



International Civil Aviation Organization

**NINETEENTH MEETING OF THE METEOROLOGY SUB-GROUP
(MET SG/19) OF APANPIRG**

Bangkok, Thailand, 3 – 6 August 2015

Agenda Item 6.3: Research, development and implementation issues in the MET field

6.3) Forecasts, advisories and warnings

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 2014 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 12th meeting, the ROBEX Working Group (ROBEX WG) reviewed the results of SIGMET tests in the Asia/Pac Region held in November 2013. After the meeting, it was decided that the WC, WV and WS SIGMET tests would be conducted on 05, 12 and 19 November 2014, respectively.

1.3 The Regional SIGMET tests were conducted as follows.

SIGMET for	2007	2008	2009		2010	2011	2012	2013	2014
tropical cyclone	1/15	1/15	2/10	11/10	11/10	11/08	11/07	11/12	11/05
volcanic ash	1/22	1/22	2/17	11/17	11/17	11/15	11/14	11/19	11/12

2. DISCUSSION

2.1 In its State letter dated September 24 2013, *Schedule for SIGMET tests in the Asia/Pacific Region – November 2013*, the ICAO Asia Pacific Regional Office notified the schedule and the procedure of the regional SIGMET tests as follows.

- **5 November 2014- TEST WC SIGMET** (for tropical cyclone) 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);

- **12 November 2014 - TEST WV SIGMET** (for volcanic ash); to be issued by MWOs immediately following the issuance of the triggering TEST volcanic ash advisory by the VAACs concerned at **0200 UTC**; and
- **19 November 2014- TEST WS SIGMET** (for phenomena other than tropical cyclone and volcanic ash) 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 Japan, 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 37, with some bulletins with incorrect formats or WMO headings. The overall availability of the test WC SIGMET from ASIA/PAC States was about 80%. The availability is almost 8 % higher than in the test in 2013 (70%). Compared with the result of the test in 2013, bulletins from AYPY, NZKL, VLVT, VRMM, ABRF, and ZKKP newly appeared in this WC SIGMET test.

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 2013 was actually higher than that in 2013 and ever.

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 0, respectively. The availability in the ASIA/PAC region was 76% which was 10% higher than that of the test in 2013 (66%). While the lack of WV SIGMET messages from Russia resulted in the lower availability, bulletins from AYPY, VABB, VCBI, VECC, and ZKPY newly appeared in this WV SIGMET test.

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 2. The incorrect WMO heading is also for TT.

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 2014 was actually higher than that in 2013.

Overall summary of the SIGMET tests

3.4.1 The overall availabilities of both WC and WV test bulletins for 2014 were certainly higher than those of 2013. However, there were still incorrect use of the Priority and the WMO header in those bulletins amongst participating States. This shows that continuous efforts should be necessary to provide regional guidelines 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:

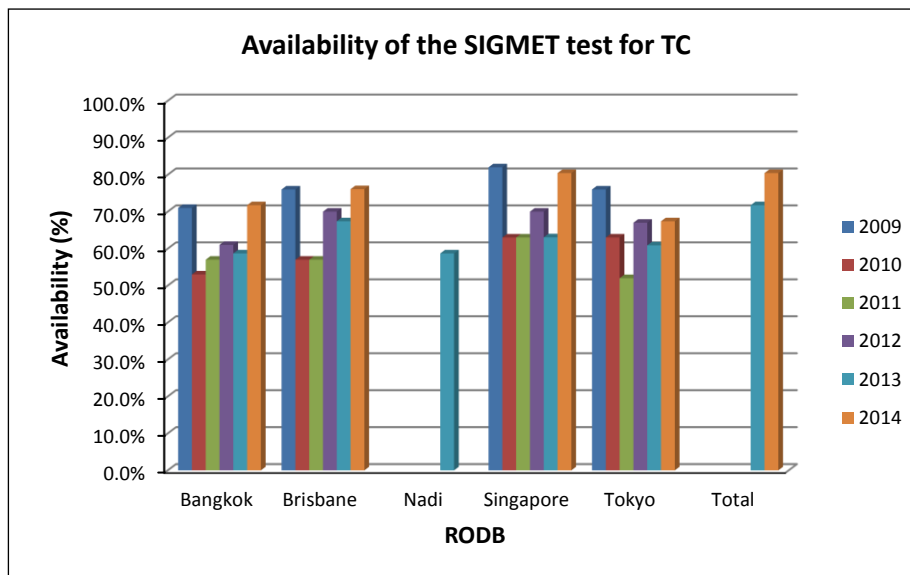
- a) Note the result of the SIGMET tests presented above;
- b) Discuss on the future important of the SIGMET exchange in the region; and
- c) Discuss, if necessary, revision of the test procedure.

Table 1. Summary of the WC SIGMET test results

Header According to SIGMET Guide				Test Result						Received Time(UTC)				
MWO	TAAii	CCCC	FIR	Priority	TAAii	CCCC	YYGGgg	MWO	FIR	VTBB	YBBB	NFZZ	WSZZ	RJTD
AYPY	WCNG20	AYPY	AYPY	FF	WSNG21	AYPY	050245	AYPY	AYPY	050253	050253		050302	
AYPY	WCNW20	AYPY	ANAU	FF	WSNG21	AYPY	050253	AYPY	ANAU	050302	050302		050253	
AYPY	WCSO20	AYPY	AGGG	FF	WSNG21	AYPY	050302	AYPY	AGGG	050306	050306		050306	050226
KKCI	WCPN01-13	KKCI	KZAK	FF	WCPN01	KKCI	050200	KKCI	KZAK				050206	050208
NFFN	WCFJ01, 02, ...	NFFN	NFFF	FF	WCFJ01	NFFN	050000	NFFN	NFFF	050048	050048		050048	
NTAA	WCPF21	NTAA	NTTT											
NZKL	WCNZ21	NZKL	NZZC	FF	WCPS21	NZKL	050201	NZKL	NZZO	050201				
NZKL	WCPS21	NZKL	NZZO	FF	WCPS21	NZKL	050201	NZKL	NZZO		050201		050201	050201
OPKC	WCPK31	OPKC	OPKR	GG	WCPK31	OPKC	050205	OPKC	OPKR	050235	050205		050215	050205
OPLA	WCPK31	OPLA	OPLR											
PAWU	WCAK01-09	PAWU	PAZA											
PHFO	WCPA01-13	PHFO	KZAK	FF	WCPA01	PHFO	050210	PHFO	KZAK				050206	050208
RCTP	WCCI31	RCTP	RCAA	GG	WCCI31	RCTP	050202	RCTP	RCAA	050204	050202		050206	050204
RJTD	WCJP31	RJTD	RJJJ	FF	WCJP31	RJTD	050205	RJTD	RJJJ	050233	050205		050205	050205
RKSI	WCKO31	RKSI	RKRR	FF	WCKO31	RKSI	050208	RKSI	RKRR	050234	050208		050211	050211
RPLL	WCPH31	RPLL	RPHI	FF	WCPH31	RPLL	050210	RPLL	RPHI	050234	050211		050211	050211
VABB	WCIN31	VABB	VABF	FF	WCIN31	VABB	050205	VABB	VABF	050233	050201		050205	050205
VCBI	WCSB31	VCBI	VCBI											
VECC	WCIN31	VECC	VECF	FF	WCIN31	VECC	050205	VECC	VECF	050233	050205		050206	050206
VGHS	WCBW20	VGHS	VGFR	GG	WCBW61	VGHS	050202	VGHS	VGFR	050207	050205		050209	050207
VHHH	WCSS20	VHHH	VHHK	FF	WCSS20	VHHH	050203	VHHH	VHHK	050204	050204		050204	050204
VIDP	WCIN31	VIDP	VIDF	FF	WCIN31	VIDP	050205	VIDP	VIDF	050233	050203		050205	050205
VLVT	WCLA31	VLVT	VLVT	DD	WCLA31		050200	VLVT	VLVT	050304	050259		050304	
VOMM	WCIN31	VOMM	VOMF	FF	WCIN31	VOMM	050201	VOMM	VOMF	050233	050203		050205	050205
VRMM	WCMV31	VRMM	VRMF	DD	WCMV31	VRMM	050200	VRMM	VRMF	050204	050216		050204	050204
VTBS	WCTH31	VTBS	VTBB	FF	WCTH31	VTBS	050204	VTBS	VTBB	050203	050203		050204	050204
VVGL	WCVS31	VVGL	VVNB	FF	WCVS31	VVGL	050215	VVGL	VVNB	050221	050219		050221	050221
VVGL	WCVS31	VVGL	VVTS	FF	WCVS31	VVGL	050216	VVGL	VVTS	050221	050226		050222	050221
VYYY	WCBM31	VYYY	VYYY											
WAAA	WCID21	WAAA	WAAF											
WIII	WCID20	WIII	WIIF	FF	WCID20	WIII	050211	WIII	WIIF	050214	050211		050214	050214
WMKK	WCMS31	WMKK	WBFC	FF	WSMS31	WMKK	050211	WBKK	WBFC	050212	050212		050212	
WMKK	WCMS31	WMKK	WMFC	FF	WCMS31	WMKK	050205	WMKK	WMFC	050207	050208		050208	050208
WSSS	WCSR20	WSSS	WSJC	FF	WCSR20	WSSS	050205	WSSS	WSJC	050205	050205		050205	050202
YBRF	WCAU01	ABRF	YBBB	FF	WCAU01	ABRF	050226	YBRF	YBBB	050229	050226		050229	050229
YBRF	WCAU01	ABRF	YMMM	DD	WCAU01	APRF	050213	YPRF	YMMM	050215				
YDRM	WCAU01	ADRM	YBBB	FF	WCAU01	ADRM	050240	YPDM	YBBB		050240		050241	050241
YDRM	WCAU01	ADRM	YMMM											
YPRF	WCAU01	APRF	YBBB	DD	WCAU01	APRF	050211	YPRF	YBBB		050211		050214	050214
YPRF	WCAU01	APRF	YMMM	DD	WCAU01	APRF	050213	YPRF	YMMM		050213		050215	050215
ZBAA	WCCI33	ZBAA	ZBPE	FF	WCCI33	ZBAA	050205	ZBAA	ZBPE	050202	050200		050202	050202
ZGGG	WCCI35	ZGGG	ZGZU	FF	WCCI35	ZGGG	050205	ZGGG	ZGZU	050234	050211		050215	050211
ZJHK	WCCI35	ZJHK	ZJSA	GG	WCCI35	ZJHK	050206	ZJHK	ZJSA	050237	050206		050218	050214
ZKPY	WCKR31	ZKPY	ZKKP	GG	WCKR31	ZKPY	050205	ZKPY	ZKKP	050208	050208		050208	050207
ZSSS	WCCI34	ZSSS	ZSHA	GG	WCCI34	ZSSS	050205	ZSSS	ZSHA	050205	050204		050206	050205
ZUUU	WCKP31	ZUUU	VDPP	FF	WSKP31	ZUUU	050206	ZUUU	VDPP	050208	050208		050208	

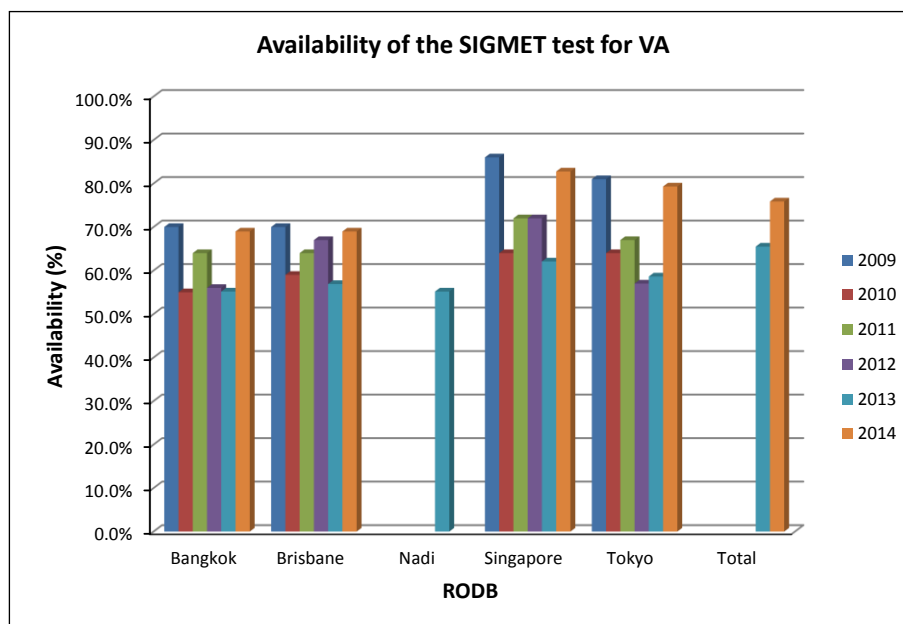
Table 2. Summary of the WV SIGMET test results

Header MWO	According to TTAai	SIGMET CCCC	Guide FIR	Priority	TTAAii	Test Result		MWO	FIR	VTBB	Received Time(UTC)			RJTD
						CCCC	YYGGrgg				YBBB	NFZZ	WSZZ	
AYPY	WVNG20	AYPY	AYPY	FF	WVNG20	AYPY	120300	AYPY	AYPY	120329	120329		120329	120329
AYPY	WVNW20	AYPY	ANAU	FF	WVNW20	AYPY	120300	AYPY	ANAU	120339	120339		120339	120339
AYPY	WVSO20	AYPY	AGGG	FF	WVSO20	AYPY	130300	AYPY	AGGH	120336	120336		120213	120336
KKCI	WVFN01-13	KKCI	KZAK										120221	120216
NFFN	WVFJ01,02,...	NFFN	NFFF	FF	WVFJ01	NFFN	120000	NFFN	NFFF	120208	120206		120206	120207
NTAA	WVPF21	NTAA	NTTT											
NZKL	WVN221	NZKL	NZZC	FF	WSNZ21	NZKL	120203	NZKL	NZZC	120203	120203		120203	
NZKL	WVPS21	NZKL	NZZO	FF	WVPS21	NZKL	120203	NZKL	NZZO	120203	120203		120203	120203
OAKB	WVAH31	OAKB	OAKX											
OPKC	WVPK31	OPKC	OPKR	GG	WVPK31	OPKC	120205	OPKC	OPKR	120210	120206		120208	120207
OPLA	WVPK31	OPLA	OPLR											
PAWU	WVAK01-09	PAWU	PAZA										120202	120202
PHFO	WVPA01-13	PHFO	KZAK										120221	120216
RCTP	WVCI31	RCTP	RCAA	FF	WVCI31	RCTP	120203	RCTP	RCAA	120203	120203		120203	120203
RJTD	WVJP31	RJTD	RJJJ	FF	WVJP31	RJTD	120205	RJTD	RJJJ	120205	120205		120205	120205
RKSI	WVKO31	RKSI	RKRR	FF	WVKO31	RKSI	120200	RKSI	RKRR	120201	120201		120205	120201
RPLL	WVPH31	RPLL	RPHI	FF	WVPH31	RPLL	120232	RPLL	RPHI	120249	120233		120249	120249
UELL	WVRA32	RUYK	UELL											
UEST	WVRA38	RUYK	UEST											
UHHH	WVRA31	RUHB	UHHH											
UHMA	WVRA31	RUPV	UHMP											
UHMA	WVRA32	RUPV	UHMA											
UHMM	WVRA31	RUMG	UHMM											
UHPP	WVRA31	RUPK	UHPP											
UIAA	WVRA31	RUCH	UIAA											
UIII	WVRA31	RUIR	UIII											
VABB	WVIN31	VABB	VABF	FF	WVIN31	VABB	120205	VABB	VABF	120211	120207		120211	120211
VCBI	WVSB31	VCBI	VCBI	FF	WSSB31	VCBI	120200	VCBI	VCCF	120215	120214		120215	
VECC	WVIN31	VECC	VECF	FF	WVIN31	VECC	120235	VECC	VECF	120237	120236		120237	120237
VGHS	WVBW20	VGHS	VGFR	GG	WVBW71	VGHS	120230	VGHS	VGFR	120231	120230		120234	120234
VHHH	WVSS20	VHHH	VHHK	FF	WVSS20	VHHH	120203	VHHH	VHHK	120203	120202		120204	120203
VIDP	WVIN31	VIDP	VIDF	FF	WVIN31	VIDP	120208	VIDP	VIDF	120210	120209		120210	120210
VLVT	WVLA31	VLVT	VLVT	DD	WCLA31	-	120200	VLVT	VLVT	120201	120200		120201	
VOMM	WVIN31	VOMM	VOMF	FF	WVIN31	VOMM	120203	VOMM	VOMF	120203	120202		120204	120204
VRMM	WVMV31	VRMM	VRMF											
VTBS	WVTH31	VTBS	VTBB	FF	WVTH31	VTBS	120156	VTBS	VTBB	120159	120158		120204	120159
VVGL	WVVS31	VVGL	VVNB	FF	WVVS31	VVGL	120210	VVGL	VVNB	120212	120210		120212	120212
VVGL	WVVS31	VVGL	VVTS	FF	WVVS31	VVGL	120210	VVGL	VVTS	120212	120211		120212	120212
VYYY	WVBM31	VYYY	VYYY											
WAAA	WVID21	WAAA	WAAF	FF	WVID21	WAAA	120200	WAAA	WAAF	120206	120202		120202	120205
WIII	WVID20	WIII	WIIF	FF	WVID20	WIII	120200	WIII	WIIF	120236	120212		120236	120236
WMKK	WVMS31	WMKK	WBFC	FF	WVMS31	WMKK	120217	WBKK	WBFC	120217	120218		120217	120217
WMKK	WVMS31	WMKK	WMFC	FF	WVMS31	WMKK	120200	WMKK	WMFC	120208	120207		120207	120207
WSSS	WVSR20	WSSS	WSJC	FF	WVSR20	WSSS	120205	WSSS	WSJC	120208	120206		120206	120207
YDRM	WVAU01	ADRM	YBBB	FF	WVAU01	ADRM	120202	YPDM	YBBB	120204	120202		120204	120204
YDRM	WVAU01	ADRM	YMMM	FF	WVAU01	ADRM	120203	YPDM	YMMM	120206	120203		120205	120205
ZBAA	WVCI33	ZBAA	ZBPE	FF	WVCI33	ZBAA	120205	ZBAA	ZBPE	120202	120200		120202	120202
ZGGG	WVCI35	ZGGG	ZGZU	FF	WVCI35	ZGGG	120205	ZGGG	ZGZU	120211	120211		120211	120211
ZHHH	WVCI45	ZHHH	ZHWH	FF	WVCI45	ZHHH	120205	ZHHH	ZHWH	120208	120206		120207	120207
ZJHK	WVCI35	ZJHK	ZJSA	GG	WVCI35	ZJHK	120247	ZJHK	ZJSA	120247	120247		120307	120247
ZKPY	WVKR31	ZKPY	ZKKP	FF	WVKR31	ZKPY	120205	ZKPY	ZKKP	120003	120004		120211	120207
ZLXY	WVCI37	ZLXY	ZLHW	FF	WVCI37	ZLXY	120205	ZLXY	ZLHW	120209	120209		120209	120209
ZMUB	WVMO31	ZMUB	ZMUB											120203
ZSSS	WVCI34	ZSSS	ZSHA	GG	WVCI34	ZSSS	120205	ZSSS	ZSHA	120203	120207		120204	120207
ZUUU	WVCI36	ZUUU	ZPKM	FF	WVCI36	ZUUU	120203	ZUUU	ZPKM	120208	120207		120207	120207
ZUUU	WVKP31	VDPP	VDPP	FF	WVKP31	ZUUU	120207	ZUUU	VDPP	120209	120209		120209	120208
ZWWW	WVCI39	ZWWW	ZWUQ	GG	WVCI39	ZWWW	120203	ZWWW	ZWUQ	120204	120204		120204	120204
ZYTX	WVCI38	ZYTX	ZYSH	FF	WVCI38	ZYTX	120205	ZYTX	ZYSH	120207	120206		120206	120206



	2009	2010	2011	2012	2013	2014
Bangkok	71.0%	53.0%	57.0%	61.0%	58.7%	71.7%
Brisbane	76.0%	57.0%	57.0%	70.0%	67.4%	76.1%
Nadi					58.7%	
Singapore	82.0%	63.0%	63.0%	70.0%	63.0%	80.4%
Tokyo	76.0%	63.0%	52.0%	67.0%	60.9%	67.4%
Total					71.7%	80.4%

Figure 1. Availability of the SIGMET test messages for TC



	2009	2010	2011	2012	2013	2014
Bangkok	70.0%	55.0%	64.0%	56.0%	55.2%	69.0%
Brisbane	70.0%	59.0%	64.0%	67.0%	56.9%	69.0%
Nadi					55.2%	
Singapore	86.0%	64.0%	72.0%	72.0%	62.1%	82.8%
Tokyo	81.0%	64.0%	67.0%	57.0%	58.6%	79.3%
Total					65.5%	75.9%

Figure 2. Availability of the SIGMET test messages for VA