

EXERCISE DIRECTIVE
VOLCEX 19/02 – VOLCANIC ASH EXERCISE IN ASIA-PACIFIC REGION

1. INTRODUCTION

- 1.1. “Volcanic ash exercises should be conducted by ICAO on a regional basis in order to practice and develop inter-agency response to volcanic activity, in order to maintain safety, regularity and efficiency of aviation in the event of a volcanic eruption”.¹
- 1.2 The ICAO APAC volcanic ash exercise to be conducted in 2019, named APAC VOLCEX 19/02, will involve the simulated eruption of Mt. Kanlaon volcano in the Philippines. The exercise will demonstrate 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.
- 1.3 There will be no operational impact in this exercise and dedicated staff is expected to be available for participation in the exercise.
- 1.4 Exercise Date and Time (UTC): 12 September 2019, 0000 UTC – 0400 UTC
- 1.5 Exercise Leader: Mr. Ferdinand A. Tienzo, Division Chief, Enroute Control Division, Air Traffic Service. The Exercise Leader is responsible for:
- Reporting to the debriefing meetings for volcanic ash exercises in APAC Region (usually combined with the VOLCEX/SG meeting)
 - Publishing the exercise directive
 - Supervising the volcanic ash exercise
 - Reporting results of volcanic ash exercises including lessons learned, as well as recommended improvements to the regional volcanic ash ATM contingency plan and global ICAO provisions, to appropriate groups in APANPIRG
 - Conducting the volcanic ash exercise in coordination with directing staff
 - Making the GO/NO decision for the volcanic ash exercise (see 10.1 for more details)
- 1.6 Location of Exercise Leader, and Secretariat: The Exercise Leader will be at the Air Traffic Management Center, CAAP Philippines to co-conduct the volcanic ash exercise. The ICAO Secretariat will be at Bangkok, Thailand, remotely supporting the pre-exercise coordination meeting and the volcanic ash exercise. Coordination between the Exercise Leader, Secretariat and participants will be facilitated by the use of instant messaging applications, telephone and e-mail.
- 1.7 Pre-exercise coordination meeting: A series of pre-exercise coordination meetings will be scheduled. Notices for the meetings will be relayed thru email. Details of the pre-exercise coordination meetings are detailed under 10.3.
- 1.8 Debrief meeting: To be incorporated in the agenda of the volcanic ash exercises steering committee meeting, VOLCEX/SG/7, XX-XX July 2020 in Bangkok, Thailand.
- 1.9 Exercise website: A dedicated website for the exercise is not available. Other useful websites include:

¹ ICAO Doc 9766 – Handbook on the International Airways Volcano Watch, Appendix F- Guidance for Conducting Volcanic Ash Exercises in ICAO Regions

- VAAC Tokyo <https://ds.data.jma.go.jp/svd/vaac/data/index.html/> (for access to exercise VAA and VAG).
- VAAC Darwin <http://www.bom.gov.au/aviation/volcanic-ash/> (for access to exercise VAA and VAG).

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 B**.

3. AIMS AND OBJECTIVES

- 3.1 The volcanic ash exercise should demonstrate the practice of applicable global and regional procedures including the provision/exchange of volcanic ash information in support of flexible airspace management, improved situational awareness and collaborative decision making, and dynamically optimized flight trajectory planning. In particular, the exercise should demonstrate:
 - Distribution of alerts [(e.g., Volcano Observatory Notice to Aviation VONA)]
 - Distribution of AIS and MET information (e.g., VAA/VAG, SIGMET, NOTAM, special air-report)
 - Responses by operational units (e.g., air traffic flow management measures, safety risk assessments, tactical re-routes, aerodrome management)
- 3.2 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.

4. EXERCISE DURATION

- 4.1 The exercise shall be conducted over a period of approximately four (4) hours commencing at 0000 UTC 12 September 2019. The first VONA is expected to be issued within 10 minutes of the exercise start. The second VONA, to be issued nearing the exercise end time.

5. EXERCISE VOLCANO

- 5.1. Name: Kanlaon Volcano
 Number: 272020
 Position: 1025N 12308E
 Area: Philippines

6. EXERCISE SCENARIO

- 6.1 Simulated eruption with volcanic ash cloud up to FL350 moving south at 30 - 40 knots to impact ATS routes and airspace within Manila FIR (RPHI) and Ujung Pandang FIR (WAAZ). Volcanic ash deposition at Panglao (RPSP) and Dumaguete aerodromes (RPVD) in the Philippines, will impact operations and airport closure.

6.2 Schematics of the information flow between operational units in a volcanic ash exercise according to ICAO Doc 9766 Handbook on the International Airways Volcano Watch is provided in **Appendix C**.

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 D**.

7.2. A diagram of actions to be taken during the exercise is provided in **Appendix E**.

8. EXERCISE MESSAGES AND COMMUNICATIONS

8.1 Exercise messages comprising VONA start with “VA EXERCISE APAC VOLCEX 19/02” and end with “EXERCISE EXERCISE EXERCISE”. They should be based on the agreed exercise scenario. Template for VONA exercise message and distribution lists are provided in **Appendix F**.

8.2 Exercise messages comprising VAA and VAG should include the use of “VA EXERCISE” and “APAC VOLCEX 19/02” (in accordance with ICAO Doc 9766, Part 4, 4.8) to highlight and emphasize that the advisory information refers to the volcanic ash exercise. They should be based on the agreed exercise scenario and the preceding exercise VONA messages. Template of VAA and VAG exercise messages and distribution lists are provided in **Appendix G**.

8.3 Exercise messages comprising SIGMET should include the use of “VA EXERCISE” and “APAC VOLCEX 19/02” (in accordance with ICAO Doc 9766, Part 4, 4.8) to highlight and emphasize that the SIGMET information refers to the volcanic ash exercise. They should be based on the preceding exercise VAA messages. Template of SIGMET exercise messages and distribution lists are provided in **Appendix H**.

8.4 Exercise messages comprising NOTAM start with “VA EXERCISE APAC VOLCEX 19/02” and end with “EXERCISE EXERCISE EXERCISE” (in Item E of NOTAM). Template of NOTAM/ASHTAM exercise messages and distribution lists are provided in **Appendix I**.

8.5. Exercise messages comprising special air-reports end with “VA EXERCISE APAC VOLCEX 19/02 EXERCISE EXERCISE EXERCISE”. Template of special air-report exercise messages and distribution lists are provided in **Appendix J**.

8.6 Other communications such as exercise tele-conferences/web-conferences, e-mail exchanges and instant messaging chats start with “VA EXERCISE APAC VOLCEX 19/02”.

8.7 Volcanic ash information is disseminated through e-mail (e.g. VONA, and Ground Observation report), AFTN (e.g. SIGMET, NOTAM/ASHTAM, VAA/VAG, special air-report, Aerodrome Warning), website (e.g. VAA/VAG, SIGMET) and phone.

8.8 During the exercise, tele-conference sessions involving all participating and observing agencies would be using WebEx.

9. DIRECTING STAFF

9.1 A list of all Directing Staff is provided at **Appendix K**.

9.2 A list of contacts for agencies observing the exercise is provided at **Appendix L**.

10. SPECIAL INSTRUCTIONS

- 10.1 Exercise GO/NO decision shall be made by the Exercise Leader one day before the planned exercise commencement date and 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 later 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.
- 10.2 In case of real volcanic eruption or other unforeseen circumstances occur within the exercise period, Exercise Leader have to raise views from all participating agencies and postpone or abort the exercise if undergoing exercise is considered to potentially affect the operation of aviation system. According to ICAO Doc 9766 Handbook on the IAVW, Appendix F, paragraph 2.3., "Exercises can only simulate a real event, while operation of the aviation system must continue normally and be unaffected by the exercise. The planning of the exercise needs to ensure that detrimental effects on the system performance are avoided, but that nevertheless useful experience and information is generated."
- 10.3 Exercise teleconference/web-conference guidelines:
- a. JMA shall be the host of teleconference meetings and shall be assisted by the ICAO Secretariat.
 - b. Instant messaging and communication applications may be utilized as a supplementary means to share information among participants.
 - c. The use of English language is expected among participants during teleconference meetings.
 - d. The exercise leader shall instruct the participants on his/her turn to speak in order to manage the meeting in an orderly manner.

11. DEFINITION OF TERMS

- 11.1 A list of abbreviations, acronyms and definitions used in this directive is provided at ***Appendix M.***

APAC VOLCEX 19/02 EXERCISE DIRECTIVE

Appendix A

List of Participants

Area of Responsibility	Agency	Unit/Division
Volcanic activity alerting	PHIVOLCS	VO Kanlaon
Volcanic ash advisory information	JMA	VAAC Tokyo
	BoM	VAAC Darwin
SIGMET Information	PAGASA	MWO Manila
	BKMG	MWO Ujung Pandang
Air traffic control	CAAP	ACC Manila
	AirNav Indonesia	ACC Ujung Pandang
Air traffic flow and capacity management	CAAP	ACC Manila
Aeronautical information service	CAAP	AIS - Operations
Aircraft operator response	Philippines Airlines	Flight Dispatch
	TBD	TBD
	TBD	TBD
Regulation	CAAP	Aerodrome and Air Navigation Safety Oversight Office (AANSOO)
Exercise coordination	ICAO	Asia and Pacific Office

APAC VOLCEX 19/02 EXERCISE DIRECTIVE**Appendix B**

Observing Agencies Listed By Area of responsibility

Area of Responsibility	Agency	Unit/Division
Volcanic activity alerting	CVGHM	VO
Volcanic ash advisory information	Met Service	VAAC Washington
SIGMET Information	TMD	MWO Bangkok
	KMA	MWO Korea
	HKO	MWO Hong Kong
	BKMG	MWO Jakarta
	JMA	MWO Tokyo
Air traffic control	DCA	ACC Malaysia
	CAAS	ACC Singapore
	AirNav	ACC Jakarta
	JCAB	ACC Fukuoka
Air traffic flow and capacity management	DCA	ACC Malaysia
	CAAS	ACC Singapore
	AirNav	ACC Jakarta
	JCAB	ACC Fukuoka
Aeronautical information service	AirNav	NOF - Jakarta
	MSS	Singapore RODB
Aircraft operator response	TBD	TBD
	TBD	TBD
	TBD	TBD

APAC VOLCEX 19/02 EXERCISE DIRECTIVE

Appendix D

Actions to be taken by participating agencies

Date/Time UTC	Agency	Event/Action
28 June 2019	Exercise Leader	Request AIS OPS to publish Aeronautical Information Circular (AIC)
16 July 2019	AIS OPS (NOTAM Office) Philippines	Publish AIC
30 August 2019	Exercise Leader	Send exercise directive to ICAO Secretariat
5 September 2019	NOF Manila	Issue preparatory NOTAM to be used during the exercise
11 September 2019	Exercise Leader	GO/NO GO Decision, inform all participants
12 September 2019 0000 UTC-0400 UTC		Simulate Kanlaon eruption
	PHIVOLCS	Issue VONA, twice during the exercise <ul style="list-style-type: none"> • 1st VONA for volcano eruption • 2nd VONA for volcanic activity to have ceased
	VAAC Tokyo, MWO Manila, ACC Manila/NOF Manila	Issue 1 st exercise VAA, SIGMET and NOTAMN based on VONA
	VAAC Tokyo	Issue VAAs/VAG <ul style="list-style-type: none"> • 1st VAG based on observations/reports • Succeeding VAAs with ash at F350 moving south • <i>Handover Procedures with VAAC Darwin</i>
	VAAC Darwin	<ul style="list-style-type: none"> • <i>Rebroadcast VAA</i> • Issue VAAs/VAG
	MWO Philippines	Issue SIGMET based on VONA
	ACC Manila/ATFMU Manila	<ul style="list-style-type: none"> • Issue ATFM measures, re-routes • Transmit special air-report • Coordinate with adjacent ACC
	Airline Operators	<ul style="list-style-type: none"> • Transmit special air-report • Flight planning measures
	MWO Philippines	• Issue METAR/SPECI and/or Aerodrome warning
	Airport Authority	• CDM (airport closure)
12 September 2019 0400 UTC - 0430 UTC	All participants	Teleconference (Initial evaluation)

APAC VOLCEX 19/02

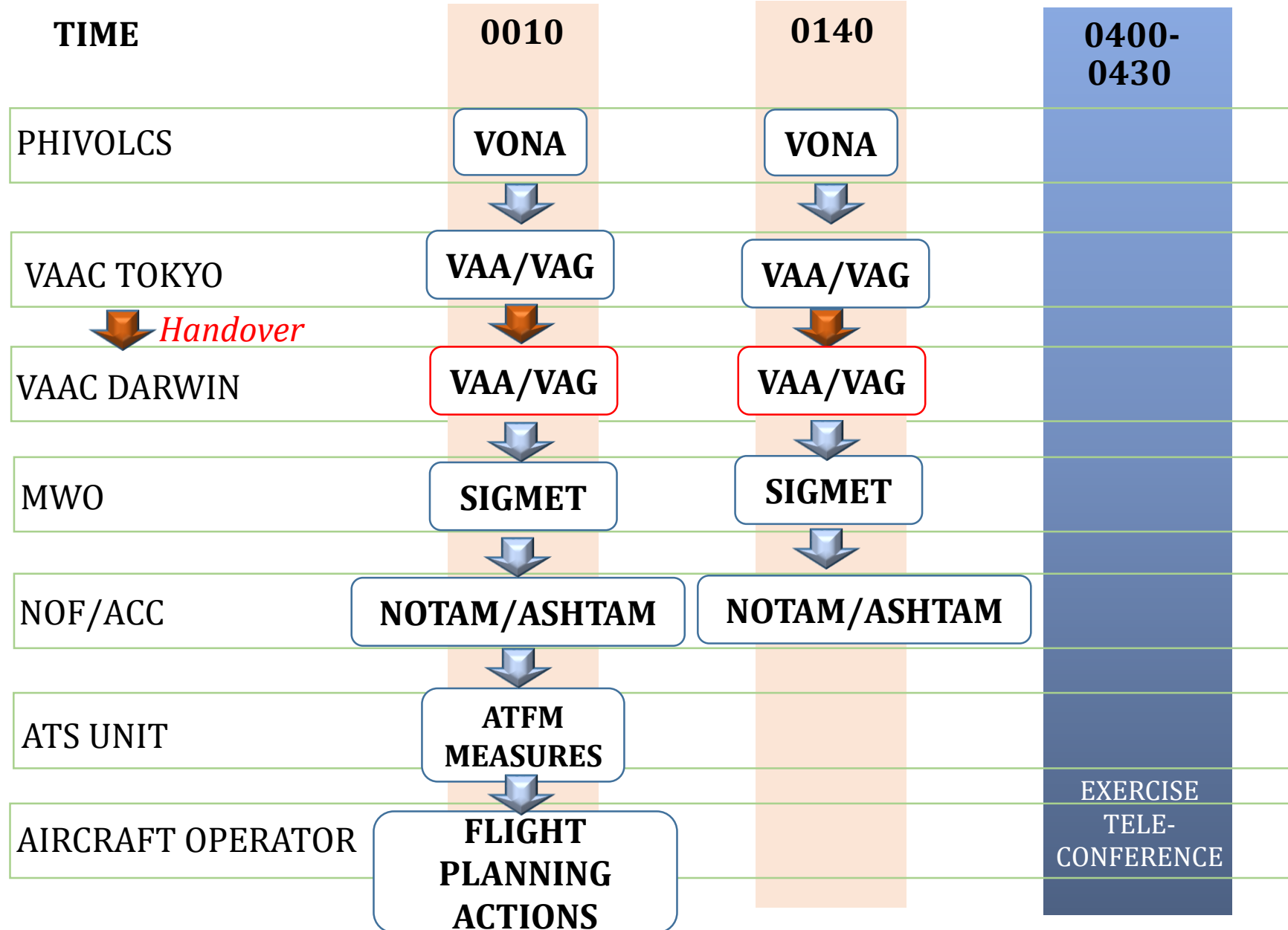


Table 1. VONA Template

VA EXERCISE APAC VOLCEX 19/02	
(1) VOLCANO OBSERVATORY NOTICE FOR AVIATION (VONA)	
(2) Issued:	(20190912/0010Z)
(3) Volcano:	Kanlaon (272020)
(4) Current Aviation Color Code:	
(5) Previous Aviation Color Code:	
(6) Source:	Kanlaon Volcano Observatory (PHIVOLCS)
(7) Notice Number:	PIVS-VONA-KV-20190912-1
(8) Volcano Location:	1025N 12308E
(9) Area:	Philippines
(10) Summit Elevation:	7989 ft (2435 m)
(11) Volcanic Activity Summary:	Eruption with volcanic ash cloud at 0000 UTC (0800 local)
(12) Volcanic Cloud Height:	35000 ft (10668 m)
(13) Other volcanic cloud information:	The ash cloud reached 10668 meters above the summit and drifting S (South).
(14) Remarks:	VOLCEX 19/02 EXERCISE
(15) Contacts:	Philippine Institute of Volcanology and Seismology Volcano Monitoring and Eruption Prediction Division vmepd@phivolcs.dost.gov.ph (632) 927-1095; (632) 426-1468 loc 127
(16) Next Notice:	A new VONA will be issued if conditions change significantly. While a VONA is in effect, regularly scheduled updates are posted at http://www.phivolcs.dost.gov.ph
EXERCISE EXERCISE EXERCISE	

Table 2. VONA Distribution List

Name	Telefax/Telephone number	E-mail	Alternate e-mail
CAAP	672-7780	phil.aisops@gmail.com	
CAAP Admin and Operations		opcencaap@gmail.com	
Darwin Volcano Ash Advisory Center	(00)61-3-9662-1222	darwin.vaac@bom.gov.au	
Manila Area Control Center (ACC)	672-7774	macc.supervisors@gmail.com	
PHIVOLCS - Office of the Director	929-8366	od.phivolcs@gmail.com	
PAGASA	832-3023	hannacristi@yahoo.com	
Raquel Abrantes (Cabinet Secretary)		raquelabrantes.cabsec@gmail.com	
Tokyo Volcano Ash Advisory Center	(00)81-3-3212-6446	raquelabrantes.cabsec@gmail.com	vaac.tokyo-adm@volash.kishou.go.jp

Table 1: Exercise VAA template

```
FVFE01 RJTD or FVAU0n ADRM nnnnnn
VA ADVISORY
DTG: 20190912/nnnnZ
VAAC: TOKYO or DARWIN
VOLCANO: KANLAON 272020
PSN: N1025 E12308
AREA: PHILIPPINES
SUMMIT ELEV: 2435M
ADVISORY NR: nnnn/n
INFO SOURCE: VA EXERCISE APAC VOLCEX 19/02 Free text up to 64 characters
AVIATION COLOUR CODE: NIL
ERUPTION DETAILS: VA EXERCISE VA EXERCISE APAC VOLCEX 19/02 Free text up to 64
characters
OBS VA DTG: nn/nnnnZ
OBS VA CLD: "Position of a non-real volcanic ash cloud will be placed"
FCST VA CLD +6 HR: "Position of a non-real volcanic ash cloud will be placed"
FCST VA CLD +12 HR: "Position of a non-real volcanic ash cloud will be placed"
FCST VA CLD +18 HR: "Position of a non-real volcanic ash cloud will be placed"
RMK: EXERCISE EXERCISE EXERCISE VA EXERCISE APAC VOLCEX 19/02 Free text up to 256
characters
NXT ADVISORY: nnnnnnnn/nnnnZ or NO LATER THAN nnnnnnnn/nnnnZ or NO FURTHER ADVISORIES
or WILL BE ISSUED BY nnnnnnnn/nnnnZ=
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Table 2: Exercise VAG template

<p>EXERCISE</p> <p>OBS polygon</p>	<p>EXERCISE</p> <p>+ 6 HR polygon</p>
<p>EXERCISE</p> <p>+ 12 HR polygon</p>	<p>EXERCISE</p> <p>+ 18 HR polygon</p>

VA ADVISORY
 DTG: 20190912/nnnnZ
 VAAC: TOKYO or DARWIN
 VOLCANO: KANLAON 272020
 PSN: N1025 E12308
 AREA: PHILIPPINES
 SUMMIT ELEV: 2435M
 ADVISORY NR: nnnn/n
 INFO SOURCE: VA EXERCISE APAC VOLCEX 19/02 Free text up
 to 64 characters
 AVIATION COLOUR CODE: NIL

ERUPTION DETAILS: VA EXERCISE VA EXERCISE APAC VOLCEX 19/02
 OBS VA DTG: nn/nnnnZ
 OBS VA CLD: "Position of a non-real volcanic ash cloud will be
 placed"
 FCST VA CLD +6 HR: "Position of a non-real volcanic ash cloud
 will be placed"
 FCST VA CLD +12 HR: "Position of a non-real volcanic ash cloud
 will be placed"
 FCST VA CLD +18 HR: "Position of a non-real volcanic ash cloud
 will be placed"
 RMK: EXERCISE EXERCISE EXERCISE VA EXERCISE APAC VOLCEX 19/02
 NXT ADVISORY: nnnnnnnn/nnnnZ or NO LATER THAN nnnnnnnn/nnnnZ or
 NO FURTHER ADVISORIES or WILL BE ISSUED BY nnnnnnnn/nnnnZ

Notes:

1. A Volcanic Ash Advisory Centre (VAAC) is responsible for issuing advisory information regarding the extent and forecast movement of the volcanic ash "cloud" to:
 - a. MWOs, ACCs and FICs serving FIRs in its area of responsibility which may be affected;
 - b. other VAACs whose areas of responsibility may be affected;
 - c. WAFCs, international OPMET databanks, international NOTAM offices, and centres designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services; and
 - d. airlines requiring the advisory information through the AFTN address provided specifically for this purpose. [Annex 3, Chapter 3, 3.5.1 c)]

2. All VAA/VAG from VAAC Tokyo will be available VAAC Tokyo webpage:
 VAAC
<http://vaac.metservice.com/>

Distribution list:

VAA (via AFTN) and VAG (via WIFS) to usual recipients.

Table 3: Exercise VAA Distribution list from VAAC Tokyo

CWAOYMYU	EGKKVIRW	EGLLSITV	EGRRYMYX	EGZZMASI	EGZZVANW
EHAMKLM	EHAMKLMK	EHAMKLMW	KWBCYMYX	NFFNYPYX	NZAAANZO
NZKLYMYX	PANCYMYX	RCTPYMYX	RCTPZQZX	RKRRZQZX	RKSIYMYX
RPHIZRZX	RPLLYMYV	RPLLYMYX	SAZZMAMX	UEEEYMYX	UEEEZRZX
UELLYMYX	UELLZRZX	UERRYMYX	UERRZRZX	UHBBYMYX	UHBIYMYX
UHHHYMYX	UHHHZRZX	UHMMYMYX	UHMMZRZX	UHNNYMYX	UHOOYMYX
UHPPYMYX	UHPPZRZX	UHSHYMYX	UHSSYMYX	UHWYMYX	UIAAYMYX
UIAAZRZX	UIBBYMYX	UIIIYMYX	UIIIZRZX	UIKKYMYX	ULMMYMYX
ULMMZRZX	UNKLYMYX	UNKLZRZX	UUUUYNYX	UUUWZDZX	VDPPYFYX
VDPPYMYX	VDPPZRZX	VDPPZTZX	VHHHYMYX	VLVTYMYX	VTBBYPYX
VTBDYMYX	VTBSYMYX	VVGLYMYX	VVNBZRZX	VVTSZRZX	VYYYYMYX
VYYYZQZX	WSJCZRZX	WSSSYMYX	WSSSYZYX	YBBBYPYX	YBZZSQJX
YMMLJSTX	YPDYMYX	ZBAAYMYX	ZBBBYPYX	ZGGGYMYX	ZHHHYMYX
ZJHKYMYX	ZKPYMYX	ZLXYMYX	ZMUBYMYX	ZSSSYMYX	ZUUUYMYX
ZWWWYMYX	ZYTXMYX				

Table 4: Exercise VAA Distribution list from VAAC Darwin

AGGGZQZX	AGGHYMYX	AYPMZQZX	AYPYANGM	AYPYANGO	AYPYYMYX
EGLLSITV	EGZZMASI	EGZZMPAC	EGZZVANW	KLGBPACO	KWBCYMYX
LSZHSWRW	NFFNYPYX	NZAAANZO	NZKLYMYX	RJAAJALO	RJAANCAO
RJTDYMYX	RKSIYPYX	RPHIZQZX	RPLLYMYX	VHHHCPAO	VHHHYMYX
VOMFZQZX	VOMMYMYX	VOMMZQZQ	VTBBYPYX	VTBBZQZX	VTBDYMYX
VTBSYMYX	VVGLYMYX	VVNBZQZX	VVTSZQZX	VVTSZRZX	VYYFZQZX
VYYVYMYX	VYYYYMYX	VYYYZQZX	WAAAYMYX	WAAAZQZX	WAAFZQZX
WADDYMYF	WADDYMYX	WADDYOYX	WBFCZQZX	WBKKYMYX	WBKKZQZQ
WIIIFZQZX	WIIIIYMYX	WMFCZQZX	WMKKMASD	WMKKYMYX	WMKKZQZX
WRRRYNYX	WSJCZQZX	WSSSSIAO	WSSSYMYX	WSSSYZYK	YAMBZAZX
YAMBZGZA	YAMBZTZX	YBBBVOZM	YBBBZRZA	YBBBZRZB	YBBBZRZG
YBBBZRZX	YBRFYMYX	YMHFYMYX	YMMLJSTX	YMMMZRZA	YMMMZRZB
YMMMZRZG	YMMMZRZX	YMRFYMYX	YPDNZAZX	YPDNZGZA	YPDNZTZX
YPRFYMYX	YPRMYMYX	YPTNZAZX	YPTNZGZA	YPTNZTZX	YSRFYMYX
YSSYQFAM	YSSYWZAX				

Table 1. SIGMET based on VONA:

WVPH31 RPLL nnnnnn
 RPHI SIGMET nn VALID nnnnnn/nnnnnn RPLL-
 RPHI MANILA FIR VA EXERCISE APAC VOLCEX 19/02 VA ERUPTION MT KANLAON PSN N1041
 E12313 VA CLD OBS AT nnnnZ SFC/FL350 MOV S INTSF EXERCISE EXERCISE EXERCISE=

Table 2. SIGMET based on VAA when VA is not identifiable from satellite but with wind speed at significant FL:

WVPH31 RPLL nnnnnn
 RPHI SIGMET nn VALID nnnnnn/nnnnnn RPLL-
 RPHI MANILA FIR VA EXERCISE APAC VOLCEX 19/02 VA ERUPTION MT KANLAON PSN N1041
 E12313 VA CLD OBS AT nnnnZ SFC/FL350 MOV S nnKT INTSF EXERCISE EXERCISE EXERCISE=

Table 3. SIGMET based on 1st VAA when VA is identifiable from satellite:

WVPH31 RPLL nnnnnn
 RPHI SIGMET nn VALID nnnnnn/nnnnnn RPLL-
 RPHI MANILA FIR VA EXERCISE APAC VOLCEX 19/02 VA ERUPTION MT KANLAON PSN N1041
 E12313 VA CLD OBS AT nnnnZ WI Nnnnn Ennnnn - Nnnnn Ennnnn - Nnnnn Ennnnn - Nnnnn
 Ennnnn SFC/FL350 MOV S nnKT NC FCST nnnnZ VA CLD WI Nnnnn Ennnnn - Nnnnn Ennnnn -
 Nnnnn Ennnnn - Nnnnn Ennnnn - Nnnnn Ennnnn SFC/FL350 MOV S nnKT INTSF EXERCISE
 EXERCISE EXERCISE=

Table 4. SIGMET based on 2nd VAA when VA is identifiable from satellite:

WVPH31 RPLL nnnnnn
 RPHI SIGMET nn VALID nnnnnn/nnnnnn RPLL-
 RPHI MANILA FIR VA EXERCISE APAC VOLCEX 19/02 VA ERUPTION MT KANLAON PSN N1041
 E12313 VA CLD OBS AT nnnnZ WI Nnnnn Ennnnn - Nnnnn Ennnnn - Nnnnn Ennnnn - Nnnnn
 Ennnnn SFC/FL350 MOV S nnKT NC FCST nnnnZ VA CLD WI Nnnnn Ennnnn - Nnnnn Ennnnn -
 Nnnnn Ennnnn - Nnnnn Ennnnn - Nnnnn Ennnnn SFC/FL350 MOV S nnKT NC EXERCISE
 EXERCISE EXERCISE=

Table 5. SIGMET based on succeeding VAA (source: VAAC T or VAAC D) when VA is identifiable from satellite:

WVPH31 RPLL nnnnnn
 RPHI SIGMET nn VALID nnnnnn/nnnnnn RPLL-
 RPHI MANILA FIR VA EXERCISE APAC VOLCEX 19/02 VA ERUPTION MT KANLAON PSN N1041
 E12313 VA CLD OBS AT nnnnZ WI Nnnnn Ennnnn - Nnnnn Ennnnn - Nnnnn Ennnnn - Nnnnn
 Ennnnn SFC/FL350 MOV S nnKT NC FCST nnnnZ VA CLD WI Nnnnn Ennnnn - Nnnnn Ennnnn -
 Nnnnn Ennnnn - Nnnnn Ennnnn - Nnnnn Ennnnn SFC/FL350 MOV S nnKT NC EXERCISE
 EXERCISE EXERCISE=

Table 6. SIGMET cancellation:

WVPH31 RPLL nnnnnn
 RPHI SIGMET nn VALID nnnnnn/nnnnnn RPLL-
 RPHI MANILA FIR VA EXERCISE APAC VOLCEX 19/02 CANCEL SIGMET nn nnnnnn/nnnnnn
 EXERCISE EXERCISE EXERCISE=

Table 7. Distribution List for SIGMET

VHHHYMYX	KWBCYMYX	EGZZMASI	YBBBYPYX	VTBBYPYX	WSSSYZYX
RJTDYPYX	PTROYMYX	PHNLYMYX	WAAAYMYX	WABBYMYX	WIIIIYMYX
VVNBMYX	PGUMCOAX	RJAAYPYX	WBKKYMYX	NFZZRFX	WBSBYMYX
YBBBYPYX	RJTDYMYX	WMKKYMYX	NFFNYPYX	RCTPYMYX	WSSSYMYX
WSSSYZYX	ROAHYMYX	VVTSYMYX	PGSNYMYX	EGRRYMYX	RPLLYOYX
RPLLYRYX	RPLLYIYX	RPLLYMYX	RPHIZRZX		

APAC VOLCEX 19/02 EXERCISE DIRECTIVE

Appendix I

NOTAM Template and Distribution List

NOTE:

THE TEXT IN ITEM E) OF THE FOLLOWING NOTAMs MAY BE AMENDED TO INCLUDE STANDARD ICAO ABBREVIATIONS

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

(Bxxxx/19 NOTAMN Q) RPHI/QWWWXX/IV/NBO/W/000/999/1025N12308E999
A) RPHI
B) 1909120000
C) 1909120400
D)
E) VA EXERCISE APAC VOLCEX 19/02 VOLCANIC ASH EXERCISE TAKES PLACE 12 SEPTEMBER FROM 00:00 TO APPROX. 4:00 UTC. EXERCISE NAME: VOLCEX19/02. EXERCISE VOLCANO: KANLAON N10 25 E123 08 PHILIPPINES. FREE TEXT OF PROMULGATED EXERCISE MESSAGES START WITH: VA EXERCISE APAC VOLCEX19/02. FREE TEXT OF EXERCISE MESSAGES END WITH: EXERCISE EXERCISE EXERCISE.
F) SFC
G) UNL)

Table 2: 1ST exercise NOTAM

(Bxxxx/19 NOTAMN Q) RPHI/QWWWXX/IV/NBO/W/000/999/1025N12308E999
A) RPHI
B) 190912XXXX
C) 190912XXXXEST (24hr)
D)
E) VA EXERCISE APAC VOLCEX 19/02. ERUPTION OF VOLCANO KANLAON 272070 N10 25 E123 08 PHILIPPINES AS REPORTED BY VOLCANO OBSERVATORY AT 0000 UTC. VOLCANO ASH CLOUD REPORTED BY GROUND OBSERVER. EXERCISE EXERCISE EXERCISE.
F) SFC
G) 35000FT AMSL)

Table 3: 1ST exercise ASHTAM

(Bxxxx/19 NOTAMN Q) RPHI/QWWWXX/IV/NBO/W/000/999/1025N12308E999
A) RPHI
B) (date/time of eruption)
C) KANLAON
D) N10 25 E123 08
E) (volcano level of alert color code)
F) VA EXERCISE APAC VOLCEX 19/02. (existence and horizontal/vertical extent of volcanic ash cloud)
G) (direction of movement of ash cloud)
H) (air routes or portions of air routes and flight levels affected)
I) (closure of airspace and/or air routes or portions of air routes, and alternative air routes available)
J) VA EXERCISE APAC VOLCEX 19/02 (source of information)
K) VA EXERCISE APAC VOLCEX 19/02 (plain language remarks) EXERCISE EXERCISE EXERCISE

APAC VOLCEX 19/02 EXERCISE DIRECTIVE

Appendix I

NOTAM Exercise Template

Table 4: Final exercise NOTAM

(Bxxxx/19 NOTAMC Q) RPHI/QWWWXX/IV/NBO/W/000/999/1025N12308E999

A) RPHI

B) 190912XXXX

C)

D)

E) VA EXERCISE APAC VOLCEX 19/02. ERUPTION OF VOLCANO KANLAON 272070 N10 25 E123 08 PHILIPPINES HAS CEASED AS REPORTED BY VOLCANO OBSERVATORY AT 0400 UTC. VOLCANIC ASH CLOUD HAS DISSIPATED. VOLCANIC ASH CLOUD NO LONGER VISIBLE. EXERCISE EXERCISE EXERCISE.

F)

G)

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Appendix I

NOTAM Exercise Template

Table 5. NOTAM Distribution List

ANAUYFYX	LEZZNARP	OOZZNDNX	UGGGYNYX	VIDPYNXX	WMZZNAXX
AYPMYNYX	LGZZNAXX	OPKCYNYD	UKKRYNYX	VMMCYNXX	WMZZNBXX
AYPYNYX	LIZZNARP	OPZZNAXX	UMMDYOYX	VOMMYNYE	WRRRYNYX
CYKFXNSD	LLBGELXX	OTZZNAZX	UTTTYNYX	VOMMYNYX	WSARYOYX
CYZZNPRN	LOWWYNYX	RCAAZQZX	UTTTYOYX	VTZZNAAX	WSJCZQZX
EDDFDLHX	LSZZNARP	RCZZNMXX	UUUUYNYX	VVTSZQZX	WSSSYNYX
EGNNYNYX	NWWWYOYX	RJTDYMYX	UUZZNHXX	VVZZNAXX	YBBBZEZX
EGZZNRPL	NZZZNEUR	RJZZNLXX	UUZZNLNX	VYZZNAXX	YBZZNDMX
EHZZNTXX	OAKBYNYX	RKZZNKXX	VABBSVAO	WAAZZQZX	ZBBBYXX
HLZZNLNL	OBZZNAXX	RPLLPALD	VABBSVAX	WADDYOYE	ZBZZNHXX
HSSSYNYX	OEDRZPZX	RPLLYRYA	VABBYNYE	WAMMYOYX	ZJSCZQZX
KCNFYNYX	OEJDYNYX	RPNLUZON	VAZZNARP	WBFCZQZX	ZMUBYNYX
KCOSXHJP	OERKZPZX	RPNVIMIN	VCZZNOAX	WBSBYOYX	ZSFZOIXX
KDCAYNYX	OKNOYNYX	SCSCYNYS	VECCYNYX	WIIYOYW	ZSJNOIXX
KDENXHJP	OMZZNEXX	UAAKYNXX	VHHHZQZX	WIZZNRPL	
KDZZNAXX	OOMSYNXX	UBBUYNXX	VHZZNMXX	WMKKYNYX	

Table 6. ASHTAM Distribution List

ANAUYFYX	LGZZNAXX	OPZZNAXX	UTTTYNYX	VTZZNAAX	WSSSYNYX
AYPMYNYX	LIZZNARP	OTZZNAZX	UTTTYOYX	VVTSZQZX	YBBBZEZX
AYPYNYX	LLBGELXX	RCAAZQZX	UUUUYNYX	VVZZNAXX	YBZZNDMX
CYKFXNSD	LOWWYNYX	RCZZNMXX	UUZZNHXX	VYZZNAXX	ZBBBYXX
CYZZNPRN	LSZZNARP	RJTDYMYX	UUZZNLNX	WAAZZQZX	ZBZZNHXX
EDDFDLHX	NWWWYOYX	RJZZNLXX	VABBSVAO	WADDYOYE	ZJSCZQZX
EGNNYNYX	NZZZNEUR	RKZZNKXX	VABBSVAX	WAMMYOYX	ZMUBYNYX
EGZZNRPL	OAKBYNYX	RPLLPALD	VABBYNYE	WBFCZQZX	ZSFZOIXX
EHZZNTXX	OBZZNAXX	RPLLYRYA	VAZZNARP	WBSBYOYX	ZSJNOIXX
HLZZNLNL	OEDRZPZX	RPNLUZON	VCZZNOAX	WIIYOYW	RJTDYMYX
HSSSYNYX	OEJDYNYX	RPNVIMIN	VECCYNYX	WIZZNRPL	YPDMYMYX
KCNFYNYX	OERKZPZX	SCSCYNYS	VHHHZQZX	WMKKYNYX	EGZZVANW
KCOSXHJP	OKNOYNYX	UAAKYNXX	VHZZNMXX	WMZZNAXX	
KDCAYNYX	OMZZNEXX	UBBUYNXX	VIDPYNXX	WMZZNBXX	
KDENXHJP	OOMSYNXX	UGGGYNYX	VMMCYNXX	WRRRYNYX	
KDZZNAXX	OOZZNDNX	UKKRYNYX	VOMMYNYE	WSARYOYX	
LEZZNARP	OPKCYNYD	UMMDYOYX	VOMMYNYX	WSJCZQZX	

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Appendix J

Special air-report

Table 1. Special air-report as spoken in radiotelephony

AIREP SPECIAL <i>aircraft identification</i> POSITION <i>latitude and longitude time</i> FLIGHT LEVEL <i>number</i> CLIMBING [DESCENDING] TO FLIGHT LEVEL <i>number</i> ASH CLOUD VA EXERCISE APAC VOLCEX19/02 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>nnnn</i> <i>Nnnnnn</i> E <i>hhmm</i> F <i>nnn</i> ASC [DES] F <i>nnn</i> VA CLD VA EXERCISE APAC VOLCEX19/02 EXERCISE EXERCISE EXERCISE

APAC VOLCEX 19/02 EXERCISE DIRECTIVE**Appendix K**

List of Directing Staff

Area of Responsibility	State and Organization	Contact Name	Contact Position	Telephone/Fax Numbers	Email address/es
Exercise Leader	Philippines CAAP	Ferdinand A. TIENZO	Division Chief Enroute Control Division, Air Traffic Service	+639226480891	tienzoda@yahoo.com
VO	Philippines PHIVOLCS	Dr. Winchelle Ian SEVILLA	Supervising Science Research Specialist	+63 2 4261468	winch.sevilla@phivolcs.dost.gov.ph
VAAC	Japan JMA (VAAC Tokyo)	Yuichi YMAMURA		+81 3 3212 6203	y_ymamura@met.kishou.go.jp vaac.tokyo@volash.kishou.go.jp
	Australia BoM (VAAC Darwin)	Dr. Jarrad DENMAN	En Route Aviation Services Manager		jarrad.denman@bom.gov.au
MWO	Philippines PAGASA (MWO Manila)	Hannagrace F. CRISTI	Chief, Aeronautical Meteorology Services Section Weather Division, PAGASA-DOST	+63 2 8522927	hannacristi@yahoo.com
				+63 2 8323023	piias@pagasa.dost.gov.ph

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		Dofiali Dwi TRISNAKUSUMAWATI	Forecaster of MWO Ujung Pandang	+6281236830131	dofiali@gmail.com
ACC, ANSP	Philippines CAAP (Manila ACC)	Ruby Anna T. LALUGAN	Supervisor, Manila ACC	+639228597605	rubyanna1221@gmail.com
				+63 2 6727774	macc.supervisors@gmail.com
	Philippines CAAP (Dumaguete Tower)	Bernardo Elmerito F. ABLIR	Facility-In-Charge Dumaguete Aerodrome Control Tower	+639178244647	bernardoem@yahoo.com
	Philippines CAAP (Panglao Tower)	Dennis AURES	FIC, Panglao Aerodrome Control Tower	+639958092330	dennis_aures@yahoo.com caap.panglaotower@gmail.com
	Philippines CAAP (ATFMU, Manila)	Roger ISON	Chief, Air Traffic Flow Management Unit, Air Traffic Service	+63 2 9442239	atfmph@gmail.com
Indonesia AirNav (Ujung Pandang ACC)		Adwan LAMUDJI	Operation Deputy		adwan.lamudjidi@gmail.com
		Agung Dwi HANGGORO	Operation Manager		bonte_cogant@yahoo.com

		Akhmad ABDILLAH	First ATC		abdee_lah@hotmail.com
		Riswan RUDYARTHA	First ATC		riswanrudyartha@gmail.com
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Operations & rescue coordination	Philippines CAAP	Braulio I. MENESES		+63 2 672 7705 +63 2 672 7706	caaphil.rcc@gmail.com
Airport Operations	Philippines CAAP	ATTY. Rafael A. TATLONGHARI	Acting Area Center Manager, Area VII	+639224647599	rffieldstm@yahoo.com
		Mark M.A.P. DIAMAODEN	Manager, Dumaguete Airport	+639171582318	m_diamaoden@yahoo.com
		Dennis AURES	Acting Assistant Airport Manager, Panglao Airport	+639958092330	dennis_aures@yahoo.com caap.panglaotower@gmail.com
Airline, airspace user	Philippine Airlines	Eugenio B. RAYMUNDO	Central Flight Dispatch, Integrated Operations Control Center		jennyb_raymundo@pal.com.ph
	TBD				
	TBD				
Regulation	Philippines CAAP	Jose V. FESTEJO	Supervising MET Inspectorate	+63 2 9442288	jadper_fr@yahoo.com
Exercise coordination	ICAO APAC Office	Peter C. DUNDA	Regional Officer MET		PDunda@icao.int

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Appendix L

List of Observing Staff

Area of Responsibility	State	Organization	Contact Name	Contact Position	Telephone/Fax Numbers	Email address/es
VO	Indonesia	CVGHM				
VAAC	New Zealand	VAAC Wellington	Mr. Marcel ROUX	Manager		
MWO	Thailand	TMD	Ms. Rassmee DAMRONGKIETWATTANA	Director of Aeronautical Weather Monitoring SubDivision	+66(2)134001 1 ext.213	rassmee@hotmail.com
	Republic of Korea	KMA	Ms. Yeji PARK	Assistant Director	+82 (32) 740 2812	yeji@korea.kr
	Japan	JMA	Mr. Jun RYUZAKI	Senior Coordinator for International Aeronautical Meteorology	+81-3-3212-8341(ext.2298)	jryuzaki@met.kishou.go.jp
ACC, ANSP	Malaysia					
	Singapore	CAAS	Mr. Michael SHEE	Senior Air Traffic Control Manager		michael_shee@caas.gov.sg
	Thailand					
	New Zealand					
	USA					
	Japan(Kobe)					
	Japan(Fukuoka)					
	Hong Kong China					

	Vietnam					
NOF, ANSP	Japan					
REGULATORY	Australia	CASA	Mr. Ashley McALPINE	Safety Management & Performance Specialist		
	Indonesia	DGCA	Mrs. Sri Lestari Yuni CATUR	Air Navigation Inspector	+62 812 1212 9864	sri_lestari0406@depbuh.go.id
		DGCA	Mrs. Dina YUNITA	Air Navigation Inspector	+62 812 9607 5249	Dina_yunita@dephub.go.id
	New Zealand	CAA of New Zealand	Ms Paula ACETHORP	Chief Meteorological Officer		paula.acethorp@caa.govt.nz
AO, Airspace user						

APAC VOLCEX 19/02 EXERCISE DIRECTIVE**Appendix M**

List of abbreviations, acronyms and definition of terms

Abbreviation or acronym	Definition
ACC	Area control centre
AIC	Aeronautical Information Circular. A notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the AIP, but which relates to flight safety, air navigation, technical, administrative or legislative matters.
AIS	Aeronautical information service
AO	Aircraft operator
ATFMU	Air traffic flow management unit
ATM	Air traffic management
ATS	Air traffic service
BMKG	Badan Meteorologi, Klimatologi, dan Geofisika (Indonesian agency for meteorology, climatology and geophysics)
BoM	Bureau of meteorology (Australian Government)
CAAP	Civil Aviation Authority of the Philippines
CDM	Collaborative Decision Making
FIR	Flight Information Region
FL	Flight Level
JMA	Japan Meteorological Agency
MWO	Meteorological Watch Office
NOF	International NOTAM Office
NOTAM	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
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PHIVOLCS	Philippine Institute of Volcanology and Seismology
SIGMET	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
UTC	Coordinated universal time
VA	Volcanic Ash
VAA	Volcanic ash advisory information – issued in abbreviated plain language
VAAC	Volcanic ash advisory center
VAG	Volcanic ash advisory information – issued in graphical format
VO	Volcano observatory
VONA	Volcano observatory notice for aviation