



ICAO

*International Civil Aviation Organization***WORKING PAPER****Asia and Pacific (APAC)  
Twelfth Meeting of the Meteorological Services  
Working Group (MET/S WG/12)**

Online, 30 March to 01 April 2022

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**Agenda Item 5: Deficiencies in the provision of meteorological services****REVIEW OF AIR NAVIGATION DEFICIENCIES IN THE MET FIELD**

(Presented by the Secretariat)

**SUMMARY**

This paper presents the list of (open) APANPIRG air navigation deficiencies – in the field of meteorology (MET) – and invites the meeting to review and update, as necessary, the list of deficiencies, including the associated corrective action plans (CAPs) for the resolution of deficiencies.

**1. INTRODUCTION**

1.1 An APANPIRG air navigation deficiency 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 or efficiency of international civil aviation<sup>1</sup>.

1.2 This paper invites the meeting to review the list of (open) air navigation deficiencies – in the field of MET – as recorded by the APAC Air Navigation Planning and Implementation Regional Group (APANPIRG), and provide updates, as necessary, including associated corrective action plans (CAPs) for the resolution of deficiencies.

**2. DISCUSSION**

2.1 Under the terms of reference, the Meteorological Services Working Group (MET/S WG) supports the Meteorology Sub-Group (MET SG) and APANPIRG in assisting APAC States with resolving air navigation deficiencies in the field of MET services.

2.2 As endorsed by the Thirty-second Meeting of APANPIRG (1 – 3 December 2021), the current list of air navigation deficiencies contains thirteen (13) open deficiencies in the MET field.

2.3 The MET deficiencies are related to facilities and services in seven (7) APAC States, as listed

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<sup>1</sup> APANPIRG Procedural Handbook, 6<sup>th</sup> Ed., 1 June 2020, Part V, section 2, paragraph 1.3

in **Table 1**, below:

**Table 1:** Summary of APANPIRG air navigation deficiencies in the MET field

<b>MET facilities and services</b>	<b>Asia/Pacific States</b>	<b>Def. ID</b>	<b>Status</b>
Aerodrome meteorological observations or reports	Kiribati	AP-MET-02	open
	Nauru	AP-MET-21	open
Meteorological watch office (MWO) or SIGMET information	Democratic Peoples' Republic of Korea	AP-MET-16	open
	Nauru	AP-MET-24	open
	Nepal	AP-MET-14	open
	Papua New Guinea	AP-MET-08	open
	Papua New Guinea	AP-MET-22	open
	Solomon Islands	AP-MET-23	open
Volcanic ash/activity information	Papua New Guinea	AP-MET-04	open
	Tonga	AP-MET-17	open
WAFS forecasts or flight briefings	Kiribati	AP-MET-18	open
	Nauru	AP-MET-19	open
	Solomon Islands	AP-MET-20	open

2.4 A detailed copy of the APANPIRG *Reporting Form on Air Navigation Deficiencies* in the MET field, which includes detailed notes appended to the Form, is provided in **Appendix A** to this paper.

2.5 APANPIRG/32 noted that Solomon Islands reported progress towards resolution of the Deficiency concerning the provision of MWO and SIGMET service (Def. ID: AP-MET-23) and that MET SG/25 requested Solomon Islands to conduct the additional, necessary corrective action and then coordinate with the Secretariat to report the resolution of the Deficiency [MET SG/25 Report, Action No. 25/10 and 25/11, refer].

### **3. ACTION BY THE MEETING**

3.1 This paper invites the meeting to:

- a) Review the list of (open) APANPIRG air navigation deficiencies – in the field of MET – as presented in **Appendix A** to this paper; and
- b) Provide further updates, as necessary, to the list of deficiencies, including the associated corrective action plans (CAPs) for the resolution of deficiencies.

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## APPENDIX A

Notes:

- i. Extracted from APANPIRG/32, Appendix D to the Report on Agenda Item 4
- ii. Updates endorsed by APANPIRG/32 shows deleted text using strikeout (~~text to be deleted~~), and added text with grey shading (text to be inserted).

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE MET FIELD IN THE ASIA/PAC REGION								
Identification		Deficiencies			Corrective action			
Requirements	States/ Facilities (Index No.)	Description	Date first reported	Remarks	Description	Executing body	Target date for completion	Priority for action *
MWO and SIGMET service (Annex 3: Chapter 3, 3.4 and Chapter 7)	<b>Democratic Peoples' Republic of Korea</b> (DPRK) (AP-MET-16)	Requirements for MWO and SIGMET service not established for Pyongyang FIR	2008	Reported by ICAO Regional Office mission	Establish MWO to provide required service, including SIGMET information for Phnom Penh FIR. <b>See notes below for more information.</b>	GACA, Democratic Peoples' Republic of Korea	TBC	A
Meteorological observations and reports. (Annex 3: Chapter 4)	<b>Kiribati</b> (AP-MET-02)	METAR from Kiribati not available on regular basis.	1998	Reported by airlines	Equipment to be installed and arrangements to be made for regular observations and reports, including: training of personnel; maintenance of equipment; calibration and verification of meteorological observations; and proper/secure transmission of data. <b>See notes below for more information.</b>	State designated MET authority	TBC	A
Meteorological information for operators and flight crew members, including forecasts provided by the WAFCs (Annex 3: Chapter 9)	<b>Kiribati</b> (AP-MET-18)	WAFC forecasts not available for inclusion in flight briefings and documentation	2008	Reported by TCB CAEMSA-SP Technical Expert	Implement procedures and systems for the required meteorological information to be supplied to operators and flight crew members, including forecasts generated from the digital forecasts provided by the WAFCs. <b>See notes below for more information.</b>	State designated MET authority	TBC	U
Meteorological information for operators and flight crew members, including forecasts provided by the WAFCs (Annex 3: Chapter 9)	<b>Nauru</b> (AP-MET-19)	WAFC forecasts not available for inclusion in flight briefings and documentation	2008	Reported by TCB CAEMSA-SP Technical Expert	Implement procedures and systems for the required meteorological information to be supplied to operators and flight crew members, including forecasts generated from the digital forecasts provided by the WAFCs. <b>See notes below for more information.</b>	State designated MET authority	TBC	U
Meteorological observations and reports. (Annex 3: Chapter 4)	<b>Nauru</b> (AP-MET-21)	METAR/SPECI service not provided	2008	Reported by TCB CAEMSA-SP Technical Expert	Equipment to be installed and arrangements to be made for regular observations and reports, including: training of personnel; maintenance of equipment; calibration and verification of meteorological observations; and proper/secure transmission of data. <b>See notes below for more information.</b>	State designated MET authority	TBC	U

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Identification		Deficiencies			Corrective action			
Requirements	States/ Facilities (Index No.)	Description	Date first reported	Remarks	Description	Executing body	Target date for completion	Priority for action *
Provision of SIGMET information (Annex 3, Chapter 7)	<b>Nauru</b> (AP-MET-24)	Lack of SIGMET issued for the Nauru FIR.	Sep 2011	IATA deemed this situation unsafe and unacceptable to airline operations.	Implement procedures for SIGMET information to be issued by the designated meteorological watch office/s concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations. <b>See notes below for more information.</b>	State designated MET authority	TBC	U
Provision of SIGMET information (Annex 3: Chapter 7)	<b>Nepal</b> (AP-MET-14)	Requirements for issuance and dissemination of SIGMET information for Kathmandu FIR have not been fully implemented	2000		Implement procedures for SIGMET information to be issued by the designated meteorological watch office/s concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations. <b>See notes below for more information.</b>	State designated MET authority	TBC	A
Reporting of information on volcanic eruptions to civil aviation units. (Annex 3, 3.6, 4.8)	<b>Papua New Guinea</b> (AP-MET-04)	Information on volcanic activity not provided regularly to ATS units, MWOs and VAACs.	1995	Observed by States concerned. Reported at the WMO/ICAO Workshop on Volcanic Ash Hazards (Darwin, 1995)	Establish arrangements for State volcano observatories to send the required volcano observation information as quickly as practicable to the associated ACC/FIC, MWO and VAAC. <b>See notes below for more information.</b>	Rabaul Volcano Observatory, NWS and ASL of Papua New Guinea	TBC	A
Provision of SIGMET for volcanic ash (Annex 3: Chapter 7)	<b>Papua New Guinea</b> (AP-MET-08)	Requirements for issuance and proper dissemination of SIGMET for volcanic ash have not been fully implemented	Dec 2003	Reported by airlines, noted by Volcanic Ash Advisory Centres and confirmed by ICAO mission	Implement procedures for SIGMET information to be issued by the designated meteorological watch office/s concerning the occurrence or expected occurrence of volcanic ash. <b>See notes below for more information.</b>	NWS of Papua New Guinea	TBC	U
Provision of SIGMET information (Annex 3, Chapter 7)	<b>Papua New Guinea</b> (AP-MET-22)	Lack of SIGMET issued for the Port Moresby FIR.	Sep 2011	IATA deemed this situation unsafe and unacceptable to airline operations.	Implement procedures for SIGMET information to be issued by the designated meteorological watch office/s concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations. <b>See notes below for more information.</b>	State designated MET authority	TBC	U

REPORTING FORM ON AIR NAVIGATION DEFICIENCIES IN THE MET FIELD IN THE ASIA/PAC REGION								
Identification		Deficiencies			Corrective action			
Requirements	States/ Facilities (Index No.)	Description	Date first reported	Remarks	Description	Executing body	Target date for completion	Priority for action *
Meteorological information for operators and flight crew members, including forecasts provided by the WAFCs (Annex 3: Chapter 9)	<b>Solomon Islands</b> (AP-MET-20)	WAFC forecasts not available for inclusion in flight briefings and documentation	2008	Reported by TCB CAEMSA-SP Technical Expert	Implement procedures and systems for the required meteorological information to be supplied to operators and flight crew members, including forecasts generated from the digital forecasts provided by the WAFCs. <b>See notes below for more information.</b>	State designated MET authority	TBC	U
Provision of SIGMET information (Annex 3, Chapter 7)	<b>Solomon Islands</b> (AP-MET-23)	Lack of SIGMET issued for the Honiara FIRs.	Sep 2011	IATA deemed this situation unsafe and unacceptable to airline operations.	Implement procedures for SIGMET information to be issued by the designated meteorological watch office/s concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations. <b>See notes below for more information.</b>	State designated MET authority	TBC	U
Reporting of information on volcanic eruptions to civil aviation units. (Annex 3: 3.6, 4.8)	<b>Tonga</b> (AP-MET-17)	Information on volcanic activity not provided regularly to ATS units, MWOs and VAACs	2008	Reported by TCB CAEMSA-SP technical expert	Establish arrangements for State volcano observatories to send the required volcano observation information as quickly as practicable to the associated ACC/FIC, MWO and VAAC. <b>See notes below for more information.</b>	MOI and MEIDECC	TBC	U

**NOTES:**

Index No.	State	Update Date	NOTES ON <u>OPEN</u> DEFICIENCIES
<b>AP-MET-02</b>	Kiribati	September 2017	APANPIRG/28 noted that Kiribati should: <ul style="list-style-type: none"> <li>• Verify the status of implementation of CAP; and</li> <li>• Work together with ICAO to develop and properly record the remaining steps of the CAP to resolve the Deficiency.</li> </ul>
<b>AP-MET-04</b>	Papua New Guinea	September 2017	APANPIRG/28 noted that Papua New Guinea should: <ul style="list-style-type: none"> <li>• Verify the status of implementation of CAP; and</li> <li>• Work together with ICAO to develop and properly record the remaining steps of the CAP to resolve the Deficiency.</li> </ul>
<b>AP-MET-08</b>	Papua New Guinea	September 2017	APANPIRG/28 noted that Papua New Guinea should: <ul style="list-style-type: none"> <li>• Verify the status of implementation of CAP; and</li> </ul>

Index No.	State	Update Date	NOTES ON <u>OPEN</u> DEFICIENCIES
			<ul style="list-style-type: none"> <li>Work together with ICAO to develop and properly record the remaining steps of the CAP to resolve the Deficiency.</li> </ul>
AP-MET-14	Nepal	September 2017	APANPIRG/28 noted that Nepal should: <ul style="list-style-type: none"> <li>Verify the status of implementation of CAP; and</li> <li>Work together with ICAO to develop and properly record the remaining steps of the CAP to resolve the Deficiency.</li> </ul>
AP-MET-16	Democratic People's Republic of Korea	September 2017	APANPIRG/28 noted that DPRK should: <ul style="list-style-type: none"> <li>Verify the status of implementation of CAP; and</li> <li>Work together with ICAO to develop and properly record the remaining steps of the CAP to resolve the Deficiency.</li> </ul>
AP-MET-17	Tonga	10 May 2013  29 May 2017  September 2017  June 2018	Ministry of Infrastructure (MOI), Civil Aviation Division, advised that: <ul style="list-style-type: none"> <li>MOU established between the national authority providing volcano monitoring (Ministry of Lands, Environment, Climate Change and Natural Resources – MLECCNR) and the national authority providing meteorological service for international air navigation (MOI) for the reporting of volcanic activity to the associated ACCs, MWOs and VAACs in accordance with the relevant ICAO SARPs.</li> </ul> MOI, Civil Aviation Division, advised that: <ul style="list-style-type: none"> <li>Relevant operating procedures implemented in the units concerned and case studies of real volcanic events presented as evidence of the State volcano observatory's issuance of the required volcano observation information.</li> </ul> APANPIRG/28 noted that: <ul style="list-style-type: none"> <li>Removal of the Deficiency from the open list is subject to the concurrence of the ATS units, MWOs and VAACs concerned that the Deficiency is resolved.</li> </ul> MET SG/22 noted that: <ul style="list-style-type: none"> <li>VAAC Wellington was coordinating with Tonga on the validation of corrective action taken to resolve the Deficiency.</li> </ul>
AP-MET-18	Kiribati	September 2017	APANPIRG/28 noted that Kiribati should: <ul style="list-style-type: none"> <li>Verify the status of implementation of CAP; and</li> <li>Work together with ICAO to develop and properly record the remaining steps of the CAP to resolve the Deficiency.</li> </ul>
AP-MET-19	Nauru	September 2017	APANPIRG/28 noted that Nauru should:

Index No.	State	Update Date	NOTES ON <u>OPEN</u> DEFICIENCIES
			<ul style="list-style-type: none"> <li>• Verify the status of implementation of CAP; and</li> <li>• Work together with ICAO to develop and properly record the remaining steps of the CAP to resolve the Deficiency.</li> </ul>
<b>AP-MET-20</b>	Solomon Islands	September 2017  June 2019	<p>APANPIRG/28 noted that Solomon Islands should:</p> <ul style="list-style-type: none"> <li>• Verify the status of implementation of CAP; and</li> <li>• Work together with ICAO to develop and properly record the remaining steps of the CAP to resolve the Deficiency.</li> </ul> <p>MET SG/23 requested the Secretary in conjunction with support from other States to provide Solomon Islands with assistance in preparing the full report on rectification of the Deficiency.</p>
<b>AP-MET-21</b>	Nauru	September 2017	<p>APANPIRG/28 noted that Nauru should:</p> <ul style="list-style-type: none"> <li>• Verify the status of implementation of CAP; and</li> <li>• Work together with ICAO to develop and properly record the remaining steps of the CAP to resolve the Deficiency.</li> </ul>
<b>AP-MET-22</b>	Papua New Guinea	September 2017	<p>APANPIRG/28 noted that Papua New Guinea should:</p> <ul style="list-style-type: none"> <li>• Verify the status of implementation of CAP; and</li> <li>• Work together with ICAO to develop and properly record the remaining steps of the CAP to resolve the Deficiency.</li> </ul>
<b>AP-MET-23</b>	Solomon Islands	September 2017  June 2019  October 2021	<p>APANPIRG/28 noted that Solomon Islands should:</p> <ul style="list-style-type: none"> <li>• Verify the status of implementation of CAP; and</li> <li>• Work together with ICAO to develop and properly record the remaining steps of the CAP to resolve the Deficiency.</li> </ul> <p>MET SG/23 requested the Secretary in conjunction with support from other States to provide Solomon Islands with assistance in preparing the full report on rectification of the Deficiency.</p> <p>MET SG/25 requested the Solomon Islands, with assistance from its partner States, to conduct additional corrective action to enable the MET SG to confirm that Solomon Islands had fully resolved the Deficiency; maintain a log of all SIGMETs issued over at least one month to capture the operational WC-, WS- and WV-SIGMETs, plus any test WV-SIGMETs; pass the details [of the log] to the ad hoc group [on AN Deficiencies] to compare against SIGMETs received by RODB Brisbane [MET SG/25, Action No. 25/10]. Subject to Solomon Islands demonstrating resolution of the issues concerning content, format and timeliness of SIGMET information (as discussed in MET SG/25, WP/12) and sustainable provision of ICAO-compliant SIGMET service, MET SG would support the removal of Deficiency AP-MET-23 from the APANPIRG open list. Therefore, to facilitate the removal of the Deficiency from the open list, MET SG/25 requested the Secretariat</p>

Index No.	State	Update Date	NOTES ON <u>OPEN</u> DEFICIENCIES
			coordinate with the Solomon Islands to report the resolution of the Deficiency to APANPIRG [MET SG/25, Action No. 25/11].
<b>AP-MET-24</b>	Nauru	September 2017	<p>APANPIRG/28 noted that Nauru should:</p> <ul style="list-style-type: none"> <li>• Verify the status of implementation of CAP; and</li> <li>• Work together with ICAO to develop and properly record the remaining steps of the CAP to resolve the Deficiency.</li> </ul>

Index No.	State	Update Date	NOTES ON <u>CLOSED</u> DEFICIENCIES
AP-MET-01	Solomon Islands	December 2020	Removed from the open list; APANPIRG/31 Conclusion 31/19, refers.
AP-MET-03	Indonesia	September 2017	Removed from the open list, APANPIRG/28 Conclusion 28/29 refers.
AP-MET-05	–	–	This Index No. is not used.
AP-MET-06	Indonesia	September 2017	Removed from the open list, APANPIRG/28 Conclusion 28/29 refers.
AP-MET-07	Philippines	November 2019	Removed from the open list, Conclusion APANPIRG/30/19, refers.
AP-MET-09	Cambodia	September 2018	Removed from the open list, APANPIRG/29 Decision 29/23 refers
AP-MET-10	–	–	This Index No. is not used.
AP-MET-11	Cambodia	September 2018	Removed from the open list, APANPIRG/29 Decision 29/24 refers
AP-MET-12	Lao PDR	September 2018	Removed from the open list, APANPIRG/29 Decision 29/24 refers



Index No.	State	Update Date	NOTES ON <u>CLOSED</u> DEFICIENCIES
AP-MET-13	—	—	This Index No. is not used.
AP-MET-15	—	—	This Index No. is not used.

**Acronyms/Abbreviations/Definitions**

ACC	— Area control centre
ASL	— Air Services Ltd.
ATS	— Air traffic services
CAEMSA-SP	— Cooperative Agreement for the Enhancement of Meteorological Services to Aviation - South Pacific
CAAP	— Civil Aviation Authority Philippines
CAP	— Corrective action plan
FIC	— Flight information centre
FIR	— Flight information region
GACA	— General Administration of Civil Aviation
IATA	— International Air Transport Association
MEIDECC	— Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communication
MET	— Meteorological
METAR	— Aerodrome routine meteorological report ( <i>in meteorological code</i> )
MWO	— Meteorological watch office
NWS	— National Weather Service
PAGASA	— Philippine Atmospheric, Geophysical and Astronomical Services Administration
PHIVOLCS	— Philippine Institute of Volcanology and Seismology
SIGMET	— Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations
SPECI	— Aerodrome special meteorological report ( <i>in meteorological code</i> )

**Acronyms/Abbreviations/Definitions**

SSCA	— State Secretariat of Civil Aviation
TBC	— To be confirmed
TCB	— Technical Cooperation Bureau (of ICAO)
VAAC	— Volcanic ash advisory centre
WAFC	— World area forecast centre
WMO	— World Meteorological Organization