



International Civil Aviation Organization

THIRD MEETING OF THE ICAO ASIA/PACIFIC (APAC) VOLCANIC ASH EXERCISES STEERING GROUP (VOLCEX/SG/3)

Bangkok, Thailand, 14 – 16 March 2016

Agenda Item 3: Debrief and review of volcanic ash exercise

INITIAL EXERCISE REPORTS FROM VOLPHIN16/01

(Presented by Secretariat)

SUMMARY

This paper presents the initial exercise reports from VOLPHIN16/01, with no further editing, analysis or discussion provided, as a resource for the VOLCEX/SG on which to base the debrief meeting discussions on VOLPHIN16/01.

1. INTRODUCTION

1.1 Participants and observers of VOLPHIN16/01 were invited to record any actions/observations made during the exercise in their respective units and report the information back to the Secretary for later use to assist the debrief meeting discussions on VOLPHIN16/01.

1.2 The reports received from the exercise participants and observers are provided, with no further editing, analysis or discussion, as attachments to this paper.

2. DISCUSSION

2.1 Reports were received from the following exercise participants and observers:

MWOs Jakarta and Ujung Pandang	Attachment 1
Malaysian Airlines	Attachment 2
NOF Jakarta	Attachment 3
Hong Kong Observatory	Attachment 4
Darwin VAAC	Attachment 5
RODB Singapore	Attachment 6
Wellington VAAC	Attachment 7
Virgin Australia	Attachment 8
IATA	Attachment 9

3. ACTION REQUIRED BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper.

VOLPHIN16-01 Sheet

Facility name

MWO Jakarta dan Ujung Pandang

Time \ Item	Present condition (aircraft operation, phase of eruption, position of volcanic ash etc.)	Simulated operational response (information distribution, flow control/traffic metering, re-flight-planning, timing of next forecast etc.)	Remarks
23.45	Merapi Erupted		
00.02		Received VONA	Not directly from Volcano Observatory System, forwarded by Mr. Aditya (DGCA)
00.15		Received 1st VAA	
00.26		MWO Jakarta issued 1st SIGMET	
00.28		MWO Ujung Pandang issued 1st SIGMET	
00.32		Received 2nd VAA	
00.35		MWO Jakarta issued 2nd SIGMET	
00.40		MWO Ujung Pandang issued 2nd SIGMET	
00.55		MWO Jakarta received Special Airep from Jakarta ACC	via email
00.57		MWO Jakarta sent Special Airep to VAAC	via email
01.30		MWO Ujung Pandang received special AIREP form Ujung Pandang ACC	via email
01.37		MWO Ujung Pandang sent Special AIREP to VAAC	via email
02.55	Ash cloud dissipated	Received 2nd VONA	
03.18		Received 3rd VAA	
03.24		MWO issued 3rd SIGMET	
03.55		MWO Ujung Pandang Received Special Airep from ACC Ujung Pandang	
03.55		MWO Ujung Pandang forwarded Special Air Report to VAAC	
04.17		Received 4th VAA	
04.22		MWO Ujung Pandang issued 4th SIGMET	Via email
04.50		MWO Ujung Pandang received special Airep and forwarded to VAAC	Via email
05.23		Received Final VAA	
05.26		MWO Ujung Pandang issued SIGMET Cancel	
05.35		MWO Jakarta issued SIGMET Cancel	

Date – 17th Feb 2016

MH Notes

Item/Time	Present condition (aircraft operation, phase of eruption, position of volcanic ash etc.)	Simulated operational response (Information distribution, flow control/traffic metering, re-flight-planning, timing of next forecast etc.)	Remarks
2249z (email)	Announcement of Volphin 16/01 exercise	N/A	
2302z (email)	VOLPHIN exercise directive received	N/A	
2335z (WA)	Merapi is erupted on 16 February 2016 at 23:35 z, dark grey colored ash cloud is observed with estimated height of 7700 m.a.s.l. State of activity is Level IV (Warning).	OCC/ODC alerted. List of flights overflying Merapi identified	
2342Z			VONA INDONESIA email not received
2358z	AIREP SPECIAL [LNI 748 B 737-900ER]Position [Lasem]at [23:50][FL 340] VOLCANIC ASH CLOUD		
0002z (email)	VONA received	20160216/2345Z RED 2016MER01 Eruption with volcanic ash-cloud at 2335 UTC (0835 local) Eruption and ash emission is continuing. Ash-cloud top is around 24640 FT ground observer. Large ash-cloud moving to northeast	List of affected MH flights: <ul style="list-style-type: none"> • 6 B738 • 4 A330
0013z (AFTN)	VAAC VOLCANIC ADVISORY RECEIVED GG WMKKMASD 170013 YMMCYMYX FVAU02 ADRM 170013 VA ADVISORY DTG: 20160217/0010Z VAAC: DARWIN VOLCANO: MERAPI 263250 PSN: S0733 E11027 AREA: INDONESIA SUMMIT ELEV: 2968M ADVISORY NR: 2016/1 INFO SOURCE: VA EXERCISE VONA AVIATION COLOUR CODE: RED ERUPTION DETAILS: VA EXERCISE ERUPTION AT 20160216/2345Z TO FL350 MOV NE 20KT OBS VA DTG: 17/0010Z	Same info as VONA	

	EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE. SENT DPCNMMH		
0057z (AFTN)	<p>ASHTAM 1638</p> <p>A)WAAF B)02170015 C)MERAPI 60325 D)S0733 E11027 E)RED ALERT F)VA EXERCISE VOLPHIN16/01. SFC/FL350 S0706 E11055 - S0729 E11102 - S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0706 E11030 G)MOV NE 20KT H)W17N I)NIL J)VA EXERCISE HIMAWARI-8 K)VA EXERCISE SCENARIO, VA OBS FL350 EXTENDING 40NM TO NE. FCST VA CLD +6 HR: 17/0615Z SFC/FL350 S0804 E11043 - S0650 E11305 - S0549 E11252 - S0527 E11206 - S0634 E11015 - S0726 E11007 FCST VA CLD +12 HR: 17/1215Z SFC/FL350 S0805 E11050 - S0546 E11509 - S0439 E11455 - S0356 E11250 - S0625 E11000 - S0725 E10954 - S0800 E11020 FCST VA CLD +18 HR: 17/1815Z SFC/FL350 S0724 E11231 - S0642 E11647 - S0335 E11624 - S0249 E11428 - S0622 E10958 - S0725 E10951 - S0818 E11036 RMK: VA EXERCISE VOLPHIN16/01 VA OBS ON IR SAT IMAGERY AND CONFIRMED BY GROUND REPORTS. HEIGHT BASED ON IR TEMP AND ACCESS-R MODEL SOUNDING. FORECAST CONFIDENCE IS LOW. VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE. SENT DPCNMMH</p>		<p><u>MH 141 KUL/SYD</u> Just Airborne KUL: ODC Informs crew via SATCOM of rerouting via HLM. New WPT sent to aircraft via ACARS and Flight plan sent to ATC. No fuel constraint.</p> <p><u>MH 129 KUL/MEL</u> Still on ground: Hold crew at CRC for special briefing from Duty Pilot for rerouting with new OFP via HLM.</p> <p><u>MH 715 KUL/DPS</u> Over WSJC airspace: ODC conducts REROUTING VIA UJUNG NORTHERN M774 TO KEVOK/M522 TO BLI. Crew has insufficient fuel even after using up contingency. Additionally ATC advices all traffic of possible 30 minutes holding at BLI. OCC advices crew via ACARS and SATCOM to ATB to KUL.</p>
0202z (AFTN)	<p>ASHTAM 1639</p> <p>A)WAAF B)02170100 C)TENGGER CALDERA 60331 D)S0757 E11257 E)ORANGE ALERT F)SFC/FL100 S0730 E11238 - S0741 E11222 - S0803 E11246 - S0800 E11258 - S0753 E11300 G)MOV NW 5KT H)NIL I)NIL J)HIMAWARI-8, CVGHM K)VA OBS TO FL100 EXT 25NM TO NW AT 17/0100Z. FCST VA CLD +6 HR: 17/0800Z SFC/FL100 S0727 E11242 - S0739</p>		Risk Assessment Completed by Technical Pilots

	<p>E11226 - S0757 E11245 - S0800 E11256 - S0754 E11300 FCST VA CLD +12 HR: 17/1400Z SFC/FL100 S0726 E11250 - S0737 E11229 - S0800 E11256 - S0755 E11300 FCST VA CLD +18 HR: 17/2000Z SFC/FL100 S0726 E11250 - S0737</p> <p>E11229 - S0800 E11255 - S0754 E11300 RMK: VA DISCERNIBLE AND MOVING NW. VA HEIGHT AND MOVEMENT BASED ON HIMAWARI-8 IMAGERY AND MODEL GUIDANCE.</p> <p>NXT ADVISORY: NO LATER THAN 20160217/0800Z SENT DPCNMMH</p>		
0300z (email)	VONA CODE YELLOW		
0333z (AFTN)	<p>ASHTAM 1640</p> <p>A)WAAF B)02170315 C)MERAPI 60325 D)S0733 E11027 E)RED ALERT F)VA EXERCISE VOLPHIN16/01. SFC/FL350 S0728 E11106 - S0715 E11221 - S0701 E11239 - S0608 E11249 - S0549 E11224 - S0601 E11100 - S0629 E11042 - S0714 E11043 G)MOV NE 20KT H)W13 W16 W17N W45 W52 G461 M766 I)NIL J)VA EXERCISE VONA K)VONA INDICATES LOCAL ERUPTION CEASED. ASH STILL VISIBLE ON SA FCST VA CLD +6 HR: 17/0915Z SFC/FL350 S0705 E11145 - S0717 E11229 - S0656 E11322 - S0527 E11431 - S0434 E11417 - S0432 E11314 - S0530 E11131 - S0625 E11103 FCST VA CLD +12 HR: 17/1515Z SFC/FL350 S0653 E11355 - S0556 E11603 - S0414 E11542 - S0359 E11358 - S0519 E11211 - S0613 E11152 - S0653 E11213 FCST VA CLD +18 HR: 17/2115Z SFC/FL350 S0658 E11355 - S0601 E11704 - S0350 E11703 - S0337 E11608 - S0417 E11340 - S0520 E11232 - S0606 E11222 - S0656 E11255 RMK: VA EXERCISE VOLPHIN16/01 SATELLITE IMAGERY INDICATES THE MAIN ERUPTION CLOUD HAS NOW DETACHED FROM THE VOLCANO. VA EXERCISE VA EXERCISE VA EXERCISE ADVISORY: NO LATER THAN 20160217/0615Z</p>		
0432z (AFTN)	<p>ASHTAM 1641</p> <p>A)WAAF B)02170415 C)MERAPI 60325 D)S0733 E11027 E)YELLOW ALERT F)VA EXERCISE VOLPHIN16/01. SFC/FL350</p>		REVIEW RA GUIDELINES

	<p>S0703 E11240 - S0624 E11324 - S0551 E11311 - S0550 E11206 - S0624 E11139 - S0702 E11205 G)MOV NE 20KT H)W13,W16,W31,W31W,W52,M766,L511,M635 I)NIL J)VA EXERCISE PIREP, HIMAWARI-8 K)VA EXERCISE SCENARIO VA ERUPTION TO FL350 FCST VA CLD +6 HR: 17/1015Z SFC/FL350 S0657 E11259 - S0638 E11347 - S0558 E11437 - S0511 E11436 - S0511 E11346 - S0533 E11223 - S0610 E11206 - S0655 E11230 FCST VA CLD +12 HR: 17/1615Z SFC/FL350 S0635 E11431 - S0547 E11533 - S0445 E11536 - S0448 E11414 - S0515 E11303 - S0602 E11252 - S0646 E11337 FCST VA CLD +18 HR: 17/2215Z NO VA EXP RMK: VA EXERCISE VOLPHIN16/01 VA TO FL350 CLEARLY DISCERNIBLE ON SAT IMAGERY, EXPECTED TO DISSIPATE BY 18/0000Z. ERUPTION TO FL140 CONTINUES AT THE VOLCANO. VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE SENT DPCNMMH</p>		
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VOLPHIN16-01 Sheet

Facility name

NOTAM OFFICE

Item Time	Present condition (aircraft operation, phase of eruption, position of volcanic ash etc.)	Simulated operational response (information distribution, flow control/traffic metering, re-flight-planning, timing of next forecast etc.)	Remarks
Feb 10, 0831	Advance Notification	NOF issued NOTAM advance notification for Volphin16/01.	NOTAM number A0384/16.
2300		Exercise Co-leader Mr. Bashory announce the commencement of volphin16/01	via Email
2345	CVGHM declare merapi eruption		
0005		VONA received	by Mr, Martanto's post in Volphin16/01 Whatsapp group
0015		1 st exercise VAA from VAAC Darwin received	by AFTN message
0033		1st exercise SIGMET from MWO Ujung Pandang dan MWO Jakarta received	by Mr, Zulkarnain's post in Volphin16/01 Whatsapp group
0035		NOF issued 1st exercise ASHTAM VAWR 1637	Disseminated via AFTN to addresss distribution list in Volphin16/01 Directive
0038		2 nd exercise VAA received	by AFTN message Colour code : Unknown
0042		VAAC Darwin response	VAA has been issued using VONA supplied colour code : unknown, in real event this would likely be red
0048		2nd exercise SIGMET from MWO Ujung Pandang received	by Mr, Zulkarnain's post in Volphin16/01 Whatsapp group
0058		NOF issued 2 nd exercise ASHTAM VAWR 1638	Disseminated via AFTN to addresss distribution list in Volphin16/01 Directive
0302		next VONA received	
0317		3 rd exercise VAA received	by AFTN message

0327		3rd exercise SIGMET from MWO Ujung Pandang received	by Mr, Zulkarnain's post in Volphin16/01 Whatsapp group
0334		NOF issued 3 rd exercise ASHTAM VAWR 1640	Disseminated via AFTN to addresseess distribution list in Volphin16/01 Directive
0416		4 th exercise VAA received	by AFTN message
0430		4 th exercise SIGMET from MWO Ujung Pandang received	by Mr, Zulkarnain's post in Volphin16/01 Whatsapp group
0441		NOF issued 4 th exercise ASHTAM VAWR 1641	Disseminated via AFTN to addresseess distribution list in Volphin16/01 Directive
0517		Exercise Co-leader Mr. Bashory announce cessation of the VA Exercise	via Email
0523		Final exercise VAA	by AFTN message
0531		Cancellation Sigmet	by Mr, Zulkarnain's post in Volphin16/01 Whatsapp group
541		Cancellation NOTAM	NOTAM Number A0451/16 notamc A0389/16

VOLPHIN16-01 Sheet

Facility name Hong Kong Observatory(HKO)/ Hong Kong, China
(MWO of HONG KONG FIR and Exercise Observer
of VOLPHIN16-01)

Time	Item	Present condition (aircraft operation, phase of eruption, position of volcanic ash etc.)	Simulated operational response (information distribution, flow control/traffic metering, re- flight- planning, timing of next forecast etc.)	Remarks
20160217-0013		VAA NR 2016/1	triggering the issuance of WIIZ SIGMET 04 and WAAZ SIGMET A09	a) This is the first VAA for this exercise. This VAA should have triggered the issuance of WIIZ SIGMET 04 and WAAZ SIGMET A09; b) polygon given in VAA should preferably be provided in a clockwise order.
20160217-0017		VAA NR 2016/2	triggering the issuance of WIIZ SIGMET 05 and WAAZ SIGMET A01	a) This is the second VAA for this exercise. This VAA should have triggered the issuance of WIIZ SIGMET 05 and WAAZ SIGMET A01; b) polygon given in VAA should preferably be provided in a clockwise order.
20160217-0022		WIIZ SIGMET 04		a) WIIZ SIGMET 04 message was received by HKO via AFTN. However, the message could not be retrieved from both WAFCS; b) The points of polygon should be provided in a clockwise order (ref. ICAO APAC Regional SIGMET Guide, Section 3.5.4.5); c) The end point of polygon should be a repeat of the start point (ref. ICAO APAC Regional SIGMET Guide, Section 3.5.4.5); d) This is the first WIIZ SIGMET for this VA exercise. It seems that this SIGMET should have been prepared based on VAA NR 2016/1 as the area for this SIGMET is the same as the corresponding area in VAA NR 2016/1; e) The conditional element "level", which should be "SFC/FL350 as given in VAA NR 2016/1, is not provided in this SIGMET.

20160217-0026		WAAZ SIGMET A09	<p>a) WAAZ SIGMET A09 message has been made available in both WAFCs. However, the message has not been received by HKO via AFTN;</p> <p>b) The points of polygon should be provided in a clockwise order (ref. ICAO APAC Regional SIGMET Guide, Section 3.5.4.5);</p> <p>c) Despite the commencement of validity period was on day "16", the message was issued on day "17" and the sequence number of SIGMET shall be counted starting from, say A01, on the day "17" (ref. ICAO Annex 3 Appendix 6 1.1.3);</p> <p>d) This is the first WAAZ SIGMET for this VA exercise. It seems that this SIGMET should have been prepared based on VAA NR 2016/1 as the element "location" for this SIGMET is the same as the corresponding area in VAA NR 2016/1. However, the observation time differs from that of VAA. It is not sure if the SIGMET was prepared based on information other than VAA NR 2016/1, such as VONA.</p>
20160217-0033		WAAZ SIGMET A01	<p>a) WAAZ SIGMET A01 message has been made available in both WAFCs. However, the message has not been received by HKO via AFTN;</p> <p>b) The points of polygon should be provided in a clockwise order;</p> <p>c) This is the second WAAZ SIGMET for this VA exercise. The SIGMET should have been prepared based on VAA NR 2016/2.</p>
20160217-0041		WIIZ SIGMET 05	<p>a) WIIZ SIGMET 05 message was received by HKO via AFTN and could be retrieved from WAFc London. However, the message could not be retrieved from WAFc Washington;</p> <p>b) The points of polygon should be provided in a clockwise order;</p> <p>c) The end point of polygon should be a repeat of the start point;</p> <p>d) The conditional element "level", which should be "SFC/FL350 as given in VAA NR 2016/2, is not provided after the element "location" in this SIGMET;</p> <p>e) This is the second WIIZ SIGMET for this VA exercise. It seems that this SIGMET should have been prepared based on VAA NR 2016/2 as the first area (element "location") for this SIGMET is the same as the corresponding area in VAA NR 2016/2;</p> <p>f) There is a second "location" in the SIGMET after the "=" sign. As the polygon for this second "location" is the same as the "location" for the first SIGMET (WIIZ SIGMET 04), it is therefore suspected that this second "location" should have been included unintentionally.</p>

20160217-0316		VAA NR 2016/3	triggering the issuance of WAAZ SIGMET A03	<p>a) This is the third VAA for this exercise. Both the observed and forecast locations are within the Ujung Pandang FIR (WAAZ) but completely outside the Jakarta FIR (WIIZ);</p> <p>(b) This VAA should have triggered the issuance of WAAZ SIGMET A03;</p> <p>(c) Basically, this VAA should also trigger the issuance of a WIIZ SIGMET to cancel the previously issued WIIZ SIGMET 05. However, WIIZ SIGMET 06 was issued with updated location, though which was completely outside Jakarta FIR;</p> <p>d) polygon given in VAA should preferably be provided in a clockwise order;</p> <p>e) the number of points of a polygon should preferably not exceed seven.</p>
20160217-0320		WAAZ SIGMET A03		<p>a) WAAZ SIGMET A03 message has been made available in both WAFCs. However, the message has not been received by HKO via AFTN;</p> <p>b) The points of polygon should be provided in a clockwise order ;</p> <p>c) There are 8 coordinates in the polygon. This exceeds the recommended maximum number of coordinates (ref. ICAO APAC Regional SIGMET Guide, Section 3.5.4.5);</p> <p>d) This is the third WAAZ SIGMET for this VA exercise. The SIGMET should have been prepared based on VAA NR 2016/3.</p>
20160217-0324		WIIZ SIGMET 06		<p>a) WIIZ SIGMET 06 message was received by HKO via AFTN. However, the message could not be retrieved from both WAFCs;</p> <p>b) The points of polygon should be provided in a clockwise order;</p> <p>c) There are 8 coordinates in the polygon. This exceeds the recommended maximum number of coordinates (ref. ICAO APAC Regional SIGMET Guide, Section 3.5.4.5);</p> <p>d) The conditional element "level" should be provided immediately after (not before) the "location" (ref. Annex 3 Appendix 6 Table A6-1);</p> <p>e) This is the third WIIZ SIGMET for this VA exercise. The SIGMET should have been prepared based on VAA NR 2016/3. However, both the observed and forecast locations of the VAA NR 2016/3 are outside the Jakarta FIR (WIIZ). In other words, no VA from MT Merapi should be observed or expected within the Jakarta FIR. As such, a cancellation SIGMET should, in response to VAA NR 2016/3, be issued immediately after reception of VAA NR 2016/3 at around 170315, to cancel WIIZ SIGMET 05, instead of issuing a SIGMET with location completely outside the Jakarta FIR.</p>
20160217-0414		VAA NR 2016/4	triggering the issuance of WAAZ SIGMET A04	<p>a) This is the fourth VAA for this exercise. This VAA should have triggered the issuance of WAAZ SIGMET A04;</p> <p>b) polygon given in VAA should preferably be provided in a clockwise order;</p>

				c) the number of points of a polygon should preferably not exceed seven.
20160217-0421		WAAZ SIGMET A04		a) WAAZ SIGMET A04 message has been made available in both WAFCs. However, the message has not been received by HKO via AFTN; b) The points of polygon should be provided in a clockwise order; c) This is the fourth WAAZ SIGMET for this VA exercise. The SIGMET should have been prepared based on VAA NR 2016/4.
20160217-0516		WIIZ SIGMET 07		a) WIIZ SIGMET 07 message was received by HKO via AFTN and could be retrieved from WAFc London. However, the message could not be retrieved from WAFc Washington; b) This is the fourth as well as the final WIIZ SIGMET for this VA exercise. According to the SIGMET sequence number for the third and the fourth SIGMET, there should be no WIIZ SIGMET based on VAA NR 2016/4 that has not been issued for this exercise; c) As discussed above for WIIZ SIGMET 06, the cancellation SIGMET should have been issued earlier; d) For a cancellation SIGMET, the end time of validity period should be the same as that of the SIGMET being cancelled, i.e. 170915. However, the end time of the validity period of WIIZ SIGMET 07 was 171125, which is 6 hours after the start time. It seems that MWO intends to issue this SIGMET with 6 hour of validity period, which is, however, not necessary for a cancellation SIGMET.
20160217-0522		VAA NR 2016/5	triggering the issuance of WAAZ SIGMET A05	a) This is the fifth as well as the final VAA for this exercise. This VAA should have triggered the issuance of the cancellation SIGMET (WAAZ SIGMET A05).
20160217-0525		WAAZ SIGMET A05		a) WAAZ SIGMET A05 message has been made available in both WAFCs. However, the message has not been received by HKO via AFTN; b) This is the fifth as well as the final WAAZ SIGMET for this VA exercise. The SIGMET should have been prepared based on VAA NR 2016/5; c) The validity period of the WAAZ SIGMET A04 being cancelled was 170415/171015. However, it was incorrectly coded as 17042/171020; d) For a cancellation SIGMET, the end time of validity period should be the same as that of the SIGMET being cancelled, i.e. 171015. However, the end time of the validity period of WAAZ SIGMET A05 was 171125, which is 6 hours after the start time. It seems that MWO intends to issue this SIGMET with 6 hour of validity period, which is, however, not necessary for a cancellation SIGMET.

Note:

(A) Full text of messages are given in separate worksheet under this excel table;

(B) The time given above is the time HKO received the message via AFTN or retrieved from WAFC(s).

VOLPHIN16-01 Sheet

Facility name

Darwin VAAC

Item Time	Present condition (aircraft operation, phase of eruption, position of volcanic ash etc.)	Simulated operational response (information distribution, flow control/traffic metering, re-flight-planning, timing of next forecast etc.)	Remarks
0012	Received VONA from Indonesia	Prepared initial advisory using data from VONA,	
0014	Issued Advisory 2016/01 for Merapi (Validity time 0010)	Issued initial advisory using sat pic for obs polygon	Issued advisories as quickly as possible to get back to VOLPHIN timeline, in real situation the advisories would probably take approx 5min for initial advisory.
0016	Issued follow up advisory 2016/02 at 0015	Issued initial advisory using sat pic for obs polygon	
0021	Sigmet received for an Advisory not yet sent. Valid 162355/170555 from WAAZ (Ujung Pandang)	No Action Taken	Sigmet based on the VOLPHIN16/01 Directive
0022	Received ASHTAM/NOTAM	Information matched information given in first advisory. No action taken.	
0025	SIGMET received valid for 17/0010170610 for WIIZ Jakarta FIR 04		
0027	SIGMET received valid 162355/170555 from WAAA WAAZ UJUNG PANDANG FIR A09		psn only, no forecast
0037	SIGMET received valid 170015/170615 from WAAZ UJUNG PANDANG FIR VA A01		psn only, no forecast
0055	ASHTAM/NOTAM received		
0101	Korean airlines called asking about Merapi advisory	Duty forecaster informed them that it was an exercise only.	
0104	Sigmet received valid 170015/170515 from WWIZ Jakarta fir for exercise volphin, with a forecast position		Sigmet forecast position does not appear to match VAA Forecast
0151	Singapore Flight Operations called asking about Merapi		
0259	Received Vona from CVGDM	Advisory Issued due to ash still discernible on sat	
0315	Issued advisory 2016/3 Merapi		
0323	Sigmet received valid 170315/170915 from WIIZ	The obs time stated in the SIGMET was 17/0310Z	

	JAKARTA FIR		
0332	ASHTAM/NOTAM recieved.		
0340	AIREP SPECIAL recieved 'AIREP SPECIAL RED PHOENIX THREE TWO FOUR OVERHEAD RAMPY ZERO THREE ONE FIVE ZULU FLIGHT LEVEL THREE ZERO ZERO ASH CLOUD REACHING APPROX FLIGHT LEVEL THREE FIVE ZERO VOLCANIC ASH CLOUD VOLPHIN16/01 VA EXERCISE VA EXERCISE VA EXERCISE'	observed data matches the current advisory, no changes to forecast necessary	
0355	AIREP SPECIAL recieved 'AIREP SPECIAL GARUDA SIX ZERO EIGHT POSITION OVER PIALA ZERO THREE FOUR FIVE ZULU VOLCANIC ASH MOUNT MERAPI MOVE TO NORTH EAST VOLCANIC ASH CLOUD VOLPHIN 16/01 VA EXERCISE VA EXERCISE VA EXERCISE'	observed data matches the current advisory, no changes to forecast necessary	
0415	Issued advisory 2016/4 Merapi		
0420	Sigmat recieved A04 valid 170415/171015 for UJUNG PANDANG FIR		
	No sigmet recieved from Jakarta for 0415 adviosry		
0450	AIREP SPECIAL recieved AIREP SPECIAL WAGON AIR THREE ZERO TWO OVERHEAD KOLTA ZERO FOUR ONE FIVE ZULU FLIGHT LEVEL TWO HUNDRED ASH CLOUD HEGHT APPROX FLIGHT LEVEL THREE FIVE ZERO VOLCANIC ASH CLOUD VOLPHIN16/01 VA EXERCISE VA EXERCISE VA EXERCISE		
0432	Ashtam recieved		Due to VONA reporting that there was no further eruption VAA have not reported ash from volcano. However the NOTAM mentioned VA to FL140. VAA issued in line with VONA but in condradiction with NOTAM.

0515	Sigmat recieved from WIIZ JAKARTA FIR cancelling SIGMET		
0516	Email recieved declaring the cessation of the exercise	Final advisory prepared	
0520	Final VAA issued		
0525	Sigmat recieved from WAAZ UJUNG PANDANG FIR cancelling SIGMET		
0535	AIREP SPECIAL recieved 'AIREP TO MATC AIREP SPECIAL LNI 029 B737 Er position entas maintain FL 360 NO.VOLCANIC ASH CLOUD VOLPHIN 16/01 VIA EXERCISE VA EXERCISE VA EXERCICE AIREP SUB ATC AIREP SPECIAL LNI 857 B 737ER POSITION KASOL MAINTAIN FL 200 NO VOLCANIC ASH CLOUD VOLPHIN 16/01 va exercise va exercise va exercise'		
0540	NOTAM recieved advising that exercise has concluded.		

Date/time ddhhmm	Message details
170010	WVID20 WIII 170010 WIIZ SIGMET 04 VALID 170010/170610 WIII- WIIZ JAKARTA FIR EXERCISE VOLPHIN 16/01 VA ERUPTION MT MERAPI PSN S0733 E11027 VA CLD OBS AT 0010Z WI S0714 E11049 - S0727 E11058 - S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0719 E11026 MOV NE 20KT=
170010	GG WSSSYMYW 170022 WRRRYNYX VAWR1637 WAAF 02170010 ASHTAM 1637 A)WAAF B)02162345 C)MERAPI 60325 D)S0733 E11027 E)RED ALERT F)VA EXERCISE VOLPHIN16/01. SFC/FL350 S0714 E11049 - S0727 E11058 - S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0719 E11026 G)MOV NE 20KT H)W17N I)NIL J)VA EXERCISE VONA K)VA EXERCISE ERUPTION AT 20160216/2345Z TO FL350 MOV NE 20KT. FCST VA CLD +6 HR: 17/0610Z NOT AVBL FCST VA CLD +12 HR: 17/1210Z NOT AVBL FCST VA CLD +18 HR: 17/1810Z NOT AVBL RMK: VA EXERCISE VOLPHIN16/01 VONA RECEIVED INDICATING ERUPTION TO FL350. A MORE DETAILED ADVISORY WILL BE ISSUED SHORTLY. VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE.
170013	GG WSSSYMYW WSSSYMYX WSSSYZYX 170013 YMMCYMYX FVAU02 ADRM 170013 VA ADVISORY DTG: 20160217/0010Z VAAC: DARWIN VOLCANO: MERAPI 263250 PSN: S0733 E11027 AREA: INDONESIA SUMMIT ELEV: 2968M ADVISORY NR: 2016/1 INFO SOURCE: VA EXERCISE VONA AVIATION COLOUR CODE: RED

Date/time ddhhmm	Message details
	<p>ERUPTION DETAILS: VA EXERCISE ERUPTION AT 20160216/2345Z TO FL350 MOV NE 20KT OBS VA DTG: 17/0010Z OBS VA CLD: SFC/FL350 S0714 E11049 - S0727 E11058 - S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0719 E11026 MOV NE 20KT FCST VA CLD +6 HR: 17/0610Z NOT AVBL FCST VA CLD +12 HR: 17/1210Z NOT AVBL FCST VA CLD +18 HR: 17/1810Z NOT AVBL RMK: VA EXERCISE VOLPHIN16/01 VONA RECEIVED INDICATING ERUPTION TO FL350. A MORE DETAILED ADVISORY WILL BE ISSUED SHORTLY. VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE NXT ADVISORY: NO LATER THAN 20160217/0015Z</p>
170015	<p>WVID20 WIII 170015 WIIZ SIGMET 05 VALID 170015/170615 WIII- WIIZ JAKARTA FIR EXERCISE VOLPHIN 16/01 VA ERUPTION MT MERAPI PSN S0733 E11027 VA CLD OBS AT 0015Z WI S0706 E11055 - S0729 E11102 - S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0706 E11030 MOV NE 20KT WI S0714 E11049 - S0727 E11058 - S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0719 E11026 MOV NE 20KT=</p>
170015	<p>GG WSSSYMYW 170055 WRRRYNYX VAWR1638 WAAF 02170015 ASHTAM 1638 A)WAAF B)02170015 C)MERAPI 60325 D)S0733 E11027 E)RED ALERT F)VA EXERCISE VOLPHIN16/01. SFC/FL350 S0706 E11055 - S0729 E11102 - S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0706 E11030 G)MOV NE 20KT H)W17N I)NIL J)VA EXERCISE HIMAWARI-8 K)VA EXERCISE SCENARIO, VA OBS FL350 EXTENDING 40NM TO NE. FCST VA CLD +6 HR: 17/0615Z SFC/FL350 S0804 E11043 - S0650 E11305 - S0549 E11252 - S0527 E11206 - S0634 E11015 - S0726 E11007 FCST VA CLD +12 HR: 17/1215Z SFC/FL350 S0805 E11050 - S0546</p>

Date/time ddhhmm	Message details
	<p>E11509 - S0439 E11455 - S0356 E11250 - S0625 E11000 - S0725 E10954 - S0800 E11020 FCST VA CLD +18 HR: 17/1815Z SFC/FL350 S0724 E11231 - S0642 E11647 - S0335 E11624 - S0249 E11428 - S0622 E10958 - S0725 E10951 - S0818 E11036 RMK: VA EXERCISE VOLPHIN16/01 VA OBS ON IR SAT IMAGERY AND CONFIRMED BY GROUND REPORTS. HEIGHT BASED ON IR TEMP AND ACCESS-R MODEL SOUNDING. FORECAST CONFIDENCE IS LOW. VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE.</p>
170016	<p>GG WSSSYMYW WSSSYMYX WSSSYZYX 170016 YMMCYMYX FVAU02 ADRM 170016 VA ADVISORY DTG: 20160217/0015Z VAAC: DARWIN VOLCANO: MERAPI 263250 PSN: S0733 E11027 AREA: INDONESIA SUMMIT ELEV: 2968M ADVISORY NR: 2016/2 INFO SOURCE: VA EXERCISE HIMAWARI-8</p> <p>AVIATION COLOUR CODE: UNKNOWN ERUPTION DETAILS: VA EXERCISE SCENARIO, VA OBS FL350 EXTENDING 40 NM TO NE OBS VA DTG: 17/0015Z OBS VA CLD: SFC/FL350 S0706 E11055 - S0729 E11102 - S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0706 E11030 MOV NE 20KT FCST VA CLD +6 HR: 17/0615Z SFC/FL350 S0804 E11043 - S0650 E11305 - S0549 E11252 - S0527 E11206 - S0634 E11015 - S0726 E11007 FCST VA CLD +12 HR: 17/1215Z SFC/FL350 S0805 E11050 - S0546 E11509 - S0439 E11455 - S0356 E11250 - S0625 E11000 - S0725 E10954 - S0800 E11020 FCST VA CLD +18 HR: 17/1815Z SFC/FL350 S0724 E11231 - S0642 E11647 - S0335 E11624 - S0249 E11428 - S0622 E10958 - S0725 E10951 - S0818 E11036 RMK: VA EXERCISE VOLPHIN16/01 VA OBS ON IR SAT IMAGERY AND CONFIRMED BY GROUND REPORTS. HEIGHT BASED ON IR TEMP AND ACCESS-R MODEL SOUNDING. FORECAST CONFIDENCE IS LOW. VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE NXT ADVISORY: NO LATER THAN 20160217/0315Z</p>
170021	FF WSSSYMYX

Date/time ddhhmm	Message details
	170026 WAAAYMYX WVID21 WAAA 170021 WAAZ SIGMET A09 VALID 162355/170555 WAAA- WAAZ UJUNG PANDANG FIR VA EXERCISE VOLPHIN16/01 VA ERUPTION MT MERAPI PSN S0733 E11027 VA CLD OBS AT 16/2350Z WI S0714 E11049 - S0727 E11058 - S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0719 E11026 - S0714 E11049 SFC/FL350 MOV N E 20KT=
170030	FF WSSSYMYX 170033 WAAAYMYX WVID21 WAAA 170030 WAAZ SIGMET A01 VALID 170015/170615 WAAA- WAAZ UJUNG PANDANG FIR VA EXERCISE VOLPHIN16/01 VA ERUPTION MT MERAPI PSN S0733 E11027 VA CLD OBS AT 17/0015Z WI S0706 E11055 - S0729 E11002 - S0744 E11052 - S0744 E11030 - S0735 E11019 -S0728 E11019 - S0706 E11030 - S0706 E11055 SFC/FL350 MOV N E 20KT=
170315	GG WSSSYMYW 170331 WRRRYNYX VAWR1640 WAAF 02170315 ASHTAM 1640 A)WAAF B)02170315 C)MERAPI 60325 D)S0733 E11027 E)RED ALERT F)VA EXERCISE VOLPHIN16/01. SFC/FL350 S0728 E11106 - S0715 E11221 - S0701 E11239 - S0608 E11249 - S0549 E11224 - S0601 E11100 - S0629 E11042 - S0714 E11043 G)MOV NE 20KT H)W13 W16 W17N W45 W52 G461 M766 I)NIL J)VA EXERCISE VONA K)VONA INDICATES LOCAL ERUPTION CEASED. ASH STILL VISIBLE ON SA FCST VA CLD +6 HR: 17/0915Z SFC/FL350 S0705 E11145 - S0717 E11229 - S0656 E11322 - S0527 E11431 - S0434 E11417 - S0432 E11314 - S0530 E11131 - S0625 E11103 FCST VA CLD +12 HR: 17/1515Z SFC/FL350 S0653 E11355 - S0556 E11603 - S0414 E11542 - S0359 E11358 - S0519 E11211 - S0613 E11152 - S0653 E11213 FCST VA CLD +18 HR: 17/2115Z SFC/FL350 S0658 E11355 - S0601 E11704 - S0350 E11703 - S0337 E11608 - S0417 E11340 - S0520 E11232 - S0606 E11222 - S0656 E11255 RMK: VA EXERCISE VOLPHIN16/01 SATELLITE IMAGERY INDICATES THE MAIN ERUPTION CLOUD HAS NOW DETACHED FROM THE VOLCANO. VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE

Date/time ddhhmm	Message details
	NXT ADVISORY: NO LATER THAN 20160217/0615Z
170316	GG WSSSYMYW WSSSYMYX WSSSYZYX 170316 YMMCYMYX FVAU02 ADRM 170316 VA ADVISORY DTG: 20160217/0315Z VAAC: DARWIN VOLCANO: MERAPI 263250 PSN: S0733 E11027 AREA: INDONESIA SUMMIT ELEV: 2968M ADVISORY NR: 2016/3 INFO SOURCE: VA EXERCISE VONA AVIATION COLOUR CODE: YELLOW ERUPTION DETAILS: VONA INDICATES LOCAL ERUPTION CEASED. ASH STILL VISIBLE ON SA OBS VA DTG: 17/0315Z OBS VA CLD: SFC/FL350 S0728 E11106 - S0715 E11221 - S0701 E11239 - S0608 E11249 - S0549 E11224 - S0601 E11100 - S0629 E11042 - S0714 E11043 MOV NE 20KT FCST VA CLD +6 HR: 17/0915Z SFC/FL350 S0705 E11145 - S0717 E11229 - S0656 E11322 - S0527 E11431 - S0434 E11417 - S0432 E11314 - S0530 E11131 - S0625 E11103 FCST VA CLD +12 HR: 17/1515Z SFC/FL350 S0653 E11355 - S0556 E11603 - S0414 E11542 - S0359 E11358 - S0519 E11211 - S0613 E11152 - S0653 E11213 FCST VA CLD +18 HR: 17/2115Z SFC/FL350 S0658 E11355 - S0601 E11704 - S0350 E11703 - S0337 E11608 - S0417 E11340 - S0520 E11232 - S0606 E11222 - S0656 E11255 RMK: VA EXERCISE VOLPHIN16/01 SATELLITE IMAGERY INDICATES THE MAIN ERUPTION CLOUD HAS NOW DETACHED FROM THE VOLCANO. VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE NXT ADVISORY: NO LATER THAN 20160217/0615Z
170317	FF WSSSYMYX170320 WAAAYMYXWVID21 WAAA 170317 WAAZ SIGMET A03 VALID 170315/170915 WAAA-WAAZ UJUNG PANDANG FIR VA EXERCISE VOLPHIN16/01 VA ERUPTION MTMERAPI PSN S0733 E11027 VA CLD OBS AT 17/0315Z WI S0728 E11106 -S0715 E11221 - S0701 E11239 - S0608 E11249 - S0549 E11224 - S0601 E11100 - S0629 E11042 - S0714 E11043 - S0728 E11106SFC/FL350 MOV NE 20KT=
170323	WVID20 WIII 170323 WIIZ SIGMET 06 VALID 170315/170915 WIII- WIIZ JAKARTA FIR VA EXERCISE VOLPHIN 16/01 VA ERUPTION MT MERAPI PSN S0733 E11027 VA CLD OBS AT 0310Z SFC/FL350 WI S0728 E11106 - S0715 E11221 - S0701E11239 - S0608 E11249 - S0549 E11224 - S0601 E11100 - S0629E11042 - S0714 E11043 - S0728 E11106 MOV NE 20KT=

Date/time ddhhmm	Message details
170414	GG WSSSYMYW WSSSYMYX WSSSYZYX 170414 YMMCYMYX FVAU02 ADRM 170414 VA ADVISORY DTG: 20160217/0415Z VAAC: DARWIN VOLCANO: MERAPI 263250 PSN: S0733 E11027 AREA: INDONESIA SUMMIT ELEV: 2968M ADVISORY NR: 2016/4 INFO SOURCE: VA EXERCISE PIREP HW8 AVIATION COLOUR CODE: YELLOW ERUPTION DETAILS: VA EXERCISE SCENARIO VA ERUPTION TO FL350 OBS VA DTG: 17/0415Z OBS VA CLD: SFC/FL350 S0703 E11240 - S0624 E11324 - S0551 E11311 - S0550 E11206 - S0624 E11139 - S0702 E11205 MOV NE 20KT FCST VA CLD +6 HR: 17/1015Z SFC/FL350 S0657 E11259 - S0638 E11347 - S0558 E11437 - S0511 E11436 - S0511 E11346 - S0533 E11223 - S0610 E11206 - S0655 E11230 FCST VA CLD +12 HR: 17/1615Z SFC/FL350 S0635 E11431 - S0547 E11533 - S0445 E11536 - S0448 E11414 - S0515 E11303 - S0602 E11252 - S0646 E11337 FCST VA CLD +18 HR: 17/2215Z NO VA EXP RMK: VA EXERCISE VOLPHIN16/01 VA TO FL350 CLEARLY DISCERNIBLE ON SAT IMAGERY, EXPECTED TO DISSIPATE BY 18/0000Z. ERUPTION TO FL140 CONTINUES AT THE VOLCANO. VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE NXT ADVISORY: NO LATER THAN 20160217/0715Z
170415	GG WSSSYMYW 170432 WRRRYNYX VAWR1641 WAAF 02170415 ASHTAM 1641 A)WAAF B)02170415 C)MERAPI 60325 D)S0733 E11027 E)YELLOW ALERT F)VA EXERCISE VOLPHIN16/01. SFC/FL350 S0703 E11240 - S0624 E11324 - S0551 E11311 - S0550 E11206 - S0624 E11139 - S0702 E11205 G)MOV NE 20KT H)W13,W16,W31,W31W,W52,M766,L511,M635 I)NIL J)VA EXERCISE PIREP, HIMAWARI-8

Date/time ddhhmm	Message details
	<p>K)VA EXERCISE SCENARIO VA ERUPTION TO FL350 FCST VA CLD +6 HR: 17/1015Z SFC/FL350 S0657 E11259 - S0638 E11347 - S0558 E11437 - S0511 E11436 - S0511 E11346 - S0533 E11223 - S0610 E11206 - S0655 E11230 FCST VA CLD +12 HR: 17/1615Z SFC/FL350 S0635 E11431 - S0547 E11533 - S0445 E11536 - S0448 E11414 - S0515 E11303 - S0602 E11252 - S0646 E11337 FCST VA CLD +18 HR: 17/2215Z NO VA EXP RMK: VA EXERCISE VOLPHIN16/01 VA TO FL350 CLEARLY DISCERNIBLE ON SAT IMAGERY, EXPECTED TO DISSIPATE BY 18/0000Z. ERUPTION TO FL140 CONTINUES AT THE VOLCANO. VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE</p>
170420	<p>FF WSSSYMYX 170421 WAAAYMYX WVID21 WAAA 170420 WAAZ SIGMET A04 VALID 170415/171015 WAAA- WAAZ UJUNG PANDANG FIR VA EXERCISE VOLPHIN16/01 VA ERUPTION MT MERAPI PSN S0733 E11027 VA CLD OBS AT 17/0415Z WI S0703 E11240 - S0624 E11324 - S0551 E11311 - S0550 E11206 - S0624 E11139 - S0702 E11205 - S0703 E11240 SFC/FL350 MOV NE 20KT=</p>
170515	<p>WVID20 WIII 170515 WIIZ SIGMET 07 VALID 170515/171115 WIII- WIIZ JAKARTA FIR VA EXERCISE VOLPHIN 16/01 CNL SIGMET 06 170315/170915=</p>
170522	<p>GG WSSSYMYW WSSSYMYX WSSSYZYX 170522 YMMCYMYX FVAU02 ADRM 170522 VA ADVISORY DTG: 20160217/0520Z VAAC: DARWIN VOLCANO: MERAPI 263250 PSN: S0733 E11027 AREA: INDONESIA SUMMIT ELEV: 2968M ADVISORY NR: 2016/5 INFO SOURCE: VA EXERCISE AVIATION COLOUR CODE: YELLOW ERUPTION DETAILS: VA EXERCISE SCENARIO ERUPTION HAS NOW CEASED OBS VA DTG: 17/0520Z OBS VA CLD: VA NOT IDENTIFIABLE FM SATELLITE DATA WIND SFC/FL350 VRB20KT FCST VA CLD +6 HR: 17/1120Z NO VA EXP FCST VA CLD +12 HR: 17/1720Z NO VA EXP</p>

Date/time ddhhmm	Message details
	FCST VA CLD +18 HR: 17/2320Z NO VA EXP RMK: VA EXERCISE VOLPHIN16/01 END NO FURTHER ADVISORIES VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE NXT ADVISORY: NO FURTHER ADVISORIES
170525	FF WSSSYMYX 170525 WAAAYMYX WVID21 WAAA 170525 WAAZ SIGMET A05 VALID 170525/171125 WAAA- WAAZ UJUNG PANDANG FIR VA EXERCISE VOLPHIN16/01 CNL SIGMET A04 17042/171020=

VOLPHIN 16/01

Messages Received in New Zealand (Wellington VAAC) during the Exercise (17-Feb-16)

1) Volcanic Ash Advisories

Inward message 001178 decoded 17-Feb-2016 00:13 UTC

WXA0112 170013
GG NZKLYMYX
170013 YMMCYMYX
FVAU02 ADRM 170013
VA ADVISORY
DTG: 20160217/0010Z
VAAC: DARWIN
VOLCANO: MERAPI 263250
PSN: S0733 E11027
AREA: INDONESIA
SUMMIT ELEV: 2968M
ADVISORY NR: 2016/1
INFO SOURCE: VA EXERCISE VONA
AVIATION COLOUR CODE: RED
ERUPTION DETAILS: VA EXERCISE ERUPTION AT 20160216/2345Z TO
FL350 MOV NE 20KT
OBS VA DTG: 17/0010Z
OBS VA CLD: SFC/FL350 S0714 E11049 - S0727 E11058 - S0744
E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0719
E11026 MOV NE 20KT
FCST VA CLD +6 HR: 17/0610Z NOT AVBL
FCST VA CLD +12 HR: 17/1210Z NOT AVBL
FCST VA CLD +18 HR: 17/1810Z NOT AVBL
RMK: VA EXERCISE VOLPHIN16/01 VONA RECEIVED INDICATING
ERUPTION TO FL350. A MORE DETAILED ADVISORY WILL BE ISSUED
SHORTLY. VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA
EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA
EXERCISE VA EXERCISE
NXT ADVISORY: NO LATER THAN 20160217/0015Z

Inward message 001636 decoded 17-Feb-2016 00:16 UTC

WXA0129 170016
GG NZKLYMYX
170016 YMMCYMYX
FVAU02 ADRM 170016
VA ADVISORY
DTG: 20160217/0015Z
VAAC: DARWIN
VOLCANO: MERAPI 263250
PSN: S0733 E11027
AREA: INDONESIA
SUMMIT ELEV: 2968M
ADVISORY NR: 2016/2

INFO SOURCE: VA EXERCISE HIMAWARI-8
AVIATION COLOUR CODE: UNKNOWN
ERUPTION DETAILS: VA EXERCISE SCENARIO, VA OBS FL350
EXTENDING 40 NM TO NE
OBS VA DTG: 17/0015Z
OBS VA CLD: SFC/FL350 S0706 E11055 - S0729 E11102 - S0744
E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0706
E11030 MOV NE 20KT
FCST VA CLD +6 HR: 17/0615Z SFC/FL350 S0804 E11043 - S0650
E11305 - S0549 E11252 - S0527 E11206 - S0634 E11015 - S0726
E11007
FCST VA CLD +12 HR: 17/1215Z SFC/FL350 S0805 E11050 - S0546
E11509 - S0439 E11455 - S0356 E11250 - S0625 E11000 - S0725
E10954 - S0800 E11020
FCST VA CLD +18 HR: 17/1815Z SFC/FL350 S0724 E11231 - S0642
E11647 - S0335 E11624 - S0249 E11428 - S0622 E10958 - S0725
E10951 - S0818 E11036
RMK: VA EXERCISE VOLPHIN16/01 VA OBS ON IR SAT IMAGERY AND
CONFIRMED BY GROUND REPORTS. HEIGHT BASED ON IR TEMP AND
ACCESS-R MODEL SOUNDING. FORECAST CONFIDENCE IS LOW. VA
EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA
EXERCISE VA EXERCISE
NXT ADVISORY: NO LATER THAN 20160217/0315Z

Inward message 012272 decoded 17-Feb-2016 03:16 UTC

WXA1007 170316
GG NZKLYMYX
170316 YMMCXYMYX
FVAU02 ADRM 170316
VA ADVISORY
DTG: 20160217/0315Z
VAAC: DARWIN
VOLCANO: MERAPI 263250
PSN: S0733 E11027
AREA: INDONESIA
SUMMIT ELEV: 2968M
ADVISORY NR: 2016/3
INFO SOURCE: VA EXERCISE VONA
AVIATION COLOUR CODE: YELLOW
ERUPTION DETAILS: VONA INDICATES LOCAL ERUPTION CEASED. ASH
STILL VISIBLE ON SA
OBS VA DTG: 17/0315Z
OBS VA CLD: SFC/FL350 S0728 E11106 - S0715 E11221 - S0701
E11239 - S0608 E11249 - S0549 E11224 - S0601 E11100 - S0629
E11042 - S0714 E11043 MOV NE 20KT
FCST VA CLD +6 HR: 17/0915Z SFC/FL350 S0705 E11145 - S0717
E11229 - S0656 E11322 - S0527 E11431 - S0434 E11417 - S0432
E11314 - S0530 E11131 - S0625 E11103
FCST VA CLD +12 HR: 17/1515Z SFC/FL350 S0653 E11355 - S0556
E11603 - S0414 E11542 - S0359 E11358 - S0519 E11211 - S0613
E11152 - S0653 E11213
FCST VA CLD +18 HR: 17/2115Z SFC/FL350 S0658 E11355 - S0601

E11704 - S0350 E11703 - S0337 E11608 - S0417 E11340 - S0520
E11232 - S0606 E11222 - S0656 E11255
RMK: VA EXERCISE VOLPHIN16/01 SATELLITE IMAGERY INDICATES
THE MAIN ERUPTION CLOUD HAS NOW DETACHED FROM THE VOLCANO.
VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE
VA EXERCISE VA
EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE
NXT ADVISORY: NO LATER THAN 20160217/0615Z

Inward message 015797 decoded 17-Feb-2016 04:14 UTC

WXA1327 170414
GG NZKLYMYX
170414 YMMCXYMYX
FVAU02 ADRM 170414
VA ADVISORY
DTG: 20160217/0415Z
VAAC: DARWIN
VOLCANO: MERAPI 263250
PSN: S0733 E11027
AREA: INDONESIA
SUMMIT ELEV: 2968M
ADVISORY NR: 2016/4
INFO SOURCE: VA EXERCISE PIREP HW8
AVIATION COLOUR CODE: YELLOW
ERUPTION DETAILS: VA EXERCISE SCENARIO VA ERUPTION TO FL350
OBS VA DTG: 17/0415Z
OBS VA CLD: SFC/FL350 S0703 E11240 - S0624 E11324 - S0551
E11311 - S0550 E11206 - S0624 E11139 - S0702 E11205 MOV NE 20KT
FCST VA CLD +6 HR: 17/1015Z SFC/FL350 S0657 E11259 - S0638
E11347 - S0558 E11437 - S0511 E11436 - S0511 E11346 - S0533
E11223 - S0610 E11206 - S0655 E11230
FCST VA CLD +12 HR: 17/1615Z SFC/FL350 S0635 E11431 - S0547
E11533 - S0445 E11536 - S0448 E11414 - S0515 E11303 - S0602
E11252 - S0646 E11337
FCST VA CLD +18 HR: 17/2215Z NO VA EXP
RMK: VA EXERCISE VOLPHIN16/01 VA TO FL350 CLEARLY
DISCERNIBLE ON SAT IMAGERY, EXPECTED TO DISSIPATE BY
18/0000Z. ERUPTION TO FL140 CONTINUES AT THE VOLCANO. VA
EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA
EXERCISE VA EXERCISE VA EXERCISE
NXT ADVISORY: NO LATER THAN 20160217/0715Z

Inward message 020428 decoded 17-Feb-2016 05:22 UTC

WXA1701 170522
GG NZKLYMYX
170522 YMMCXYMYX
FVAU02 ADRM 170522
VA ADVISORY
DTG: 20160217/0520Z
VAAC: DARWIN
VOLCANO: MERAPI 263250

PSN: S0733 E11027
AREA: INDONESIA
SUMMIT ELEV: 2968M
ADVISORY NR: 2016/5
INFO SOURCE: VA EXERCISE
AVIATION COLOUR CODE: YELLOW
ERUPTION DETAILS: VA EXERCISE SCENARIO ERUPTION HAS NOW
CEASED
OBS VA DTG: 17/0520Z
OBS VA CLD: VA NOT IDENTIFIABLE FM SATELLITE DATA WIND
SFC/FL350 VRB20KT
FCST VA CLD +6 HR: 17/1120Z NO VA EXP
FCST VA CLD +12 HR: 17/1720Z NO VA EXP
FCST VA CLD +18 HR: 17/2320Z NO VA EXP
RMK: VA EXERCISE VOLPHIN16/01 END NO FURTHER ADVISORIES VA
EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA
EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA
EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA
EXERCISE VA EXERCISE
NXT ADVISORY: NO FURTHER ADVISORIES

2) SIGMETs

Inward message 002374 decoded 17-Feb-2016 00:26 UTC

WXA0154 170026
FF NZKLYMYX
170026 WAAAYMYX
WVID21 WAAA 170021
WAAZ SIGMET A09 VALID 162355/170555 WAAA-
WAAZ UJUNG PANDANG FIR VA EXERCISE VOLPHIN16/01 VA ERUPTION MT
MERAPI PSN S0733 E11027 VA CLD OBS AT 16/2350Z WI S0714 E11049 -
S0727 E11058 - S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 -
S0719 E11026 - S0714 E11049 SFC/FL350 MOV NE 20KT=

Inward message 002837 decoded 17-Feb-2016 00:33 UTC

WXA0192 170033
FF NZKLYMYX
170033 WAAAYMYX
WVID21 WAAA 170030
WAAZ SIGMET A01 VALID 170015/170615 WAAA-
WAAZ UJUNG PANDANG FIR VA EXERCISE VOLPHIN16/01 VA ERUPTION MT
MERAPI PSN S0733 E11027 VA CLD OBS AT 17/0015Z WI S0706 E11055 -
S0729 E11002 - S0744 E11052 - S0744 E11030 - S0735 E11019- S0728 E11019 - S0706
E11030 - S0706 E11055 SFC/FL350 MOV NE 20KT=

Inward message 003610 decoded 17-Feb-2016 00:51 UTC

WXA0277 170051
FF NZKLYMYX
170051 YMMCXYMYX
WVID20 WIII 170015
WIIZ SIGMET 05 VALID 170015/170615 WIII-
WIIZ JAKARTA FIR EXERCISE VOLPHIN 16/01 VA ERUPTION MT MERAPI PSN
S0733 E11027 VA CLD OBS AT 0015Z WI S0706 E11055 - S0729 E11102 -
S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0706
E11030 MOV NE 20KT=WI S0714 E11049 - S0727 E11058 - S0744 E11052 -
S0744 E11030 - S0735 E11019 - S0728 E11019 - S0719 E11026 MOV NE 20KT=

Inward message 012810 decoded 17-Feb-2016 03:21 UTC

WXA1029 170321
FF NZKLYMYX
170321 WAAAYMYX
WVID21 WAAA 170317
WAAZ SIGMET A03 VALID 170315/170915 WAAA-
WAAZ UJUNG PANDANG FIR VA EXERCISE VOLPHIN16/01 VA ERUPTION MT
MERAPI PSN S0733 E11027 VA CLD OBS AT 17/0315Z WI S0728 E11106 -
S0715 E11221 - S0701 E11239 - S0608 E11249 - S0549 E11224 - S0601 E11100 -
S0629 E11042 - S0714 E11043 - S0728 E11106
SFC/FL350 MOV NE 20KT=

Inward message 016449 decoded 17-Feb-2016 04:21 UTC

WXA1350 170421
FF NZKLYMYX
170421 WAAAYMYX
WVID21 WAAA 170420
WAAZ SIGMET A04 VALID 170415/171015 WAAA-
WAAZ UJUNG PANDANG FIR VA EXERCISE VOLPHIN16/01 VA ERUPTION MT
MERAPI PSN S0733 E11027 VA CLD OBS AT 17/0415Z WI S0703 E11240 -
S0624 E11324 - S0551 E11311 - S0550 E11206 - S0624 E11139 - S0702 E11205 -
S0703 E11240 SFC/FL350 MOV NE 20KT=

Inward message 020599 decoded 17-Feb-2016 05:25 UTC

WXA1714 170525
FF NZKLYMYX
170525 WAAAYMYX
WVID21 WAAA 170525
WAAZ SIGMET A05 VALID 170525/171125 WAAA-
WAAZ UJUNG PANDANG FIR VA EXERCISE VOLPHIN16/01
CNL SIGMET A04 17042/171020=

Inward message 020673 decoded 17-Feb-2016 05:26 UTC

FF NZKLYMYX
170515 WXXXX (Error address)
WVID20 WIII 170515
WIIZ SIGMET 07 VALID 170515/171115 WIII-
WIIZ JAKARTA FIR VA EXERCISE VOLPHIN 16/01 CNL SIGMET 06
170315/170915=

3) ASHTAM

Inward message 002147 decoded 17-Feb-2016 00:22 UTC

WXA0142 170022
GG NZKLYMYX
170022 WRRRYNYX
VAWR1637 WAAF 02170010
ASHTAM 1637
A)WAAF
B)02162345
C)MERAPI 60325
D)S0733 E11027
E)RED ALERT
F)VA EXERCISE VOLPHIN16/01. SFC/FL350 S0714 E11049 - S0727 E11058 -
S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0719
E11026
G)MOV NE 20KT
H)W17N
I)NIL
J)VA EXERCISE VONA
K)VA EXERCISE ERUPTION AT 20160216/2345Z TO FL350 MOV NE 20KT.
FCST VA CLD +6 HR: 17/0610Z NOT AVBL
FCST VA CLD +12 HR: 17/1210Z NOT AVBL
FCST VA CLD +18 HR: 17/1810Z NOT AVBL
RMK: VA EXERCISE VOLPHIN16/01 VONA RECEIVED INDICATING
ERUPTION TO FL350. A MORE DETAILED ADVISORY WILL BE ISSUED
SHORTLY. VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA
EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA
EXERCISE VA EXERCISE.

Inward message 003765 decoded 17-Feb-2016 00:56 UTC

WXA0290 170056
GG NZKLYMYX
170055 WRRRYNYX
VAWR1638 WAAF 02170015
ASHTAM 1638
A)WAAF
B)02170015
C)MERAPI 60325
D)S0733 E11027

E)RED ALERT
F)VA EXERCISE VOLPHIN16/01. SFC/FL350 S0706 E11055 - S0729 E11102 -
S0744 E11052 - S0744 E11030 - S0735 E11019 - S0728 E11019 - S0706
E11030
G)MOV NE 20KT
H)W17N
I)NIL
J)VA EXERCISE HIMAWARI-8
K)VA EXERCISE SCENARIO, VA OBS FL350 EXTENDING 40NM TO NE.
FCST VA CLD +6 HR: 17/0615Z SFC/FL350 S0804 E11043 - S0650
E11305 - S0549 E11252 - S0527 E11206 - S0634 E11015 - S0726
E11007
FCST VA CLD +12 HR: 17/1215Z SFC/FL350 S0805 E11050 - S0546
E11509 - S0439 E11455 - S0356 E11250 - S0625 E11000 - S0725
E10954 - S0800 E11020
FCST VA CLD +18 HR: 17/1815Z SFC/FL350 S0724 E11231 - S0642
E11647 - S0335 E11624 - S0249 E11428 - S0622 E10958 - S0725
E10951 - S0818 E11036
RMK: VA EXERCISE VOLPHIN16/01 VA OBS ON IR SAT IMAGERY AND
CONFIRMED BY GROUND REPORTS. HEIGHT BASED ON IR TEMP AND
ACCESS-R MODEL SOUNDING. FORECAST CONFIDENCE IS LOW. VA
EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA
EXERCISE VA EXERCISE.

Inward message 013506 decoded 17-Feb-2016 03:32 UTC

WXA1092 170332
GG NZKLYMYX
170331 WRRRYNYX
VAWR1640 WAAF 02170315
ASHTAM 1640
A)WAAF
B)02170315
C)MERAPI 60325
D)S0733 E11027
E)RED ALERT
F)VA EXERCISE VOLPHIN16/01. SFC/FL350 S0728 E11106 - S0715 E11221 -
S0701 E11239 - S0608 E11249 - S0549 E11224 - S0601 E11100 - S0629
E11042 - S0714 E11043
G)MOV NE 20KT
H)W13 W16 W17N W45 W52 G461 M766
I)NIL
J)VA EXERCISE VONA
K)VONA INDICATES LOCAL ERUPTION CEASED. ASH STILL VISIBLE ON SA
FCST VA CLD +6 HR: 17/0915Z SFC/FL350 S0705 E11145 - S0717
E11229 - S0656 E11322 - S0527 E11431 - S0434 E11417 - S0432
E11314 - S0530 E11131 - S0625 E11103
FCST VA CLD +12 HR: 17/1515Z SFC/FL350 S0653 E11355 - S0556
E11603 - S0414 E11542 - S0359 E11358 - S0519 E11211 - S0613
E11152 - S0653 E11213
FCST VA CLD +18 HR: 17/2115Z SFC/FL350 S0658 E11355 - S0601
E11704 - S0350 E11703 - S0337 E11608 - S0417 E11340 - S0520
E11232 - S0606 E11222 - S0656 E11255

RMK: VA EXERCISE VOLPHIN16/01 SATELLITE IMAGERY INDICATES
THE MAIN ERUPTION CLOUD HAS NOW DETACHED FROM THE VOLCANO.
VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE
VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA
EXERCISE
NXT ADVISORY: NO LATER THAN 20160217/0615Z

Inward message 017206 decoded 17-Feb-2016 04:33 UTC

WXA1414 170432
GG NZKLYMYX
170432 WRRRYNYX
VAWR1641 WAAF 02170415
ASHTAM 1641
A)WAAF
B)02170415
C)MERAPI 60325
D)S0733 E11027
E)YELLOW ALERT
F)VA EXERCISE VOLPHIN16/01. SFC/FL350 S0703 E11240 - S0624 E11324 -
S0551 E11311 - S0550 E11206 - S0624 E11139 - S0702 E11205
G)MOV NE 20KT
H)W13,W16,W31,W31W,W52,M766,L511,M635
I)NIL
J)VA EXERCISE PIREP, HIMAWARI-8
K)VA EXERCISE SCENARIO VA ERUPTION TO FL350
FCST VA CLD +6 HR: 17/1015Z SFC/FL350 S0657 E11259 - S0638
E11347 - S0558 E11437 - S0511 E11436 - S0511 E11346 - S0533
E11223 - S0610 E11206 - S0655 E11230
FCST VA CLD +12 HR: 17/1615Z SFC/FL350 S0635 E11431 - S0547
E11533 - S0445 E11536 - S0448 E11414 - S0515 E11303 - S0602
E11252 - S0646 E11337
FCST VA CLD +18 HR: 17/2215Z NO VA EXP
RMK: VA EXERCISE VOLPHIN16/01 VA TO FL350 CLEARLY
DISCERNIBLE ON SAT IMAGERY, EXPECTED TO DISSIPATE BY
18/0000Z. ERUPTION TO FL140 CONTINUES AT THE VOLCANO. VA
EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA EXERCISE VA
EXERCISE VA EXERCISE VA EXERCISE

VOLPHIN16-01 Sheet

Facility name Virgin Australia

Item Time	Present condition (aircraft operation, phase of eruption, position of volcanic ash etc.)	Simulated operational response (information distribution, flow control/traffic metering, re-flight- planning, timing of next forecast etc.)	Remarks
2300 2335 2339 2353 0001	Exercise begins Merapi Erupts 1st VONA Issued 1st VONA Content noted on WhatsApp 1st VONA on email		Nothing from VAAC, NO SIGMET Noted Still nothing from VAAC, NO SIGMET Noted
0014	1st VAA and VAG Received	VAMT Process begun VOZ49 MEL-DPS abeam Cobber Pedy estimating DPS at 0345z. VOZ41 BNE-DPS pushed at 0007, decision made to allow departure and divert if required. VOZ65 SYD-DPS to push at 0020, speaking with PIC now. VOZ55 PER-DPS ETD 0050, crew have signed are at the aircraft. Now overflying traffic, mainland Australia no threat. Next waive begins at 0510	44 minutes is a long time to wait between observation and VAA issuance.
0019		VOZ65 authorised to depart.	
0035	Ujung and Jakarta SIGMET Noted		
0033	2nd VAA and VAG received	VAMT initial complete, full meeting at 0045, VOZ55 authorised to depart.	
0035	ASHTAM on WHATSAPP	No ASHTAM received in Virgin Systems	
0048	No ASHTAM receive in Virgin Systems or Airservices Australia Systems		
0105	VAMT Complete	VOZ49, VOZ41, VOZ65 and VOZ55 authorised to continue to DPS, crews are briefed and AIREP requested.	

0148	QF confirms receipt of ASHTAM		No ash received through AFTN and Australian NOF confirms nothing received. ICAO states that ASHTAM is in SADIS, why would it be there, it's a NOTAM isn't it?
0320	3rd VAA and VAG received	No change to VAMT decision to continue.	
0525	4th VAA and VAG received	No change to VAMT decision to continue.	
0530	Virgin Participation in VOLPHIN ceased.		NO Virgin Aircraft within reasonable distance of ash, therefore no Special AIREP made

Attachment 9

Summary points:

- VOLCEX should be more targeted. The main focus and outcomes for this region needs to be the coordination and collaboration around the flow of information. This includes operators having an understanding of the ATM contingency plan for each ANSP which currently is either none existent, opaque or different. Need to understand how the ANSPs will behave and conversely, they should know how airlines will. More predictability would enhance the activity.
- Comms – for major eruptions, a coordinating cell for collaboration is needed
- The testing of point to point messaging could be done outside of a VOLCEX
- Late update of VOLHIN16-01 Doc
- No starting NOTAM with exercise details
- VAA released on operational site – needs distinguishing watermark
- Is the first VAA ALWAYS just going to be a the VONA rehashed? if not then we have an issue with the SIGMET issued off a VONA not matching a VAA. We use the VAA always but conflicting information will lead to problems
- 44 minutes is a long time to wait between observation and VAA issuance. Jakarta SIGMET released before VAA ??
- ASHTAM received by QF on AFTN - should be via email only (not received through AFTN by VA and Australian NOF confirmed nothing received. ICAO sates that ASHTAM is in SADIS, why would it be there if it's a NOTAM?)
- No AIREPS details received - Would have liked to have access to them through the VAAC. Were these being forwarded to the VAAC via email?
- ACC reported airlines refiling ???
- Telecom – needs airline input
- NOTAM verses ASHTAM - NOTAM for flow control only if required - some operators need to be reminded that airspace or airways will not closed by NOTAM
- The final polygons didn't reflect what was expected from the work in BKK, as such only limited value
- WhatsApp worked well but should contain only relevant information
- Great to see no airspace closed!
- The need to have a beginning, a middle and an end in such a short period of continuous time limits the simulation of how we'd actually be impacted, would like to see a snapshot approach where we fast forward the ash cloud in stages.
- It was great to see the comms happening, we just need a way to actually do it in real life. Whilst very much worthwhile, the actual exercise and the release of information is limited because of the many different actual types of eruptions that can occur in reality.