

*International Civil Aviation Organization*



ICAO

**WORKING PAPER**

**Asia and Pacific (APAC)  
Twentieth Meeting of the Meteorological Information  
Exchange Working Group (MET/IE WG/20)**

Online, 28 to 30 March 2022

**Conjoint session  
Agenda Item 2: SIGMET tests**

**RESULTS OF SIGMET TESTS 2021 – WC and WV**

(Presented by Japan)

**SUMMARY**

This paper presents the results of the ASIA/PAC SIGMET tests conducted in December 2021 for tropical cyclone and volcanic ash.

**1. INTRODUCTION**

1.1 The MET Divisional Meeting (2002) formulated Recommendation 1/12 b), Implementation of SIGMET requirements, which called, inter alia, for the relevant Planning and Implementation Regional Groups (PIRGs) to conduct periodic tests of the issuance and reception of SIGMET messages, especially those for volcanic ash.

1.2 The Regional SIGMET tests were conducted on the following dates (month/date) for the last 5 years:

| SIGMET for | 2017  | 2018  | 2019  | 2020  | 2021  |
|------------|-------|-------|-------|-------|-------|
| WC         | 11/01 | 11/07 | 11/13 | 12/02 | 12/08 |
| WV         | 11/08 | 11/14 | 11/20 | 12/09 | 12/15 |

**2. DISCUSSION**

**Schedule and procedure of SIGMET tests**

2.1 In its State letter dated 21 October 2021 on the schedule for SIGMET tests in the Asia/Pacific Region – December 2021, the ICAO Asia Pacific Regional Office notified the following schedule and the procedure of the regional SIGMET tests:

**08 December 2021 - [WC] SIGMET test for tropical cyclone**

Action required by participating units:

1. TCAC issues a tropical cyclone advisory test message at 0200 UTC, 0500 UTC or 0800 UTC (according to the detailed procedures for conducting the regional SIGMET tests);
2. MWO issues a [WC] SIGMET test message on receipt\* of the triggering advisory test message issued by its associated TCAC/s (at 0200 UTC, 0500 UTC or 0800 UTC, as specified above); and
3. RODB and WAFC records all incoming advisory and SIGMET test messages and sends a SIGMET test summary table to the APAC SIGMET test focal points.

**15 December 2021 - [WV] SIGMET test for volcanic ash**

Action required by participating units:

1. VAAC issues a volcanic ash advisory test message at 0200 UTC;
2. MWO issues a [WV] SIGMET test message on receipt\* of the triggering advisory test message issued by its associated VAAC/s (at 0200 UTC); and
3. RODB and WAFC records all incoming advisory and SIGMET test messages and sends a SIGMET test summary table to the APAC SIGMET test focal points.

*\*Note: If a participating MWO does not receive the advisory test message from its associated TCAC/VAAC within 30-minutes of the scheduled time for issuance of the tropical cyclone/volcanic ash advisory test message, the MWO should then issue a SIGMET test message indicating that the relevant advisory test message was not received.*

**Test result and analysis**

2.2 Four RODBs (Bangkok, Brisbane, Singapore and Nadi) and WAFC London sent the summary of bulletins received during the tests to Tokyo, the rapporteur. The combined information on the reception of the bulletins during the test for each TC and VA is shown in the Appendix 5 and 6, respectively. In this paper, the overall availability is represented by the rate of test bulletins received at least at one RODB(s) over all those expected to be reported.

2.3 Tropical cyclone and volcanic ash advisories issued at the test are shown in Appendix 1.

**Summary of WC SIGMET test**

2.4 The total number of WC test bulletins expected to be reported during test was 50 and that received during the test was 38. The overall availability of WC test bulletins was 76.0%, which was less than that of 2020 (81.6%). Appendix 3 shows the availability of WC test bulletins at each RODB and the total since 2009.

2.5 WC test bulletins not issued in the WC SIGMET test are shown in Appendix 2.

**Summary of WV SIGMET test**

2.6 The total number of WV test bulletins expected to be reported during the test was 56 including 6 Russian WV SIGMETs (UIII, UHHH, UNKL, UHMM, UEEE and UHPP). The total number of WV test bulletins received during the test was 48. The overall availability of WV test bulletins was 85.7%, which was less than that of 2020 (91.1%). Appendix 4 shows the availability of WV test bulletins at each RODB and the total since 2009.

2.7 WV test bulletins not issued in the WV SIGMET test are shown in Appendix 2.

### **3. CONCLUSION**

3.1 The availability of WC and WV test bulletins were less than in the test in 2020. It seems to be difficult for some States to issue the test bulletins.

3.2 Both in the WC and WV SIGMET test, there were still incorrect use of the priority and formatting errors in the text.

3.3 Some of WC and WV test bulletins were duplicated or issued by different Date Time Group (DTG) with the same contents, which makes the analysis difficult.

3.4 Some of WC and WV test bulletins were not received by all RODBs in ASIA/PAC region. Participating States should send the test message to all RODBs and WAFCs.

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

4.1 The meeting is invited to:

- a) Note the result of the SIGMET tests presented above;
- b) Discuss on the future importance of the SIGMET exchange in the region; and
- c) Discuss, if necessary, revision of the test procedure.

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## Appendix 1: TCA and VAA test bulletins

### TCA test bulletins

| TCAC      | PI | TTAAii | CCCC | YYGGgg | Received Time(UTC) |      |      |      |      |      |
|-----------|----|--------|------|--------|--------------------|------|------|------|------|------|
|           |    |        |      |        | VTBB               | WSSS | YBBB | NFFN | RJTD | EUR  |
| NEW DELHI | FF | FKIN20 | VIDP | 080200 | 2:01               | 2:01 | 2:02 | 2:00 | 2:01 | 2:02 |
|           | FF | FKIN20 | VIDP | 080800 | 8:01               | 8:01 | 8:06 |      | 8:01 | 8:02 |
|           | FF | FKIN21 | VIDP | 080200 | 2:01               | 2:01 | 2:02 |      | 2:01 | 2:02 |
|           | FF | FKIN21 | VIDP | 080800 | 8:01               | 8:01 | 8:06 |      | 8:01 | 8:02 |
| NADI      | GG | FKPS01 | NFFN | 020200 | 2:00               | 2:08 | 2:02 | 2:00 | 2:00 | 2:01 |
| REUNION   | FF | FKIO20 | FMEE | 080500 |                    | 5:00 |      |      | 5:00 | 5:00 |
| TOKYO     | FF | FKPQ30 | RJTD | 080200 | 2:00               | 2:00 | 2:02 | 2:00 | 2:00 | 2:01 |

### TCA test bulletins received by only Singapore and/or London

| TCAC          | PI | TTAAii | CCCC | YYGGgg | Received Time(UTC) |      |      |      |      |      |
|---------------|----|--------|------|--------|--------------------|------|------|------|------|------|
|               |    |        |      |        | VTBB               | WSSS | YBBB | NFFN | RJTD | EUR  |
| NEW DELHI     |    | FKIN20 | DEMS | 080200 |                    | 2:01 |      |      |      | 2:02 |
|               |    | FKIN20 | DEMS | 080800 |                    | 8:00 |      |      |      | 8:02 |
|               |    | FKIN21 | DEMS | 080200 |                    | 2:01 |      |      |      | 2:02 |
|               |    | FKIN21 | DEMS | 080800 |                    | 8:00 |      |      |      | 8:02 |
| UNITED STATES |    | FKPA25 | PHFO | 080200 |                    |      |      |      |      | 2:03 |

### VAA test bulletins

| VAAC       | PI | TTAAii | CCCC | YYGGgg | Received Time(UTC) |      |      |      |      |      |
|------------|----|--------|------|--------|--------------------|------|------|------|------|------|
|            |    |        |      |        | VTBB               | WSSS | YBBB | NFFN | RJTD | EUR  |
| TOULOUSE   | FF | FVXX04 | LFPW | 150200 |                    | 2:09 | 2:02 |      | 2:00 | 2:00 |
| ANCHORAGE  | GG | FVAK21 | PAWU | 150200 |                    | 2:02 | 2:03 |      | 2:02 | 2:04 |
| DARWIN     | FF | FVAU01 | ADRM | 150200 | 2:01               | 2:00 | 2:02 | 2:00 | 2:01 | 2:00 |
| WASHINGTON | GG | FVXX27 | KNES | 150200 |                    | 2:01 | 2:02 |      | 2:01 | 2:01 |
| WELLINGTON | FF | FVPS01 | NZKL | 150200 | 2:01               | 2:00 | 2:02 | 2:00 | 2:00 | 2:00 |
| TOKYO      | FF | FVFE01 | RJTD | 150200 | 2:00               | 2:00 | 2:01 | 6:00 | 2:00 | 2:00 |

## Appendix 2: WC and WV test bulletins not issued during the test period

### WC test bulletins not issued on the test

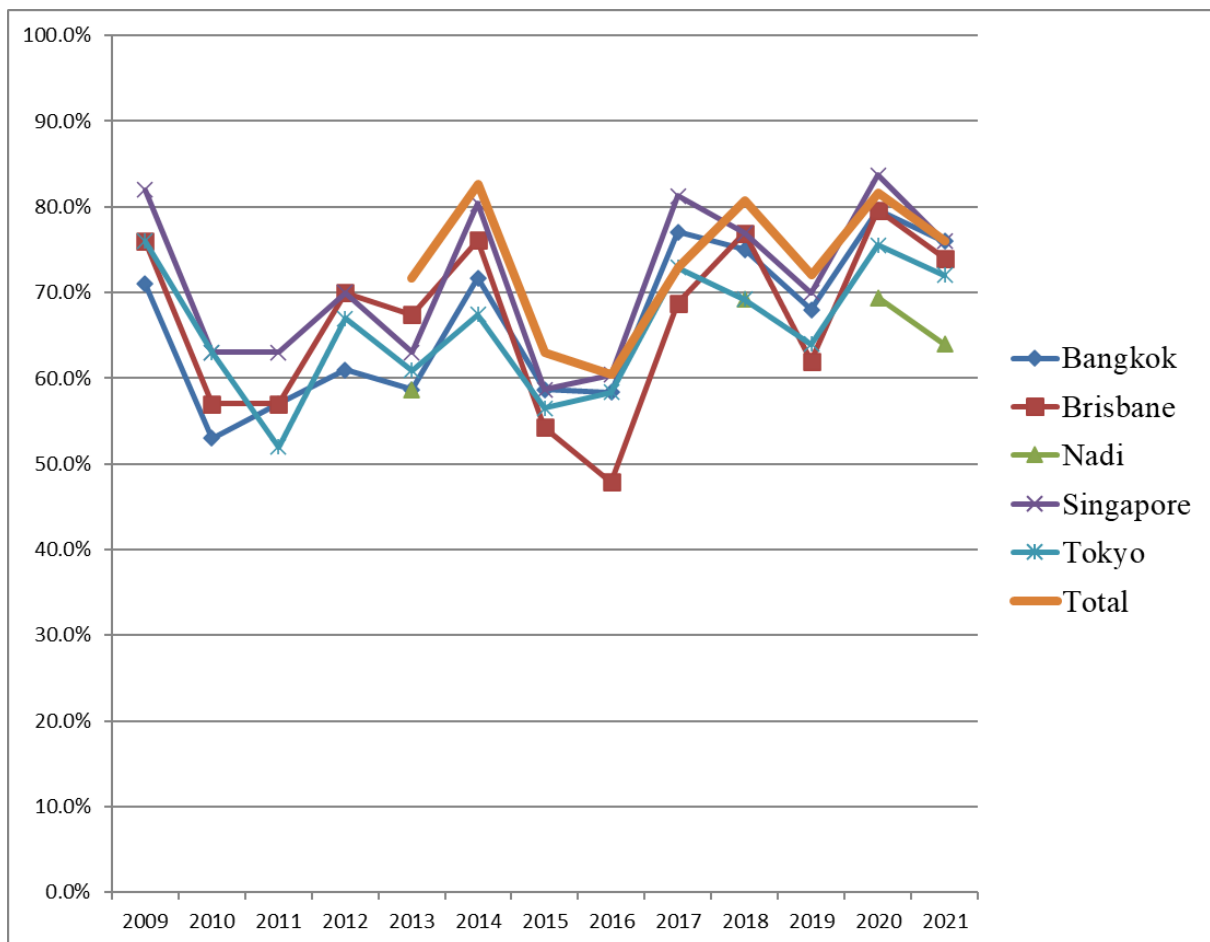
| State                | MWO          | TTAAii    | CCCC | FIR                 | 2020 |
|----------------------|--------------|-----------|------|---------------------|------|
| MALDIVES             | MALE         | WCMV31    | VRMM | VRMF                |      |
| MYANMAR              | YANGON       | WCBM31    | VYYY | VYYF                | ○    |
| NAURU                | NAURU        | WCNW20    | ANYN | ANAU                |      |
| PAPUA NEW GUINEA     | PORT MORESBY | WCNG20    | AYPY | AYPY                |      |
| PHILIPPINES          | MANILA       | WCPH31    | RPLL | RPHI                | ○    |
| UNITED STATES        | ANCHORAGE    | WCAK01-09 | PAWU | PAZA                |      |
|                      | KANSAS CITY  | WCNT01-13 | KKCI | KZNY,KZMA,KZHU,TJZU |      |
| BAHRAIN              | BAHRAIN      | WCBN31    | OBBI | OBBS                | ○    |
| IRAN                 | TEHRAN       | WCIR31    | OIII | OIIX                | ○    |
| KUWAIT               | KUWAIT       | WCKW10    | OKBK | OKAC                | ○    |
| UNITED ARAB EMIRATES | ABU DHABI    | WCAE20    | OMAA | OMAE                |      |
| YEMEN                | SANNA        | WCYE31    | OYSN | OYSC                |      |

### WV test bulletins not issued on the test

| State            | MWO          | TTAAii | CCCC | FIR  | 2020 |
|------------------|--------------|--------|------|------|------|
| AFGHANISTAN      | KABUL        | WVAH31 | OAKB | OAKX |      |
| BANGLADESH       | DHAKA        | WVBW20 | VGHS | VGFR | ○    |
| MALDIVES         | MALE         | WVMV31 | VRMM | VRMF | ○    |
| MONGOLIA         | ULAANBAATAR  | WVMO31 | ZMUB | ZMUB | ○    |
| MYANMAR          | YANGON       | WVBM31 | VYYY | VYYF | ○    |
| NAURU            | NAURU        | WVNW20 | ANYN | ANAU |      |
| PAPUA NEW GUINEA | PORT MORESBY | WVNG20 | AYPY | AYPY |      |
| PHILIPPINES      | MANILA       | WVPH31 | RPLL | RPHI | ○    |

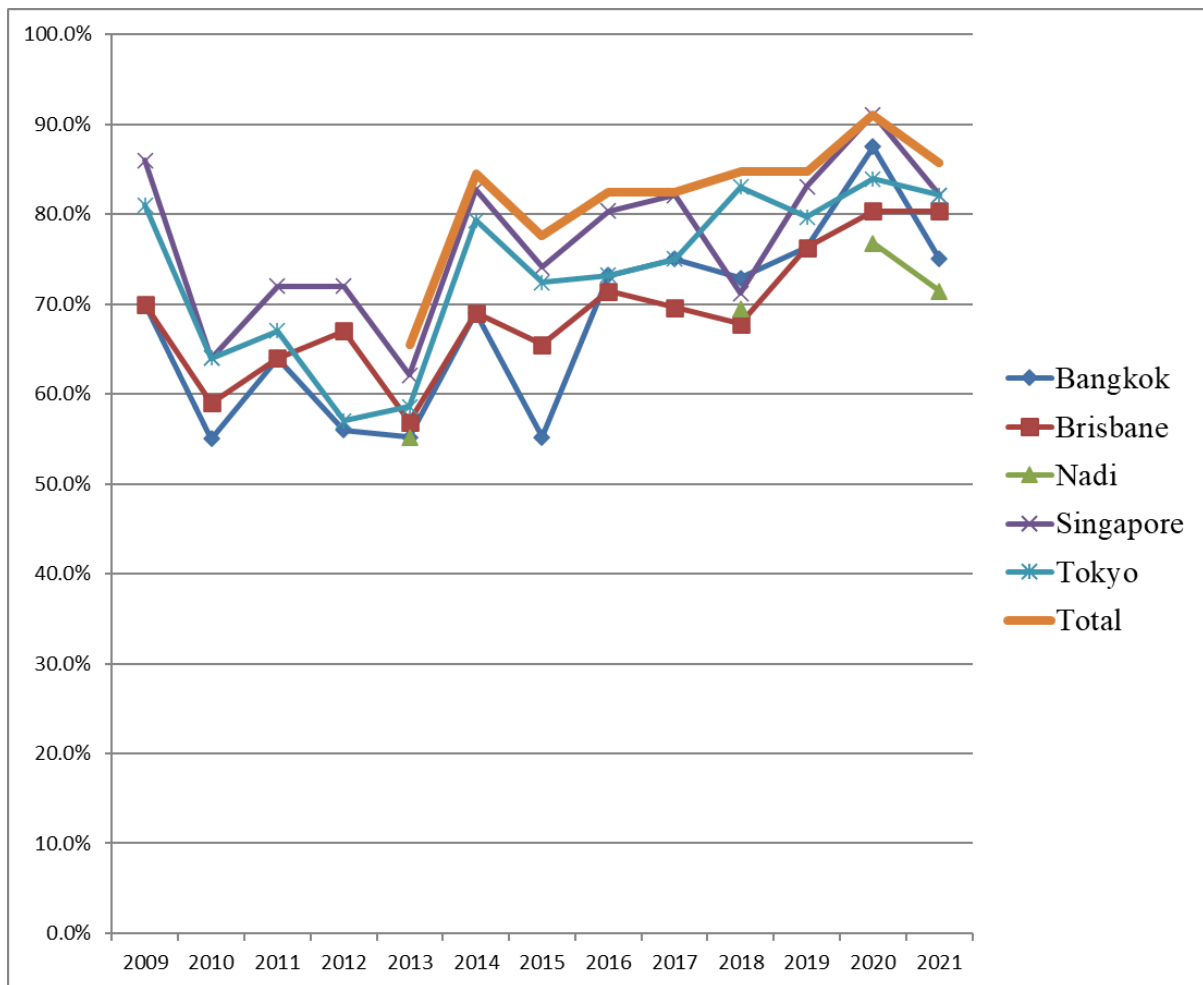
### Appendix 3: Availability of the WC SIGMET test

|           | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  | 2021  |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Bangkok   | 71.0% | 53.0% | 57.0% | 61.0% | 58.7% | 71.7% | 58.7% | 58.3% | 77.1% | 75.0% | 68.0% | 79.6% | 76.0% |
| Brisbane  | 76.0% | 57.0% | 57.0% | 70.0% | 67.4% | 76.1% | 54.3% | 47.9% | 68.8% | 76.9% | 62.0% | 79.6% | 74.0% |
| Nadi      |       |       |       |       | 58.7% |       |       |       |       | 69.2% |       | 69.4% | 64.0% |
| Singapore | 82.0% | 63.0% | 63.0% | 70.0% | 63.0% | 80.4% | 58.7% | 60.4% | 81.3% | 76.9% | 70.0% | 83.7% | 76.0% |
| Tokyo     | 76.0% | 63.0% | 52.0% | 67.0% | 60.9% | 67.4% | 56.5% | 58.3% | 72.9% | 69.2% | 64.0% | 75.5% | 72.0% |
| Total     |       |       |       |       | 71.7% | 82.6% | 63.0% | 60.4% | 72.9% | 80.8% | 72.0% | 81.6% | 76.0% |



#### Appendix 4: Availability of the WV SIGMET test

|           | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  | 2021  |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Bangkok   | 70.0% | 55.0% | 64.0% | 56.0% | 55.2% | 69.0% | 55.2% | 73.2% | 75.0% | 72.9% | 76.3% | 87.5% | 75.0% |
| Brisbane  | 70.0% | 59.0% | 64.0% | 67.0% | 56.9% | 69.0% | 65.5% | 71.4% | 69.6% | 67.8% | 76.3% | 80.4% | 80.4% |
| Nadi      |       |       |       |       | 55.2% |       |       |       |       | 69.5% |       | 76.8% | 71.4% |
| Singapore | 86.0% | 64.0% | 72.0% | 72.0% | 62.1% | 82.8% | 74.1% | 80.4% | 82.1% | 71.2% | 83.1% | 91.1% | 82.1% |
| Tokyo     | 81.0% | 64.0% | 67.0% | 57.0% | 58.6% | 79.3% | 72.4% | 73.2% | 75.0% | 83.1% | 79.7% | 83.9% | 82.1% |
| Total     |       |       |       |       | 65.5% | 84.5% | 77.6% | 82.5% | 82.5% | 84.7% | 84.7% | 91.1% | 85.7% |



Appendix 5: Table of WC SIGMET test

| MWO details in APEC Regional SIGMET TEST Procedures 2021 / SIGMET Guide |               |      |               |      |                     | Test Result |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |
|-------------------------------------------------------------------------|---------------|------|---------------|------|---------------------|-------------|--------------|------|--------|------|------|-----------------|--------------------|------|------|------|------|------|-------------------------|
| State                                                                   | MWO name      | MWO  | TTAAii        | CCCC | FIR                 | PI          | TTAAii       | CCCC | YYGGgg | MWO  | FIR  | TCAC            | Received Time(UTC) |      |      |      |      |      | Remarks                 |
|                                                                         |               |      |               |      |                     |             |              |      |        |      |      |                 | VTBB               | WSSS | YBBB | NFFN | RJTD | EUR  |                         |
| AUSTRALIA                                                               | MELBOURNE     | YMMC | WCAU01        | YMMC | YBBB                | FF          | WCAU01       | YMMC | 080213 | YMMC | YBBB | Nadi/La Reunion | 2:14               | 2:14 | 2:15 | 2:13 | 2:15 | 2:14 |                         |
|                                                                         |               |      |               |      | YMMM                | FF          | WCAU01       | YMMC | 080226 | YMMC | YMMM | -               | 2:26               | 2:26 | 2:28 | 2:26 | 2:28 | 2:27 |                         |
| BANGLADESH                                                              | DHAKA         | VGHS | WCBW20        | VGHS | VGFR                | FF          | WCBW20       | VGHS | 080230 | VGHS | VGFR | -               | 2:42               | 2:42 | 2:44 |      | 2:42 | 3:16 |                         |
| CAMBODIA                                                                | PHNOM PENH    | VDPP | WCKP31        | VDPP | VDPF                | FF          | WCKP31       | VDPP | 080205 | VDPP | VDPF | -               | 2:06               | 2:05 |      | 2:05 | 2:06 | 2:07 |                         |
| CHINA                                                                   | BEIJING       | ZBAA | WCCI33        | ZBAA | ZBPE                | FF          | WCCI33       | ZBAA | 080205 | ZBAA | ZBPE | Tokyo           | 2:05               | 2:05 | 2:06 | 2:05 | 2:05 | 2:06 |                         |
|                                                                         | CHENGDU       | ZUUU | WCCI36        | ZUUU | ZPKM                | FF          | WCCI36       | ZUUU | 080203 | ZUUU | ZPKM | Tokyo           | 2:03               | 2:04 | 2:05 | 2:03 | 2:04 | 2:05 |                         |
|                                                                         | GUANGZHOU     | ZGGG | WCCI35        | ZGGG | ZGZU                | FF          | WCCI35       | ZGGG | 080205 | ZGGG | ZGZU | Tokyo           | 2:03               | 2:03 | 2:05 | 2:05 | 2:04 | 2:04 |                         |
|                                                                         | HAIKOU        | ZJHK | WCCI35        | ZJHK | ZJSA                | FF          | WCCI35       | ZJHK | 080214 | ZJHK | ZJSA | Tokyo           | 2:14               | 2:14 | 2:16 | 2:14 | 2:15 | 2:16 |                         |
|                                                                         | HONG KONG     | VHHH | WCSS20        | VHHH | VHHK                | FF          | WCSS20       | VHHH | 080202 | VHHH | VHHK | Tokyo           | 2:02               | 2:02 | 2:04 |      | 2:02 | 2:03 |                         |
|                                                                         | SHANGHAI      | ZSSS | WCCI34        | ZSSS | ZSHA                | FF          | WCCI34       | ZSSS | 080210 | ZSSS | ZSHA | Tokyo           | 2:13               | 2:12 | 2:10 | 2:11 | 2:12 | 2:12 |                         |
|                                                                         | TAIBEI        | RCTP | WCCI31        | RCTP | RCAA                | FF          | WCCI31       | RCTP | 080212 | RCTP | RCAA | Tokyo           | 2:18               | 2:19 | 2:13 | 2:12 |      |      |                         |
| DPR KOREA                                                               | SUNAN         | ZKPY | WCKR31        | ZKPY | ZKKP                | FF          | WCKR31       | ZKPY | 080205 | ZKPY | ZKKP | Tokyo           | 2:05               | 2:05 | 2:07 | 2:05 | 2:05 | 2:07 |                         |
| FIJI                                                                    | NADI          | NFFN | WCFJ01,02,... | NFFN | NFFF                | FF          | WCFJ01       | NFFN | 080205 | NFFN | NFFF | Nadi            | 2:05               | 2:05 | 2:06 | 2:05 | 2:05 | 2:06 |                         |
| FRENCH POLYNESIA                                                        | TAHITI        | NTAA | WCPF21        | NTAA | NTTT                | FF          | WCPF20       | NTAA | 080235 | NTAA | NTTT | -               | 2:35               | 2:43 | 2:36 | 2:35 | 2:36 | 2:36 |                         |
| INDIA                                                                   | CHENNAI       | VOMM | WCIN31        | VOMM | VOMF                | FF          | WCIN31       | VOMM | 080205 | VOMM | VOMF | New Delhi       | 2:09               | 2:08 | 2:10 | 2:09 | 2:09 | 2:09 |                         |
|                                                                         | MUMBAI        | VABB | WCIN31        | VABB | VABF                | FF          | WCIN31       | VABB | 080201 | VABB | VABF | New Delhi       | 2:04               | 2:04 | 2:05 | 2:05 | 2:04 | 2:05 |                         |
|                                                                         | NEW DELHI     | VIDP | WCIN31        | VIDP | VIDF                | FF          | WCIN31       | VIDP | 080200 | VIDP | VIDF | New Delhi       | 2:02               | 2:02 | 2:04 | 2:01 | 2:02 | 2:03 |                         |
|                                                                         | KOLKATA       | VECC | WCIN31        | VECC | VECF                | FF          | WCIN31       | VECC | 080205 | VECC | VECF | New Delhi       | 2:06               | 2:06 | 2:07 | 2:05 | 2:06 | 2:07 |                         |
| INDONESIA                                                               | JAKARTA       | WIII | WCID20        | WIII | WIIZ                | FF          | WCID20       | WIII | 080213 | WIII | WIIZ | -               | 2:31               | 2:02 | 2:03 | 2:01 | 2:02 | 2:03 |                         |
|                                                                         | MAKASSAR      | WAAA | WCID21        | WAAA | WAAZ                | FF          | WCID21       | WAAA | 080202 | WAAA | WAAZ | Tokyo           | 2:03               | 2:04 | 2:05 | 2:03 | 2:03 | 2:05 |                         |
| JAPAN                                                                   | TOKYO         | RJTD | WCJP31        | RJTD | RJJJ                | FF          | WCJP31       | RJTD | 080205 | RJTD | RJJJ | Tokyo           | 2:05               | 2:05 | 2:06 | 2:06 | 2:05 | 2:06 |                         |
| LAO PDR                                                                 | VIENTIANE     | VLVT | WCLA31        | VLVT | VLVT                | FF          | WCLA31       | VLVT | 080205 | VLVT | VLVT | Tokyo           | 2:01               | 2:01 | 2:02 | 2:19 | 2:01 | 2:02 |                         |
| MALAYSIA                                                                | KUALA LUMPUR  | WMKK | WCMS31        | WMKK | WMFC                | FF          | WCMS31       | WMKK | 080213 | WMKK | WMFC | Tokyo/New Delhi | 2:14               | 2:14 | 2:15 | 2:14 | 2:15 | 2:15 |                         |
|                                                                         | KOTA KINABALU |      |               |      | WBFC                | FF          | WCMS31       | WMKK | 080205 | WBKK | WBFC | Tokyo           | 2:05               | 2:05 | 2:06 |      | 2:05 | 2:06 |                         |
| MALDIVES                                                                | MALE          | VRMM | WCMV31        | VRMM | VRMF                |             |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |
| MYANMAR                                                                 | YANGON        | VYYY | WCBM31        | VYYY | VYYF                |             |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |
| NAURU                                                                   | NAURU         | ANYN | WCNW20        | ANYN | ANAU                |             |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |
| NEW ZEALAND                                                             | WELLINGTON    | NZKL | WCNZ21        | NZKL | NZZC                | FF          | WCNZ21       | NZKL | 080151 | NZKL | NZZC | Nadi            | 2:14               | 2:14 | 2:16 |      | 2:15 | 2:16 | Incorrect time          |
|                                                                         |               | NZKL | WCPS21        | NZKL | NZZO                | FF          | WCPS21       | NZKL | 080151 | NZKL | NZZO | Nadi            | 2:14               | 2:14 | 2:15 | 2:27 | 2:15 | 2:15 | Incorrect time          |
| PAKISTAN                                                                | KARACHI       | OPKC | WCPK31        | OPKC | OPKR                | FF          | WCPK31       | OPKC | 080200 | OPKC | OPKR | New Delhi       | 2:18               | 2:18 | 2:19 | 2:10 | 2:18 | 2:20 |                         |
| PAPUA NEW GUINEA                                                        | PORT MORESBY  | AYPY | WCNG20        | AYPY | AYPY                |             |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |
| PHILIPPINES                                                             | MANILA        | RPLL | WCPH31        | RPLL | RPHI                |             |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |
| REPUBLIC OF KOREA                                                       | INCHEON       | RKSI | WCKO31        | RKSI | RKRR                | FF          | WCKO31       | RKSI | 080200 | RKSI | RKRR | Tokyo           | 2:06               | 2:06 | 2:07 | 2:05 | 2:05 | 2:06 |                         |
| SINGAPORE                                                               | SHINGAPORE    | WSSS | WCSR20        | WSSS | WSJC                | FF          | WCSR20       | WSSS | 080203 | WSSS | WSJC | Tokyo           | 2:03               | 2:03 | 2:05 | 2:05 | 2:03 | 2:04 |                         |
| SOLOMON ISLANDS                                                         | HONIARA       | AGGH | WCSO20        | AGGH | AGGG                | FF          | WCSO20       | AGGH | 080220 | AGGH | AGGG | Nadi            | 2:30               | 2:30 | 2:31 | 2:23 |      | 2:32 |                         |
| SRI LANKA                                                               | COLOMBO       | VCBI | WCSB31        | VCBI | VCCF                | FF          | WCSB31       | VCBI | 080225 | VCBI | VCCF | New Delhi       | 2:39               | 2:40 | 2:41 | 2:39 | 2:40 | 2:40 |                         |
| THAILAND                                                                | BANGKOK       | VTBS | WCTH31        | VTBS | VTBB                | FF          | WCTH31       | VTBS | 080205 | VTBS | VTBB | Tokyo           | 2:06               | 2:06 | 2:07 | 2:05 | 2:06 | 2:07 |                         |
| VIET NAM                                                                | GIA LAM       | VVGL | WCVS31        | VVGL | VVHM                | FF          | WCVS31       | VVGL | 080205 | VVGL | VVHM | Tokyo           | 2:05               | 2:05 | 2:07 | 2:06 | 2:05 | 2:06 |                         |
|                                                                         |               |      |               |      | VVHN                | FF          | WCVS31       | VVGL | 080203 | VVGL | VVHN | Tokyo           | 2:04               | 2:04 | 2:05 | 2:03 | 2:04 | 2:05 |                         |
| UNITED STATES                                                           | HONOLULU      | PHFO | WCPA01-13     | PHFO | KZAK                | FF          | WCPA11       | PHFO | 080200 | PHFO | KZAK | PHFO            | 2:00               | 2:17 | 2:02 | 2:00 | 2:00 | 2:02 |                         |
|                                                                         | ANCHORAGE     | PAWU | WCAK01-09     | PAWU | PAZA                |             |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |
|                                                                         | KANSAS CITY   | KKCI | WCNT01-13     | KKCI | KZNY,KZMA,KZHU,TJZU |             |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |
|                                                                         |               | KKCI | WCPN01-13     | KKCI | KZAK                | FF          | WCPN04,05,08 | KKCI | 080206 | KKCI | KZAK | Honolulu/Tokyo  | 2:06               | 2:07 | 2:07 | 2:05 | 2:06 | 2:07 |                         |
| BAHRAIN                                                                 | BAHRAIN       | OBBI | WCBN31        | OBBI | OBBS                |             |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |
| IRAN                                                                    | TEHRAN        | OIII | WCIR31        | OIII | OIIX                |             |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |
| KUWAIT                                                                  | KUWAIT        | OKBK | WCKW10        | OKBK | OKAC                |             |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |
| OMAN                                                                    | MUSCAT        | OOMS | WCOM31        | OOMS | OOMM                | FF          | WCOM31       | OOMS | 080804 | OOMS | OOMM | -               | 8:05               | 8:05 | 8:06 |      | 8:05 | 8:05 |                         |
| SAUDI ARABIA                                                            | JEDDAH        | OEJN | WCSD20        | OEJD | OEJD                | GG          | WCSD20       | OEJD | 080800 | OEJD | OEJD | New Delhi       | 8:00               | 8:01 | 8:01 |      | 8:00 | 8:00 | Incorrect priority (GG) |
| UNITED ARAB EMIRATE                                                     | ABU DHABI     | OMAA | WCAE20        | OMAA | OMAE                |             |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |
| YEMEN                                                                   | SANNA         | OYSN | WCYE31        | OYSN | OYSC                |             |              |      |        |      |      |                 |                    |      |      |      |      |      |                         |

Not listed in SIGMET GUIDE

|            |              |   |   |   |   |    |        |      |        |      |      |   |      |      |      |  |  |      |  |
|------------|--------------|---|---|---|---|----|--------|------|--------|------|------|---|------|------|------|--|--|------|--|
| NEPAL      | KATHMANDU    |   |   |   |   | FF | WCNP31 | VNKT | 080210 | VNKT | VNSM | - | 2:13 | 2:13 | 2:10 |  |  | 2:14 |  |
| MADAGASCAR | ANTANANARIVO | - | - | - | - | FF | WCMG20 | FMMI | 080503 | FMMI | FMMM | - | 5:05 |      |      |  |  | 5:04 |  |

Appendix 6: Table of WV SIGMET test

| MWO details in APEC Regional SIGMET TEST Procedures 2021 / SIGMET Guide |                                   |      |               |      |      |    |           |      |        |      |      | Test Result       |                    |      |      |       |      |      |  | Remarks                                       |
|-------------------------------------------------------------------------|-----------------------------------|------|---------------|------|------|----|-----------|------|--------|------|------|-------------------|--------------------|------|------|-------|------|------|--|-----------------------------------------------|
| State                                                                   | MWO name                          | MWO  | TTAAii        | CCCC | FIR  | PI | TTAAii    | CCCC | YYGGgg | MWO  | FIR  | VAAC              | Received Time(UTC) |      |      |       |      |      |  |                                               |
|                                                                         |                                   |      |               |      |      |    |           |      |        |      |      |                   | VTBB               | WSSS | YBBB | NFFN  | RJTD | EUR  |  |                                               |
| AFGHANISTAN                                                             | KABUL                             | OAKB | WVAH31        | OAKB | OAKX |    |           |      |        |      |      |                   |                    |      |      |       |      |      |  |                                               |
| AUSTRALIA                                                               | MELBOURNE                         | YMMC | WVAU01        | YMMC | YMMM | FF | WVAU01    | YMMC | 150207 | YMMC | YMMM | Darwin            | 2:12               | 2:07 | 2:08 | 2:07  | 2:12 | 2:09 |  |                                               |
|                                                                         |                                   |      | YBBB          |      |      | FF | WVAU01    | YMMC | 150208 | YMMC | YBBB | Darwin            | 2:17               | 2:08 | 2:18 | 2:08  | 2:17 | 2:10 |  |                                               |
| BANGLADESH                                                              | DHAKA                             | VGHS | WVBW20        | VGHS | VGFR |    |           |      |        |      |      |                   |                    |      |      |       |      |      |  |                                               |
| CAMBODIA                                                                | PHNOM PENH                        | ZUUU | WVKP31        | VDPP | VDPP | KK | WVKP31    | VDPP | 150235 | VDPP | VDPP | -                 | 2:36               | 2:35 |      | 2:40  | 2:35 |      |  | Incorrect priority (KK)                       |
| CHINA                                                                   | BEIJING                           | ZBAA | WVCi33        | ZBAA | ZBPE | FF | WVCi33    | ZBAA | 150225 | ZBAA | ZBPE | Tokyo             | 2:24               | 2:24 | 2:25 | 2:26  | 2:24 | 2:25 |  |                                               |
|                                                                         | CHENGDU                           | ZUUU | WVCi36        | ZUUU | ZPKM | FF | WVCi36    | ZUUU | 150202 | ZUUU | ZPKM | Tokyo             | 2:03               | 2:03 | 2:04 | 2:02  | 2:03 | 2:04 |  |                                               |
|                                                                         | GUANGZHOU                         | ZGGG | WVCi35        | ZGGG | ZGZU | FF | WSCI35    | ZGGG | 150208 | ZGGG | ZGZU | Tokyo             |                    |      | 2:10 |       | 2:09 |      |  | Incorrect header (WS)                         |
|                                                                         | HAIKOU                            | ZJHK | WVCi35        | ZJHK | ZJSA | FF | WVCi35    | ZJHK | 150206 | ZJHK | ZJSA | Tokyo/Anchorage   | 2:11               | 2:11 | 2:08 | 2:27  | 2:07 | 2:12 |  |                                               |
|                                                                         | HONG KONG                         | VHHH | WVSS20        | VHHH | VHHK | FF | WVSS20    | VHHH | 150202 | VHHH | VHHK | Tokyo             | 2:03               | 2:03 | 2:04 | 2:02  | 2:03 | 2:03 |  |                                               |
|                                                                         | SHANGHAI                          | ZSSS | WVCi34        | ZSSS | ZSHA | FF | WVCi34    | ZSSS | 150201 | ZSSS | ZSHA | Tokyo             | 2:03               | 2:01 | 2:03 | 2:05  | 2:02 | 2:02 |  |                                               |
|                                                                         | SHENYANG                          | ZYTX | WVCi38        | ZYTX | ZYSH | FF | WVCi38    | ZYTX | 150205 | ZYTX | ZYSH | Tokyo             | 2:07               | 2:06 | 2:08 | 2:05  | 2:06 | 2:07 |  |                                               |
|                                                                         | TAIBEI                            | RCTP | WVCi31        | RCTP | RCAA | FF | WVCi31    | RCTP | 150211 | RCTP | RCAA | Tokyo             | 2:09               | 2:10 | 2:11 | 2:11  | 2:09 | 2:10 |  |                                               |
|                                                                         | URUMQI                            | ZWWW | WVCi39        | ZWWW | ZWUQ | FF | WVCi39    | ZWWW | 150205 | ZWWW | ZWUQ | Tokyo             | 2:07               | 2:05 | 2:06 | 11:00 | 2:05 | 2:06 |  |                                               |
|                                                                         | WUHAN                             | ZHHH | WVCi45        | ZHHH | ZHWH | FF | WVCi45    | ZHHH | 150203 | ZHHH | ZHWH | Tokyo             | 2:05               | 2:04 | 2:05 | 2:03  |      | 2:05 |  |                                               |
|                                                                         | XI'AN                             | ZLXY | WVCi37        | ZLXY | ZLHW | FF | WVCi37    | ZLXY | 150205 | ZLXY | ZLHW | Tokyo             | 2:08               | 2:07 | 2:09 | 2:05  | 2:07 | 2:08 |  |                                               |
| DPR KOREA                                                               | SUNAN                             | ZKPY | WVKR31        | ZKPY | ZKKP | FF | WVKR31    | ZKPY | 150202 | ZKPY | ZKKP | Tokyo             | 2:03               | 2:01 | 2:03 | 2:04  | 2:02 | 2:02 |  |                                               |
| FIJI                                                                    | NADI                              | NFFN | WVFJ01,02,... | NFFN | NFFF | FF | WVFJ01    | NFFN | 020205 | NFFN | NFFF | Wellington        | 2:05               | 2:04 | 2:05 | 2:30  | 2:04 | 2:05 |  | Incorrect time                                |
| FRENCH POLYNESIA                                                        | TAHITI                            | NTAA | WVPF21,22     | NTAA | NTTT | FF | WVPF20    | NTAA | 150205 | NTTT | NTTT | Wellington        | 2:13               | 2:08 | 2:09 | 2:07  | 2:13 | 2:15 |  | Incorrect header (ii = 20), Incorrect MWO     |
| INDIA                                                                   | CHENNAI                           | VOMM | WVIN31        | VOMM | VOMF | FF | WVIN31    | VOMM | 150202 | VOMM | VOMF | Darwin            | 2:08               | 2:07 | 2:08 | 2:07  | 2:07 | 2:08 |  |                                               |
|                                                                         | KOLKATA                           | VECC | WVIN31        | VECC | VECF | FF | WVIN31    | VECC | 150215 | VECC | VECF | Toulouse          | 2:16               | 2:15 | 2:17 | 2:15  | 2:16 | 2:16 |  |                                               |
|                                                                         | MUMBAI                            | VABB | WVIN31        | VABB | VABF | FF | WVIN31    | VABB | 150200 | VABB | VABF | -                 | 2:04               | 2:03 | 2:04 | 2:02  | 2:03 | 2:04 |  |                                               |
|                                                                         | NEW DELHI                         | VIDP | WVIN31        | VIDP | VIDF | FF | WVIN31    | VIDP | 150200 | VIDP | VIDF | Toulouse          | 2:01               | 2:01 | 2:03 |       | 2:01 | 2:02 |  |                                               |
| INDONESIA                                                               | JAKARTA                           | WIII | WVID20        | WIII | WIIZ | FF | WVID20    | WIII | 150202 | WIII | WIIZ | Darwin            | 2:03               | 2:03 | 2:04 | 2:02  | 2:03 | 2:04 |  |                                               |
|                                                                         | MAKASSAR                          | WAAA | WVID21        | WAAA | WAAZ | FF | WVID21    | WAAA | 150202 | WAAA | WAAZ | Darwin            | 2:04               | 2:03 | 2:05 | 2:05  | 2:03 | 2:04 |  |                                               |
| JAPAN                                                                   | TOKYO                             | RJTD | WVJP31        | RJTD | RJJJ | FF | WVJP31    | RJTD | 150205 | RJTD | RJJJ | Tokyo             | 2:06               | 2:05 | 2:06 | 2:05  | 2:05 | 2:06 |  |                                               |
| LAO PDR                                                                 | VIENTIANE                         | VLVT | WVLA31        | VLVT | VLVT | FF | WVLA31    | VLVT | 150205 | VLVT | VLVT | Tokyo             | 2:00               | 2:00 | 2:01 | 2:05  | 2:00 | 2:00 |  |                                               |
| MALAYSIA                                                                | KUALA LUMPUR                      | WMKK | WVMS31        | WMKK | WMFC | FF | WVMS31    | WMKK | 150201 | WMKK | WMFC | Darwin            | 2:02               | 2:02 | 2:03 | 12:00 | 2:02 | 2:03 |  |                                               |
|                                                                         |                                   |      |               |      | WBFC | FF | WVMS31    | WMKK | 150205 | WBKK | WBFC | Darwin            | 2:06               | 2:05 | 2:06 | 2:06  | 2:05 | 2:06 |  |                                               |
| MALDIVES                                                                | MALE                              | VRMM | WVMV31        | VRMM | VRMF |    |           |      |        |      |      |                   |                    |      |      |       |      |      |  |                                               |
| MONGOLIA                                                                | ULAANBAATAR                       | ZMUB | WVMO31        | ZMUB | ZMUB |    |           |      |        |      |      |                   |                    |      |      |       |      |      |  |                                               |
| MYANMAR                                                                 | YANGON                            | VYYY | WVBM31        | VYYY | VYYF |    |           |      |        |      |      |                   |                    |      |      |       |      |      |  |                                               |
| NAURU                                                                   | NAURU                             | ANYN | WVNW20        | ANYN | ANAU |    |           |      |        |      |      |                   |                    |      |      |       |      |      |  |                                               |
| NEPAL                                                                   | KATHMANDU                         | VNKT | WVNP31        | VNKT | VNSM | FF | WVNP31    | VNKT | 150205 | VNKT | VNSM | Toulouse          | 2:07               | 2:07 | 2:07 |       | 2:05 | 2:07 |  |                                               |
| NEW ZEALAND                                                             | WELLINGTON                        | NZKL | WVNZ21        | NZKL | NZZC | FF | WVNZ21    | NZKL | 150157 | NZKL | NZZC | Wellington        | 2:06               | 2:05 | 2:06 | 2:05  | 2:05 | 2:06 |  | Incorrect time                                |
|                                                                         |                                   | NZKL | WVPS21        | NZKL | NZZO | FF | WVPS21    | NZKL | 150155 | NZKL | NZZO | Wellington        | 2:05               | 2:04 | 2:18 | 2:04  | 2:05 | 2:05 |  | Incorrect time                                |
| PAKISTAN                                                                | KARACHI                           | OPKC | WVPK31        | OPKC | OPKR | FF | WVPK31    | OPKC | 150200 | OPKC | OPKR | Toulouse          | 2:20               | 2:20 | 2:22 | 2:05  | 2:20 | 2:21 |  |                                               |
|                                                                         | LAHORE                            | OPLA | WVPK31        | OPLA | OPLR | FF | WVPK31    | OPLA | 150205 | OPLA | OPLR | Toulouse          | 2:09               | 2:08 | 2:10 | 2:05  |      | 2:09 |  |                                               |
| PAPUA NEW GUINEA                                                        | PORT MORESBY                      | AYPY | WVNG20        | AYPY | AYPY |    |           |      |        |      |      |                   |                    |      |      |       |      |      |  |                                               |
| PHILIPPINES                                                             | MANILA                            | RPLL | WVPH31        | RPLL | RPHI |    |           |      |        |      |      |                   |                    |      |      |       |      |      |  |                                               |
| REPUBLIC OF KOREA                                                       | INCHEON                           | RKSI | WVKO31        | RKSI | RKRR | FF | WVKO31    | RKSI | 150205 | RKSI | RKRR | Tokyo             | 2:05               | 2:04 | 2:05 | 2:05  | 2:04 | 2:05 |  |                                               |
| SINGAPORE                                                               | SHINGAPORE                        | WSSS | WVSR20        | WSSS | WSJC | FF | WVSR20    | WSSS | 150205 | WSSS | WSJC | Darwin            | 2:06               | 2:05 | 2:06 | 2:05  | 2:05 | 2:05 |  |                                               |
| SOLOMON ISLANDS                                                         | HONIARA                           | AGGH | WVSO20        | AGGH | AGGG | FF | WSSO20    | AGGH | 150209 | AGGH | AGGG | Wellington/Darwin | 3:03               | 3:03 | 2:20 | 3:03  | 2:21 |      |  | Incorrect header (WS), resent at 0304 with WV |
| SRI LANKA                                                               | COLOMBO                           | VCBI | WVSB31        | VCBI | VCCF | FF | WSSB31    | VCBI | 150200 | VCBI | VCCF | Darwin            |                    |      | 2:13 |       | 2:12 |      |  | Incorrect header (WS)                         |
| THAILAND                                                                | BANGKOK                           | VTBS | WVTH31        | VTBS | VTBB | FF | WVTH31    | VTBS | 150203 | VTBS | VTBB | Tokyo/Darwin      | 2:04               | 2:03 | 2:05 | 2:06  | 2:03 | 2:04 |  |                                               |
| VIET NAM                                                                | GIA LAM                           | VVGL | WVVS31        | VVGL | VVHM | FF | WVVS31    | VVGL | 150208 | VVGL | VVHM | Tokyo/Darwin      | 2:10               | 2:10 | 2:11 | 2:18  | 2:10 | 2:11 |  |                                               |
|                                                                         |                                   |      |               |      | VVHN | FF | WVVS31    | VVGL | 150205 | VVGL | VVHN | Tokyo/Darwin      | 2:07               | 2:06 | 2:08 | 2:06  | 2:06 | 2:07 |  |                                               |
| UNITED STATES                                                           | HONOLULU                          | PHFO | WVPA01-13     | PHFO | KZAK | GG | WVPA01    | PHFO | 150205 | PHFO | KZAK | Washington        |                    | 2:06 | 2:07 |       | 2:06 | 2:35 |  | Incorrect priority (GG)                       |
|                                                                         | ANCHORAGE                         | PAWU | WVAK01-09     | PAWU | PAZA | DD | WVAK05    | PAWU | 150200 | PANC | PAZA | -                 | 2:02               | 2:02 | 2:03 |       | 2:02 | 2:04 |  | Incorrect priority (DD)                       |
|                                                                         | KANSAS CITY                       | KKCI | WVPN01-13     | KKCI | KZAK | DD | WVPN01,02 | KKCI | 150205 | KKCI | KZAK | Washington        |                    | 2:08 | 2:10 | 2:08  | 2:08 | 2:09 |  | Incorrect priority (DD)                       |
| RUSSIAN FEDERATION                                                      | IRKUTSK                           | UIII | WVRA31        | RUIR | UIII | FF | WVRA31    | RUIR | 150201 | UIII | UIII | Tokyo             | 2:05               | 2:04 | 2:06 | 2:04  | 2:04 | 2:05 |  |                                               |
|                                                                         | KHABAROVSK/NOVY                   | UHHH | WVRA31        | RUHB | UHHH | FF | WVRA31    | RUHB | 150200 | UHHH | UHHH | Tokyo             | 2:07               | 2:05 | 2:07 | 2:05  | 2:05 | 2:06 |  |                                               |
|                                                                         | KRASNOYARSK                       | UNKL | WVRA31        | RUKR | UNKL | FF | WVRA31    | RUKR | 150202 | UNKL | UNKL | Tokyo             | 2:02               | 2:02 | 2:04 | 2:02  | 2:02 | 2:03 |  |                                               |
|                                                                         | MAGADAN/SOKOL                     | UHMM | WVRA31        | RUMG | UHMM | FF | WVRA31    | RUMG | 150205 | UHMM | UHMM | Tokyo             | 2:07               | 2:06 | 2:08 | 2:06  | 2:07 | 2:07 |  |                                               |
|                                                                         | YAKUTSK                           | UEEE | WVRA31        | RUYK | UEEE | FF | WVRA31    | RUYK | 150205 | UEEE | UEEE | Tokyo             |                    | 2:06 |      |       | 2:06 | 2:07 |  |                                               |
|                                                                         | YELIZOVO/PETROPAVLOVSK-KAMCHATSKY | UHPP | WVRA31        | RUPK | UHPP | FF | WVRA31    | RUPK | 150202 | UHPP | UHPP | Tokyo             |                    | 2:02 |      |       | 2:02 | 2:02 |  |                                               |
| Not listed in SIGMET GUIDE                                              |                                   |      |               |      |      |    |           |      |        |      |      |                   |                    |      |      |       |      |      |  |                                               |
| SAUDI ARABIA                                                            | JEDDAH                            | -    | -             | -    | -    | GG | WVSD20    | OEJD | 150200 | OEJD | OEJD | -                 | 2:00               | 2:01 |      |       | 2:01 | 2:03 |  | Incorrect priority (GG)                       |