International Civil Aviation Organization

Tenth Meeting of the Air Traffic Management Sub-Group (ATM/SG/10) of APANPIRG

Video Teleconference, 17 – 21 October 2022

Agenda Item 7: AOP, MET, AIM, SAR

OUTCOMES FROM MET SG/26 RELEVANT TO ATM/SG

(Presented by the Secretariat)

SUMMARY

This paper presents outcomes from MET SG/26 and its contributory bodies relevant to ATM/SG, including discussion related to the MET/ATM Webinar, survey and guidance material, the APANPIRG air navigation deficiencies, the ICAO space weather advisory service, the world area forecast system (WAFS) and the Secure Aviation Data Information System (SADIS).

1. INTRODUCTION

1.1 The ICAO Asia and Pacific (APAC) Office hosted the Twenty-Sixth Meeting of the Meteorology Sub-group (MET SG/26) online from 1 to 5 August 2022.

1.2 MET SG/26 reviewed the progress of its work plan, including the following contributory bodies:

- 20th Meeting of the Meteorological Information Exchange Working Group (MET/IE WG/20), 28-30 March 2022
- 12th Meeting of the Meteorological Services Working Group (MET/S WG/12), 30 March – 1 April 2022; and
- 11th Meeting of the Meteorological Requirements Working Group (MET/R WG/11), including the APAC MET/ATM Webinar, 30 May – 3 June 2022.

1.3 Of particular relevance to the ATM/SG, the MET/R WG is tasked to facilitate the States' provision of MET to meet ATM system requirements, including integrating MET information into ATM systems. Outcomes from MET/R WG/11 included a review of the MET/ATM Webinar and progress on a MET/ATM survey and the MET/ATM Regional guidance.

1.4 Other outcomes of relevance to the ATM/SG include discussion related to APANPIRG air navigation deficiencies, the ICAO space weather advisory service, the world area forecast system (WAFS) and the Secure Aviation Data Information System (SADIS).

1.5 All documentation and reports from the above meetings, including the MET/ATM Webinar, are available at the ICAO APAC Office website:

https://www.icao.int/APAC/Meetings/Pages/default.aspx.

2. DISCUSSION

APANPIRG air navigation deficiencies

2.1 The APANPIRG list of air navigation deficiencies includes (13) thirteen open deficiencies related to MET facilities and services in seven (7) APAC States, as summarised in **Table 1** below:

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

Table 1: Summary of APANPIRG Air Navigation Deficiencies in the MET Field

2.2 Three deficiencies, AP-MET-18, -19 and -20, concern the world area forecast system (WAFS) forecasts not available for inclusion in flight briefings and documentation in Kiribati, Nauru and Solomon Islands. To further help with rectifying the deficiencies, MET SG/26 requested the Secretariat to assist the States concerned in determining the requirements for including WAFS forecasts in flight briefings and documentation [MET SG/26 ACTION 26/04 refers].

2.3 The deficiency AP-MET-23 concerns a lack of SIGMET issued for the Honiara FIR. Solomon Islands has conducted SIGMET tests, a volcanic ash exercise, and training for ATS and MET personnel as part of the corrective action to rectify the deficiency. It has also coordinated SIGMET with neighbouring States and monitored the SIGMET issued for the Honiara FIR. MET SG/26 noted that Solomon Islands would notify ICAO when it has validated the rectification of deficiency AP-MET-23.

2.4 The deficiency AP-MET-04 concerns information on volcanic activity from Papua New Guinea (PNG) not provided regularly to ATS units, MWOs and VAACs. MET SG/26 noted that PNG had implemented corrective actions, including establishing a liaison between the Rabaul Volcanological Observatory (RVO) and the users of the information on volcanic activity and establishing a channel for disseminating information on volcanic activity regularly to the relevant ATS unit, MWO and VAAC. In addition, PNG used the information on volcanic activity from the RVO for the preparation of SIGMET. Furthermore, MET SG/26 noted that PNG would notify ICAO when it has validated the rectification of deficiency AP-MET-04, including evidence that the RVO has implemented appropriate procedures as previously recommended by the Civil Aviation Safety Authority (CASA) of PNG.

2.5 The deficiency AP-MET-17 concerns information on volcanic activity from Tonga not provided regularly to ATS units, MWOs and VAACs. MET SG/26 noted that Tonga had conducted volcanic ash exercises demonstrating the provision of information on volcanic activity by the Tonga Geological Service to the relevant ATS unit, MWO and VAAC. Furthermore, in response to the eruptions of the Hunga Tonga-Hunga Ha'apai volcano in 2021 and 2022, Tonga also demonstrated that information on volcanic activity was provided regularly to ATS units, MWOs and VAACs. MET SG/26 noted that the VAAC (Wellington) had confirmed regular receipt of the information on volcanic activity from Tonga. In addition, Tonga would notify ICAO when it has validated the rectification of deficiency AP-MET-17.

MET/ATM Webinar

2.6 The MET/ATM Webinar (30 May 2022) considered eleven presentations under the following three topics: 1) ICAO Provisions, 2) MET/ATM Collaboration within States, and 3) MET/ATM Collaboration between States. The MET/ATM Webinar enabled States and Organisations to share information on planning and implementing MET services to support ATM operations, focusing on recent innovations and integrating MET information into ATM systems.

2.7 The ICAO presentations highlighted the development of global provisions for the MET information and services needed to support international civil aviation and the role of the MET/R WG in supporting the planning and implementation by the APAC States of the required MET information and services.

2.8 Presentations by the States, including Australia, China, Hong Kong China, Japan and Vietnam, highlighted the importance of close collaboration between MET and ATM personnel towards achieving effective collaborative decision-making processes for ATM and ATFM.

2.9 Similarly, presentations by IATA and IFALPA, which highlighted the operators' and ATCs' need for accurate and timely MET information, including information on the capabilities of the MET services, reinforced the critical importance of close collaboration between the MET service providers and ATM stakeholders.

MET/ATM survey

2.10 The MET/R WG surveyed the APAC States from October to December 2021 to help understand the current and future requirements for MET information and services to support ATM, particularly ATFM, and identify opportunities to enhance the integration of MET services in the ATM system. Members of the MET/R WG were tasked to prepare a detailed analysis of the survey results and report back to the MET SG and ATM SG in 2023.

MET/ATM Regional guidance

2.11 MET SG reviewed and approved proposed updates to the *Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations*. The updates included new material on analysing the impact of tailored MET information on ATM decisions and an example of ATM-tailored MET information from Hong Kong, China, featuring post-operational analysis and continuous service improvement. The updated guidance is published on the ICAO APAC eDocuments website: https://www.icao.int/APAC/Pages/eDocs.aspx.

Space Weather advisory service

2.12 MET SG/26 was informed that the approaching peak (or "solar maximum") of the eleven-year solar cycle, expected in 2025, will increase the probability of space weather phenomena impacting aviation. Therefore, users should expect an increasing probability that the designated space weather centres will need to issue advisory information on space weather phenomena.

2.13 Guidance on the space weather advisory service is available in the ICAO Doc 10100 – *Manual on Space Weather Information in Support of International Air Navigation*. In addition, some States have prepared supplementary educational resources for the users of space weather advisory information, including the space weather brochures[1] published by the Australian Bureau of Meteorology. Finally, ICAO plans to conduct an APAC *Webinar on the Space Weather Advisory Information Services* in 2022 (details TBC).

World area forecast system (WAFS)

2.14 Upcoming changes to the world area forecast system (WAFS) will include the following: upgrades to the horizontal, vertical and temporal resolutions of the WAFS data sets; upgrades to the content of significant weather (SIGWX) forecasts; dissemination of information on significant weather in IWXXM form; and delivery of WAFS data via the upgraded Secure Aviation Data Information System (SADIS) and WAFS Internet File Service (WIFS).

2.15 Considering the need to inform WAFS users in the Region further, and encourage them to prepare their systems for the significant upcoming changes to WAFS data and its delivery, MET SG/26 formulated the following Draft Conclusion:

Draft Conclusion MET SG/26/03 – WAFS, SADIS and WIFS upgrades	
What: That, users of WAFS, SADIS and WIFS are invited to: a) familiarise themselves with the proposed WAFS data and technical changes planned for November 2023 and 2024; b) discuss the upcoming changes with their technical departments and make plans for how their organisation could adapt to these technological changes; c) get involved in trying out the new test/beta application programming interfaces (APIs) once they become available in late 2022 or 2023.	Expected impact: ☐ Political / Global ☐ Inter-Regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: WAFS, SADIS and WIFS users will have to adapt their systems to benefit from the planned WAFS upgrades, which correspond with proposed Amendments 81 to ICAO Annex 3.	Follow-up: ☒ Required from States
When: by November 2023 and 2024	Status: Draft to be adopted by APANPIRG
Who: ☐ Sub Groups ☐ RASG-APAC ☒ APAC States ☐ ICAO APAC RO ☐ ICAO HQ ☐ Other:	

Secure Aviation Data Information System (SADIS)

2.16 Recent changes in the provision of data on the Secure Aviation Data Information System (SADIS), operated by the world area forecast centre (WAFC) London, included the dissemination of meteorological data in IWXXM form and the introduction of 0.25-degree resolution WAFS hazard data, in line with Amendment 79 to ICAO Annex 3.

2.17 Legacy WAFS hazard data fields, such as Turbulence Potential, Icing Potential and 1.25-degree resolution cumulonimbus fields, which are no longer required by ICAO Annex 3, will be discontinued on SADIS from November 2023. Therefore, to encourage SADIS users to migrate their services to the new 0.25-degree resolution WAFS hazard data as soon as possible, MET SG/26 formulated the following Draft Conclusion:

[1] http://www.bom.gov.au/aviation/data/education/space-weather.pdf and http://www.bom.gov.au/aviation/data/education/space-wx-advisories.pdf

Draft Conclusion MET SG/26/04 – 0.25-degree WAFS hazard data	
What: That, users of WAFS, SADIS and WIFS are urged to, if not already done so, integrate the 0.25-degree WAFS hazard data (for cumulonimbus, icing and turbulence) into their systems and software before November 2023.	Expected impact: ☐ Political / Global ☐ Inter-Regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: The WAFCs have introduced 0.25-degree WAFS hazard data and will discontinue providing users with the 1.25-degree hazard data sets in November 2023. The previous Conclusion APANPIRG/31/17: 0.25-degree WAFS hazard data, and associated ICAO State letter Ref.: T 4/8.2 – AP129/21 (MET), dated 15 July 2021, also requested SADIS user States to make the necessary systems changes to integrate the new 0.25-degree WAFS hazard data into their SADIS user systems and software.	Follow-up: ☒ Required from States
When: by November 2023	Status: Draft to be adopted by APANPIRG
Who: ☐ Sub Groups ☐ RASG-APAC ☒ APAC States ☐ ICAO APAC RO ☐ ICAO HQ ☐ Other:	

Venue and schedule of ICAO APAC MET meetings

2.18 Subject to the local situation in Thailand, future ICAO APAC MET-related meetings may be conducted as in-person events at ICAO's Bangkok Office. In addition, hybrid online and in-person meeting arrangements may be possible. Concerning dates, MET SG/26 agreed to the following schedule of meetings:

- 27-28 March 2023: MET/IE WG/21
- 29 March 2023: Conjoint Session of MET/IE WG/21 and MET/S WG/13
- 30-31 March 2023: MET/S WG/13
- 22-26 May 2023: MET/ATM Seminar and MET/R WG/12
- Late July or early August 2023: MET SG/27
- TBD: VOLCEX/SG/08 (online meeting)

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this paper.

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