



ICAO

*International Civil Aviation Organization*

**Thirty-Fifth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/35)**

*Bangkok, Thailand, 25 to 27 November 2024*

**Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation**

**3.5 MET**

**METEOROLOGY SUB-GROUP (MET SG/28) REPORT**

(Presented by Vice-Chair of MET SG)

**SUMMARY**

This paper presents outcomes from MET SG/28 (and contributory bodies). Topics of discussions include additional support for ICAO Meteorological Secretariat, IWXXM-specific monitoring statistics and implementation status, progresses in rectifying air navigation deficiencies, updates to Regional MET-related guidance material, coordination of SIGMETs and updates to APAC Seamless ANS plan. MET SG invites the Meeting to adopt a Draft Decision on Additional Secretariat Support.

*Strategic Objectives:*

- A: **Safety** – Enhance global civil aviation safety*
- B: **Air Navigation Capacity and Efficiency** – Increase the capacity and improve the efficiency of the global aviation system*
- E: **Environmental Protection** – Minimize the adverse environment effects of civil aviation activities*

**1. INTRODUCTION**

1.1 The Meteorology Sub-Group convened for its Twenty-eighth Meeting (MET SG/28) in Bangkok, Thailand, from 8-12 July 2024. MET SG/28 reviewed the status of progress on its work plan, including its contributory bodies: Meteorological Information Exchange Working Group (MET/IE WG) and Meteorological Requirements Working Group (MET/R WG).

1.2 This paper presents a progress report on the main activities of MET SG and its contributory working groups. All documentation and reports from MET SG/28 and the meetings of MET/IE WG and MET/R WG are available at the ICAO Asia/Pacific (APAC) Office website at: <http://www.icao.int/apac> > Meetings > Meeting List 2024. In addition, the full report from MET SG/28 is at the following link:

<https://www.icao.int/APAC/Meetings/Pages/2024-MET-SG-28.aspx>

1.3 This paper invites the Meeting to adopt one Draft Decision on Additional Secretariat Support.

## 2. DISCUSSION

### Additional support for ICAO Meteorological Secretariat

2.1 The lack of capacity of the ICAO Meteorological Secretariat has been raised at meetings for several years, and members of the Meeting reiterated the critical need for a timely resolution to be implemented. The Meeting was reminded that ICAO had unsuccessfully attempted to second an Aviation Meteorological Officer via two State Letters. The Meeting requests ICAO review the minimum requirements for this support officer role, and consider the following recruitment options:

- a. secondment of an administrative capability (rather than an Aviation Meteorological Officer);
- b. allow the secondee to work remotely, that is in their home location. An initial training period in Bangkok may be required as well as in person attendance at Meteorology Sub-group and subsidiary group meetings; and/or
- c. seek additional administrative support within ICAO.

<b>Draft Decision MET SG/28/01 – Additional Secretariat Support</b>	
<b>What:</b> That, the APANPIRG request ICAO seek additional support for the ICAO RO Met through: <ol style="list-style-type: none"> <li>a) secondment of an administration resource;</li> <li>b) updating the role location requirements allowing the secondee to work remotely to ICAO APAC Office (i.e. in their home State); and/or</li> <li>c) seeking additional administration support within ICAO.</li> </ol>	<b>Expected impact:</b> <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-Regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
<b>Why:</b> For several years, METSG and its contributing bodies, have reported concerns with the capacity of MET Secretariat to contribute to MET SG effectiveness.	<b>Follow-up:</b> <input type="checkbox"/> Required from States
<b>When:</b> 12 July 2024	<b>Status:</b> Adopted by MET SG
<b>Who:</b> <input type="checkbox"/> Sub Groups <input type="checkbox"/> RASG-APAC <input type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other:	

### IWXXM-specific monitoring statistics and implementation status

2.2 MET/SG 28 supported the proposal by MET/IE WG, being in line with APANPIRG/34 recommendation, to include the implementation of IWXXM when identifying, assessing, and reporting air navigation deficiencies. MET/SG 28 also noted that MET/IE WG/22 supported future, further revision of the performance indices to assess whether the IWXXM is available, successfully passes validation and contains valid translation data (where relevant).

2.3 MET SG/28 noted that MET/IE WG/22 formulated a Draft Conclusion to replace existing meteorological information performance indices (availability, regularity and compliance) to availability and timeliness. In addition, MET/IE WG also considered the minimum availability and timeliness criteria for meteorological information in the IWXXM form and consulted criteria used in the European region. MET/IE WG proposed that a threshold of ninety-five per cent (95%) be used to

identify possible deficiencies and MET SG/28 agreed and adopted the Draft Conclusion (**Conclusion MET SG/28-02: Availability and Timeliness of TAC and IWXXM Meteorological Information**).

2.4 MET/SG 28 adopted a Conclusion (based on Draft Conclusion MET/IE WG/22-02) to review IWXXM implementation status to gauge the readiness of APAC Region for full implementation of IWXXM data exchange. Specifically, States/Administrations are required to provide ICAO an update on the status and readiness dates for the following:

- a. Air Traffic Services Message Handling System (AMHS) with File Transfer Body Part (FTBP)/Interpersonal Message Heading Extension (IHE) and configuration for single body part;
- b. AMHS connection(s) will have sufficient capacity to support IWXXM exchange;
- c. when operational IWXXM information will available; and
- d. commencement of operational exchange of IWXXM with their Regional OPMET Centre (ROC), and where applicable their respective Inter-regional OPMET Gateway. (**Conclusion MET SG/28-03: Review of APAC Region IWXXM Implementation Status/ Readiness**)

2.5 The Meeting was informed that Communications, Navigation and Surveillance (CNS) SG/28 had reviewed the above Draft Conclusion and agree that only items (a) and (b) were under the purview of CNS SG while items (c) and (d) should better be handled by MET SG. CNS SG/28 proceed to adopt Conclusion CNS SG/28/01: *Review of APAC Region IWXXM Implementation Status/ Readiness*, with items (a) and (b) only.

2.6 MET/SG 28 further noted that inter-regional IWXXM exchange requires at least one capable route between two regions. For a reliable service, at least two routes should be available. For the APAC region inter-regional IWXXM exchange, with back-up procedures in place, is only operational between APAC and EUR.

2.7 To support the expedited implementation of capable primary and, where relevant, secondary networks to support the exchange of IWXXM, the Meeting noted that MET/IE WG/22 and Aeronautical Communication Services Implementation Coordination Group (ACSICG)/11 agreed that a group of communications and meteorology experts (with members from Australia, Fiji, Hong Kong China and Singapore) should develop a checklist of steps to facilitate operational IWXXM exchange. The Meeting agreed that the above checklist could form part of the educational material supporting IWXXM implementation and be included in an ICAO State letter.

#### APANPIRG Air Navigation Deficiencies

2.8 While MET/SG 28 did not consider any specific proposals under this agenda item for the identification or rectification of air navigation deficiencies, the Meeting was informed that the Pacific Islands Aviation Weather Services (PIAWS) Panel was prioritising efforts towards resolving APANPIRG air navigation meteorological service deficiencies held by Pacific States.

2.9 MET/SG 28 also reiterated the request for the Secretariat to provide technical assistance to help the Pacific Small Island Developing (PSID) states concerned understand and determine the requirements for WAFS forecasts. This is to facilitate the rectification of deficiencies AP-MET-18, AP-MET-19 and AP-MET-20, which can only advance with progress by action MET SG 26/04.

2.10 MET/SG 28 noted results of the MET Deficiencies ad hoc group review of the 2023 Annual SIGMET test results and November 2023 OPMET Monitoring Activity results, which was done in accordance with the MET Deficiency Identification Guide. The Meeting requested the Secretariat,

with support from the MET Deficiencies ad hoc group, to prepare the necessary documentation for APANPIRG to make a detailed assessment of the shortcomings and deficiencies related to SIGMET service in Afghanistan.

2.11 The MET Deficiencies ad hoc group considered the analysis of operational SIGMET, VAA and TCA IWXXM, in addition to METAR and TAF, may be used to identify deficiencies – in particular when translation of TAC into IWXXM form is unsuccessful. The ad hoc group proposed relevant updates to the MET Deficiency Identification Guide and MET SG/28 adopted a Decision to update the guide (**Decision MET SG/28-05: Update to MET Deficiency Identification Guide**).

#### Updates to the ICAO APAC ROBEX Handbook

2.12 MET/SG 28 noted that MET/IE WG/22 proposed further development of ROBEX Handbook updates to facilitate the dissemination of Volcano Observatory Notice to Aviation (VONA), ensure clarity of the guidance concerning the ROCs' responsibilities for the distribution of IWXXM formatted OPMET data, and improve the METNO guidance.

2.13 Following the MET/IE WG/22 recommendation to monitor the availability and timeliness of METAR and TAF in TAC (SA and FT) and IWXXM (LA and LT) form with a threshold of ninety-five per cent (95%) to identify possible deficiencies, MET/SG 28 reviewed proposed updates to the ROBEX Handbook and identified issues which require correction. The Meeting requested the Secretariat to coordinate with Thailand and MET/IE WG Chairs in preparation for the November 2024 Monitoring activity.

2.14 MET/SG 28 supported in principle the proposed updates to the ROBEX Handbook developed by Australia, Japan, New Zealand to facilitate the dissemination of VONA via the Aeronautical Fixed Service (AFS) in accordance to proposed amendment to Annex 3. The Meeting requested the MET/IE WG Chairs to finalise the details of the proposed VONA exchange updates to the ROBEX Handbook, as well as for New Zealand to prepare a proposal to include VONA in the SIGMET test procedures for 2026.

2.15 MET/SG 28 reviewed and supported proposed updates to the ROBEX Handbook developed by Australia, Hong Kong China and New Zealand for METNO guidance related to the timing of METNO message issuance, example of METNO message, sender of METNO message, METNO message header and METNO focal point.

2.16 MET/SG 28 considered proposed updates to the ROBEX Handbook as agreed in MET/IE WG/22 for ensuring clarity of the guidance concerning the ROCs' responsibilities for the distribution of IWXXM formatted OPMET data and supported the proposal.

2.17 Following the above discussion, MET/SG 28 agreed to update and adopted a decision to publish the ICAO APAC ROBEX Handbook (**Decision MET SG/28-09: Updates to APAC ROBEX Handbook**).

#### Updates to Regional SIGMET Guide

2.18 MET/SG 28 reviewed the proposed updates to the Asia/Pacific Regional SIGMET Guide developed by the ad hoc group on Regional SIGMET Guide, which included guidance on SIGMET for volcanic ash crossing FIR boundaries and additional guidance on coordinating SIGMET for thunderstorms with neighbouring MWOs and when convective cloud systems affect multiple FIRs. The Meeting supported the proposed updates to the SIGMET Guide, as presented by the ad hoc group.

2.19 MET/SG 28 also reviewed proposed updates to the APAC Regional SIGMET Test Procedures developed by the Chairs of MET/IE WG and MET/SG ad hoc group on Regional SIGMET Guide to address issues in the dissemination of SIGMET test messages in IWXXM form encountered during 2023 ICAO APAC SIGMET tests, and update the tasks of dissemination of SIGMET test messages in IWXXM form. The Meeting requested the Secretariat to include the proposed updates to ICAO APAC Regional SIGMET Test Procedures in the State letter invitation for the 2024 annual SIGMET tests. In addition, the Meeting requested the ad hoc group on SIGMET Guide to include the proposed updates to ICAO APAC Regional SIGMET Test Procedures in the next proposed updates of the Regional SIGMET Guide.

2.20 In addition, MET/SG 28 reviewed a proposal to address outstanding action MET SG/25/09 to provide MWO with additional guidance for VA SIGMET issuance, and the relevant VA SIGMET example. The meeting supported the proposal and approved the additional text for inclusion in the SIGMET Guide.

2.21 Following the above discussion, MET/SG 28 agreed to update and adopted a Decision to publish the Regional SIGMET Guide (**Decision MET SG/28-10: Updates to Regional SIGMET Guide**).

#### SIGMET Coordination activities and guidance

2.22 MET/SG 28 noted the experience gained from WC SIGMET Coordination arising from Tropical Cyclone Mocha in 2023 undertaken by the South and Southeast Asia SIGMET Coordination Group. The Meeting noted these beneficial practices and agreed to task MET/R WG to consolidate potential guidelines on SIGMET Coordination to supplement the APAC SIGMET Guide.

#### Draft Guidance for Meteorological Exercises METEX Advisory Group

2.23 With the replacement of VOLCEX Steering Group by the MET Exercise Advisory Group, MET/SG 28 reviewed proposals on new guidance for organisations planning for a meteorological scenario-based exercise, and proposed updates to the MET SG Work Plan to reflect the activities of the Meteorological Exercises Advisory Group. The Meeting supported the proposals to publish the guidance and adopted a Decision (**Decision MET SG/28-06: Meteorological Exercise Guidance Material**).

#### Guidance for Tailored Meteorological Information & Services to Support Air Traffic Management (ATM) Operations

2.24 MET/SG 28 reviewed the proposed updates to the APAC Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations presented by the MET/R WG ad hoc group to include the implementation example of China. The Meeting supported the proposal to update and publish the guidance material (**Decision MET SG/28-07: Update the Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations**).

#### Asia/Pacific Use Cases & User Requirements for SWIM-based MET Information Services Supporting Air Traffic Flow Management (ATFM)

2.25 MET/SG 28 reviewed proposed updates to the reference document of APAC Use Cases and User Requirements for SWIM-based MET Information Services supporting ATFM developed by the MET/R WG ad hoc group based on the review by ATFM/SG/14, MET/R WG/13 and SWIM TF/9. Apart from minor editorial edits, the Meeting supported the proposed updates and to publish the document (**Decision MET SG/28-08: Publishing the document on APAC Use Cases and User Requirements for SWIM-based Meteorological Information Services Supporting ATFM**).

### Update of Asia/Pacific Seamless ANS Plan

2.26 MET/SG 28 noted work by Secretariat for the update of the APAC Seamless ANS Plan through a working draft. Guiding principles adopted by the Secretariat for this work and the process agreed by APANPIRG/33 for updating the Plan were shared with the Meeting. The Meeting was informed that the current draft version of the Plan requires further consultation both with APAC States/Administrations (through their nominated focal points) and APANPIRG Sub-Groups before it could be considered ready for APANPIRG endorsement.

2.27 The Secretariat further informed the Meeting regarding limited feedback received when the Draft Seamless ANS Plan V3.2.2 was circulated to POC for feedback (only four States/Administrations provided feedback). In addition, Reporting of APAC Seamless ANS Plan V3.0 implementation by States through APAC Seamless ANS Reporting Tool Portal received only six submissions. The Secretariat highlighted with the lack of sufficient data, it is not possible to present an adequate analysis of the status of implementation of the operational requirements in APAC region as recommended in the APAC Seamless ANS Plan. The States/Administrations were urged to submit the Seamless ANS Plan implementation Status and provide feedback on the draft Seamless ANS Plan V 3.2.2 through the respective POCs at the earliest. The Meeting requested that the States/Administration to submit the implementation status and provide feedback to the APAC Seamless ANS plan as soon as possible through the respective POCs after further review.

2.28 The Meeting also noted that the MET inclusions in the ANS seamless plan did not appear to reflect requirements for en-route meteorological information and requested the Secretariat to facilitate a discussion on the role of MET in the ANS seamless plan.

### Revised Work Plan

2.29 Following the dissolution of MET/S WG, MET/SG 28 considered the four outstanding actions, as recorded in the Report of MET/S WG/13, should be retained by the MET SG. On further advice from New Zealand and VAACs Darwin and Wellington, the meeting considered that two of the above actions, MET/S WG/13-01 and MET/S WG/11-01, could be closed after being addressed by the meeting and agreed to retain the actions, MET/S WG/13-03 and MET/S WG/10-21, for follow-up by the MET SG. The meeting adopted a Decision to add MET/S WG outstanding actions to MET SG action list (**Decision MET SG/28-04: Addition of MET/S WG actions to MET SG action list**).

2.30 MET/SG 28 reviewed the terms of reference and work plan of the MET SG and proposed updates to the functions of the group to include exercises and seminars and clarify the environment-related references. The Meeting also proposed extensive revisions to the work plan to realign deliverables with the functions of the group, and update assignment of responsibilities and target dates. The proposed changes are reflected in the terms of reference and work plan in Appendix A to this paper. The Meeting reiterated the need to adhere to the terms of reference, part 7, paragraphs 7.3 to 7.5, which requires the Secretariat to send reminders for submission of papers approx. 6-weeks and 1-week before the due date for submission of papers; the submission of papers at least 28-days before the Meeting; and publishing of papers at least 14-days before the Meeting.

## **3. ACTION BY THE MEETING**

3.1 The Meeting is invited to:

- a) Note the progress of the MET SG and its contributory working groups; and
- b) Adopt the Draft Decision in paragraph 2.1.

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## Appendix A – MET/SG Terms of Reference and Work Plan

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

### METEOROLOGY SUB-GROUP (MET SG) TERMS OF REFERENCE

#### 1. Objectives of the MET SG

- a) Ensure the continuous and coherent development of the MET parts of the Asia/Pacific Regional Air Navigation Plan (APAC ANP) and other relevant regional documentation in a manner that is harmonized with adjacent regions, consistent with ICAO standards and recommended practices (SARPs), the Global Air Navigation Plan and the Global Aviation Safety Plan and reflects global requirements;
- b) Facilitate the implementation of aeronautical meteorological systems and services, as identified in the APAC ANP, Aviation System Block Upgrade (ASBU) priority modules and Asia/Pacific Seamless ANS Plan elements, with due observance to the primacy of air safety, regularity and efficiency; and
- c) Identify and address specific air navigation deficiencies in the field of aeronautical meteorological (MET) services.

#### 2. Functions of the MET SG:

- a) Review MET parts of the APAC ANP, prepare amendment proposals as necessary to reflect updates and changes in the operational and global requirements;
- b) Monitor the level of and, as necessary, facilitate the implementation of aeronautical meteorological services to support the effective implementation of ASBU priority modules and the Asia/Pacific Seamless ANS Plan elements;
- c) Identify air navigation deficiencies in the field of aeronautical meteorology, e.g., through systems performance monitoring and, where necessary, propose appropriate corrective action and facilitate the development and implementation of action plans by States to resolve identified deficiencies;
- d) Review and update the APANPIRG list of air navigation deficiencies in the field of aeronautical meteorology, as necessary, to reflect the current situation;
- e) Monitor research and development and trials, ~~exercises~~ and demonstrations in the field of aeronautical meteorology and other relevant areas and facilitate the transfer of this information and expertise, as necessary, between States;
- f) ~~Make specific recommendations and d~~ Develop guidance materials and conduct seminars aimed at improving aeronautical meteorological services through the use of existing and/or new procedures, facilities and technologies;
- g) Review and identify inter-regional and intra-regional coordination issues in the field of aeronautical meteorology and, as necessary, recommend actions to address those issues; and
- h) ~~Identify and progress environmental initiatives related to aeronautical meteorology~~ Share aeronautical meteorological initiatives being undertaken to reduce the environmental impact of aviation operations.
- i) Share information on the impacts of climate change on aviation operations.

### **3. Establishment of the MET SG**

3.1. The Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) established the MET SG to assist in its planning and implementation work, charging MET SG with preparatory work on specifically defined problems in the field of aeronautical meteorology requiring expert advice for their resolution. APANPIRG also appointed MET SG as the 'parent' group for other contributory bodies working in the field of aeronautical meteorology for APANPIRG.

### **4. Membership of the MET SG**

4.1. Membership of the MET SG comprises experts provided by States, whether Members or not of the APANPIRG, International Organizations and bodies having experience in the provision of aeronautical meteorological information and services.

### **5. Chairing and Secretary of the MET SG**

5.1. The MET SG shall elect a Chairperson, and Vice-Chairperson if needed, from the experts provided by States. The maximum term of the Chairperson and Vice Chairperson is four years. The Secretary of APANPIRG will appoint the Secretary of the MET SG.

### **6. Meetings of the MET SG**

6.1. The Chairperson of the MET SG, in consultation with Members and the Secretary, shall decide the date and duration of Meetings. As a rule, the MET SG should agree, at each Meeting, on the date and duration of the next Meeting and on a tentative schedule of future Meetings.

### **7. Documentation and Record of Meetings of the MET SG**

7.1. The MET SG shall record the proceedings of its Meetings in the form of a Report or a Summary and submit the Report or Summary for review and consideration by APANPIRG. A Meeting Report should cover completed action on any part of the MET SG work plan and outline the needs of MET SG for further directives or guidance from the APANPIRG to proceed in its work. Reports on Meetings shall be of a simple layout and as concise as practicable and should normally cover:

- a) Short introduction;
- b) Summary of findings (presented in the order of discussion of the agenda items, including any proposals for action); and
- c) Work plan and schedule for future Meetings.

7.2. The Secretary should publish the Report as early as practicable (21-days) after the Meeting.

7.3. The Secretary should disseminate the meeting invitation as early as practicable, i.e., not less than 3-months before the Meeting, and reminders for submission of papers approx. 6-weeks and 1-week before the due date for submission of papers.

7.4. Contributors should submit papers to the ICAO Secretariat as early as practicable, i.e., 28-days before the Meeting at which they are intended to be considered. The Secretary should publish papers, and send a notification of their availability, as early as practicable, i.e., 14-days before the Meeting at which they are intended to be considered.

7.5. The Secretary, in consultation with the Chairperson, may decide to accept papers submitted less than 28-days before the Meeting at which they are intended to be considered when there is a clear benefit to the Meeting in doing so.



## 8. Delegated authority of the MET SG

8.1. The MET SG may propose actions for further consideration by APANPIRG and record these in the MET SG Report as either draft Conclusions or draft Decisions of APANPIRG.

8.2. Additionally, APANPIRG has empowered MET SG to adopt proposals for action on technical matters (especially those concerning guidance to States in the implementation of ICAO SARPs and global and regional plans) that do not have additional economic, environmental, inter-regional or political effects, which should be considered by APANPIRG. The MET SG shall record these in its Meeting Report as Conclusions or Decisions of MET SG.

### METEOROLOGY SUB-GROUP (MET SG) WORK PLAN

ToR Ref*	Detailed description of deliverable	Responsibility	Target date	Status of progress
a)	<b>Draft amendment proposal</b> for APAC ANP to fulfil missing data in Tables MET	MET/S-WG and Secretariat	As required Mar-2022	In progress
a)	<b>Draft amendment proposal</b> for APAC ANP to clarify the MET-related implementation planning guidance in the ANRF and other parts of Volume III	MET/R WG MET/IE WG MET/S-WG with guidance from ICAO Secretariat	May-2022 MET SG/29	In progress
b)	<b>Revised draft regional guidance material</b> on MET information needed to support the elements of the APAC Seamless ANS Plan	MET/R WG (Deliverable 3 2)	May-2022 As required	In progress
b) c) g)	Promote aviation exercise outcomes of significance to MET SG, create or update as required guidance material for developing aviation exercises for meteorological events, provide expert support to exercise leaders as appropriate. <b>Final report</b> on ICAO volcanic ash exercises (Papua New Guinea, North-east Asia, Philippines, etc.)	APAC VOLCEX/SG MET SG	TBD As required	In progress Not started
c) d)	<b>Update</b> the reporting form on APANPIRG AN deficiencies to reflect progress to add/remove. <b>Monitor</b> the regional implementation of meteorological observations, forecasts, warnings, and advisories, to identify potential deficiencies in the MET field	MET SG Chair, Secretariat	Annually Jun-2022	In progress
c) d)	<b>Reporting form updates</b> showing the status of implementation of corrective action for. <b>Investigate</b> , and implement as appropriate, options to assist States in the resolution of resolving AN deficiencies in the MET field	MET/S-WG (Activity 2 and 6)	Annually Mar-2022	In progress
f)	<b>Report on the Progress report</b> on of implementation and testing of IWXXM exchange	MET/IE WG (Activity 7)	Annually Jun-2022	In progress
g)	<b>Information</b> on ICAO provisions related to meteorological authority and quality assurance, cost recovery, competency, training and qualifications for meteorological service provision shared with States	MET SG Chair, Secretariat	Annually Jun-2022	In progress
g)	<b>Analysis</b> of MET information used in the Region specifically to support ATM operations	MET/R WG (Deliverable 2 1)	MET SG/29 May-2022	In progress
h) i)	Share aviation meteorological initiatives being undertaken to reduce the environmental impact of aviation operations and share information on the impacts of climate change on aviation operations. <b>Environmental Issues</b> Identify issues in the field of aeronautical meteorology related to environmental issues	MET SG Chair, Secretariat	Annually Jun-2022	In progress
b) e) g)	<b>Consideration of a MET-focused SWIM workshop</b>	Secretariat, MET/IE WG Chair	TBD	Not started
e) f) g)	<b>SIGMET coordination activities in APAC Region</b> Coordinate on the next steps to promote integration and expansion of SIGMET coordination activities among States/Administrations.	MET/R WG (Deliverable 7 9) MET/S-WG (Activity 8)	MET SG/29 Jun-2022	In progress
f)	<b>Develop</b> User Requirements for SWIM-based MET Information Services Supporting ATFM	MET/R WG (Deliverable 6)	MET SG/29 May-2022	In progress
e)	<b>Conduct seminars to improve knowledge and to assist States implementation of new MET service</b>	MET SG MET/R WG MET/IE WG	Annually	In progress
	<b>MET expert contribution to SWIM/TF</b> – Identify meteorological expert/s to contribute to the APAC SWIM/TF to ensure meteorological aspects are fully considered	MET-SG	Nov-2021	In progress

ToR Ref*	Detailed description of deliverable	Responsibility	Target date	Status of progress
	Develop or improve regional guidance material related to the implementation of aviation meteorological services, including input to the Regional SIGMET Guide	MET SG MET/R WG MET/IE WG	Annually	In progress

\* Corresponding functions of the MET SG, as listed in the *Terms of Reference of the MET SG* (Ref: APANPIRG Procedural Handbook, Sixth Edition — 1 June 2020, A/L No 01)

— END —