



ICAO

*International Civil Aviation Organization***WORKING PAPER****Twenty-fourth Meeting of the Meteorology Sub-group (MET SG/24) of the Asia and Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG)**

Web-conference, 16 – 20 November 2020

**Agenda Item 4:** Air navigation deficiencies**REVIEW APANPIRG AIR NAVIGATION DEFICIENCIES**

(Presented by the Secretariat)

**SUMMARY**

This paper presents the (open) list of APANPIRG air navigation deficiencies – in the field of meteorology – 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 and/or efficiency of international civil aviation<sup>1</sup>.

1.2 This paper invites the meeting to review the (open) list of APANPIRG air navigation deficiencies – in the field of meteorology – 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 MET SG assists APANPIRG with the reduction of air navigation deficiencies in the field of meteorological service.

2.2 APANPIRG/30 (November 2019) noted that it was the responsibility of States with deficiencies to provide updates to ICAO APAC Office so that the information in the deficiency database can be updated in a timely manner. The APAC Office will update the deficiencies database based on written confirmation provided by the respective Administrations.

<sup>1</sup> APANPIRG Procedural Handbook (08/09/2016), Part V, section 2, paragraph 1.3

**Agenda Item 4**

16-20/11/20

2.3 The list of air navigation deficiencies in the MET field currently contains fourteen (14) open deficiencies related to facilities and services in nine (9) Asia/Pacific States, as summarized in **Table 1**, below. A detailed copy of the APANPIRG reporting form on air navigation deficiencies in the MET field is at the **Attachment** to this paper

**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
	Solomon Islands	AP-MET-01	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 and/or flight briefings	Kiribati	AP-MET-18	open
	Nauru	AP-MET-19	open
	Solomon Islands	AP-MET-20	open

1.1 As proposed by MET SG/23, the latest update to the deficiencies list in the MET field was when APANPIRG/30 endorsed the removal of the deficiency (Ref: AP-MET-07) in Philippines from the open list.

1.2 With regards to the deficiencies (Ref: AP-MET-01, AP-MET-20 and AP-MET-23) concerning meteorological observations and reports, WAFS forecasts and SIGMET in Solomon Islands, 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.

**2. ACTION BY THE MEETING**

2.1 This paper invites the meeting to review the (open) list of APANPIRG air navigation deficiencies – in the field of meteorology – as presented at the **Attachment** to this paper, and provide further updates, as necessary, to the list of deficiencies, including the associated corrective action plans (CAPs) for the resolution of deficiencies.

-----

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)	Democratic Peoples' Republic of Korea (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)	Kiribati (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)	Kiribati (AP-MET-18)	WAFCS 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)	Nauru (AP-MET-19)	WAFCS 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

**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 observations and reports. (Annex 3: Chapter 4)	Nauru (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
Provision of SIGMET information (Annex 3, Chapter 7)	Nauru (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)	Nepal (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)	Papua New Guinea (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

**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 *
Provision of SIGMET for volcanic ash (Annex 3: Chapter 7)	Papua New Guinea (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)	Papua New Guinea (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
Provision of SIGMET for volcanic ash (Annex 3: Chapter 7)	Philippines (AP-MET-07)	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>MET SG/23 recommended removal of this deficiency from the open list – See notes below for more information.</b>	PAGASA	TBC	U
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	Reported by airlines operating to Solomon Islands	Equipment to be upgraded 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>	Solomon Is. MET Service	TBC	A

**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)	Solomon Islands (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)	Solomon Islands (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)	Tonga (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

Index No.	Update Date	NOTES
AP-MET-01	September 2017	APANPIRG/28 noted that Solomon Islands 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>
	June 2019	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.

Index No.	Update Date	NOTES
<b>AP-MET-02</b>	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-03	September 2017	Removed from the open list, APANPIRG/28 Conclusion 28/29 refers.
<b>AP-MET-04</b>	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>
AP-MET-05	–	This Index No. is not used.
AP-MET-06	September 2017	Removed from the open list, APANPIRG/28 Conclusion 28/29 refers.
<b>AP-MET-07</b>	6 June 2016	PAGASA/CAAP advised that: <ul style="list-style-type: none"> <li>• Procedures implemented (Ref: PM-WD-AMSS-05-05) for the issuance of SIGMET information (for volcanic ash) for Manila FIR by the designated MWO in accordance with the ICAO SARPs;</li> <li>• Conducted ICAO volcanic ash exercises and participated in the ICAO APAC Volcanic ash exercises steering group (VOLCEX/SG);</li> <li>• Participated in the ICAO Regional SIGMET tests (without errors in SIGMET test messages sent by Philippines);</li> <li>• Procedures implemented as set forth in the Philippine Regulation, <i>CAR-ANS Part 3 – Aeronautical Meteorological Service</i>, including other related national documents; and</li> <li>• Tripartite agreement established between CAAP, PAGASA and PHIVOLCS stipulating the flow of volcanic ash information between the stakeholder agencies.</li> </ul>
	30 June 2016	CAAP advised that: <ul style="list-style-type: none"> <li>• In addition to the information provided above, and in view of the adherence to national procedures, regulations and other documents supporting the implementation of ICAO Annex 3 SARPs, CAAP requests ICAO to remove the deficiency from the open list.</li> </ul>
	September 2017	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 airlines and VAACs that the deficiency is resolved.</li> </ul>
	June 2018	MET SG/22 noted that: <ul style="list-style-type: none"> <li>• VAAC Tokyo was coordinating with Philippines on the validation of corrective action taken to resolve the deficiency.</li> </ul>
	March 2018	MET/S WG/9 concurred on: <ul style="list-style-type: none"> <li>• a proposal to MET/SG/23 for the removal of the deficiency (Ref: AP-MET-07) in Philippines from the (open) list.</li> </ul>
	June 2019	MET SG/23 recommended the removal of the deficiency AP-MET-07 from the APANPIRG (open) list [Final report of MET SG/23, para. 4.2 to 4.4, refers]

<b>Index No.</b>	<b>Update Date</b>	<b>NOTES</b>
<b>AP-MET-08</b>	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>
AP-MET-09	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	September 2018	Removed from the open list, APANPIRG/29 Decision 29/24 refers
AP-MET-13	–	This Index No. is not used.
<b>AP-MET-14</b>	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-15	–	This Index No. is not used.
<b>AP-MET-16</b>	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>
<b>AP-MET-17</b>	10 May 2013	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>
	29 May 2017	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>
	September 2017	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>
	June 2018	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>
<b>AP-MET-18</b>	September 2017	APANPIRG/28 noted that Kiribati should: <ul style="list-style-type: none"> <li>• Verify the status of implementation of CAP; and</li> </ul>

Index No.	Update Date	NOTES
		<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>
<b>AP-MET-19</b>	September 2017	APANPIRG/28 noted that Nauru 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-20</b>	September 2017	APANPIRG/28 noted that Solomon Islands 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>
	June 2019	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.
<b>AP-MET-21</b>	September 2017	APANPIRG/28 noted that Nauru 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-22</b>	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-23</b>	September 2017	APANPIRG/28 noted that Solomon Islands 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>
	June 2019	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.
<b>AP-MET-24</b>	September 2017	APANPIRG/28 noted that Nauru 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>

**Acronyms/Abbreviations/Definitions**

ACC — Area control centre

ASL — Air Services Ltd.

ATS — Air traffic services

### Acronyms/Abbreviations/Definitions

- 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 (*in meteorological code*)
- 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 (*in meteorological code*)
- 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