



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

Agenda Item 2: Review of follow-up from previous meetings**FOLLOW-UP ACTION FROM MET SG/25**

(Presented by Secretariat)

SUMMARY

This paper presents the status of follow-up action on outcomes from the Twenty-Fifth Meeting of the Meteorology Sub-group (MET SG/25) and invites the meeting to consider further actions for MET/S WG, as necessary, to support the follow-up action 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 three (3) Draft Conclusions and one (1) Draft Decision for further consideration by the APAC Air Navigation Planning and Implementation Regional Group (APANPIRG), and three (3) Conclusions and four (4) Decisions dealing with matters under the MET SG's terms of reference. In addition, MET SG/25 recorded 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 for the MET/S WG, as necessary, to support the follow-up action on the outcomes from MET SG/25.

2. DISCUSSION**MET SG/25 – Draft Conclusions and Draft Decision**

2.1 The Draft Conclusions and Draft Decision formulated by MET SG/25 for consideration by APANPIRG are reproduced at the **Appendix A** to this paper.

2.2 Further discussion on the outcomes of the Thirty-second Meeting of APANPIRG (APANPIRG/32; online, December 2021) consideration of the above Draft Conclusions and Draft Decision is provided separately in the MET/S WG/12 working paper, WP/04 – *FOLLOW-UP ACTION*

FROM APANPIRG/32.

MET SG/25 – Conclusions and Decisions

2.3 The Conclusions and Decisions adopted by MET SG/25, which require the attention of States or action by the ICAO or relate to the internal working arrangements of the MET SG, are reproduced at the **Appendix B** to this paper.

2.4 **Appendix B** also indicates the status of follow-up action related to the Conclusions and Decisions adopted by MET SG/25.

MET SG/25 – List of Actions

2.5 The action items recorded in the Report of MET SG/25, Appendix C, List of Actions, are reproduced at the **Appendix C** to this paper.

2.6 The List of Actions at **Appendix C** indicates the status of follow-up on the action items (in the last column). Updates to the status of follow-up on the action items since publishing of the Report of MET SG/25 are indicated by highlighted and strike-through text.

3. ACTION BY THE MEETING

3.1 This paper invites the meeting to:

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

APPENDIX A

MET SG/25 – Draft Conclusions and Draft Decision

Draft Conclusion MET SG/25-03: Updating Online Register of IWXXM Exchange Status	
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	

Draft Conclusion MET SG/25-07: SWIM architecture to enable the cost-effective and efficient provision and consumption of MET information services	
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	

Draft Conclusion MET SG/25-09: Update on the provision of Space Weather Advisory	
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	

Draft Decision MET SG/25-08: 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	

APPENDIX B

MET SG/25 – Conclusions and Decisions

Conclusion MET SG/25-01: Publishing of IWXXM Frequently Asked Questions	
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

- **Status of follow-up action** related to Conclusion MET SG/25-01:
 - *IWXXM Implementation in APAC Region, Frequently Asked Questions (FAQs)* published on the ICAO APAC Office website
 - <https://www.icao.int/APAC/Pages/eDocs.aspx>

Conclusion MET SG/25-10: Update to <i>Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations</i>	
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

- **Status of follow-up action** related to Conclusion MET SG/25-10:
 - *Guidance for Tailored Meteorological Information and Services to Support Air Traffic Management Operations* published on the ICAO APAC Office website
 - <https://www.icao.int/APAC/Pages/eDocs.aspx>

Conclusion MET SG/25-11: Updates to <i>Regional SIGMET Guide</i>	
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
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		

- **Status of follow-up action** related to Conclusion MET SG/25-11:
 - *Asia/Pacific Regional SIGMET Guide, Ninth Edition — Oct 2021* published on the ICAO APAC Office website
 - <https://www.icao.int/APAC/Pages/eDocs.aspx>

Decision MET SG/25-02: 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
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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		

- **Status of follow-up action** related to Decision MET SG/25-02:
 - Follow-up action is ongoing
 - The ICAO Secretariat and Chairs of MET SG, MET/IE WG, MET/S WG and MET/R WG scheduled meetings in 2022 to coordinate the audit of the reporting format and terminology used by the MET SG and WGs and preparation of a common, integrated reporting template

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: <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
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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		

- **Status of follow-up action** related to Decision MET SG/25-04:

- Further discussion is provided separately in the MET/IE WG/20 and MET/S WG/12 conjoint session working paper, WP/C03 – *APPLICATION OF MET DEFICIENCY IDENTIFICATION METHODOLOGY TO 2021 ANNUAL SIGMET TESTS*, presented by New Zealand

Decision MET SG/25-05: MET Deficiencies template and guidance	
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	

- **Status of follow-up action** related to Decision MET SG/25-05:
 - Further discussion is provided separately in the MET/IE WG/20 and MET/S WG/12 conjoint session working paper, WP/C03 – *APPLICATION OF MET DEFICIENCY IDENTIFICATION METHODOLOGY TO 2021 ANNUAL SIGMET TESTS*, presented by New Zealand

Decision MET SG/25-06: Further update on SIGMET Coordination guidance for enhancement of SIGMET coordination activities in the Region	
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	

- **Status of follow-up action** related to Decision MET SG/25-06:
 - Further discussion is provided separately in the MET/S WG/12 working paper, WP/08 – *PROGRESS OF THE AD HOC GROUP ON SIGMET COORDINATION*, presented by the MET/S WG ad hoc group on SIGMET Coordination

APPENDIX B

MET SG – LIST OF ACTIONS

(Note: Proposed updates are indicated with ~~strikethrough~~ and **highlighted** text)

Action items recorded by MET SG/25

MET SG – LIST OF ACTIONS				
Action No.	Detailed description of actions	Responsibility	Target date	Status
25/01	Revise the Work Plan of MET SG 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
25/02	Revise the Work Plan of MET SG to include the “organisation” as well as “analysis” of Regional SIGMET monitoring exercises [Ref: para. 1.8.]	Secretariat	Nov 2021	Completed
25/03	Revise the Work Plan of MET SG 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
25/04	Revise the Work Plan of MET/R 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
25/05	Reach out to States concerned with air navigation deficiencies to identify and record target dates for resolving their respective air navigation deficiencies [Ref: para. 4.3.]	Secretariat	Nov 2021	To commence In progress
25/06	Finalise the proposals for amendment of the APAC ANP (Vol I and II) and ROBEX Handbook 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
25/07	Finalise a proposal for amendment of the APAC ANP (Table MET II-1) and consequential amendment to the APAC Regional SIGMET Guide as necessary to ensure the correct use of FIR indicator for Port Moresby [Ref: para. 4.12.-4.14.]	Secretariat	Nov 2021	To commence In progress; ANP amendment pending; SIGMET Guide amended, 9 th Ed.
25/08	Review and revise the APAC Regional SIGMET Test procedure 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	To commence Completed

MET SG – LIST OF ACTIONS

Action No.	Detailed description of actions	Responsibility	Target date	Status
25/09	Review SIGMET Guide as necessary to guide MWOs to handle cases when VAAC would not hand over to the neighbouring VAAC even if the ash cloud is expected to cross the AoR [Ref: para. 4.12.-4.14.]	MET/S	Mar 2023	To commence
25/10	Assist the Solomon Islands in aligning procedures with ICAO Annex 3, conducting SIGMET monitoring by RODBs and follow-up SIGMET tests 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	Coordinate removal of AN deficiency AP-MET-23 from the open list 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	Provide updates to the contact lists in the ICAO Doc 9766-AN/968 (Handbook on the International Airways Volcano Watch (IAVW)) to the ICAO METP [Ref: para. 5.15.]	MET SG, MET/S WG, MET/IE WG	Mar 2022	To commence
25/13	Coordinate possible SWX advisory exercise/s and training workshop/s with the appropriate body under METP for [Ref: para. 5.28.]	Secretariat MET/S WG, MET/IE WG	Nov 2021	To commence In progress
25/14	Finalise the proposed amendment to the ROBEX Handbook, Table A, Appendix A 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
25/15	Coordinate and update the MET SG work plan 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
