



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 2: Review outcomes from previous meetings

REVIEW OUTCOMES FROM MET SG/23

(Presented by the Secretariat)

SUMMARY

This paper invites the meeting to review the outcomes from the Twenty-Third Meeting of the Meteorology Sub-group (MET SG/23) and consider further actions, as necessary, to complete the follow-up work from MET SG/23.

1. INTRODUCTION

1.1 The ICAO Asia and Pacific (APAC) Office hosted the Twenty-Third Meeting of the Meteorology Sub-group (MET SG/23) in Bangkok, Thailand from 17 to 20 June 2019.

1.2 This paper invites the meeting to review the outcomes from MET SG/23 and consider further actions, as necessary, to complete the follow-up work from MET SG/23.

2. DISCUSSION

2.1 The report from MET SG/23, and all related meeting documentation, is available at the ICAO APAC Office website (www.icao.int/apac>Meetings>Meeting List-2019>MET SG/23).

2.2 For easy reference, the main outcomes from MET SG/23, i.e., the MET SG/23 Draft Conclusions, Draft Decision, Conclusions, Decisions and additional agreed actions/tasks are reproduced at the **Attachment 1** and **Attachment 2** to this paper and discussed further below.

MET SG/23 – Draft Conclusions and Draft Decision

2.3 MET SG/23 formulated two (2) Draft Conclusions and one (1) Draft Decision for further consideration by APANPIRG:

- **Draft Conclusion** MET SG/23-1: *Implementation of IWXXM*
- **Draft Conclusion** MET SG/23-2: *Discontinuation of meteorological information in TAC form*
- **Draft Decision** MET SG/23-8: *Updated terms of reference and work plan of MET SG*

Agenda Item 2

16-20/11/20

2.4 APANPIRG/30 (November 2019) subsequently adopted the above MET SG/23 Draft Conclusions and Draft Decision as Conclusion APANPIRG/30/17 – *Implementation of IWXXM*, Conclusion APANPIRG/30/18 – *Discontinuation of meteorological information in TAC form*, and Decision APANPIRG/30/16 – *Updated terms of reference and work plan of MET SG*.

MET SG/23 – Conclusions

2.5 MET SG/23 adopted three (3) Conclusions for the attention of States or action by the ICAO:

- **Conclusion** MET SG/23-4: *Endorsement of APAC Regional SIGMET Guide updates for Amendment 78 to Annex 3 (20th Edition)*
- **Conclusion** MET SG/23-5: *Endorsement of APAC Regional guidance for the alignment of cross-FIR-boundary SIGMET information*
- **Conclusion** MET SG/23-6: *Endorsement of updates to Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations*

2.6 As follow-up to the above MET SG/23 Conclusions, ICAO published the following, updated documents at the ICAO APAC Office website (www.icao.int/apac > APAC eDocuments > MET): *APAC Regional SIGMET Guide*, Seventh Edition, October 2019; and *APAC Regional Guidance for Tailored MET Information and Services to Support ATM Operations*, Version 1, June 2019.

MET SG/23 – Decisions

2.7 MET SG/23 adopted two (2) Decisions related to the internal working arrangements of the MET SG:

- **Decision** MET SG/23-3: *Improved Regional guidance for SIGMET for volcanic ash forecast to cross FIR boundaries*
- **Decision** MET SG/23-7: *Development of APAC User Requirements for SWIM-based MET Information Services Supporting ATFM*

2.8 As follow-up to Decision MET SG/23-3, the MET SG tasked the MET/S WG to review the SIGMET Guide and proposes improved guidance related to SIGMET issuance when volcanic ash is forecast to cross FIR boundaries.

2.9 As follow-up to Decision MET SG/23-7, MET/R WG/9 (May 2020) adopted updates to its plan of work to include (Deliverable #8) the establishment of an ad-hoc group, comprising subject matter experts from both MET/R WG and ATFM/SG, and development of an *APAC Use Case and User Requirements for SWIM-based MET Information Services Supporting ATFM*.

MET SG/23 – Agreed actions

2.10 In addition to the above, MET SG/23 agreed to fourteen (14) actions/tasks. The status of follow-up on the agreed actions is indicated at the **Attachment 2** to this paper.

3. ACTION BY THE MEETING

3.1 This paper invites the meeting to review the outcomes from MET SG/23, as discussed above and presented in the **Attachment 1** and **Attachment 2** to this paper, and consider further actions, as necessary, to complete the follow-up work from MET SG/23.

MET SG/23 Draft Conclusions

Draft Conclusion MET SG/23-1: Implementation of IWXXM	
What: That, all Member States/Administrations:	
<ul style="list-style-type: none"> a) Arrange for the dissemination of the required meteorological information in IWXXM GML form, in accordance with Amendment 78 to Annex 3; b) Implement only Version 3 of IWXXM for the exchange of the required meteorological information on operational networks from 5 November 2020; c) Implement Air Traffic Services (ATS) Message Handling System (AMHS), with File Transfer Body Part (FTBP) the Interpersonal Message (IPM) Heading Extension (IHE) to support the exchange of IWXXM, including support for IWXXM reports of a maximum size of 4MB and FTBP of maximum 2MB; d) Ensure there is adequate capacity in the operational AFS links to support the exchange of the required meteorological information in both IWXXM GML form and TAC form; e) Consider putting in necessary protection against cyber security, and f) Implement the necessary changes (above) as a priority at the APAC ROCs and RODBs. 	
Why:	
<ul style="list-style-type: none"> a) From November 2018, Amendment 78 to Annex 3 specifies that States should disseminate specific meteorological information (i.e., METAR/SPECI, TAF, SIGMET, AIRMET and volcanic ash and tropical cyclone advisory information) in IWXXM GML form (with the addition of space weather information from November 2019). From November 2020, Amendment 78 to Annex 3 also specifies that States shall disseminate all the above specific meteorological information in IWXXM GML form; b) ICAO Doc 10003 – <i>Manual on the Digital Exchange of Aeronautical Meteorological Information</i>, stipulates that, to meet the requirements of Amendment 79 to Annex 3, only Version 3 of IWXXM, or later, shall be exchanged on operational networks from 5 November 2020; c) IWXXM GML form is far more verbose than the existing TAC format and, as a result, compression is required. However, to support the exchange of compressed IWXXM files, AMHS links with FTBP and IHE are required; d) In accordance with Annex 3, States/Administrations will disseminate both IWXXM and TAC data over the AFS in parallel, and given the significant increase in data volumes, operational links will require adequate capacity to support both data sets; and e) The Regional and Global exchange of the required meteorological information in IWXXM GML form depends on the ROCs and RODBs being IWXXM-exchange capable. 	
Expected impact:	
<input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical	
Follow-up: <input checked="" type="checkbox"/> Required from States	
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:	

Draft Conclusion MET SG/23-2: Discontinuation of meteorological information in TAC form	
What: That, ICAO urges States to consider necessary changes to migrate systems to enable the use of meteorological information in XML/GML (IWXXM) form, as an alternate to meteorological information in traditional alpha-numeric code (TAC) form, and prepare for consequential impacts to aviation meteorological services such as VOLMET broadcast, weather briefing system and flight documentation preparation system.	
Why:	
<ul style="list-style-type: none"> a) ICAO Annex 3 specifies that from November 2020, States shall disseminate specific meteorological information (i.e., METAR/SPECI, TAF, SIGMET, AIRMET and space weather, volcanic ash and tropical cyclone advisory information) in IWXXM GML form; 	

b) Air Navigation Conference: Recommendation 2.3/2: Further Development of IWXXM for the Exchange of Aeronautical Meteorological Information, ensure that the IWXXM format is the only standard exchange format by 2026.

Expected impact:

Political / Global Inter-regional Economic Environmental Ops/Technical

Follow-up: Required from States

When: By 2026

Status: Draft to be adopted by PIRG

Who: Sub groups APAC States ICAO APAC RO ICAO HQ Other:

MET SG/23 Draft Decision

Draft Decision MET SG/23-8: Updated terms of reference and work plan of MET SG

What: That, APANPIRG approves the updated terms of reference and work plan of MET SG (at **Appendix 1** to the Report on MET SG/23)

Why: To help ensure meeting documentation is available in a timely manner to meet participants' requirements and to reflect the current deliverables and timeframes of the MET SG work plan

Expected impact:

Political / Global Inter-regional Economic Environmental Ops/Technical

Follow-up: Required from States

When: On approval

Status: Draft to be adopted by PIRG

Who: Sub groups APAC States ICAO APAC RO ICAO HQ Other:

MET SG/23 Conclusions

Conclusion MET SG/23-4: Endorsement of *APAC Regional SIGMET Guide* updates for Amendment 78 to Annex 3 (20th Edition)

What: That,

- a) MET SG endorses the updated *APAC Regional SIGMET Guide*, based on Amendment 78 to ICAO Annex 3 (at **Appendix 3** to the Report on MET SG/23), as regional guidance material; and
- b) ICAO distributes the Guide to States and makes the guide available on the ICAO APAC website

Why: The *Regional SIGMET Guide* requires updating to align with Amendment 78 to Annex 3.

Expected impact:

Political / Global Inter-regional Economic Environmental Ops/Technical

Follow-up: Required from States

When: As soon as practicable

Status: Adopted by Subgroup

Who: Sub groups APAC States ICAO APAC RO ICAO HQ Other: MET/S WG

Conclusion MET SG/23-5: Endorsement of *APAC Regional guidance for the alignment of cross-FIR-boundary SIGMET information*

What: That,

- a) MET SG endorses the *Guidelines for Operational SIGMET Coordination* (at **Appendix 4** to the Report on MET SG/23) as a reference for States and Organizations concerned; and
- b) ICAO makes the Guidelines available (as an Appendix) in the *APAC Regional SIGMET Guide*.

Why: To assist States in aligning SIGMET information across FIR boundaries using the lessons learnt from international SIGMET coordination projects.

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	
Follow-up: <input type="checkbox"/> Required from States	
When: As soon as practicable	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: MET/S WG	

Conclusion MET SG/23-6: Endorsement of updates to <i>Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations</i>	
What: That, a) MET SG endorses the updated <i>Regional Guidance for Meteorological Information Supporting ATM</i> (at Appendix 5 to the Report on MET SG/23) as a reference for States and Organizations concerned; and b) ICAO makes the Guidance available at the APAC Office website and informs the ATM/SG.	
Why: To make available to States the updated guidance material developed by the MET/R WG ad-hoc group (Australia, China, Hong Kong, China, Japan (rapporteur), New Zealand, Republic of Korea, Singapore, Thailand, Vietnam and IATA), which was reviewed and supported by MET/R WG/8.	
Expected impact: Ops/Technical Follow-up: MET SG When: As soon as practicable	Status: Adopted by Subgroup Who: ICAO
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	
Follow-up: <input type="checkbox"/> Required from States	
When: As soon as practicable	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:	

MET SG/23 Decisions

Decision MET SG/23-3: Improved Regional guidance for SIGMET for volcanic ash forecast to cross FIR boundaries	
What: That, MET/S WG reviews the SIGMET Guide and proposes improved guidance related to SIGMET issuance when the volcanic ash is forecast to cross FIR boundaries.	
Why: The SIGMET Guide does not provide specific guidance on the issuance of SIGMET for volcanic ash when the horizontal extent of volcanic ash is forecast to affect adjacent FIRs.	
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	
Follow-up: <input type="checkbox"/> Required from States	
When: As soon as practicable	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:	

Decision MET SG/23-7: Development of <i>APAC User Requirements for SWIM-based MET Information Services Supporting ATFM</i>	
What: That, MET/R WG, in conjunction with the ATFM SG, establish an ad-hoc group to develop user cases and user requirements for future SWIM-based MET information services supporting ATFM.	
Why: To further support a proposal presented by Australia, Hong Kong China and Thailand to develop a regional document for SWIM-based MET information services specifically to support ATFM in Asia/Pacific Region, taking into account the need to reflect the requirements of the ATFM community in the proposal and the need for more mature terms of reference for the proposal.	

Expected impact:

Political / Global Inter-regional Economic Environmental Ops/Technical

Follow-up: Required from States

When: As soon as practicable

Status: Adopted by Subgroup

Who: Sub groups APAC States ICAO APAC RO ICAO HQ Other: MET/R WG

MET SG/23 TASK LIST

Action No.	Detailed description of actions	Responsibility	Target date	Status
23/01	Coordinate the necessary Draft proposals for amendment of the ANP Volume I and Volume II, in coordination with States concerned (Ref. Work plan of MET SG: <i>Draft amendment proposal for APAC ANP to fulfil missing data in Tables MET</i>) [Report, para. 2.8]	Secretariat	As soon as practicable	In progress
23/02	Update the work plan of MET/S WG to coordinate with MET/R WG on the next steps to promote integration and expansion of SIGMET coordination activities among States/Administrations (Ref: Conclusion MET/SG/22/03) [Report, para. 2.9]	Chairs MET/S WG and MET/R WG, in conjunction with Chair MET SG and Secretariat	Before APANPIRG/30	Completed
23/03	Conduct a coordinated review and update of the terms of reference and work plans to realign the working groups with the work plan of the MET SG [Report, para. 2.10]	Chairs MET/IE WG, MET/S WG, MET/R WG and MET SG, in conjunction with Secretariat	Before APANPIRG/30	In progress
23/04	Distribute the following documents, as endorsed by the ICAO METP/4, by State letter in order to publicize the content and purpose of each document and to invite feedback from relevant stakeholders: a) <i>MET-SWIM Plan</i> ; b) <i>Guidelines for the Implementation of OPMET Data Exchange Using IWXXM</i> ; c) <i>Roadmap for International Airways Volcano Watch (IAVW) in Support of International Air Navigation</i> ; and d) <i>“White Paper” on Future Aeronautical Meteorology Information Service Delivery</i> [Report, para. 2.20]	Secretariat	As soon as practicable	In progress
23/05	Upload the <i>MET-SWIM Plan</i> to the ICAO APAC Office “eDocuments” website. [Report, para. 2.21]	Secretariat	As soon as practicable	Completed
23/06	Include the review of lessons learnt from real volcanic ash events in the Region in the terms of reference and work plan of the VOLCEX/SG. [Report, para. 2.42]	Chair VOLCEX/SG in conjunction with Secretariat	As soon as practicable	In progress
23/07	Remind States of the invitation to provide feedback on the draft <i>Asia/Pacific Seamless ATM Plan</i> before 15 July 2019 [Report, para. 3.21]	Secretariat	As soon as practicable, before 15 July	Completed
23/08	Assist Solomon Islands to perform OPMET monitoring to support the validation of the corrective action to resolve the APANPIRG air navigation deficiencies and to prepare the full report to enable APANPIRG to remove the deficiencies. [Report, para. 4.7.]	Secretariat, in conjunction with Solomon Islands and States (including Australia)	As soon as practicable	In progress

Action No.	Detailed description of actions	Responsibility	Target date	Status
23/09	Issue a State Letter reminding all States in the APAC Region that the TEST or EXER indicator in the Annex 3 templates for SIGMET, VAA, TCA and SWXA becomes applicable on 7 November 2019 [Report, para. 5.15.]	Secretariat	As soon as practicable	Completed
23/10	Change the SIGMET Guide updates, concerning the format for SIGMET with multiple TC centres or CB areas related to one TC, to reflect only the valid provisions in Amendment 78 to Annex 3 (i.e., Repetition of elements in Table A6-1A "Template for SIGMET and AIRMET messages", including footnote 28. [Report, para. 6.1.-6.3.]	MET/S WG ad-hoc group (rapporteur Australia)	As soon as practicable	Completed
23/11	Coordinate the realignment of the SIGMET pamphlets (located on the ICAO APAC Office website) with Amendment 78 to Annex 3. [Report, para. 6.1.-6.3.]	MET/S WG ad-hoc group (rapporteur Australia)	As soon as practicable	In progress
23/12	Incorporate the <i>Guidelines for Operational SIGMET Coordination</i> into the SIGMET Guide and to keep it under review and propose updates as necessary [Report, para. 6.9.]	MET/S WG (SIGMET Guide) ad-hoc group	As soon as practicable	In progress
23/13	Continue to develop the draft survey questionnaire (on the provision of current and future MET information and services by States specifically to support ATM and, in particular, ATFM operations) based on feedback from MET SG/23, including developing more clear terms of reference and ensuring alignment with the scope of work of the MET/R WG [Report, para. 6.11.-6.13.]	MET/R WG ad-hoc group (rapporteur Australia)	Next MET/R WG meeting	In progress
23/14	Conduct an ATM-focussed review on the <i>Asia/Pacific Regional Guidance for Tailored Meteorological Information and Services to Support Air Traffic Management (ATM) Operations</i> [Report, para. 6.14.]	Secretariat	Before ATM/SG/7	In progress
