL 273070 N14 00 E121 00 PHILIPPINES AS REPORTED BY VOLCANO OBSERVATORY AT 00:35 UTC. VOLCANIC ASH CLOUD CONTINUOUSLY OBSERVED ON SATELLITE IMAGERY MOVING N. REFERENCE VOLCANIC ASH ADVISORY INFORMATION ISSUED BY VOLCANIC ASH ADVISORY CENTRE (VAAC) TOKYO IN ABBREVIATED PLAIN LANGUAGE (VAA) AND IN GRAPHICAL FORMAT (VAG) AS WELL AS SIGMET ISSUED BY METEOROLOGICAL WATCH OFFICE (MWO) MANILA. 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. EXERCISE EXERCISE EXERCISE.  
F) SFC  
G) FL390)

Table 5: 4<sup>th</sup> exercise NOTAM

(Axxxx/15 NOTAMR Q) Axxxx/15 RPHI/QWWXX/IV/NBO/W/000/999/1400N12100E999  
A) RPHI  
B) 1508110035  
C) 1508110700EST  
D)  
E) EXERCISE VOLPHIN15/01. ERUPTION OF VOLCANO TAAL 273070 N14 00 E121 00 PHILIPPINES AS REPORTED BY VOLCANO OBSERVATORY AT 00:35 UTC. VOLCANIC ASH CLOUD CONTINUOUSLY OBSERVED ON SATELLITE IMAGERY MOVING N. REFERENCE VOLCANIC ASH ADVISORY INFORMATION ISSUED BY VOLCANIC ASH ADVISORY CENTRE (VAAC) TOKYO IN ABBREVIATED PLAIN LANGUAGE (VAA) AND IN GRAPHICAL FORMAT (VAG) AS WELL AS SIGMET ISSUED BY METEOROLOGICAL WATCH OFFICE (MWO) MANILA. 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. EXERCISE EXERCISE EXERCISE.  
F) SFC  
G) FL380)

Table 6: Final exercise NOTAM

(Axxxx/15 NOTAMC Q) Axxxx/15 RPHI/QWWCN/IV/NBO/W/000/999/1400N12100E999  
A) RPHI  
B) 1508110035  
C) 1508110645  
D)  
E) EXERCISE VOLPHIN15/01. ERUPTION HAS CEASED OF VOLCANO TAAL 273070 N14 00 E121 00 PHILIPPINES AS REPORTED BY VOLCANO OBSERVATORY AT 06:45 UTC. VOLCANIC ASH CLOUD HAS DISSIPATED. VOLCANIC ASH CLOUD NO LONGER VISIBLE. VOLCANIC ASH EXERCISE VOLPHIN15/01 HAS CONCLUDED. EXERCISE EXERCISE EXERCISE.  
F)  
G))

**Table 1: Special air-report as spoken in radiotelephony**

AIREP SPECIAL <i>aircraft identification</i> POSITION <i>latitude and longitude</i> <i>time</i> FLIGHT LEVEL <i>number</i> CLIMBING[DESCENDING] TO FLIGHT LEVEL <i>number</i> VOLCANIC ASH CLOUD EXERCISE VOLPHIN15/01 EXERCISE EXERCISE EXERCISE
--

**Table 2: Special air-report as recorded by the ATS unit and forwarded to the MET office concerned**

ARS <i>nnnnnn</i> <i>nnnnNnnnnn</i> E <i>hhmm</i> <i>Fnnn</i> ASC[DES] <i>Fnnn</i> VA CLD EXERCISE VOLPHIN15/01 EXERCISE EXERCISE EXERCISE=
---

**Table 3: Special air-report by air-ground data link**

ARS <i>nnnnnn</i> <i>Nnnnn</i> <i>Ennnnn</i> <i>FLnnn</i> [or <i>FLnnn</i> to <i>FLnnn</i> ] OBS AT <i>0200Z</i> <i>nnn/nnnKT</i> <i>n</i> <i>TMnnn</i> VA CLD [ <i>FLnnn/FLnnn</i> ] [or VA MT TAAL] EXERCISE VOLPHIN15/01 EXERCISE EXERCISE EXERCISE=
--

**Table 4: Special air-report (uplink)**

ARS <i>nnnnnn</i> VA CLD [ <i>FLnnn/FLnnn</i> ] [or VA MT TAAL] OBS AT <i>0200Z</i> <i>NnnnnEnnnnn</i> <i>FLnnn</i> EXERCISE VOLPHIN15/01 EXERCISE EXERCISE EXERCISE=
--

Table 1: Directing Staff listed by area of responsibility

<i>Area of responsibility</i>	<i>State and Organization</i>	<i>Contact name</i>	<i>Contact position</i>	<i>Telephone/Fax numbers</i>	<i>Email and skype address/es</i>
Exercise Leader	<b>JAPAN</b> JMA	Mr. Koichiro KAKIHARA	Senior Coordinator for International Aeronautical Meteorology	Tel: +81(3) 3212 8968 Mob: +81(90)46144756 Fax: +81(3) 3212 8968	<a href="mailto:k-kakihara@met.kishou.go.jp">k-kakihara@met.kishou.go.jp</a> <a href="mailto:kakihara516@gmail.com">kakihara516@gmail.com</a>
In-State Exercise Co-Leader	<b>PHILIPPINES</b> CAAP	Mr. Michael MAPANAO	Acting Chief Air Traffic Service	Tel: +63 (2) 879 9160 Mob:+63 949 388 7877 Fax: +63 (2) 879 9160	<a href="mailto:mikeecho905@yahoo.com">mikeecho905@yahoo.com</a> skype: lcldrvolph
Lead VO	<b>PHILIPPINES</b> PHIVOLCS	Dr Winchelle Ian SEVILLA	Supervising Science Research Specialist	Tel: +63 (424) 1468 Loc. 127 Mob:+63(0)9178342677	<a href="mailto:winchelle.sevilla@phivolcs.dost.gov.ph">winchelle.sevilla@phivolcs.dost.gov.ph</a> <a href="mailto:winch.sevilla@gmail.com">winch.sevilla@gmail.com</a>
	<b>PHILIPPINES</b> PHIVOLCS (Taal VO)	Mr. Paolo D. RENIVA		Tel: +63 (43) 7730293 Mob:+63 (927) 6749599 Fax: +63 (43) 7730293	<a href="mailto:paolo.reniva@phivolcs.dost.gov.ph">paolo.reniva@phivolcs.dost.gov.ph</a> <a href="mailto:pdr71@yahoo.com">pdr71@yahoo.com</a> <a href="mailto:tvo.vmepd@phivolcs.dost.gov.ph">tvo.vmepd@phivolcs.dost.gov.ph</a> (operational)
Lead VAAC	<b>JAPAN</b> JMA (VAAC Tokyo)	Ms. Yohko IGARASHI	Scientific Officer	Tel: +81 (3) 3284 1749 Mob:+81(90) 5440 4615 Fax: +81 (3) 3212 3648	<a href="mailto:y_igarashi@met.kishou.go.jp">y_igarashi@met.kishou.go.jp</a> <a href="mailto:igacco@gmail.com">igacco@gmail.com</a>
Lead MWO	<b>PHILIPPINES</b> PAGASA (MWO Manila)	Ms. Hannagrace CRISTI	Senior Weather Specialist, Aeronautical MET Services Section	Tel: +63 (2) 852 2927 Fax: +63 (2) 852 2927 Mob: +63 917 456 9882	<a href="mailto:hannacristi@yahoo.com">hannacristi@yahoo.com</a> skype: hannacristi1
Lead ACC, ANSP	<b>PHILIPPINES</b> CAAP (Manila ACC)	Ms. Melba ACURANTES	Assistant Facility Chief for Operations, Air Traffic Service	Tel: +63 (2) 879 9181 Mob: +63 917 838 5562 Fax: +63 (2) 879 9181	<a href="mailto:enroutectlvolph@gmail.com">enroutectlvolph@gmail.com</a> <a href="mailto:ms_acurantes@yahoo.com">ms_acurantes@yahoo.com</a>

<i>Area of responsibility</i>	<i>State and Organization</i>	<i>Contact name</i>	<i>Contact position</i>	<i>Telephone/Fax numbers</i>	<i>Email and skype address/es</i>
Lead NOF, ANSP	<b>PHILIPPINES</b> CAAP (NOF)	Ms. Maria RUMELA CORTES	Facility In Charge Aeronautical Information Service – Operations	Tel:+63(2)879 9288/113 Fax: +63 (2) 879 9113 Mob: +63 917 707 1724	<a href="mailto:phil.aisops@gmail.com">phil.aisops@gmail.com</a>
Operations & Rescue Coordination	<b>PHILIPPINES</b> CAAP (Operations & Rescue Coordination Centre)	Ms. Maria Jocelyn S LIM	Chief, Operations & Rescue Coordination Centre	Tel:+63 (2) 879 9112 Fax:+63 (2) 879 9110 Mob:+63 917 515 6972	<a href="mailto:emergpretransportphl@gmail.com">emergpretransportphl@gmail.com</a> <a href="mailto:caap_orcc@yahoo.com.ph">caap_orcc@yahoo.com.ph</a>
AO, airspace user	<b>PHILIPPINES</b> Cebu Pacific Air	Mr. Roehl (Bambi) A. BRILLANTES	Manager – Dispatch Office	Tel:+63 2 863 2988 local 3510 +63 922 861296 (mob)	<a href="mailto:Roehl.Brillantes@cebupacificair.com">Roehl.Brillantes@cebupacificair.com</a>
	<b>PHILIPPINES</b> Philippine Airlines	Mr. Tomas SOTTO	PALEX Dispatch	Mob: +63 917 509 5046	<a href="mailto:tomas_sotto@pal.com.ph">tomas_sotto@pal.com.ph</a> skype: sottomas0228
	<b>Air Asia Group</b>	Mr. Leslie WU			<a href="mailto:wutahow@airasia.com">wutahow@airasia.com</a>
	<b>AUSTRALIA</b> Qantas	Mr. Graham RENNIE			<a href="mailto:grennie@qantas.com.au">grennie@qantas.com.au</a>
	<b>BRUNEI</b> Royal Brunei Airline	Mr. Pg Hamlee NOR			<a href="mailto:ocmcc@rba.com.bn">ocmcc@rba.com.bn</a>
	<b>HONG KONG, CHINA</b> Cathay Pacific Airways	Mr. Kelvin POON			<a href="mailto:kelvin_poon@cathaypacific.com">kelvin_poon@cathaypacific.com</a>
	<b>MALAYSIA</b> Malaysia Airlines		Flight Dispatch		<a href="mailto:KULOCMH@malaysiaairlines.com">KULOCMH@malaysiaairlines.com</a>

<i>Area of responsibility</i>	<i>State and Organization</i>	<i>Contact name</i>	<i>Contact position</i>	<i>Telephone/Fax numbers</i>	<i>Email and skype address/es</i>
	<b>MALAYSIA</b> AirAsia X Malaysia	Mr. Ang Giap SAN		Tel: +60192130371	<a href="mailto:anggiapsan@airasia.com">anggiapsan@airasia.com</a>
	<b>MALAYSIA</b> AirAsia X Malaysia	Mr. Low Ee CHNG		Tel:+60163227087	<a href="mailto:loweechng@airasia.com">loweechng@airasia.com</a>
	<b>MALAYSIA</b> AirAsia X Malaysia	Capt. Mohamad Hafizd Bin BAHARUDDIN		Tel:+60125249777	<a href="mailto:mohammadhafizdb@airasia.com">mohammadhafizdb@airasia.com</a>
	<b>MALAYSIA</b> AirAsia X Malaysia	Capt. Ling Liong TIEN		Tel:+601 62133099	<a href="mailto:lingliongtien@airasia.com">lingliongtien@airasia.com</a>
	<b>INDONESIA</b> AirAsia Indonesia	Capt. Deva Prasetyo WIBOWO		Tel:+62 8111776799	<a href="mailto:devaprasetyowibowo@airasia.com">devaprasetyowibowo@airasia.com</a>
	<b>INDONESIA</b> AirAsia Indonesia	Baron Ferdian HUSSEIN		Tel:+62 87880531818	<a href="mailto:baronferdianhussein@airasia.com">baronferdianhussein@airasia.com</a>
	<b>SINGAPORE</b> Singapore Airlines	Capt. KK GOH			<a href="mailto:goh_kk@singaporeair.com.sg">goh_kk@singaporeair.com.sg</a>
	<b>SINGAPORE</b> Tiger Airways	Capt. Aloysius CHUA			<a href="mailto:aloysiuschua@tigerairways.com">aloysiuschua@tigerairways.com</a>
	<b>THAILAND</b> AirAsia X Thailand	Capt. Pisit WONGKRUASORN		Tel:+6681923371	<a href="mailto:pisitw@airasia.com">pisitw@airasia.com</a>
	<b>THAILAND</b> AirAsia X Thailand	Mr. Sanny SALAEMAE		Tel:+669140674444	<a href="mailto:sannys@airasia.com">sannys@airasia.com</a>

<i>Area of responsibility</i>	<i>State and Organization</i>	<i>Contact name</i>	<i>Contact position</i>	<i>Telephone/Fax numbers</i>	<i>Email and skype address/es</i>
	<b>UAE</b> Emirates Airlines	Mr. Guido Knigge			<a href="mailto:guido.knigge@emirates.com">guido.knigge@emirates.com</a>

Table 2: Directing Staff – Email addresses

k-kakihara@met.kishou.go.jp; kakihara516@gmail.com; mikeecho905@yahoo.com; winchelle.sevilla@phivolcs.dost.gov.ph; winch.sevilla@gmail.com; paolo.reniva@phivolcs.dost.gov.ph; pdr71@yahoo.com; tvo.vmped@phivolcs.dost.gov.ph; y_igarashi@met.kishou.go.jp; igacco@gmail.com; hannacristi@yahoo.com; enroutectlvolph@gmail.com; ms_acurantes@yahoo.com; phil.aisops@gmail.com; emergpretransportphl@gmail.com; caap_orcc@yahoo.com.ph; Roehl.Brillantes@cebupacificair.com; tomas_sotto@pal.com.ph; wutahow@airasia.com; grennie@qantas.com.au; ocmcc@rba.com.bn; kelvin_poon@cathaypacific.com; KULOcmh@malaysiaairlines.com; anggiapsan@airasia.com; loweechng@airasia.com; mohammadhafizdb@airasia.com; lingliongtien@airasia.com; devaprasetyowibowo@airasia.com; baronferdianhussein@airasia.com; goh_kk@singaporeair.com.sg; aloysiuschua@tigerairways.com; pisitw@airasia.com; sannys@airasia.com; guido.knigge@emirates.com
--

Table 3: Observing Staff listed by area of responsibility

<i>Area of responsibility</i>	<i>State and Organization</i>	<i>Contact name</i>	<i>Contact position</i>	<i>Telephone/Fax numbers</i>	<i>Email address/es</i>
VO					
VAAC	<b>AUSTRALIA</b> Bureau of Meteorology	Mr. Emile JANSONS	VAAC Darwin Manager	T +61 3 9669 4388 M +61 4 2484 9064	<a href="mailto:e.jansons@bom.gov.au">e.jansons@bom.gov.au</a>
MWO	<b>JAPAN</b> JMA (MWO Tokyo)	Mr. Ken Machida	Senior Forecaster	Tel: +81-3212- 8377	<a href="mailto:ken.machida-a@met.kishou.go.jp">ken.machida-a@met.kishou.go.jp</a>
	<b>HONG KONG</b> <b>CHINA</b> HKO	Mr. LI Luen- on	Acting Principal Experimental Officer, Aviation Weather Services Branch	Tel: (852) 29268209	<a href="mailto:loli@hko.gov.hk">loli@hko.gov.hk</a>

<i>Area of responsibility</i>	<i>State and Organization</i>	<i>Contact name</i>	<i>Contact position</i>	<i>Telephone/Fax numbers</i>	<i>Email address/es</i>
ATMC	<b>JAPAN</b> JCAB (ATMC Fukuoka)	Mr. Kimihiko ITO	Assistant Chief Air Traffic Management Officer	Tel: +81-92-608- 8867	<a href="mailto:itou-k2rz@cab.mlit.go.jp">itou-k2rz@cab.mlit.go.jp</a>
		Mr. Nobuteru ISAKA	Air Traffic Management Officer	Tel: +81-92-608- 8867	<a href="mailto:isaka-n07dx@cab.mlit.go.jp">isaka-n07dx@cab.mlit.go.jp</a>
		Mr. Akimitsu SAKURAI	Air Traffic Management Officer	Tel: +81-92-608- 8869	<a href="mailto:sakurai-a07xr@cab.mlit.go.jp">sakurai-a07xr@cab.mlit.go.jp</a>
ACC	<b>INDONESIA</b> DGCA	Mr. Anang JULIANTO			<a href="mailto:juliantoanang@gmail.com">juliantoanang@gmail.com</a>
	<b>SINGAPORE</b> CAAS	Mr. Jeff LOKE	Deputy Chief of Singapore Air Traffic Control Centre (AREA)	Tel: +65 6545 6252	<a href="mailto:jeff_loke@caas.gov.sg">jeff_loke@caas.gov.sg</a>
		Mr. Michael SHEE	ATC Manager (ATM Operations Planning)	Tel: +65 6541 2454	<a href="mailto:michael_shee@caas.gov.sg">michael_shee@caas.gov.sg</a>
NOF					
Airspace user	<b>IFALPA</b>	Capt. Jaffar HASSAN	Regional Vice President Asia/East		<a href="mailto:jaffar747@gmail.com">jaffar747@gmail.com</a>
ANSP	<b>HONG KONG</b> <b>CHINA</b> HKO	Mr. Patrick YEUNG			
	<b>INDONESIA</b> DGCA	Mr. Moh. Hassan BASHORY	Deputy Director of Air Navigation	Tel: +62 815 9396742 Fax: +62 21 3516961	<a href="mailto:mohamad_hasan@dephub.go.id">mohamad_hasan@dephub.go.id</a> ; <a href="mailto:bashory@aviasi.org">bashory@aviasi.org</a>

<i>Area of responsibility</i>	<i>State and Organization</i>	<i>Contact name</i>	<i>Contact position</i>	<i>Telephone/Fax numbers</i>	<i>Email address/es</i>
	<b>INDONESIA</b> BMKG	Mr. Gede SUANTIKA			
	<b>INDONESIA</b> BMKG	Mr. Novie Noor AFTATIA			
	<b>INDONESIA</b> BMKG	Mr. Zulkarnian			<a href="mailto:Zulkarnain@bmgk.go.id">Zulkarnain@bmgk.go.id</a>
	<b>INDONESIA</b>	Mr. Ahmad Rizal			
	<b>MALAYSIA</b> DCA	Mr. Sie Tzen WONG			
Regulatory	<b>JAPAN</b> JCAB	Mr. Hiromu HAYASHI	Special Assistant to the Director	Tel:+81-3-5253- 8749	<a href="mailto:hayashi-h076r@mlit.go.jp">hayashi-h076r@mlit.go.jp</a>
		Ms. Tomoko ISHIKAWA	Chief, Operations Section	Tel:+81-3-5253- 8749	<a href="mailto:ishikawa-t07p2@mlit.go.jp">ishikawa-t07p2@mlit.go.jp</a>
AO, airspace user	<b>AUSTRALIA</b> Virgin Australia	Mr. Adrian SLOOTJES			<a href="mailto:Adrian.slootjes@virginaustralia.com">Adrian.slootjes@virginaustralia.com</a>
	<b>PHILIPPINES</b> Philippine Airlines	Mr. Jenny RAYMUNDO			
	<b>VIET NAM</b> Viet Nam Airlines	Mr. Phan Huu Son			<a href="mailto:sonphanhuu@vietnamairlines.com">sonphanhuu@vietnamairlines.com</a>

Table 4: Observing Staff – Email addresses

e.jansons@bom.gov.au; ken.machida-a@met.kishou.go.jp; loli@hko.gov.hk; itou-k2rz@cab.mlit.go.jp; isaka-n07dx@cab.mlit.go.jp; sakurai-a07xr@cab.mlit.go.jp; jeff\_loke@caas.gov.sg; michael\_shee@caas.gov.sg; jaffar747@gmail.com; mohamad\_hasan@dephub.go.id; bashory@aviasi.org; hayashi-h076r@mlit.go.jp; ishikawa-t07p2@mlit.go.jp; juliantoanang@gmail.com; Zulkarnain@bmgk.go.id; Adrian.slootjes@virginaustralia.com