



International Civil Aviation Organization

**THE ELEVENTH MEETING OF ASIA/PACIFIC ROBEX  
WORKING GROUP (ROBEX WG/11)**

Bangkok, Thailand, 11 – 13 March 2013

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**Agenda Item Conjoint C1: VAAC Backup Tests**

**DARWIN & TOKYO VAAC BACKUP TEST**

(Presented by Australia)

**SUMMARY**

This paper presents the outcomes from a backup test conducted between the VAAC Darwin and VAAC Tokyo on 19 September 2012.

**1. INTRODUCTION**

1.1 Australia and Japan provide Volcanic Ash Advisory Centres (VAAC) within the framework of the International Airways volcano Watch (IAVW). The relevant responsibilities are set out in Annex 3 – Meteorological Service for International Air Navigation, Chapter 3, Section 3.5. Of note subsection 3.5.2 states that: *“In the case of interruption of the operation of a VAAC, its function shall be carried out by another VAAC or another meteorological centre, as designated by the VAAC Provider State concerned.”*

1.2 Backup procedures to be used in case of interruption to the operation of a VAAC are included in the Handbook of the International Airways Volcano Watch (IAVW) – Appendix D (ICAO Doc 9766). The document also notes that the *“backup site may be another meteorological centre in the same Contracting State or it may be another VAAC”*.

1.3 Appendix D of ICAO Doc 9766 also states that: *“The backup arrangements should be tested at least annually”*

**2. DISCUSSION**

2.1 Procedures for conducting a backup test were developed jointly by the Darwin and Tokyo VAACs. These procedures included nominating a mutually agreed date and time on which test Volcanic Ash Advisories (VAA) would be issued, developing the necessary AFTN address lists and deciding on an appropriate format for the test VAA. Recipients of the test VAA were requested to respond by email to the VAAC that the advisory had been received and these responses were collated for the analysis of the test. The Regional OPMET databanks (RODBs) were also requested to assist with the data collection.

2.2 ICAO APAC Office issued a State Letter titled ‘*T 4/9.1.1:AP108/12(MET): IAVW Handbook (Doc 9766) Appendix D – Backup Procedures for Volcanic Ash Advisory Centres Schedule for Tokyo/Darwin VAAC back-up tests – September 2012*’ dated 21 August 2012 to notifying recipients and requesting their participation.

2.3 The test was conducted on the 19 September 2012 with Tokyo VAAC activating backup procedures for the Darwin VAAC area of responsibility at 0100 UTC, issuing a test VAA then handing back responsibility at 0130 UTC. Darwin VAAC subsequently activated backup procedures for the Tokyo VAAC area of responsibility at 0200 UTC, issued a test VAA then handed back responsibility at 0230 UTC. The full procedures were detailed in the State Letter (also see **Attachment 1**).

2.4 Dissemination problems that arose in the previous test, 18 January 2012, were resolved. This included the use of individual AFTN addresses rather than the use of a collective. VAA were successfully disseminated via AFTN in a timely manner and acknowledgements of receipt were provided to Darwin VAAC by a significant number of VAA clients and from Singapore and Brisbane RODBs. See **Attachment 2**.

2.5 According to the VAAC Back-up test procedures, MWOs should NOT issue a test SIGMET during the VAAC Back-up test; however VA SIGMETs were issued by Ujung Pandang (WAAA) and Manila (RPLL) MWOs. Ujung Pandang issued a Test SIGMET prior to the Test VAA and Manila issued a Test SIGMET in response to the Test VAA. See **Attachment 3**.

2.6 The Singapore RODB also made note that the VA SIGMET test message issued by Ujung Pandang, which had a validity time period of 6 hours, had the potential to overwrite a valid operational VA SIGMET in an automated Flight Planning System.

2.7 Many of the smaller aviation clients of the Darwin VAAC use email as the primary communication medium; however dissemination of VAA via email was not included within the September 19 test and ways to disseminate the VAA through official aviation channels should be investigated.

### **3. RECOMMENDATIONS**

#### **3.1 Recommendations arising from the backup test:**

- a) That an agreement, formalizing the backup arrangements between VAACs Tokyo and Darwin, be enacted;
- b) That VAACs Tokyo and Darwin continue to promote the implementation and understanding of the IAVW, through active engagement with regional MWOs;
- c) That the VAACs develop the capability to disseminate VAA to clients through official channels during backup operations; and
- d) That the VAACs continue to conduct regular back-up testing at least annually.

### **4. ACTION BY THE MEETING**

4.1 The meeting is invited to note the information and recommendations contained in this paper and provide comment.

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## ATTACHMENT 1 – TOKYO - DARWIN VAAC BACKUP TEST PROCEDURES

### 1. Introduction

- 1.1 The International Airways Volcano Watch Operations Group (IAVWOPSG) recognised the need for the regular testing of VAAC backup procedures that would ensure the continuing availability of Volcanic Ash Advises and identify deficiencies in the dissemination procedures of backup products. Therefore, the second meeting of IAVWOPSG held in Bangkok, 15 to 19 March 2004, adopted Conclusion 2/19, as follows:

***Conclusion 2/19 – Inclusion of VAAC back-up procedures in Doc 9766***

*That the Secretariat include in Doc 9766, Handbook on the International Airways Volcano Watch (IAVW) – Operational Procedures and Contact List, the VAAC backup procedures agreed by the group.*

- 1.2 Appendix D, paragraph f) of ICAO Doc.9766 - Handbook on International Airways Volcano Watch (IAVW) states that: *The back-up arrangements should be tested at least annually*
- 1.3 The Tokyo and Darwin VAACs have developed a mutual back-up arrangement that includes procedures for undertaking a back-up test as described in this document.

### 2. Purpose and Scope of VAAC Back-up tests

- 2.1 The purpose of the VAAC back-up test is to ensure that internal procedures for the handover of responsibility and the issue of products for the other VAAC's area of responsibility are robust and functional.
- 2.2 The scope of the test also includes checking the dissemination pathways of the Volcanic Ash Advisory (VAA) messages.
- 2.3 The test is not designed to check the issuance of Volcanic Ash SIGMET and so there is **no requirement** to issue test SIGMETs.

### 3. Back-up test procedures

#### 3.1 Procedures for Tokyo – Darwin VAAC Back-up tests

Internal procedures related to handover of responsibility and issuance of VAAs for the other VAAC's area of responsibility will be tested and the results included in a final report.

#### 3.2 Procedures for testing the dissemination of back-up VAAs

On the specified date at **0100 UTC** the Tokyo VAAC will issue a test Volcanic Ash Advisory (VAA) for the Darwin VAAC. The message will indicate that it is a TEST and will follow the format given in Section 4 of these procedures.

Recipients of the message **should send a confirmation email** to the address given in the message, including the message text and the time received.

**MWOs should NOT issue a test SIGMET.**

At **0200 UTC** the Darwin VAAC will issue test VAA for the Tokyo VAAC area of responsibility. The message will indicate that it is a TEST and will follow the format given in Section 4 of these procedures. Recipients of the message **should send a confirmation email** to the address given in the message, including the message text and the time received.

**MWOs should NOT issue a test SIGMET.**

In the event of a major eruption in either area the test may be cancelled.

### 3.3 Processing of the test results

The Tokyo and Darwin VAACs, in conjunction with the Asia/Pacific Regional OPMET Databanks (RODBs), will analyse the received responses to the test messages and present the results to IAVWOPSG/7 in March 2013.

## 4. Format of test VAA for the external test

(from VAAC Tokyo to VAAC Darwin)

FVAU01 ADRM **DDHHMM**

VA ADVISORY

DTG: **YYYYMMDD/HHMMZ**

VAAC: DARWIN

VOLCANO: TEST 9999-999

PSN: N1000 E10000

AREA: UNKNOWN

SUMMIT ELEV: 9999M

ADVISORY NR: **YYYY/N**

INFO SOURCE: TEST TEST TEST

AVIATION COLOUR CODE: NIL

ERUPTION DETAILS: TEST TEST TEST

OBS VA DTG: 99/9999Z

OBS VA CLD: WIND SFC/FL999 999/99KT

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: THIS IS A TEST ADVISORY ISSUED BY TOKYO

VAAC FOR THE DARWIN VAAC AREA OF RESPONSIBILITY. PLEASE  
ACKNOWLEDGE RECEIPT OF THIS ADVISORY BY SENDING AN EMAIL  
TO DARWIN.VAAC AT BOM.GOV.AU

DARWIN VAAC.

NXT ADVISORY: NO FURTHER ADVISORIES=

(from VAAC Darwin to VAAC Tokyo)

FVFE01 RJTD **DDHHMM**

VA ADVISORY

DTG: **YYYYMMDD/HHMMZ**

VAAC: TOKYO

VOLCANO: TEST 9999-999

PSN: N1000 E10000

AREA: UNKNOWN

SUMMIT ELEV: 9999M

ADVISORY NR: **YYYY/N**

INFO SOURCE: TEST TEST TEST

AVIATION COLOUR CODE: NIL

ERUPTION DETAILS: TEST TEST TEST

OBS VA DTG: 99/9999Z

OBS VA CLD: WIND SFC/FL999 999/99KT

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: THIS IS A TEST ADVISORY ISSUED BY DARWIN

VAAC FOR THE TOKYO VAAC AREA OF RESPONSIBILITY. PLEASE  
ACKNOWLEDGE RECEIPT OF THIS ADVISORY BY SENDING AN EMAIL  
TO VAAC AT EQVOL2.KISHOU.GO.JP

TOKYO VAAC.

NXT ADVISORY: NO FURTHER ADVISORIES=

### Attachment 2- VAA Test Messages

#### Test Volcanic Ash Advisories received by Singapore RODB

<b>VAA Test issued by VAAC Tokyo</b>	<b>Time of receipt: 19/01:06:04 UTC</b>
<p>GG WSSSYMYX 190104 RJTDYMYX FVAU01 ADRM 190104</p> <p>VA ADVISORY DTG: 20120919/0104Z VAAC: DARWIN VOLCANO: TEST 9999-999 PSN: N1000 E10000 AREA: UNKNOWN SUMMIT ELEV: 9999M ADVISORY NR: 2012/2 INFO SOURCE: TEST TEST TEST AVIATION COLOUR CODE: NIL ERUPTION DETAILS: TEST TEST TEST OBS VA DTG: 99/9999Z OBS VA CLD: WIND SFC/FL999 999/99KT 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: THIS IS A TEST ADVISORY ISSUED BY TOKYO VAAC FOR THE DARWIN VAAC AREA OF RESPONSIBILITY. PLEASE ACKNOWLEDGE RECEIPT OF THIS ADVISORY BY SENDING AN EMAIL TO DARWIN.VAAC AT BOM.GOV.AU DARWIN VAAC. NXT ADVISORY: NO FURTHER ADVISORIES=</p>	
<b>VAA Test issued by VAAC Darwin</b>	<b>Time of receipt: 19/02:09:01 UTC</b>
<p>GG WSSSYMYX 190208 YPDMYMYX FVFE01 RJTD 190208 VA ADVISORY DTG: 20120919/0208Z VAAC: TOKYO</p> <p>VOLCANO: TEST 9999-999 PSN: N1000 E10000 AREA: UNKNOWN SUMMIT ELEV: 9999M</p> <p>ADVISORY NR: 2012/2 INFO SOURCE: TEST TEST TEST AVIATION COLOUR CODE: NIL ERUPTION DETAILS: TEST TEST TEST</p> <p>OBS VA DTG: 99/9999Z OBS VA CLD: WIND SFC/9999 999/99KT</p> <p>FCST VA CLD +6HR: NO VA EXP</p>	

FCST VA CLD +12HR: NO VA EXP  
FCST VA CLD +18HR: NO VA EXP

RMK: THIS IS A TEST ADVISORY ISSUED BY DARWIN VAAC FOR THE TOKYO  
VAAC AREA OF RESPONSIBILITY. PLEASE ACKNOWLEDGE RECEIPT OF THIS  
ADVISORY BY SENDING AN EMAIL TO VAAC AT EQVOL2.KISHOU.GO.JP TOKYO  
VAAC  
NXT ADVISORY: NO FURTHER ADVISORIES=

### Test Volcanic Ash Advisories received by Brisbane RODB

#### VAA Test issued by VAAC Tokyo

##### Headers:

WSB0581 190104  
GG YPDMYMYX YPDNCARU YPDNZTZM YPTNZGZX YSSYQFAM  
190104 RJTDYMYX  
FVAU01 ADRM 190104

WSB0582 190104  
GG YAMBZGZM YBASZTZ X YBBBNCYM YBBBVOZX YBBBZRZX YMMMAMET  
190104 RJTDYMYX  
FVAU01 ADRM 190104

WSB0585 190104  
GG AYPMYMYX AYPMYSYX AYPMZGZX AYPYANGM AYPYANGO  
190104 RJTDYMYX  
FVAU01 ADRM 190104

NBA1833  
GG YBZZAILX  
190106 YBBBZEZX  
FVAU01 ADRM 190104

##### Message:

VA ADVISORY  
DTG: 20120919/0104Z  
VAAC: DARWIN  
VOLCANO: TEST 9999-999  
PSN: N1000 E10000  
AREA: UNKNOWN  
SUMMIT ELEV: 9999M  
ADVISORY NR: 2012/2  
INFO SOURCE: TEST TEST TEST  
AVIATION COLOUR CODE: NIL  
ERUPTION DETAILS: TEST TEST TEST  
OBS VA DTG: 99/9999Z  
OBS VA CLD: WIND SFC/FL999 999/99KT  
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: THIS IS A TEST ADVISORY ISSUED BY TOKYO  
VAAC FOR THE DARWIN VAAC AREA OF RESPONSIBILITY. PLEASE  
ACKNOWLEDGE RECEIPT OF THIS ADVISORY BY SENDING AN EMAIL TO

DARWIN.VAAC AT BOM.GOV.AU  
DARWIN VAAC.  
NXT ADVISORY: NO FURTHER ADVISORIES=

**VAA Test issued by VAAC Darwin**

**Headers:**

OBM2239 190208  
GG UHNNYMYX UHSHYMYX UHOOYMYX KWBCYMYX SAEZYMYZ EGRRYMYX CWAQYMYU  
LFPWYMYX PANCYMYX RKSIIYMYX ZKPYYMYX UHHHYMYX UHMMYMYX UHPPYMYX  
UHSSYMYX UHWWYMYX ZMUBYMYX ZBAAYMYX ZGGGYMYX ZHHHYMYX  
190208 YPDMYMYX  
FVFE01 RJTD 190208

OBM2240 190208  
GG ZLLLYMYX ZPPPYMYX ZSSSYMYX ZWWWYMYX ZYTXYMYX RCTPYMYX RPLLYMYX  
VDPYMYX VHHHYMYX VLVTYMYX VTBDYMYX VVGLYMYX UHBIYMYX EGLLSITV  
LOZZMMSS VTBBYPYX YBZZSQJX EHAMKLMK EHAMKLM D EHAMKLMW EGKKVIRW  
190208 YPDMYMYX  
FVFE01 RJTD 190208

OBM2241 190208  
GG VDPYFYX VDPZRZX VDPZTZ X UHBBYMYX UIBBYMYX UIAAYMYX UELLYMYX  
UIIYMYX UIKKYMYX NFFNYPYX VTBSYMYX RJTDYMYX ZJSYYMYX WSSSYMYX  
NZKLYMYX EGZZMPAC NZAAANZO  
190208 YPDMYMYX  
FVFE01 RJTD 190208

WSB1208 190210  
GG FAPRYMYX  
190209 VTBBYPYX  
FVFE01 RJTD 190208

**Message:**

VA ADVISORY  
DTG: 20120919/0208Z  
VAAC: TOKYO

VOLCANO: TEST 9999-999  
PSN: N1000 E10000  
AREA: UNKNOWN  
SUMMIT ELEV: 9999M

ADVISORY NR: 2012/2  
INFO SOURCE: TEST TEST TEST  
AVIATION COLOUR CODE: NIL  
ERUPTION DETAILS: TEST TEST TEST

OBS VA DTG: 99/9999Z  
OBS VA CLD: WIND SFC/9999 999/99KT

FCST VA CLD +6HR: NO VA EXP  
FCST VA CLD +12HR: NO VA EXP  
FCST VA CLD +18HR: NO VA EXP

ROBEX WG/11 – WP/C1

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RMK: THIS IS A TEST ADVISORY ISSUED BY DARWIN VAAC FOR THE TOKYO  
VAAC AREA OF RESPONSIBILITY. PLEASE ACKNOWLEDGE RECEIPT OF THIS  
ADVISORY BY SENDING AN EMAIL TO VAAC AT EQVOL2.KISHOU.GO.JP TOKYO  
VAAC  
NXT ADVISORY: NO FURTHER ADVISORIES=



**ATTACHMENT 3 - SIGMETS received by Brisbane RODB during the Backup Test**

ISA0118 190100  
FF KWBCYMYX YPDMYMYX NZKLYMYX AYPMYMYX YPDDYMYX YPDNYMYX WPDLYMYX  
ADDNYMYX  
190100 WAAAYMYX  
WVID21 WAAA 190100  
WAAF SIGMET A01 VALID 190100/190700 WAAA-  
THIS IS TEST SIGMET, PLEASE DISREGARD  
TEST VA ADVISORY NUMBER 1 RECEIVED 190100Z=

WSB0639 190108  
FF NFZZRFXX YBBBYPYX  
190108 RPLLYMYX  
WVPH31 RPLL 190102  
RPHI SIGMET VALID 190100/190110 RPLL-  
THIS IS A TEST SIGMET, PLEASE DISREGARD. TEST VA  
ADVISORY NUMBER 01 RECEIVED AT 190100Z=

ISA0137 190155  
FF KWBCYMYX YPDMYMYX NZKLYMYX AYPMYMYX YPDDYMYX YPDNYMYX WPDLYMYX  
ADDNYMYX  
190155 WAAAYMYX  
WVID21 WAAA 190155  
WAAF SIGMET A02 VALID 190200/190800 WAAA-  
THIS IS TEST SIGMET, PLEASE DISREGARD  
TEST VA ADVISORY NUMBER 2 RECEIVED 190200Z=