



International Civil Aviation Organization

**FIFTEENTH MEETING OF THE ASIA/PACIFIC METEOROLOGICAL  
INFORMATION EXCHANGE WORKING GROUP  
(MET/IE WG/15)**

Bangkok, Thailand, 20 – 22 March 2017

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**Agenda Item C1: VAAC backup tests**

**MUTUAL BACK-UP OPERATIONS BETWEEN VAACS DARWIN AND TOKYO**  
(Presented by Australia and Japan)

**SUMMARY**

This paper presents the aims and outcomes from a mutual back-up test conducted between the VAAC Darwin and VAAC Tokyo on 14 December 2016.

**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 3.5.3 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 Back-up 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 back-up test were developed jointly by VAACs Darwin and Tokyo. 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.

2.2 Instead of a State Letter from ICAO APAC Office, VAACs Darwin and Tokyo sent out emails to recipients announcing the schedule of the test and requesting their participation.

2.3 Since VAAC Tokyo introduced a new operational email address in June 2016, one of objectives of the back-up test was to inform related units of the new address and confirm if communication via the new address would work.

2.4 The test was conducted on 14 December 2016 with VAAC Tokyo activating back-up procedures for VAAC Darwin area of responsibility at 0100 UTC and VAAC Darwin activating back-up procedures for VAAC Tokyo area of responsibility at 0200 UTC. The full procedures (see Attachment 1) were detailed in the emails and the list of AFTN addresses were updated before the test and are shown in Attachment 2.

2.5 Although VAAs were disseminated via AFTN in a timely manner from the both Centre and VAAC Tokyo successfully received acknowledgements of receipt by using the new address, the number of acknowledgements was not sufficient; more participation of related units is still required.

### **3. RECOMMENDATIONS**

3.1 Recommendations arising from the back-up operations:

- a) That VAACs Darwin and Tokyo continue to promote the implementation and understanding of the IAVW, through active engagement with regional MWOs;
- b) That VAACs use test results to identify the necessity to update the AFTN addresses for its VAA provision; and
- c) That the VAACs continue to conduct annual back-up testing.

### **4. ACTION REQUIRED 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**

### **VAAC DARWIN – VAAC TOKYO BACK-UP TEST PROCEDURES**

#### **December 14**

##### **Back-up test of VAAC Darwin by VAAC Tokyo**

0100 UTC

VAAC Darwin requests back-up services from VAAC Tokyo according to internal procedures and using the operational VAAC contact details contained within IAVW handbook (Doc 9766) Table 4-2.

0115 UTC

VAAC Tokyo issues a test VAA for commencement of back-up test to participating operational units as per the VAA example in A (i).

0115-0145 UTC

VAAC Tokyo issues a test VAA for VAAC back-up test to participating operational units as per the VAA example in A (ii). All recipients (ACCs/FICs, MWOs, WAFCs and RODBs) of this VAA are requested to respond to VAAC Darwin using the email address [vaac.darwin@bom.gov.au](mailto:vaac.darwin@bom.gov.au) and the subject 'VAA TEST' with an affirmative or negative response regarding the receipt of the test VAA.

0145 UTC

VAAC Darwin notifies of intent to resume normal operations to VAAC Tokyo.

0155 UTC

VAAC Darwin issues a test VAA for cessation of back-up test to participating operational units as per the VAA example in A (iii)

##### **Back-up test of VAAC Tokyo by VAAC Darwin**

0200 UTC

VAAC Tokyo requests back-up services from VAAC Darwin according to internal procedures and using the operational VAAC contact details contained within IAVW handbook (Doc 9766) Table 4-2.

0215 UTC

VAAC Darwin issues a test VAA for commencement of back-up test to participating operational units as per the VAA example in B (i).

0215-0245 UTC

VAAC Darwin issues a test VAA for VAAC back-up test to participating operational units as per the VAA example in B (ii). All recipients (ACCs/FICs, MWOs, WAFCs and RODBs) of this VAA are requested to respond to VAAC Tokyo using the email address [vaac.tokyo@volash.kishou.go.jp](mailto:vaac.tokyo@volash.kishou.go.jp) and the subject 'VAA TEST' with an affirmative or negative response regarding the receipt of the test VAA.

0245 UTC

VAAC Tokyo notifies of intent to resume normal operations to VAAC Darwin.

0255 UTC

VAAC Tokyo issues a test VAA for cessation of back-up test to participating operational units as per the VAA example in B (iii)

**A (i) VAA Back-up Commencement AFTN message to external clients -  
VAAC Tokyo to VAAC Darwin Area:**

GG \*\*\*\*\*  
DDHHMM RJTDYMYX  
FVAU01 ADRM DDHHMM  
VA ADVISORY  
DTG: YYYYMMDD/HHMMZ  
VAAC: DARWIN  
VOLCANO: NOTICE 999999  
PSN: S8959 E09959  
AREA: UNKNOWN  
SUMMIT ELEV: 9999M  
ADVISORY NR: YYYY/N  
INFO SOURCE: NIL  
AVIATION COLOUR CODE: NIL  
ERUPTION DETAILS: NIL  
OBS VA DTG: NIL  
OBS VA CLD: NIL  
FCST VA CLD +6HR: NO VA EXP  
FCST VA CLD +12HR: NO VA EXP  
FCST VA CLD +18HR: NO VA EXP  
RMK: VAAC DARWIN AND VAAC TOKYO ARE CONDUCTING A BACK UP TEST NOW.  
THIS IS A TEST NOTICE ISSUED BY VAAC TOKYO FOR THE VAAC DARWIN AREA  
OF RESPONSIBILITY ANNOUNCING THE START OF BACK UP TEST FOR VAAC  
DARWIN BY VAAC TOKYO.  
NXT ADVISORY: NO FURTHER ADVISORIES.

**A (ii) VAA Back-up Test AFTN message to external clients –  
VAAC Tokyo to VAAC Darwin Area:**

GG \*\*\*\*\*  
DDHHMM RJTDYMYX  
FVAU01 ADRM DDHHMM  
VA ADVISORY  
DTG: YYYYMMDD/HHMMZ  
VAAC: DARWIN  
VOLCANO: TEST 999999  
PSN: S8959 E09959  
AREA: UNKNOWN  
SUMMIT ELEV: 9999M  
ADVISORY NR: YYYY/N  
INFO SOURCE: NIL  
AVIATION COLOUR CODE: NIL  
ERUPTION DETAILS: NIL  
OBS VA DTG: NIL  
OBS VA CLD: "... *Position of a (non-real) volcanic ash cloud will be placed ...*"  
FCST VA CLD +6HR: "... *Position of a (non-real) volcanic ash cloud will be placed ...*"  
FCST VA CLD +12HR: "... *Position of a (non-real) volcanic ash cloud will be placed ...*"  
FCST VA CLD +18HR: "... *Position of a (non-real) volcanic ash cloud will be placed ...*"  
RMK: THIS IS A TEST ADVISORY ISSUED BY VAAC  
TOKYO FOR THE VAAC DARWIN AREA OF RESPONSIBILITY. PLEASE  
ACKNOWLEDGE RECEIPT OF THIS ADVISORY BY SENDING AN EMAIL TO DARWIN.VAAC AT  
BOM.GOV.AU  
NXT ADVISORY: NO FURTHER ADVISORIES.

**A (iii) VAA Back-up Cessation AFTN message to external clients -  
VAAC Darwin to VAAC Darwin Area:**

GG \*\*\*\*\*  
DDHHMM YMMCYMYX  
FVAU01 ADRM DDHHMM  
VA ADVISORY  
DTG: YYYYMMDD/HHMMZ  
VAAC: DARWIN  
VOLCANO: NOTICE 999999  
PSN: S8959 E09959  
AREA: UNKNOWN  
SUMMIT ELEV: 9999M  
ADVISORY NR: YYYY/N  
INFO SOURCE: NIL  
AVIATION COLOUR CODE: NIL  
ERUPTION DETAILS: NIL  
OBS VA DTG: NIL  
OBS VA CLD: NIL  
FCST VA CLD +6HR: NO VA EXP  
FCST VA CLD +12HR: NO VA EXP  
FCST VA CLD +18HR: NO VA EXP  
RMK: VAAC DARWIN AND VAAC TOKYO ARE CONDUCTING A BACK UP TEST NOW.  
THIS IS A TEST NOTICE ISSUED BY VAAC DARWIN FOR THE VAAC DARWIN AREA  
OF RESPONSIBILITY ANNOUNCING THE END OF BACK UP TEST FOR VAAC DARWIN  
BY VAAC TOKYO.  
NXT ADVISORY: NO FURTHER ADVISORIES.

**B (i) VAA Back-up Commencement AFTN message to external clients -  
VAAC Darwin to VAAC Tokyo Area:**

GG \*\*\*\*\*  
DDHHMM YMMCYMYX  
FVFE01 RJTD DDHHMM  
VA ADVISORY  
DTG: YYYYMMDD/HHMMZ  
VAAC: TOKYO  
VOLCANO: NOTICE 999999  
PSN: N3000 E15000  
AREA: UNKNOWN  
SUMMIT ELEV: 9999M  
ADVISORY NR: YYYY/N  
INFO SOURCE: NIL  
AVIATION COLOUR CODE: NIL  
ERUPTION DETAILS: NIL  
OBS VA DTG: NIL  
OBS VA CLD: NIL  
FCST VA CLD +6HR: NO VA EXP  
FCST VA CLD +12HR: NO VA EXP  
FCST VA CLD +18HR: NO VA EXP  
RMK: VAAC DARWIN AND VAAC TOKYO ARE CONDUCTING A BACK UP TEST NOW.  
THIS IS A TEST NOTICE ISSUED BY VAAC DARWIN FOR THE VAAC TOKYO AREA  
OF RESPONSIBILITY ANNOUNCING THE START OF BACK UP TEST FOR VAAC  
TOKYO BY VAAC DARWIN.  
NXT ADVISORY: NO FURTHER ADVISORIES.

**B (ii) VAA Back-up Test AFTN message to external clients -  
VAAC Darwin to VAAC Tokyo Area:**

GG \*\*\*\*\*  
DDHHMM YMMCYMYX  
FVFE01 RJTD DDHHMM  
VA ADVISORY  
DTG: YYYYMMDD/HHMMZ  
VAAC: TOKYO  
VOLCANO: TEST 999999  
PSN: N3000 E15000  
AREA: UNKNOWN  
SUMMIT ELEV: 9999M  
ADVISORY NR: YYYY/N  
INFO SOURCE: NIL  
AVIATION COLOUR CODE: NIL  
ERUPTION DETAILS: NIL  
OBS VA DTG: NIL  
OBS VA CLD: "... Position of a (non-real) volcanic ash cloud will be placed ..."  
FCST VA CLD +6HR: "... Position of a (non-real) volcanic ash cloud will be placed ..."  
FCST VA CLD +12HR: "... Position of a (non-real) volcanic ash cloud will be placed ..."  
FCST VA CLD +18HR: "... Position of a (non-real) volcanic ash cloud will be placed ..."  
RMK: THIS IS A TEST ADVISORY ISSUED BY VAAC  
DARWIN FOR THE VAAC TOKYO AREA OF RESPONSIBILITY. PLEASE  
ACKNOWLEDGE RECEIPT OF THIS ADVISORY BY SENDING AN EMAIL TO  
VAAC.TOKYO AT VOLASH.KISHOU.GO.JP  
NXT ADVISORY: NO FURTHER ADVISORIES.

**B (iii) VAA Back-up Cessation AFTN message to external clients -  
VAAC Tokyo to VAAC Tokyo Area:**

GG \*\*\*\*\*  
DDHHMM RJTDYMYX  
FVFE01 RJTD DDHHMM  
VA ADVISORY  
DTG: YYYYMMDD/HHMMZ  
VAAC: TOKYO  
VOLCANO: NOTICE 999999  
PSN: N3000 E15000  
AREA: UNKNOWN  
SUMMIT ELEV: 9999M  
ADVISORY NR: YYYY/N  
INFO SOURCE: NIL  
AVIATION COLOUR CODE: NIL  
ERUPTION DETAILS: NIL  
OBS VA DTG: NIL  
OBS VA CLD: NIL  
FCST VA CLD +6HR: NO VA EXP  
FCST VA CLD +12HR: NO VA EXP  
FCST VA CLD +18HR: NO VA EXP  
RMK: VAAC DARWIN AND VAAC TOKYO ARE CONDUCTING A BACK UP TEST NOW.  
THIS IS A TEST NOTICE ISSUED BY VAAC TOKYO FOR THE VAAC TOKYO AREA  
OF RESPONSIBILITY ANNOUNCING THE END OF BACK UP TEST FOR VAAC TOKYO BY VAAC  
DARWIN.  
NXT ADVISORY: NO FURTHER ADVISORIES.

**ATTACHMENT 2****AFTN ADDRESSES USED FOR VAAC BACK-UP TESTS**

- A)** AFTN addresses for exchange of VAAC back-up test VAA messages in the VAAC Darwin area of Responsibility

| YPDMYMYX (VAAC Darwin) |          |          |           |          |           |          |
|------------------------|----------|----------|-----------|----------|-----------|----------|
| AGGHYMYX               | ANYNYOYX | AYPMYMYX | AYPMYSYX  | AYPMZGZX | AYPYANGM  | AYPYANGO |
| EGKKVIRW               | EGLLSITV | EGZZMASI | EGZZMPAC  | EGZZVANW | EHAMKLM D | EHAMKLMK |
| EHAMKLMW               | ELLXCLXB | KDENXLDW | KJFKGTIW  | KWBCYMYX | LOZZMMSS  | LSZHSWRW |
| NFFNYPYX               | NZAAANZO | NZKLYMYX | RJAAANAO  | RJAAJALO | RJAANCAO  | RJAAYMYX |
| RKSIYPYX               | RPHIZRZX | RPLLYMYX | VCBIYMYX  | VCBIZQZX | VHHHCPAO  | VHHHYMYX |
| VOMFZQZX               | VOMMYMYX | VTBBYPYX | VTBDYMYX  | VTBSYMYX | VVGLYMYX  | VVNBZRZX |
| VVTSYMYX               | VVTSZRZX | VYYYYMYX | VYYYYZQZX | WAAAYMYX | WAAAZQZX  | WABBYMYX |
| WADDYMYF               | WADDYMYX | WADDYOYX | WBFCZQZX  | WBKKYMYX | WBKKZQZQ  | WBSBYMYX |
| WIIIIYMYX              | WIHHYMYX | WIIIZQZX | WMFCZQZX  | WMKBYMYX | WMKBYWYX  | WMKKMASD |
| WMKKYMYX               | WMKKZQZX | WPDLTZTX | WRRRYNYX  | WSATYMYX | WSJCZQZX  | WSSSSIAO |
| WSSSYMYW               | WSSSYMYX | WSZZYMYR | YAMBZAZX  | YAMBZGZA | YAMBZTZX  | YBBBNCYM |
| YBBBVOZM               | YBBBZRZA | YBBBZRZB | YBBBZRZG  | YBBBZRZX | YMMLJSTX  | YMMMZRZA |
| YMMMZRZB               | YMMMZRZG | YMMMZRZX | YPDNZAZX  | YPDNZGZA | YPDNZTZX  | YPTNZAZX |
| YPTNZGZA               | YPTNZTZX | YSSYQFAM |           |          |           |          |

Note: the above list is subject to validation and updates by States/units concerned.

- B)** AFTN addresses for exchange of VAAC back-up test VAA messages in the VAAC Tokyo area of responsibility

| RJTDYMYX (VAAC Tokyo) |          |          |          |          |           |           |
|-----------------------|----------|----------|----------|----------|-----------|-----------|
| CWAOYMYU              | EGKKVIRW | EGLLSITV | EGRRYMYX | EGZZMASI | EGZZVANW  | EHAMKLM D |
| EHAMKLMK              | EHAMKLMW | KWBCYMYX | LFPWYMYX | NFFNYPYX | NZAAANZO  | NZKLYMYX  |
| PANCYMYX              | RCTPYMYX | RCTPZQZX | RKRZQZX  | RKSIYMYX | RPHIZRZX  | RPLLYMYV  |
| RPLLYMYX              | SAEZYMYZ | SAZZMAMX | UEEEYMYX | UELLYMYX | UELLZRZX  | UHBBYMYX  |
| UHBIYMYX              | UHHHYMYX | UHHHZRZX | UHMMYMYX | UHMMZRZX | UHNMYMYX  | UHOYMYX   |
| UHPPYMYX              | UHPPZRZX | UHSHYMYX | UHSSYMYX | UHWYMYX  | UIAAYMYX  | UIAAZRZX  |
| UIBBYMYX              | UIIIYMYX | UIIIZRZX | UIKKYMYX | UUUUYNYX | UUWZDZX   | VDPPYFYX  |
| VDPPYMYX              | VDPPZRZX | VDPPZTZX | VHHHYMYX | VLVTYMYX | VTBBYPYX  | VTBDYMYX  |
| VTBSYMYX              | VVGLYMYX | VVNBZRZX | VVTSZRZX | VYYYYMYX | VYYYYZQZX | WSJCZRZX  |
| WSSSYMYX              | WSSSYZYX | YBBBYPYX | YBZZSQJX | YPDMYMYX | ZBAAYMYX  | ZGGGYMYX  |
| ZHHHYMYX              | ZJHKYMYX | ZJSYMYX  | ZKPYYMYX | ZLLLYMYX | ZLXYMYX   | ZMUBYMYX  |
| ZPPPYMYX              | ZSSSYMYX | ZUUUYMYX | ZWWWYMYX | ZYTXMYX  |           |           |

Note: the above list is subject to validation and updates by States/units concerned.