



ICAO

*International Civil Aviation Organization*

**WORKING PAPER**

**Asia and Pacific (APAC)**  
Twenty-Sixth Meeting of the Meteorology Sub-Group  
(MET SG/26)

Online, 1 to 5 August 2022

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**Agenda Item 2: Review of follow-up from previous meetings**

**REVIEW OUTCOMES FROM MET SG/25**

(Presented by Secretariat)

**SUMMARY**

This paper presents the outcomes from the Twenty-Fifth Meeting of the Meteorology Sub-group (MET SG/25) and invites the Meeting to consider further actions necessary to support the follow-up on the MET SG/25 outcomes.

**1. INTRODUCTION**

1.1 Outcomes from the Twenty-Fifth Meeting of the Meteorology Sub-group (MET SG/25; online, 18-22 October 2021) included the following:

- Three (3) Draft Conclusions and one (1) Draft Decision for further consideration by the APAC Air Navigation Planning and Implementation Regional Group (APANPIRG);
- Three (3) Conclusions and four (4) Decisions dealing with matters under the MET SG's terms of reference; and
- Fifteen (15) new action items in the MET SG List of Actions.

1.2 The Meeting will review the status of follow-up action on the outcomes from MET SG/25 and consider further actions necessary.

**2. DISCUSSION**

MET SG/25 – Draft Conclusions and Draft Decision

2.1 MET SG/25 formulated the following three (3) Draft Conclusions and one (1) Draft Decision for further consideration by APANPIRG:

- **Draft Conclusion MET SG/25-03:** *Updating Online Register of IWXXM Exchange Status*
- **Draft Conclusion MET SG/25-07:** *SWIM architecture to enable the cost-effective and efficient provision and consumption of MET information services*

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- **Draft Conclusion MET SG/25-09:** *Update on the provision of Space Weather Advisory*
- **Draft Decision MET SG/25-08:** *Meteorological expert contribution to SWIM/TF*

2.2 The above Draft Conclusions and Draft Decision are fully reproduced in **Appendix A** to this paper. In addition, further discussion on the APANPIRG's consideration of the above Draft Conclusions and Draft Decision is provided separately in WP/04 – *Review outcomes from APANPIRG/32*.

MET SG/25 – Conclusions and Decisions

2.3 MET SG/25 adopted the following three (3) Conclusions and four (4) Decisions dealing with matters under the MET SG's terms of reference:

- **Conclusion MET SG/25-01:** *Publishing of IWXXM Frequently Asked Questions*
- **Conclusion MET SG/25-10:** *Update to Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations*
- **Conclusion MET SG/25-11:** *Updates to Regional SIGMET Guide*
- **Decision MET SG/25-02:** *Review the consistency in terminology and reporting format of the working groups*
- **Decision MET SG/25-04:** *MET Deficiencies ad hoc group TOR*
- **Decision MET SG/25-05:** *MET Deficiencies template and guidance*
- **Decision MET SG/25-06:** *Further update on SIGMET Coordination guidance for enhancement of SIGMET coordination activities in the Region*

2.4 The above Conclusions and Decisions are fully reproduced in **Appendix B** of this paper. In addition, **Appendix B** indicates the status of follow-up actions related to the MET SG/25 Conclusions and Decisions.

MET SG/25 – List of Actions

2.5 MET SG/25 recorded fifteen (15) new action items, reproduced in full in **Appendix C** of this paper. In addition, **Appendix C** indicates the follow-up status of the action items.

### 3. ACTION BY THE MEETING

3.1 This paper invites the Meeting to:

- a) Refer to WP/04 – *Review outcomes from APANPIRG/32* for further discussion on the MET SG/25 Draft Conclusions and Draft Decision;
- b) Review the status of follow-up actions related to the MET SG/25 Conclusions and Decisions (as indicated in **Appendix B** to this paper);
- c) Review the follow-up status of the MET SG/25 List of Actions (as indicated in **Appendix C** to this paper); and
- a) Consider further actions necessary to support the follow-up on outcomes from MET SG/25.

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**APPENDIX A**

**MET SG/25 – (3) Draft Conclusions and (1) Draft Decision**

<b>Draft Conclusion MET SG/25-03: Updating Online Register of IWXXM Exchange Status</b>	
That, States/Administrations provide timely updates to the Online Register of IWXXM Exchange Status on the latest status of AMHS capability for IWXXM exchange among ROCs and NOCs, and the availability of IWXXM MET reports.	Expected impact: <input checked="" type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: To inform users and Regional OPMET Bulletin Exchange Scheme participants of each States’ ability to generate and receive IWXXM over the required communication links and facilitate the Region-wide implementation of IWXXM exchange.	
When: Now	Status: Draft to be adopted by PIRG
Who: <input type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs	

<b>Draft Conclusion MET SG/25-07: SWIM architecture to enable the cost-effective and efficient provision and consumption of MET information services</b>	
That, APAC SWIM TF ensures it defines a SWIM architecture, corresponding technical infrastructure requirements, and implementation approach that continues to enable the cost-effective and efficient provision and consumption of MET information services to all users to support aviation safety and air navigation capacity and efficiency, in consideration of use cases of highly data-intensive MET information services.	Expected impact: <input checked="" type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: SWIM architecture, principally over CRV, might not provide a cost-effective and efficient solution for all use cases envisaged in ICAO’s global plans, in particular after commencement of the provision of highly data-intensive quantitative and probabilistic MET information services and enable access from anywhere in the globe.	
When: Now	Status: Draft to be adopted by PIRG
Who: <input checked="" type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs	

<b>Draft Conclusion MET SG/25-09: Update on the provision of Space Weather Advisory</b>	
That, States/Administrations urgently implement or adjust their systems to enable the forwarding of space weather advisories (in TAC and IWXXM form) as appropriate to users.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: CRC will commence operation with effect from 16 November 2021, and the WMO message headers for TAC and IWXXM format SWX advisory messages were updated to have separate headers for each space weather impact type.	
When: Now	Status: Draft to be adopted by PIRG
Who: <input type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs	

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<b>Draft Decision MET SG/25-08:</b> Meteorological expert contribution to SWIM/TF	
That, States consider identifying meteorological experts to contribute to the APAC SWIM/TF to ensure meteorological aspects are fully considered.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: Currently, few members of the SWIM/TF come from a meteorological background. The SWIM/TF would benefit from a greater understanding of the requirements and plans for meteorological information services.	
When: Now	Status: Draft to be adopted by PIRG
Who: <input checked="" type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs	

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**APPENDIX B**

**MET SG/25 – (3) Conclusions and (4) Decisions** (with notes indicating the status of follow-up action)

<b>Conclusion MET SG/25-01: Publishing of IWXXM Frequently Asked Questions</b>	
That, MET SG approves the IWXXM Frequently Asked Questions in Appendix E of the MET SG/25 Report and requests the Secretariat to arrange its publishing on the ICAO APAC Office e-Documents website.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why:	To assist States in the implementation of IWXXM.
When:	Now
Status:	Adopted by Subgroup
Who:	<input type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs

**Notes:**

1. The document *IWXXM Implementation in APAC Region, Frequently Asked Questions (FAQs)* is published on the ICAO APAC Office website at:  
<https://www.icao.int/APAC/Pages/eDocs.aspx>

<b>Conclusion MET SG/25-10: Update to Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations</b>	
That, MET SG approves the updates to the <i>APAC Regional Guidance for Tailored Meteorological Information and Services to Support Air Traffic Management Operations</i> in Appendix G of the MET SG/25 Report, for use by States, including the proposed updates to the format for the Appendices (1 and 2) of the guidance, the document maintenance procedure and the format for publishing the guidance on the ICAO APAC Office Website.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why:	To provide States with up to date guidance material and make the updated version available on the ICAO APAC “eDocuments” website.
When:	Now
Status:	Adopted by Subgroup
Who:	<input checked="" type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs

**Notes:**

2. The document *Guidance for Tailored Meteorological Information and Services to Support Air Traffic Management Operations* is published on the ICAO APAC Office website at:  
<https://www.icao.int/APAC/Pages/eDocs.aspx>

<b>Conclusion MET SG/25-11: Updates to Regional SIGMET Guide</b>	
That, MET SG approves the updates to the SIGMET Guide in Appendix H of the MET SG/25 Report for use by States and for publishing on the ICAO APAC Office website.	Expected impact: <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical

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Why: To harmonise the ICAO APAC Regional SIGMET Guide with SIGMET Guide in the ICAO EUR Region, including guidance on IWXXM format relevant to SIGMET information.	
When: Now	Status: Adopted by Subgroup
Who: <input checked="" type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs	

**Notes:**

- The document *Asia/Pacific Regional SIGMET Guide, Ninth Edition — Oct 2021* is published on the ICAO APAC Office website at:  
<https://www.icao.int/APAC/Pages/eDocs.aspx>

<b>Decision MET SG/25-02:</b> Review the consistency in terminology and reporting format of the working groups	
That, ICAO Secretariat, the MET SG Chair/s and its subsidiary Working Group Chair/s, undertake a review of the terminology and reporting format of the working groups.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: For consistency in the reporting of progress.	
When: Now	Status: Adopted by Subgroup
Who: <input checked="" type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs	

**Notes:**

- The ICAO Secretariat and Chairs of MET SG, MET/IE WG, MET/S WG and MET/R WG have scheduled coordination meetings in 2022.
- Follow-up action by the Secretariat and Chairs is ongoing on an audit of the reporting format and terminology used by the MET SG and WGs and preparing a standard, integrated reporting template.

<b>Decision MET SG/25-04:</b> 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: <i>Uniform methodology for the identification, assessment and reporting of air navigation shortcomings and deficiencies</i> 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.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: To optimise MET SG's assistance to APANPIRG in identifying and resolving air navigation deficiencies in the field of MET.	
When: Now	Status: Adopted by Subgroup
Who: <input checked="" type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs	

**Notes:**

6. Follow-up action by the MET/S WG ad hoc group is ongoing.

<b>Decision MET SG/25-05: MET Deficiencies template and guidance</b>	
That, MET SG endorses the <i>MET Deficiency Report Guide</i> and <i>MET Deficiency Identification Guide</i> in Appendix F of the MET SG/25 Report.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: To assist States with reporting to ICAO on the resolution, progress or identification of air navigation deficiencies in the MET field.	
When: Now	Status: Adopted by Subgroup
Who: <input checked="" type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs	

**Notes:**

7. The documents *MET Deficiency Report Guide* and *MET Deficiency Identification Guide* are available in Appendix F of the Report of MET SG/25 at:  
[https://www.icao.int/APAC/Meetings/2021%20MET%20SG%2025/MET-SG-25\\_Report.pdf](https://www.icao.int/APAC/Meetings/2021%20MET%20SG%2025/MET-SG-25_Report.pdf)

<b>Decision MET SG/25-06: Further update on SIGMET Coordination guidance for enhancement of SIGMET coordination activities in the Region</b>	
That, MET SG supports continual dialogue between neighbouring MWOs and also between MWOs and end-users to enhance mutual understanding for the betterment of SIGMET coordination activities and task the ad hoc group on SIGMET Coordination under MET/S WG to: (a) Consider and review the lessons learnt from SIGMET coordination activities, including outcomes of relevant workshops held in the Region; (b) Organise and support surveys on user requirements of SIGMET; and (c) Update guidance on SIGMET Coordination in consideration of the results of (a) and (b).	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: To facilitate more efficient and better coordinated SIGMET service to meet aviation users' expectations and operational requirements in the Region.	
When: Now	Status: Adopted by Subgroup
Who: <input checked="" type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs	

**Notes:**

8. Follow-up action by the MET/S WG ad hoc group is ongoing.

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**APPENDIX C****MET SG – LIST OF ACTIONS**(Note: Proposed updates are indicated with ~~strikethrough~~ and **highlighted** text)**Action items recorded by MET SG/25**

<b>MET SG – LIST OF ACTIONS</b>				
<b>Action No.</b>	<b>Detailed description of actions</b>	<b>Responsibility</b>	<b>Target date</b>	<b>Status</b>
<b>25/01</b>	<b>Revise the Work Plan of MET SG</b> to reflect the up-to-date status of progress on the various updated target dates, such as Final reports of volcanic ash exercises [Ref: para. 1.8.]	Secretariat	Nov 2021	Completed
<b>25/02</b>	<b>Revise the Work Plan of MET SG</b> to include the “organisation” as well as “analysis” of Regional SIGMET monitoring exercises [Ref: para. 1.8.]	Secretariat	Nov 2021	Completed
<b>25/03</b>	<b>Revise the Work Plan of MET SG</b> to ensure the responsibilities to promote integration and expansion of SIGMET coordination activities are delegated appropriately to the relevant working group/s [Ref: para. 1.8.]	Secretariat and WG Chairs	Nov 2021	Completed
<b>25/04</b>	<b>Revise the Work Plan of MET/R</b> to take the lead in developing the proposed amendment to ANP Volume III in coordination with MET/IE and MET/S [Ref: para. 2.5.]	Secretariat and MET/R WG	Nov 2021	To commence
<b>25/05</b>	<b>Reach out to States concerned with air navigation deficiencies</b> to identify and record target dates for resolving their respective air navigation deficiencies [Ref: para. 4.3.]	Secretariat	Nov 2021	<del>To commence</del> <b>In progress</b>
<b>25/06</b>	<b>Finalise the proposals for amendment of the APAC ANP (Vol I and II) and ROBEX Handbook</b> as agreed in previous meetings to ensure accuracy of the requirements specifications against which the OPMET monitoring is analysed [Ref: para. 4.6.-4.7.]	Secretariat	Nov 2021	In progress
<b>25/07</b>	<b>Finalise a proposal for amendment of the APAC ANP (Table MET II-1) and consequential amendment to the APAC Regional SIGMET Guide</b> as necessary to ensure the correct use of FIR indicator for Port Moresby [Ref: para. 4.12.-4.14.]	Secretariat	Nov 2021	<del>To commence</del> <b>In progress;</b> <b>ANP amendment pending;</b> <b>SIGMET Guide amended, 9<sup>th</sup> Ed.</b>
<b>25/08</b>	<b>Review and revise the APAC Regional SIGMET Test procedure</b> as necessary to ensure MWOs issue a SIGMET test message for each VAA test message received from each of its associated VAACs [Ref: para. 4.12.-4.14.]	Secretariat	Oct 2021	<del>To commence</del> <b>Completed</b>
<b>25/09</b>	<b>Review SIGMET Guide</b> as necessary to guide MWOs to handle cases when VAAC would not hand	MET/S	Mar 2023	To commence

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Action No.	Detailed description of actions	Responsibility	Target date	Status
	over to the neighbouring VAAC even if the ash cloud is expected to cross the AoR [Ref: para. 4.12.-4.14.]			
25/10	<b>Assist the Solomon Islands in aligning procedures with ICAO Annex 3, conducting SIGMET monitoring by RODBs and follow-up SIGMET tests</b> to demonstrate ICAO-compliant content, format and timeliness of SIGMET information service and its sustainability [Ref: para. 4.15.-4.18.]	Solomon Islands, Secretariat, Australia and New Zealand	Feb 2022	To commence In progress; Ref: MET/S WG/12 IP/11
25/11	<b>Coordinate removal of AN deficiency AP-MET-23 from the open list</b> with the relevant ICAO bodies (MET/S WG, MET SG and APANPIRG) after receipt of the additional evidence and report from Solomon Islands [Ref: para. 4.19.]	Secretariat	Mar 2022	To commence
25/12	<b>Provide updates to the contact lists in the ICAO Doc 9766-AN/968 (Handbook on the International Airways Volcano Watch (IAVW))</b> to the ICAO METP [Ref: para. 5.15.]	MET SG, MET/S WG, MET/IE WG	Mar 2022	To commence
25/13	<b>Coordinate possible SWX advisory exercise/s and training workshop/s</b> with the appropriate body under METP for [Ref: para. 5.28.]	Secretariat MET/S WG, MET/IE WG	Nov 2021	To commence In progress; ICAO APAC webinar on space weather information service (TBD in Q3/Q4 2022); Secretariat to coordinate with Australia [MET/IE WG/20 - ACTION 01]; MET/R WG new deliverable #7 to promote user education on SWX service.
25/14	<b>Finalise the proposed amendment to the ROBEX Handbook, Table A, Appendix A</b> , to reflect the requirement of China for regular exchange of OPMET bulletins with Sri Lanka, Indonesia, Malaysia and India in consultation with States concerned [Ref: para. 6.1.-6.2.]	Secretariat	Nov 2021	To commence In progress

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<b>Action No.</b>	<b>Detailed description of actions</b>	<b>Responsibility</b>	<b>Target date</b>	<b>Status</b>
<b>25/15</b>	<b>Coordinate and update the MET SG work plan</b> based on the outcomes of the MET SG/25 Meeting's discussions [Ref: para. 7.1.-7.2.]	Secretariat and Chairs MET SG and WG's	29 Oct 2021	Completed

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