



*International Civil Aviation Organization*

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

Bangkok, Thailand, 3 – 6 August 2015

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**Agenda Item 5: Air navigation deficiencies in the MET field**

**REVIEW APAC MET DEFICIENCIES**

(Presented by the Secretariat)

**SUMMARY**

This paper presents a review of the deficiencies in the meteorology (MET) field in the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) list of air navigation deficiencies.

**1. Introduction**

1.1 The definition of (an air navigation) deficiency (as adopted by ICAO Council, 30 November 2001) is a situation where a facility, service or procedure does not comply with a regional air navigation plan approved by the Council, or with related ICAO Standards and Recommended Practices (SARPs), and which situation has a negative impact on the safety, regularity and/or efficiency of international civil aviation.

1.2 As such, the resolution of air navigation deficiencies has been given the highest priority by APANPIRG. In accordance with its terms of reference, APANPIRG (and its contributory bodies) shall facilitate the conduct of any necessary systems performance monitoring to identify specific deficiencies in the air navigation field, especially in the context of safety, and propose corrective action, and facilitate the development and implementation of action plans by States to resolve identified deficiencies, where necessary.

**2. Discussion**

2.1 The current APANPIRG list of air navigation deficiencies was developed in accordance with recommendations by the APANPIRG/17 Meeting, August 2006, in Conclusion 17/53, which called for a regional on-line database to list air navigation deficiencies in the Asia/Pacific Region. In order to ensure transparency and facilitate resolution of deficiencies, the ICAO Regional Office was invited to establish a regional on-line database of air navigation deficiencies and provide secure access to States' administrations and other users concerned.

2.2 There are currently a total of twenty (20) deficiencies in the MET field in the

APANPIRG list of air navigation deficiencies: listed against eleven (11) Asia/Pacific States. These concern the following facilities, services or procedures: SIGMET information; WAFS forecasts for flight briefings; aerodrome meteorological observations; and volcanic ash/activity information.

2.3 The complete APANPIRG deficiencies database can be accessed at the following website: <http://www.icao.int/APAC/Pages/apanpirg.aspx> (via the ICAO Secure Portal).

2.4 The APANPIRG list of air navigation deficiencies, including those in the MET field, was reviewed and, with some updates provided by States, updated by APANPIRG/25 held in Kuala Lumpur, Malaysia, from 8 to 11 September 2014 (APANPIRG Conclusion 25/49 refers). A copy of the reporting form on air navigation deficiencies in the MET field, as updated by APANPIRG/25, is provided at the **Attachment** to this paper.

2.5 Updates to the information on air navigation deficiencies in the MET field as recorded by APANPIRG/25 are highlighted in the **Attachment**. Additional information, received from States after the APANPIRG/25 review are also indicated.

2.6 To further facilitate APANPIRG in addressing specific deficiencies in the air navigation field, the meeting is reminded of the importance for States to provide updates to the ICAO Secretariat in relation to deficiencies listed in the MET field and to progress on the relevant corrective action.

2.7 With respect to the rectification of deficiencies and removal from the (open) list, the APANPIRG Procedural Handbook requires that:

<p>States, on reporting that a deficiency has been rectified, will submit in writing an official report to the Regional Office providing full details of the action taken. On receipt of a report, the Regional Office will validate the action taken with the User who made the report. In the event that the User does not agree with the action taken, the deficiency will remain open until confirmation has been gained by all concerned. Once confirmation is made, APANPIRG will be informed, the status of the deficiency reviewed and removed from the open list of air navigation deficiencies.</p>
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### 3. Action by the Meeting

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) review and provide updates to the current list of air navigation deficiencies in the MET field contained in **the Attachment** to this paper; and
- c) discuss any relevant matters as appropriate.

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REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE MET FIELD IN THE ASIA/PAC REGION (Updated by APANPIRG/25) (Additional updates from States since APANPIRG/25)								
Identification		Deficiencies			Corrective action			
Requirements	States/ facilities	Description	Date first reported	Remarks	Description	Executing body	Target date for completion	Priority for action *
Meteorological observations and reports. (Annex 3, Chapter 4)	Solomon Islands AP-MET-01	Weather information is inadequate and not provided on a regular basis	1996 Confirmed 2006 SOA	Reported by airlines operating to Solomon I.	<p>Equipment to be upgraded and arrangements to be made for regular observations.</p> <p>TC expert recommendation to replace and/or calibrate MET obs. equipment AGGH – 2008.</p> <p>State made aware of MET Services gaps identified by ICAO TC Project, CAEMSA-SP, in late 2008.</p> <p>CAEMSA-SP Phase II plan for Donors and associated remedies.</p> <p>Activation of WIFS will assist in overcoming deficiency.</p> <p>AWS was installed (2012) at Honiara (Henderson), AGGH, by New Zealand, including training of Solomon Is. technical personnel in the maintenance of the equipment.</p> <p>Responsibility for ongoing system calibration and verification may need to be determined.</p> <p>Secure transmission of weather information to the appropriate RODB may need to be verified (noting that transmission via email to the Australian Bureau of Meteorology may not be appropriate).</p> <p>Solomon Is. expected to address issues concerning calibration and verification of meteorological observation systems and proper/secure transmission of information.</p> <p>Solomon Islands advised that with the assistance from the WMO and Australia (Bureau of Met), Solomon Islands is now ready to take back these responsibilities – then these deficiencies will be</p>	Ministry of Transport, Works and Aviation, Solomon I. <i>Note: OPMET/M TF to carry out survey</i>	2011	A

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					addressed.			
Meteorological observations and reports. (Annex 3, Chapter 4)	Kiribati AP-MET-02	METAR from Kiribati not available on regular basis.	1998 Confirmed 2005 SIP	Reported by airlines	State's MET authority to consider urgent action to be taken for providing regular observations and reports.  TC expert recommendation to purchase/install AWOS – 2008.  ICAO SIP conducted in 2005.  State made aware of MET Services gaps identified by ICAO TC Project CAEMSA-SP, in late 2008.  CAEMSA-SP Phase II plan for Donors and associated remedies. Activation of WIFS will assist in overcoming deficiency.  Kiribati requested assistance from New Zealand with respect to the supply of a new/replacement meteorological observing system. Kiribati was considering funding options for a new meteorological observing system and a full meteorological observing programme.	Directorate of Civil Aviation, Kiribati. <i>Note: OPMET/M TF to carry out survey</i>	2011	A
Reporting of information on volcanic eruptions to civil aviation units. (Annex 3, 3.6, 4.8)	Indonesia AP-MET-03	Information on volcanic activity not provided regularly to ATS units and MWOs.	1995 Confirmed by ICAO SIP mission Dec 2003	Observed by States concerned. Reported at the WMO/ICAO Workshop on Volcanic Ash Hazards (Darwin, 1995)	Three-party LOA to be signed between the MGA, DGCA and DVGHM.  Information exchange between CVGHM & ABA in draft form.  VSAT comms. installed to improve the monitoring in E Nusa Tenggara – provides direct transfer of data to CVGHM HQ full time. (AusAID-funded	DGCA, MGA Indonesia	2014	A

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					project). Bilingual reporting form based on VONA to improve comm. to VAAC in Sulawesi. Indonesia submitted an official report to the RO (August 2014) on corrective action taken: (a) BMKG and DGCA signed a MoU to strengthen the dissemination of volcanic ash activity reports and to improve management of flight operations during volcanic eruptions; (b) CVGHM, NOTAM office–DGCA, MWOs and BMKG implemented a volcanic activity report dissemination system (1 May 2012) to ensure information on volcanic activity is provided regularly to ATS units and MWOs; and (c) Indonesia (BMKG, DGCA, and CVGHM) and VAAC (Darwin) held a coordination meeting (June 2014) to strengthen the coordination of volcanic ash information between Indonesia and VAAC. ICAO to validate the action taken and then inform APANPIRG on the status of the deficiency for possible removal from the Open List.			
Reporting of information on volcanic eruptions to civil aviation units. (Annex 3, 3.6, 4.8)	Papua New Guinea AP-MET-04	Information on volcanic activity not provided regularly to ATS units and MWOs.	1995 Confirmed by ICAO SIP mission Dec 2003	Observed by States concerned. Reported at the WMO/ICAO Workshop on Volcanic Ash Hazards (Darwin, 1995)	Procedures to be set up for exchange of data between NWS, ATS and Rabaul Volcano Observatory (RVO) and a LOA to be signed Discussion of an agreement between RVO & PNG CAA to provide volcanic information to aviation through cost recovery is underway. Recent analysis of meteorological services provided in PNG (conducted by PNG, Australia and the ICAO) produced a number of recommendations for	NWS, ATS PNG <i>Note: ICAO Regional Office to monitor</i>	TBD (no action plan submitted to RO)	A

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					actions that would strengthen services and help rectify MET deficiencies. Future volcanic ash exercises in the APAC region would facilitate reporting of information on volcanic eruptions to civil aviation units in States concerned.			
Provision of SIGMET for volcanic ash  (Annex 3, Chapter 7; ASIA/PAC FASID Table MET 1B)	Indonesia AP-MET-06  Philippines AP-MET-07  Papua New Guinea AP-MET-08	Requirements for issuance and proper dissemination of SIGMET, including SIGMET for volcanic ash, have not been fully implemented	ICAO SIP mission Dec 2003	a) Reported by airlines b) Noted by Volcanic Ash Advisory Centres	a) ICAO to carry out a Special Implementation Project (SIP) with the primary objective to improve implementation of SIGMET procedures, especially for VA.  b) State to take urgent actions to implement the SIGMET procedures.  Note. ICAO SIP carried out in 2003, progress in issuance of SIGMET for VA is noted; the outstanding problems to be resolved within 1-year (progress reported by VAAC Darwin)  LOA between ATO, PHIVOCS & PAGASA signed in 2004 to make reporting part of information dissemination practice. LOA is undergoing periodic review (ref. letter of PAGASA dated March 12, 2008)  VAAC Darwin trained forecasters in PNG and Philippines to prepare VA SIGMET  Participated in VA SIGMET test 17 Nov 2009  SIGMET monitoring over a period of 2 months in August and September 2012 indicated that no SIGMET was received from PNG (MET SG/17, 8.4.3 & 13.9 refers).  Indonesia advised (MET SG/17) that procedures were developed for the issuance of SIGMET (WS,	a) State's Met authorities b) ICAO to implement the SIP. c) ICAO Regional Office to co-ordinate and monitor.	2014 (AP-MET-06), To be advised (AP-MET-07 and 08)	U

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					<p>WV and WC) compliant with ICAO provisions and that MWO Jakarta (WIII) and MWO Ujung Pandang (WAAF) have issued SIGMET according to the requirements since April 2013.</p> <p>MET SG/17 noted that validation of SIGMET receipt at RODBs and WIFS/SADIS gateways would be necessary and may require additional SIGMET monitoring and participation in SIGMET tests.</p> <p>Indonesia submitted an official report to the RO (August 2014) on corrective action taken: (a) BMKG implemented national procedures for issuance of SIGMET (April 2013) at both MWOs (Jakarta/WIII and Ujung Pandang/WAAA); and (b) MWOs successfully participated in SIGMET tests.</p> <p>ICAO to validate the action taken and then inform APANPIRG on the status of the deficiency for possible removal from the Open List.</p> <p>PNG did not participate in 2013 SIGMET tests. A recent analysis of the meteorological services provided in PNG (conducted by PNG, Australia and the ICAO) produced a number of recommendations for actions that would strengthen services and help rectify MET deficiencies.</p> <p>Future volcanic ash exercises in the APAC region would facilitate provision of SIGMET for volcanic ash in States concerned.</p>			
a) Service for operators and flight crew	Cambodia AP-MET-09	Briefing and flight documentation not provided as required.	1999	Airlines do not receive the required flight	States to consider urgent action for installation of SADIS VSAT for receiving WAFS products and	State's MET authorities	End 2011	A

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members. (Annex 3, Chapter 9). b) WAFS products for flight documentation. (ASIA/PAC FASID Table MET 1A).		WAFS products not available		documentation including WAFS forecasts.	OPMET information. Action plan proposed by ICAO MET mission 2003 A TC project proposal submitted to SSCA, Cambodia Cambodia expects to have SADIS FTP operational in 2011 and may require training from a nearby State Cambodia informed MET SG/17 that the Secure SADIS FTP system was installed but further action was required in relation to training of personnel to use the system. Specific training necessary for the personnel to provide the WAFS products for flight documentation was expected to be addressed by Cambodia.			
MWO for Phnom Penh FIR and SIGMET (Annex 3, Chapter 3 & 7; ASIA/PAC FASID Table MET 1B)	Cambodia AP-MET-11	Requirements for meteorological watch office (MWO) to be established at Phnom-Penh international airport have not been met.		MWO not established due to lack of trained personnel and technical facilities. No SIGMET service for Phnom Penh FIR	Establishment of MWO currently not feasible. SIGMET service is provided under bilateral agreement with China to meet requirements. A TC project proposal submitted to SSCA, Cambodia Cambodia is in process of establishing its own MWO with target date end of 2011. Bilateral arrangement with China has successfully addressed part of the deficiency (SIGMET issuance).	SSCA, Cambodia	TBD  End 2011	A
Provision of SIGMET information	Lao PDR AP-MET-12	Requirements for issuance and	2000	SIGMET frequently not	State's MET authority to take urgent actions to implement the SIGMET procedures.	State's MET authorities	End 2011	A



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(Annex 3, Chapter 7; ASIA/PAC FASID Table MET 1B)		dissemination of SIGMET have not been fully implemented.		available Reported by airlines	Lao PDR has established MWO in 2010 and started issuing SIGMET since March 2011. As a result of monitoring by RODB Bangkok, LAO PDR was advised to correct noted formatting problem and to issue SIGMET on a regular basis to meet requirements.  Lao PDR is expected to issue SIGMET regularly by the end of 2011. This deficiency can be considered for removal after correcting the above problems.  SIGMET monitoring by RODB Bangkok in February 2012 failed to identify the issuance of any SIGMET by Lao PDR, indicating that the deficiency is still to be properly rectified (ROBEX WG/11, 2.1.4 refers).  Lao PDR did not successfully participate in each of the three 2013 SIGMET tests.  Lao PDR established a special MET Improvement Task Force to address deficiencies and is expected to report back to ICAO in due course on the status of implementation of corrective action.			
Provision of SIGMET information for Kathmandu FIR.  (Annex 3, Chapter 7; ASIA/PAC FASID Table MET 1B)	Nepal AP-MET-14	Requirements for issuance and dissemination of SIGMET have not been met.	2000	Not established due to lack of technical facilities. No SIGMET service for Kathmandu FIR	Issuance of SIGMET currently not feasible.  Action being taken to have SIGMET service provided under bilateral agreement with a neighbouring country to meet immediate requirement.  Nepal is also planning to issue its own SIGMET.  Nepal informed the RO of progress: now able to issue SIGMET when necessary; training was conducted by WMO (Nov 2013); SIGMET issuance	MET Authority Nepal	2014	A

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					in operation (July 2013); SIGMET information transmitted to ATS units and other CA units concerned; participated in 2013 SIGMET tests.  Nepal expected to submit in writing an official report to the RO providing details of the corrective action taken.			
MWO for Pyongyang FIR and SIGMET  (Annex 3, Chapter 3 & 7; ASIA/PAC FASID Table MET 1B)	Democratic Peoples' Republic of Korea AP-MET-16	Requirements for meteorological watch office (MWO) to be established at Pyongyang international airport have not been met.	2008	MWO not established due to lack of trained personnel and lack of resources. No SIGMET service for Pyongyang FIR Reported by RO mission	MWO established in February 2009 as reported by State.  DPRK is subsequently producing SIGMET on a regular basis and is routing SIGMET to RO DB Tokyo.  It is required for Sunan MWO to participate the APAC SIGMET test in November 2011.  This deficiency can be removed if SIGMET is continued to be issued regularly for another six months.  DPRK informed RO that SIGMET were issued in May 2013; RO to coordinate confirmation of receipt of SIGMETs at required offices.  DPRK to submit official report to RO providing details of corrective action taken. Validation would necessarily require SIGMET monitoring to confirm receipt at required offices. Test SIGMETs were not received from DPRK in 2013; assistance to be coordinated by ROBEX WG to resolve the communication issues.	General Administration of Civil Aviation (GACA) DPRK	2014	A
Volcanic activity information to be	Tonga AP-MET-17	Information on volcanic activity not	2008	Reported by TCB CAEMSA-SP	Agreement drafted for the dissemination of volcanic ash information from MLSNRKT to MTKT for	Ministry of Transport of the	2014	U

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provided to ATS units, MWOs, and VAAC (Annex 3, 3.6 and 4.8)		provided regularly to ATS units, MWOs, and VAAC		technical expert	distribution to ACCs, MWOs and VAACs (under consideration)  Tonga submitted official report to RO (10 May 2013) advising that MOU between the Ministry of Infrastructure (MOI) and the Ministry of Lands, Environment, Climate Change and Natural Resources (MLECCNR) signed 9 May 2013 for coordination procedures of the dissemination of detection of volcanic ash information to the appropriate ACC, VAAC and MWO.  ICAO to validate the action taken (with assistance from VAAC Wellington) and then inform APANPIRG on the status of the deficiency for possible removal from the Open List.	Kingdom of Tonga (MTKT) Ministry of Lands, Survey and Natural Resources of the Kingdom of Tonga (MLSNRKT)		
Briefing and flight documentation (Annex 3, Chapter 9, Appendix 2 & 8)	Kiribati AP-MET-18  Nauru AP-MET-19  Solomon Islands AP-MET-20	WAFS products not accessed and therefore not available for inclusion in flight briefings and documentation	2008	Reported by TCB CAEMSA-SP Technical Expert	WAFS Internet File Service (WIFS) allows for the retrieval of WAFS forecasts for flight briefings and documentation (versus more expensive satellite dish) – available for operations since May 2010  Will seek donor ship for installation and training on WIFS as part of CAEMSA-SP Phase II  Solomon Islands advised that with the assistance from the WMO and Australia (Bureau of Met), Solomon Islands is now ready to take back these responsibilities – then these deficiencies will be addressed.	MET Services, TCB, Donor, ISCS Provider State	2012	U
Provision of meteorological observations	Nauru AP-MET-21	No METAR/SPECI observing programme in place (no calibrated and maintained)	2008	Reported by TCB CAEMSA-SP Technical Expert	Automatic observing station needed as well as maintenance programme  Will seek donor for observing system and maintenance contract and/or training as part of	MET Service, TCB, Donor	2012	U

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(Annex 3, 4.3.1, 4.5, 4.6)		equipment available)			CAEMSA-SP Phase II			
Provision of SIGMET information (Annex 3, Chapter 7)	Papua New Guinea AP-MET-22  Solomon Islands AP-MET-23  Nauru AP-MET-24	Lack of SIGMET issued for the Port Moresby, Honiara, and Nauru FIRs.	9/09/2011	IATA emphasized the importance of having hazards reported in this large sub-regional area that straddles the equator and deemed this situation unsafe and unacceptable to airline operations.	ICAO: States concerned are urged to take urgent action to seek assistance from a State in a position to do so to provide the service until such time the States concerned can provide their own SIGMET.  SIGMET monitoring over a period of 2 months in August and September 2012 indicated that no SIGMET was received (MET SG/17, 8.4.3 & 13.9 refers).  Arrangement for issuance of SIGMET by PNG on behalf of Solomon Is. and Nauru has not been successful. APANPIRG/24 Conclusion 24/51 to further investigate and assess the feasibility of bilateral agreements for the provision of SIGMET.  PNG did not participate in 2013 SIGMET tests. A recent analysis of the meteorological services provided in PNG (conducted by PNG, Australia and the ICAO) produced a number of recommendations for actions that would strengthen services and help rectify MET deficiencies.  Future volcanic ash exercises in the APAC region would facilitate provision of SIGMET for volcanic ash in States concerned.  Solomon Islands advised that with the assistance from the WMO and Australia (Bureau of Met), Solomon Islands is now ready to take back these responsibilities – then these deficiencies will be addressed.			U

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