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ICAO Asia and Pacific (APAC)
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(MET SG/29)

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Agenda Item 3: Air navigation deficiencies

MET DEFICIENCIES REVIEW OF THE 2024 ANNUAL SIGMET TEST OUTCOMES AND 2024 TAF AND METAR APAC PERFORMANCE INDICES

(Presented by Ad Hoc Group on Deficiencies)

SUMMARY

This paper outlines the review by the MET Deficiencies ad hoc group of the outcomes of the 2024 ICAO APAC Regional SIGMET Test and 2024 TAF and METAR APAC Performance Indices, including provision of IWXXM-format information.

1. INTRODUCTION

1.1 The 25th Meeting of the Meteorology Sub-Group (MET SG/25) formulated the following decision:

> **Decision MET SG/25-04:** MET Deficiencies ad hoc group TOR
> That, MET/S WG ad hoc group, formed to work with relevant members of the MET/IE WG, utilises the guidance in the APANPIRG Procedural Handbook, Part V: *Uniform methodology for the identification, assessment and reporting of air navigation shortcomings and deficiencies* and other relevant ICAO documentation, to assist the ICAO Secretariat with the following:
>
> a) Continue to refine the process, based on the APANPIRG Procedural Handbook, for identifying, analysing, removing and proposing MET Deficiencies, utilising the results of annual ICAO SIGMET tests and OPMET Monitoring activities;
> b) Continue to refine the templates to be used for Deficiency Corrective Action Plans (CAP), Progress Reports and Final Reports; and
> c) As required, work with States concerned to develop a CAP, arrange for testing and monitoring and assist with the reporting to ICAO on the resolution of air navigation MET Deficiencies.

1.2 The MET Deficiencies ad hoc group has reviewed the outcomes of the 2024 ICAO APAC Regional SIGMET Test and 2024 TAF and METAR APAC Performance Indices monitoring activities, as presented at the 23rd Meeting of the Meteorological Information Exchange Working Group (MET/IE WG/23) – see WP/7 (Review of WS SIGMET Test 2024), WP/15 (Results of SIGMET Test 2024 – TC and VA) and WP/16 (2024 Asia/Pacific Performance Indices). The review was based on existing deficiency identification methodology outlined in the MET Deficiency Identification Guide, available

on the ICAO APAC e-documents site.

2. DISCUSSION

ICAO APANPIRG Procedural Handbook Instructions on Deficiencies

2.1 The APANPIRG Procedural Handbook provides information on how air navigation deficiencies are identified and subsequently addressed. Section 3 *Asia/Pacific Supplement to the Uniform Methodology for the Identification, Assessment and Reporting of Air Navigation Deficiencies* provides further information specific to the ICAO APAC Regional Office.

2.2 The specific procedures for identifying and processing deficiencies by the Regional Office can be summarised as follows:

- Information is provided to the Regional Office on the lack of implementation or unsatisfactory operation of air navigation facilities or services, as required by the APAC air navigation plan (ANP).
- An assessment is made by the Regional Office to determine whether the reported deficiency is non-compliant with the APAC ANP or relevant SARPs, then if so, it is evaluated as to its impact on safety, efficiency and regularity, and then prioritized as follows:

U - Urgent requirements having a direct impact on safety and requiring immediate corrective actions
A - Top priority requirements necessary for air navigation safety
B - Intermediate requirements necessary for air navigation regularity and efficiency

- The Regional Office, on determining that a reported deficiency exists and after initial assessment and prioritization, informs the State(s) concerned of the full details of the report and results of the assessment and advises that the deficiency will be recorded in the APANPIRG Deficiencies Database.
- The State(s) are requested to acknowledge and validate the deficiency, and to develop a Corrective Action Plan (CAP) to resolve the deficiency.

2.3 As per the final bullet point in paragraph 2.2, the States are requested to *validate the deficiency*. It is important to bear this in mind while reviewing the outcomes of the reviews of the 2024 ICAO APAC Regional SIGMET Test and the 2024 TAF and METAR APAC Performance Indices. It is recognised that States may have investigations and/or corrective actions already underway, with operational improvements in place or expected in the short term, and there may be no requirement for any deficiencies to be applied.

ICAO APAC Regional SIGMET Test 2024 Outcome

2.4 The MET Deficiencies ad hoc group reviewed the 2024 Annual SIGMET test results in accordance with the MET Deficiency Identification Guide. Test SIGMET and advisory issuance both in Traditional Alphanumeric Code (TAC) form and in ICAO Meteorological Information Exchange Model (IWXXM) form are addressed below.

2.5 The ad hoc group summarises the participation of 2023 and 2024 Annual SIGMET tests and highlighted the States that did not participate in the SIGMET tests (both TAC and IWXXM format) in the table below, with red text indicating States already holding SIGMET deficiencies.

Table 1 – Annual SIGMET Test Outcomes 2023 and 2024					
2023			**2024**		
APAC States	**MWO**	**Missing SIGMET Type**	**APAC States**	**MWO**	**Missing SIGMET Type**

Afghanistan	Kabul	WV, WS	Afghanistan	Kabul	WV, WS
DPR Korea	Sunan	WC, WV, WS	DPR Korea	Sunan	WC, WS (*WV issued*)
Nauru	Nauru	WC, WV, WS	Nauru	Nauru	WC, WV, WS
Papua New Guinea	Port Moresby	WC (*WS, WV issued*)	Papua New Guinea	Port Moresby	WC, WV, WS

*Note (1): Other non-APAC States also had MWOs participating in the tests. Their test results are not part of this review.
*Note (2): Australia did not participate in WS SIGMET test but the issue was being reworked and clarified and thus not included in the table (Re paragraph 2.2.3 of MET/IE WG/23 WP/07).
*Note (3): MWO Hong Kong, Manila, Anchorage and Honolulu were not able to participate in the Tropical Cyclone SIGMET test due to an active TC on 13 November. MWO Makassar of Indonesia was not able to participate in the Volcanic Ash SIGMET test due to concerns about the activity of the Indonesian volcano on 20 November. These were not included in the table.

2.6 In MET SG/28 (MET SG/28 WP/06), the ad hoc group on deficiencies recommended a deficiency is considered for Afghanistan for lack of SIGMET issuance (with RODBs noting at the time that no Kabul SIGMETs had been received in the recent period). Considering that RODBs continued to receive no Kabul SIGMETs from Afghanistan in the 2024 Annual SIGMET tests, a conclusion on providing this information to the Regional Office for assessment is proposed for consideration.

Conclusion MET SG/29-xx: Lack of SIGMET Provision By Afghanistan	
What: The MET Sub-group recommends to the ICAO APAC Office, in its role assessing potential deficiencies, that it reviews the information provided in this paper on the lack of SIGMET service provided for the Kabul FIR by Afghanistan.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: SIGMETs are important for supporting aviation safety and lack of SIGMET provision is a significant safety issue.	Follow-up: ☒ Secretariat
When: 18-Aug-25	Status: Draft to be adopted by Subgroup
Who: ☐Subgroups ☐APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other: TEXT	

2.7 The ad hoc group summarises the participation of 2023 and 2024 Annual SIGMET tests and highlighted the States that did not participate in the SIGMET tests (in IWXXM format) in Table 2 below.

Table 2 – Annual SIGMET Test Outcomes 2023 and 2024 – IWXXM form SIGMETs	
2023	**2024**
APAC States (missing types)	**APAC States (missing types)**
Afghanistan (LS, LV)	Afghanistan (LS, LV)
Australia (LY, LV)	*All IWXXM format received*
Bangladesh (LS, LY, LV)	Bangladesh (LS, LY, LV)
Cambodia (LS, LY, LV)	Cambodia (LS, LY, LV)
DPR Korea (LS, LY, LV)	DPR Korea (LS, LY, LV)
French Polynesia (LY, LV)	*All IWXXM format received*
India (LS, LY, LV)	India (LS, LY, LV)
Indonesia (LS, LY, LV)	Indonesia (LS, LY)
Lao PDR (LS, LY, LV)	Lao PDR (LS, LY, LV)
Malaysia (LS, LY, LV)	Malaysia (LS, LY, LV)
Maldives (LS, LY, LV)	Maldives (LS, LY, LV)
Mongolia (LS, LV)	Mongolia (LS, LV)
Myanmar (LS, LY, LV)	Myanmar (LS, LY, LV)
Nauru (LS, LY, LV)	Nauru (LS, LY, LV)
New Zealand (LY, LV)	New Zealand (LY)
Nepal (LS, LV)	Nepal (LS, LV)

Pakistan (LS, LY, LV)	Pakistan (LS, LY, LV)
Papua New Guinea (LS, LY, LV)	Papua New Guinea (LS, LY, LV)
Philippines (LS, LY, LV)	*LS and LV IWXXM format received*
Republic of Korea (LS, LY, LV)	Republic of Korea (LS, LY, LV)
Sri Lanka (LS, LY, LV)	Sri Lanka (LS, LY, LV)
Viet Nam (LS, LY, LV)	Viet Nam (LS, LY, LV)

*Note (1): Other non-APAC States also had MWOs participating in the tests. Their test results are not part of this review.
*Note (2): Afghanistan, Mongolia and Nepal only required to participate in the SIGMET test for LS and LV according to the Asia/Pacific Regional SIGMET test procedures 2024 and as per Table MET II-1 of the APAC Air Navigation Plan, Volume II.
*Note (3): MWO Hong Kong, Manila, Anchorage and Honolulu were not able to participate in the Tropical Cyclone SIGMET test due to an active TC on 13 November. MWO Makassar of Indonesia was not able to participate in the Volcanic Ash SIGMET test due to concerns about the activity of the Indonesian volcano on 20 November. These were not included in the table.

2.8 It is encouraging to observe that more States issued test SIGMETs in IWXXM format in 2024 including Australia, French Polynesia, New Zealand and Philippines, however it is noted that for New Zealand, no LY SIGMET was issued.

2.9 For the States that did not issue all required test SIGMETs in IWXXM format in both 2023 and 2024 Annual SIGMET tests, subject to the APAC MET Secretariat's advice, a conclusion on providing this information to the Regional Office for assessment is proposed for consideration.

Conclusion MET SG/29-xx: Lack of Provision of IWXXM Format SIGMET	
What: The MET Sub-group recommends to the ICAO APAC Office, in its role assessing potential deficiencies, that it reviews the information provided in this paper on the lack of IWXXM implementation for SIGMET issuance: Afghanistan, Bangladesh, Cambodia, DPR Korea, India, Indonesia, Lao PDR, Malaysia, Maldives, Mongolia, Myanmar, Nauru, Nepal, New Zealand, Pakistan, Papua New Guinea, Republic of Korea, Sri Lanka, Viet Nam	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: SIGMET information in IWXXM format is a Standard in ICAO Annex 3 and therefore non-compliance should be considered as a potential deficiency.	Follow-up: ☒ Secretariat
When: 18-Aug-25	Status: Draft to be adopted by Subgroup
Who: ☐Subgroups ☐APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other: TEXT	

2.10 Noting that Nepal is now providing a TAC-form SIGMET service for the Kathmandu FIR, and that the resolution of the outstanding AP-MET-14 deficiency for SIGMET information was contingent on IWXXM form SIGMET information being provided (refer MET SG/28 paragraph 3.2), the MET SG may consider recommending resolution of AP-MET-14, following the application of a deficiency for lack of IWXXM format SIGMET provision.

2.11 Regarding advisories issued during the 2023 and 2034 Annual SIGMET tests, the following results are summarised in Table 3 below, noting receipt reported by APAC RODBs only.

Table 3 – Annual SIGMET Test Outcomes 2023 and 2024 – TCA and VAA IWXXM Issuance			
2023		**2024**	
APAC States (missing types)		**APAC States (missing types)**	
Australia	TCA (LK)	Australia	TCA (LK)
United States	TCA (LK)	United States	TCA (LK)
	VAA (LU)		VAA (LU)*
New Zealand	VAA (LU)	New Zealand	*IWXXM format received*
India	TCA (LK)	India	TCA (LK)
Fiji	TCA (LK)	Fiji	TCA (LK)

France	VAA (LU)*	France	VAA (LU)

*Note: The IWXXM form VAAs issued by VAAC Toulouse (2023 test) and VAAC Washington (2024 test) were received at the London RODB, but not at any APAC RODBs.

2.12 It is noted that New Zealand now has test VAA available in IWXXM form. For the States that did not issue any test advisories in IWXXM format in both 2023 and 2024 Annual SIGMET tests, subject to the APAC MET Secretariat's advice, a conclusion on providing this information to the Regional Office for assessment is proposed for consideration.

Conclusion MET SG/29-xx: Lack of Provision of IWXXM Format Advisories	
What: The MET Sub-group recommends to the ICAO APAC Office, in its role assessing potential deficiencies, that it reviews the information provided in this paper on the lack of IWXXM implementation for advisory issuance: VAA: United States, France TCA: Australia, United States, India, Fiji	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: Tropical cyclone and volcanic ash advisory information in IWXXM format is a requirement in ICAO Annex 3 and therefore non-compliance should be considered as a potential deficiency.	Follow-up: ☒ Secretariat
When: 18-Aug-25	Status: Draft to be adopted by Subgroup
Who: ☐Subgroups ☐APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other: TEXT	

2024 METAR and TAF Performance Indices Review

2.13 The 2024 APAC Performance Indices provided statistics on the availability and timeliness of METAR and TAF, during the monitoring period of 1-30 November 2024. The following analysis considered the statistics from 2024 APAC METAR and TAF Performance Indices and has also taken into account the work undertaken by Hong Kong, China, in investigating the results for VHHH and the subsequent actions that improved the performance indices for that aerodrome (a separate WP to MET SG/29 refers).

2.14 Noting that the new timeliness and availability criteria have only been published in the ROBEX Handbook in the APAC eDocuments website since March 2025**, no conclusions related to the provision of information to the Regional Office for assessment of deficiencies are proposed in respect of TAF and METAR provision.** However, it is expected that the review of the 2025 APAC Performance Indices (to be presented to the 2026 meeting of the MET SG) will be shared with the Regional Office for its assessment of potential deficiencies in the provision of METAR and TAF (MET/IE WG/23 Flimsy/01 paragraph 2.1 refers).

2.15 States should use the information provided in paragraph 2.14, with specific details in MET/IE WG/23 WP/16, to investigate any opportunities for improvement in their provision of METAR and/or TAF. It is emphasised that the 2024 APAC Performance Indices review may indicate lower than expected performance for a variety of reasons (e.g. unexpected, temporary communication outage) and they should be used by States as part of the quality management procedures to identify any opportunities for improvement, either in their own processes or across the wider ROBEX system.

2.16 States are reminded that RODB Bangkok can produce OPMET Performance Indices (PIs) upon request, utilising the OPMET Statistics web application, e.g., to support the validation of corrective actions.

2.17 Conclusion MET SG/28-02 *Availability and Timeliness of TAC and IWXXM Information* agreed that statistics less than 95% should be highlighted in the annual OPMET monitoring activity, which generates the APAC Performance Indices.

2.18 The following States had at least one METAR or TAF (in TAC format, for an AOP aerodrome) not reaching 95% for timeliness and/or availability in the 2024 APAC Performance Indices. The bracketed (M) and (T) indicate scores for METAR and TAF, respectively, that did not reach 95%, with details provided in MET/IE WG/23 WP/16, Appendix B Table A, C and D:

Australia (M, T)	Bangladesh (M, T)	Bhutan (M, T)
Cambodia (M only)	China (M, T)	Cook Islands (M only)
Fiji (M only)	India (M, T)	Indonesia (M, T)
Japan (M only)	Kiribati (M only)	Lao PDR (M only)
Malaysia (M, T)	Maldives (M, T)	Mongolia (T only)
Myanmar (M, T)	Nauru (M, T)	New Caledonia (France) (M only)
Niue (M only)	Pakistan (M, T)	Papua New Guinea (M, T)
Samoa (M only)	Singapore (M only)	Solomon Islands (M, T)
Sri Lanka (M, T)	Timor-Leste (M only)	Tonga (M only)
Tuvalu (M, T)	Vanuatu (M, T)	Viet Nam (M only)
Wallis and Futuna (France) (M only)		

2.19 It should be noted that Afghanistan, DPR Korea, along with the United States and its territories, do not have METAR and TAF locations included in the APAC Performance Indices, although they do have aerodrome MET services included in the APAC ANP Vol II Table MET II-2.

2.20 It should be further noted that the AOP aerodromes indicated in APAC ANP Vol I Table AOP I-1 do not always have a corresponding MET service provided in APAC ANP Vol II Table MET II-2, meaning that there may be further deficiencies not being identified. There is an outstanding action in place to address this (MET SG Action 27/10).

2.21 Considering AOP aerodromes only, the following States had results indicating that IWXXM format METAR and/or TAF did not meet the 95% timeliness and/or availability criteria - refer MET/IE WG/23 WP/16, Appendix B Table B, E and F, for details:

Australia	Bangladesh	Bhutan
Brunei Darussalam	Cambodia	China
India	Indonesia	Kiribati
Lao PDR	Malaysia	Maldives
Myanmar	Nauru	Nepal
Pakistan	Papua New Guinea	Republic of Korea
Samoa	Singapore	Solomon Islands
Sri Lanka	Tahiti	Timor-Leste
Tonga	Tuvalu	Vanuatu
Viet Nam	Wallis and Futuna (France)	

2.22 As outlined in paragraph 2.14, this information is provided for the listed States to investigate the reason for the lower than required statistics and take any appropriate actions needed ahead of the METAR and TAF monitoring activity planned for November 2025.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Note the information contained in this paper; and

b) Discuss and endorse, if agreeable, the Conclusions proposed in paragraph 2.9 and 2.12.

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