



*International Civil Aviation Organization*

**FOURTEENTH MEETING OF THE ASIA/PACIFIC  
METEOROLOGICAL INFORMATION EXCHANGE WORKING GROUP  
(MET/IE WG/14)**

Bangkok, Thailand, 7 – 9 March 2016

**Agenda Item 2: SIGMET and (volcanic ash and tropical cyclone) advisory information  
(including SIGMET tests)**

**PROGRESS WITH SIGMET TESTS – WC and WV**

**(Presented by Japan)**

**SUMMARY**

This paper presents the results of the AISA/PAC SIGMET tests conducted in November 2015 for TC and VA.

**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 At its 13th meeting, the ROBEX Working Group (ROBEX WG) reviewed the results of SIGMET tests in the Asia/Pac Region held in November 2014. After the meeting, it was decided that the WC, WV and WS SIGMET tests would be conducted on 04, 11 and 18 November 2015, respectively.

1.3 The Regional SIGMET tests were conducted as follows.

SIGMET for	2007	2008	2009		2010	2011	2012	2013	2014	2015
WC	1/15	1/15	2/10	11/10	11/10	11/08	11/07	11/12	11/05	11/04
WV	1/22	1/22	2/17	11/17	11/17	11/15	11/14	11/19	11/12	11/11

**2. DISCUSSION**

2.1 In its State letter dated October 27 2015, Schedule for SIGMET tests in the Asia/Pacific Region – November 2015, the ICAO Asia Pacific Regional Office notified the schedule and the procedure of the regional SIGMET tests as follows.

- **4 November 2015- SIGMET-test for tropical cyclone:**

TEST WC SIGMET to be issued by MWOs immediately following the issuance of the triggering TEST tropical cyclone advisory by the TCACs concerned at **0200 UTC** (Note: TCAC New Delhi will issue TEST tropical cyclone advisory at **0200 UTC** for action by MWOs in the APAC Region only, and at **0800 UTC** for action by MWOs in the MID Region only; TCAC La Reunion will issue TEST tropical cyclone advisory at **0500 UTC** for action by MWOs in the APAC Region only)

- **11 November 2015- SIGMET -test for volcanic ash:**

TEST WV SIGMET to be issued by MWOs immediately following the issuance of the triggering TEST volcanic ash advisory by the V AACs concerned at **0200 UTC**

- **18 November 2015- SIGMET-test for other phenomena:**

TEST WS SIGMET to be issued by MWOs during the 10-minute period from **0200 to 0210 UTC**

### **3. TEST RESULTS AND ANALYSIS**

3.1 Three RODBs, like Bangkok, Brisbane, and Singapore sent the summary of bulletins received during the tests to Tokyo, the rapporteur. The combined information of the reception of the bulletins during the test for each of TC and VA is shown in the Table 1 and Table 2, respectively. In this paper, the overall availability is represented by the rate of test bulletins received at least one RODB(s) over all those expected to be reported.

#### **Summary of WC SIGMET test**

3.2.1 The total number of WC SIGMET bulletins expected to be reported during the test from ASIA/PAC States was 46 and that received during the WC SIGMET test was 29, with some bulletins with incorrect formats or WMO headings. The overall availability of the test WC SIGMET from ASIA/PAC States was 63%. The availability is almost 20 % lower than in the test in 2014 (82.6%).

3.2.2 Table 1 shows the summary of the WC SIGMET test. The format of the received time is “GGgg” where GG and gg are hour and minute, respectively. Yellow colored cell indicates bulletins with an incorrect header or format. The key issue related to incorrect WMO heading, especially for TT (WS, WC or WV), remains unchanged.

3.2.3 Figure 1 shows the availability of the WC SIGMET test bulletins at each RODB and the total since November 2009. The availability in 2015 was 63.0%, which was significantly less than that of in 2014 (82.6%)

3.2.4 This time, the State Letter was sent from ICAO Regional Office just 1 week before the test, and the issuance of test TCA from TCAC Tokyo delayed about 20 minutes due to system trouble. Although actual reason may need to be investigated further, it is suggested that these could have some influences on the lower availability of those bulletins from the States.

**Summary of WV SIGMET test**

3.3.1 The total number of WV SIGMET bulletins expected to be reported during the test from ASIA/PAC States was 49. In addition, RODB Tokyo relayed 9 Russian WV SIGMETs (one from each of UELL, UEST, UHHH, UHMM, UHPP, UIAA and UIII, and two from UHMA). Therefore the total number of WV SIGMET bulletins expected to be reported during the WV SIGMET test was 58. The total number of WV SIGMET bulletins received during the test from ASIA/PAC and from Russia was 44 and 6, respectively. The availability in the ASIA/PAC region was 86.2% which was slightly higher than that of the test in 2014 (84.5%).

3.3.1 Table 2 shows the summary of the WV SIGMET test. The format of the received time and the meaning of the yellow colored cell are the same as those of the Table 1.

3.3.1 Figure 2 shows the availability of the WV SIGMET test at each RODB and the total since 2009. The availability of the SIGMET test messages at each RODB in 2015 was 86.2 %, which was slightly higher than that in 2014.

**Overall summary of the SIGMET tests**

3.4.1 The availabilities of WC test bulletins was lower than recent couple of years, while those of WV test bulletins kept the same level as those of 2015. It would be suggested that this could be caused to some extent by relatively shorter period of notice (1 week) and the delay of issuance of test TCA from TCAC Tokyo due to the system failure.

3.5.2 Both in WC and WV SIGMET test, there were still incorrect use of the Priority and the WMO header in those bulletins amongst participating States.

3.5.3 This shows that continuous efforts should be necessary to provide regional guidance on SIGMET issuance. And it is suggested that it should be useful to hold seminar/workshop type of events in close coordination with WMO or other relevant bodies.

3.4.2 Some MWOs issued multiple test bulletins with completely same contents. It is desirable not to issue the same message for more than once, since it might cause serious confusion among participating RODBs when they analyze the result of the tests.

**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 important of the SIGMET exchange in the region; and
- c) Discuss, if necessary, revision of the test procedure.

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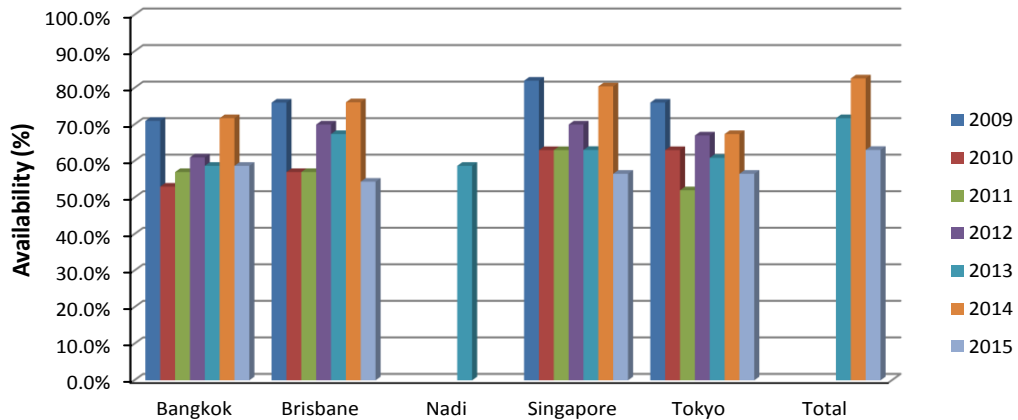
**Table 1. Summary of the WC SIGMET test results**

Header According to SIGMET Guide				Test Result					
MWO	TTAAii	CCCC	FIR	Priority	TTAAii	CCCC	YYGGgg	MWO	FIR
AYPY	WNG20	AYPY	AYPY						
AYPY	WCNW20	AYPY	ANAU						
AYPY	WCSO20	AYPY	AGGG	GG	WCSO20	AGGH	040210	AGGH	AGGG
KKCI	WCPN01-13	KKCI	KZAK						
NFFN	WCFJ01,02,...	NFFN	NFFF	FF	WCFJ01	NFFN	040000	NFFN	NFFF
NTAA	WCPF21	NTAA	NTTT						
NZKL	WCNZ21	NZKL	NZZC						
NZKL	WCPS21	NZKL	NZZO	FF	WCPS21	NZKL	040153	NZKL	NZZO
OPKC	WCPK31	OPKC	OPKR	FF	WCPK31	OPKC	040235	OPKC	OPKR
OPLA	WCPK31	OPLA	OPLR						
PAWU	WCAK01-09	PAWU	PAZA						
PHFO	WCPA01-13	PHFO	KZAK						
RCTP	WCCI31	RCTP	RCAA						
RJTD	WCJP31	RJTD	RJJJ	FF	WCJP31	RJTD	040230	RJTD	RJJJ
RKSI	WCKO31	RKSI	RKRR						
RPLL	WCPH31	RPLL	RPHI	FF	WCPH31	RPLL	040214	RPLL	RPHI
VABB	WCIN31	VABB	VABF	FF	WCIN31	VABB	040205	VABB	VABF
VCBI	WCSB31	VCBI	VCBI						
VECC	WCIN31	VECC	VECF	FF	WCIN31	VECC	040205	VECC	VECF
VGHS	WCBW20	VGHS	VGFR	FF	WCBW20	VGHS	040210	VGHS	VGFR
VHHH	WCSS20	VHHH	VHHK	FF	WCSS20	VHHH	040230	VHHH	VHHK
VIDP	WCIN31	VIDP	VIDF	FF	WCIN31	VIDP	040205	VIDP	VIDF
VLVT	WCLA31	VLVT	VLVT	GG	WCLA31	VLVT	040200	VLVT	VLVT
VOMM	WCIN31	VOMM	VOMF	FF	WCIN31	VOMM	040202	VOMM	VOMF
VRMM	WCMV31	VRMM	VRMF						
VTBS	WCTH31	VTBS	VTBB	FF	WCTH31	VTBS	040205	VTBS	VTBB
VVGL	WCVS31	VVGL	VVNB						
VVGL	WCVS31	VVGL	VVTS						
VYYY	WCBM31	VYYY	VYYY	FF	WCBM31	VYYY	040205	VYYY	VYYY
WAAA	WCID21	WAAA	WAAF						
WIII	WCID20	WIII	WIIF						
WMKK	WCMS31	WMKK	WBFC	FF	WCMS31	WMKK	040205	WMKK	WBFC
WMKK	WCMS31	WMKK	WMFC	FF	WCMS31	WMKK	040205	WMKK	WMFC
WSSS	WCSR20	WSSS	WSJC	FF	WCSR20	WSSS	040235	WSSS	WSJC
YBRF	WCAU01	ABRF	YBBB	FF	WCAU01	ADRM	040206	YPDM	YBBB
YBRF	WCAU01	ABRF	YMMM	FF	WCAU01	ABRF	040209	YBRF	YBBB
YDRM	WCAU01	ADRM	YBBB	FF	WCAU01	ABRF	040208	YBRF	YBBB
YDRM	WCAU01	ADRM	YMMM						
YPRF	WCAU01	APRF	YBBB	DD	WCAU01	APRF	040218	YPRF	YBBB
YPRF	WCAU01	APRF	YMMM	DD	WCAU01	APRF	040216	YPRF	YMMM
ZBAA	WCCI33	ZBAA	ZBPE	FF	WCCI33	ZBAA	040235	ZBAA	ZBPE
ZGGG	WCCI35	ZGGG	ZGZU	FF	WCCI35	ZGGG	040235	ZGGG	ZGZU
ZJHK	WCCI35	ZJHK	ZJSA						
ZKPY	WCKR31	ZKPY	ZKKP						
ZSSS	WCCI34	ZSSS	ZSHA	FF	WCCI34	ZSSS	040230	ZSSS	ZSHA
ZUUU	WCKP31	ZUUU	VDPP	FF	WCKP31	ZUUU	040236	ZUUU	VDPP

**Table 2. Summary of the WV SIGMET test results**

Header MWO	According to TTAai	SIGMET CCCC	Guide FIR	Priority	TTAAii	Test CCCC	Result YGGgg	MWO	FIR
AYPY	WVNG20	AYPY	AYPY						
ANYN	WVNW20	AYPY	ANAU						
AGGH	WVSO20	AYPY	AGGG						
KKCI	WVFN01-13	KKCI	KZAK	FF	WVFN01	KKCI	110200	KKCI	KZAK
NFFN	WVFN01, 02, ...	NFFN	NFFF	FF	WVFN01	NFFN	110000	NFFN	NFFF
NTAA	WVPF21	NTAA	NTTT						
NZKL	WVN221	NZKL	NZZC	FF	WVN21	NZKL	110131	NZKL	NZZC
NZKL	WVPS21	NZKL	NZZO	FF	WVPS21	NZKL	110131	NZKL	NZZO
OAKB	WVAH31	OAKB	OAKX						
OPKC	WVPK31	OPKC	OPKR	GG	WSPK31	OPKC	110235	OPKC	OPKC
OPLA	WVPK31	OPLA	OPLR	FF	WVPK31	OPLA	110205	OPLA	OPLR
PAWU	WVAK01-09	PAWU	PAZA	GG	WVPK31	OPLA	110205	OPLA	OPLR
PHFO	WVPA01-13	PHFO	KZAK						
RCTP	WVCI31	RCTP	RCAA						
RJTD	WVJP31	RJTD	RJJJ	FF	WVJP31	RJTD	110205	RJTD	RJJJ
RKSI	WVKO31	RKSI	RKRR						
RPLL	WVPH31	RPLL	RPHI	FF	WVPH31	RPLL	110210	RPLL	RPHI
UELL	WVRA32	RUYK	UELL	FF	WVPH31	RPLL	110210	RPLL	RPHI
UEST	WVRA38	RUYK	UEST						
UHMH	WVRA31	RUHB	UHMH	GG	WVRA31	RUHB	110210	RJTD	UHMH
UHMA	WVRA31	RUPV	UHMP						
UHMA	WVRA32	RUPV	UHMA						
UHMM	WVRA31	RUMG	UHMM	GG	WVRA31	RUMG	110205	RJTD	UHMM
UHPP	WVRA31	RUPK	UHPP	GG	WVRA31	RUPK	110203	UHPP	UHPP
UIAA	WVRA31	RUCH	UIAA	GG	WVRA31	RUIR	110204	UIII	UIII
UIII	WVRA31	RUIR	UIII	GG	WVRA31	RUIR	110204	RJTD	UIII
VABB	WVIN31	VABB	VABF	FF	WVIN31	VECC	110230	VECC	VECF
VCBI	WVSB31	VCBI	VCBI	FF	WVBW20	VGHS	110220	VGHS	VGFR
VECC	WVIN31	VECC	VECF	FF	WVIN31	VECC	110230	VECC	VECF
VGHS	WVBW20	VGHS	VGFR	FF	WVBW20	VGHS	110220	VGHS	VGFR
VHHH	WVSS20	VHHH	VHHK	FF	WVSS20	VHHH	110203	VHHH	VHHK
VIDP	WVIN31	VIDP	VIDF	FF	WVIN31	VIDP	110202	VIDP	VIDF
VLVT	WVLA31	VLVT	VLVT	FF	WVLA31	VLVT	110205	VLVT	VLVT
VNKT	WVNP31	VNKT	VNSM						
VOMM	WVIN31	VOMM	VOMF	FF	WVIN31	VOMM	110205	VOMM	VOMF
VRMM	WVMV31	VRMM	VRMF	FF	WVVS31	VVGL	110204	VVGL	VVNB
VTBS	WVTH31	VTBS	VTBB	FF	WVTH31	VTBS	110202	VTBS	VTBB
VVGL	WVVS31	VVGL	VVNB	FF	WVVS31	VVGL	110204	VVGL	VVNB
VVGL	WVVS31	VVGL	VVTS	FF	WVVS31	VVGL	110206	VVGL	VVTS
VYYY	WVBM31	VYYY	VYYY	FF	WVBM31	VYYY	110201	VYYY	VYYY
WAAA	WVID21	WAAA	WAAZ	FF	WVID21	WAAA	110216	WAAA	WAAF
WIII	WVID20	WIII	WIIZ	FF	WVID20	WIII	110202	WIII	WIF
WMKK	WVMS31	WMKK	WBFC	FF	WVMS31	WMKK	110206	WBKK	WBFC
WMKK	WVMS31	WMKK	WMFC	FF	WVMS31	WMKK	110206	WMKK	WMFC
WSSS	WVSR20	WSSS	WSJC	FF	WVSR20	WSSS	110205	WSSS	WSJC
YPDM	WVAU01	ADRM	YBBB	FF	WVAU01	ADRM	110223	YPDM	YBBB
YPDM	WVAU01	ADRM	YMMM	FF	WVAU01	ADRM	110225	YPDM	YMMM
ZBAA	WVCI33	ZBAA	ZBPE	FF	WVCI33	ZBAA	110205	ZBAA	ZBPE
ZGGG	WVCI35	ZGGG	ZGZU	FF	WVCI35	ZGGG	110205	ZGGG	ZGZU
ZHHH	WVCI45	ZHHH	ZHWH	FF	WVCI45	ZHHH	110205	ZHHH	ZHWH
ZJHK	WVCI35	ZJHK	ZJSA	FF	WVCI35	ZJHK	110209	ZJHK	ZJSA
ZKPY	WVKR31	ZKPY	ZKKP						
ZLXY	WVCI37	ZLXY	ZLHW	FF	WVCI37	ZLXY	110202	ZLXY	ZLHW
ZMUB	WVMO31	ZMUB	ZMUB	FF	WVMO31	ZMUB	110205	ZMUB	ZMUB
ZSSS	WVCI34	ZSSS	ZSHA	FF	WVCI34	ZSSS	110205	ZSSS	ZSHA
ZUUU	WVCI36	ZUUU	ZPKM	FF	WVCI36	ZUUU	110203	ZUUU	ZPKM
ZUUU	WVKP31	ZUUU?	VDPP	FF	WVKP31	ZUUU	110205	ZUUU	VDPP
ZWWW	WVCI39	ZWWW	ZWUQ	FF	WVCI39	ZWWW	110209	ZWWW	ZWUQ
ZYTX	WVCI38	ZYTX	ZYSH	FF	WVCI38	ZYTX	110202	ZYTX	ZYSH

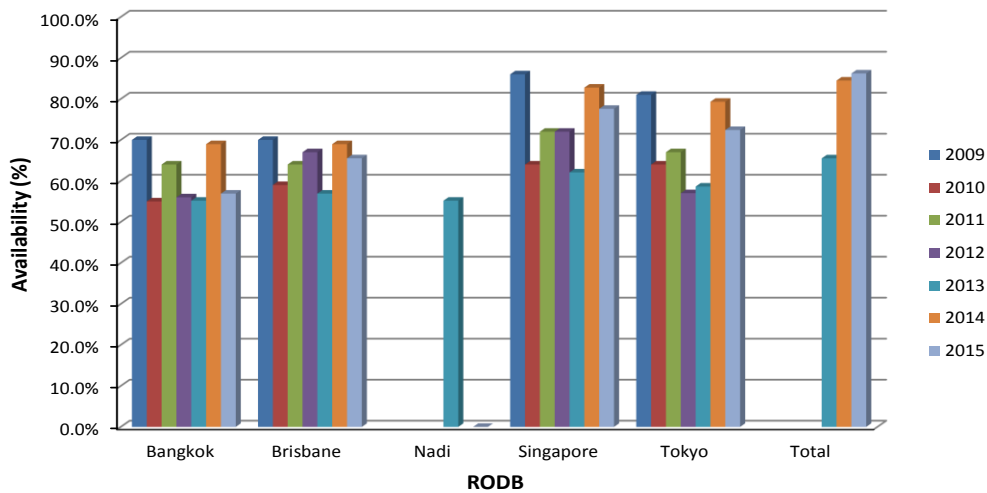
**Availability of the SIGMET test for TC**



	2009	2010	2011	2012	2013	2014	2015
<b>Bangkok</b>	71.0%	53.0%	57.0%	61.0%	58.7%	71.7%	58.7%
<b>Brisbane</b>	76.0%	57.0%	57.0%	70.0%	67.4%	76.1%	54.3%
<b>Nadi</b>					58.7%		
<b>Singapore</b>	82.0%	63.0%	63.0%	70.0%	63.0%	80.4%	56.5%
<b>Tokyo</b>	76.0%	63.0%	52.0%	67.0%	60.9%	67.4%	56.5%
<b>Total</b>					71.7%	82.6%	63.0%

Figure 1. Availability of the SIGMET test messages for TC

**Availability of the SIGMET test for VA**



	2009	2010	2011	2012	2013	2014	2015
<b>Bangkok</b>	70.0%	55.0%	64.0%	56.0%	55.2%	69.0%	56.9%
<b>Brisbane</b>	70.0%	59.0%	64.0%	67.0%	56.9%	69.0%	65.5%
<b>Nadi</b>					55.2%		0.0%
<b>Singapore</b>	86.0%	64.0%	72.0%	72.0%	62.1%	82.8%	77.6%
<b>Tokyo</b>	81.0%	64.0%	67.0%	57.0%	58.6%	79.3%	72.4%
<b>Total</b>					65.5%	84.5%	86.2%

Figure 2. Availability of the SIGMET test messages for VA