

**INTERNATIONAL CIVIL AVIATION ORGANISATION**



**REPORT OF THE THIRTEENTH MEETING OF THE  
METEOROLOGICAL REQUIREMENTS WORKING GROUP  
(MET/R WG/13)  
AND  
SEMINAR ON METEOROLOGY AND AIR TRAFFIC MANAGEMENT  
(MET/ATM SEMINAR)**

22 – 26 April 2024

The views expressed in this Report are those of the Meeting  
and not the Organisation.

Approved by the Meeting and published by the ICAO Asia and Pacific Office, Bangkok

REPORT OF MET/R WG/13  
Contents

---

**Table of Contents**

HISTORY OF THE MEETING AND SEMINAR .....	ii
1. Dates and venue .....	ii
2. Attendance .....	ii
3. Officers and Secretariat.....	ii
4. Language and Documentation .....	ii
5. Outcomes .....	iii
REPORT ON AGENDA ITEMS – MET/R WG/13.....	4
1. Organisational matters .....	4
2. Review outcomes of related meetings .....	4
3. Collaboration between MET and ATM stakeholders .....	5
<i>MET/R WG/13 and ATFM/SG/14 joint plenary session, incl. MET/ATM Seminar Report .....</i>	<i>8</i>
4. Future work program and terms of reference.....	12
5. Any other business .....	13
6. Next Meeting .....	13

**List of Appendices**

APPENDIX A: List of Actions

APPENDIX B: Terms of Reference and Work Program

APPENDIX C: List of Participants

APPENDIX D: List of Papers and Presentations

## **HISTORY OF THE MEETING AND SEMINAR**

### **1. Dates and venue**

1.1. The ICAO Asia and Pacific (APAC) Office hosted the Thirteenth Meeting of the Meteorological Requirements Working Group (MET/R WG/13) from 22-26 April 2024, including the ICAO APAC Seminar on Meteorology and Air Traffic Management (MET/ATM Seminar) on 22 April 2024, in conjunction with the Fourteenth Meeting of the APAC Air Traffic Flow Management Steering Group (ATFM/SG/14). A joint plenary session of MET/R WG/13 and ATFM/SG/14 was conducted on 24 April 2024.

### **2. Attendance**

2.1. The MET/R WG/13 meeting (from 23-26 April 2024) was attended by ninety (90) participants from eighteen (18) States, one (1) Special Administrative Region, and three (3) International Organizations, including Australia, Bhutan, Brunei Darussalam, Cambodia, China, Hong Kong China, Fiji, India, Indonesia, Japan, Malaysia, Maldives, Nepal, Philippines, Republic of Korea, Singapore, Thailand, United States, Viet Nam, IATA, IFATCA and ICAO. The list of participants is in **Appendix C**.

2.2. The MET/ATM Seminar (on 22 April 2024) and joint plenary session of MET/R WG/13 and ATFM/SG/14 (on 24 April 2024) were attended in person by the MET/R WG/13 and ATFM/SG/14 participants. In addition, forty-three (43) participants from eleven (11) States and one (1) Special Administrative Region, including Australia, Bangladesh, Hong Kong China, Indonesia, Japan, Maldives, Nepal, New Zealand, Pakistan, Philippines, the Republic of Korea and Singapore, registered to attend the MET/ATM Seminar online.

2.3. Information on the ATFM/SG/14 meeting participants who attended the seminar and joint plenary session is available on the ATFM/SG/14 meeting website:  
<https://www.icao.int/APAC/Meetings/Pages/2024-ATFM-SG-14.aspx>.

*[Editorial note: following the meeting's adoption of the report, the Secretariat edited paragraphs 2.1 to 2.3 above to correct and update the attendance information]*

### **3. Officers and Secretariat**

3.1. Mr Ashwin Naidu, Aviation Customer Lead, Australian Bureau of Meteorology, presided as the MET/R WG/13 meeting chairperson. Mr Peter Dunda, Regional Officer, Aeronautical Meteorology and Environment, ICAO APAC Office, assisted as Secretary.

3.2. Mr Ashwin Naidu, Mr Piyawut Tantimekabut, Ms. Christy Leung, Scientific Officer, Hong Kong Observatory (HKO), and Mr. Manjunath Krishna Nelli, Regional Officer, Air Traffic Management (ATM), ICAO APAC Office, moderated the MET/ATM Seminar.

3.3. Mr Ashwin Naidu and Mr Piyawut Tantimekabut jointly presided as chairpersons of the joint plenary session of MET/R WG/13 and ATFM/SG/14.

### **4. Language and Documentation**

4.1. The meeting and seminar's working language was English, including all documentation and this Report. The meeting considered twelve (12) Working Papers (WPs), fourteen (14) Information Papers (IPs), six (6) Slide Presentations (SPs) and one (1) Flimsy. The seminar considered eleven (11)

REPORT OF MET/R WG/13  
History of the Meeting

---

Slide Presentations (SPs). The list of papers and presentations is in **Appendix D**.

## 5. Outcomes

5.1. The MET/R WG records outcomes of its discussions in the form of Draft Conclusions, Draft Decisions and Decisions within the following definitions:

- a) **Draft Conclusions:** formulated by the MET/R WG for further consideration by the Meteorology Sub-Group (MET SG), deal with matters of a technical nature and regional applicability that, according to the MET SG's terms of reference, require the attention of States or action by the ICAO, following established APANPIRG<sup>1</sup> procedures;
- b) **Draft Decisions:** formulated by the MET/R WG for further consideration by the MET SG, relate solely to matters dealing with the internal working arrangements of APANPIRG and its contributory bodies; and
- c) **Decisions:** adopted by the MET/R WG relate solely to matters dealing with the internal working arrangements of the MET/R WG.

5.2. The meeting formulated no Draft Conclusions or Draft Decisions but adopted the following seven (7) Decisions of the MET/R WG:

**Decision MET/R WG/13-01:** Guidance on the criteria for issuance of SIGMET for thunderstorms

**Decision MET/R WG/13-02:** Updating the Regional Guidance for Tailored MET to support ATM Operations

**Decision MET/R WG/13-03:** Publishing the Survey of State MET Information Supporting ATM

**Decision MET/R WG/13-04:** Follow-up Survey of State MET Information Supporting ATM

**Decision MET/R WG/13-05:** Publishing the APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM

**Decision MET/R WG/13-06:** Mapping of APAC Seamless ANS Plan to ASBU AMET elements

**Decision MET/R WG/13-07:** Updates to the mapping of APAC Seamless ANS Plan to ASBU AMET elements

5.3. In addition, the meeting agreed to eighteen (18) new action items, as indicated in the *Report on Agenda Items* below and presented in the *List of Actions* in **Appendix A**.

-----

---

<sup>1</sup> ICAO Asia/Pacific Air Navigation Planning and Implementation Regional Group

## REPORT ON AGENDA ITEMS – MET/R WG/13

### 1. Organisational matters

#### WP/01 – Provisional Agenda (Secretariat)

1.1. The Meeting adopted the agenda as listed below:

- Agenda Item 1: Organisational matters
- Agenda Item 2: Review outcomes of related meetings
- Agenda Item 3: Collaboration between MET and ATM stakeholders
- Agenda Item 4: Future work program and terms of reference
- Agenda Item 5: Any other business
- Agenda Item 6: Next Meeting

1.2. Considering that following the MET SG/27 Decision MET SG 27-07: *Dissolution of MET/S WG* (to be discussed in WP/03), the expert ad hoc group on SIGMET coordination now reports to the MET/R WG, the meeting suggested updating the agenda for the next meeting to include a specific item on SIGMET coordination. [**ACTION 01**]

1.3. Furthermore, the meeting noted that discussion in the current meeting under Agenda Item 4: *Future work program and terms of reference*, should consider incorporating the activities of the ad hoc group on SIGMET coordination into a new deliverable on SIGMET coordination in the MET/R WG work plan.

### 2. Review outcomes of related meetings

#### WP/02 – FOLLOW-UP ACTION FROM MET/R WG/12 (Secretariat)

2.1. The meeting noted that, as part of the follow-up on Decision MET/R WG/12-01: *Update on Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations*, the Secretariat had made the updated guidance (i.e., Fourth Edition, September 2023) available on the ICAO APAC website: <https://www.icao.int/APAC/Pages/eDocs.aspx>.

2.2. Concerning Decision MET/R WG/12-02: *APAC Use Cases and User Requirements for SWIM-Based MET Information Services Supporting ATFM*, the meeting noted that progress on the follow-up action would be discussed in WP/07.

2.3. Concerning the unresolved Action Item MET/R WG/11-01, on updating the work plan deliverables No. 2 and 5 on regional guidance related to the APAC Seamless ANS Plan and the APAC ANP Volume III, the meeting noted the Action Item could be closed following further discussion and agreement under Agenda Item 4: *Future work program and terms of reference*.

2.4. Concerning the unresolved Action Item MET/R WG/09-01, on publicising the importance of exchanging special air reports to support MET service for ATM, the meeting suggested the action could be incorporated in the deliverables of MET/R WG work plan, including consideration to include in the next MET/ATM seminar, to be conducted in conjunction with MET/R WG/14 and ATFM/SG/15 in 2025, an appropriate presentation on special air-reports. [**ACTION 02**]

2.5. The updated status of follow-up action on the MET/R WG List of Actions is indicated in **Appendix A**.

#### WP/03 – FOLLOW-UP ACTION FROM MET SG/27 (Secretariat)

REPORT OF MET/R WG/13  
Report on Agenda Items

---

2.6. The meeting noted that following the MET SG/27 Decision MET SG 27-07: *Dissolution of MET/S WG*, the expert ad hoc group on SIGMET coordination now reports to the MET/R WG.

2.7. The meeting also noted that, following MET SG/27 Decision MET SG 27-07, the expert ad hoc group on Regional SIGMET Guide updates reports to the MET SG.

2.8. Considering the different reporting paths for the two ad hoc groups related to SIGMET, the meeting considered the necessity to update the work plan to ensure the ad hoc groups coordinate the development of regional guidance on SIGMET coordination for inclusion in the Regional SIGMET Guide.

2.9. Concerning MET SG/27 action items 27/03 and 27/07 on updates to the Regional SIGMET Guide, the meeting was informed that the proposed updated guidance on SIGMET for volcanic ash crossing FIR boundaries and updated VAAC backup procedures were ready for publication by the Secretariat. [**ACTION 03**]

2.10. Concerning MET SG/27 Action Item 27/05 on the Document of cases of SIGMET coordination, the meeting noted that WP/09 – *SIGMET coordination common practices and guidelines* would propose updates to the relevant regional guidance material. Therefore, the status of Action Item 27/05 could be considered as in progress.

2.11. In addition, concerning MET SG/27 Action Item 27/13 on updating the online repository of APAC SIGMET coordination activities based on MET SG/27, IP/07 – *Progress in SIGMET coordination work between China and adjacent countries*, the meeting noted that the activities are included in the online repository and the status of Action Item 27/13 could be considered as completed.

2.12. Based on the discussion above, the proposed updates to the follow-up status on the MET SG List of Actions are indicated in **Appendix A**.

WP/04 – FOLLOW-UP ACTION FROM APANPIRG/33 (Secretariat)

2.13. The meeting reviewed relevant outcomes from the Thirty-fourth Meeting of the Asia and Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/34).

2.14. On the matter of air navigation deficiencies, the meeting noted that APANPIRG/34 considered the regular dissemination of the required SIGMET information in the IWXXM form (in addition to the TAC form) as a condition for removing the deficiency AP-MET-14 (on requirements for issuance and dissemination of SIGMET information for Kathmandu FIR). Furthermore, APANPIRG/34 recommended that the MET SG consider identifying deficiencies in implementing IWXXM for possible inclusion in the APANPIRG list of air navigation deficiencies.

### **3. Collaboration between MET and ATM stakeholders**

IP/10 – OUTCOMES OF CSI WORKSHOP 2024 (Cambodia, Japan, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Vietnam)

3.1. The meeting reviewed outcomes reported from the Workshop of the Collaborative SIGMET Issuance (CSI) project on 12 to 14 March 2024, which included issues concerning SIGMET issuance for convective systems over multiple FIRs, TC SIGMET handover procedure, improving the availability of special air reports to support SIGMET service, interoperability of web platforms supporting SIGMET coordination, and the WMO header used when correcting a SIGMET.

REPORT OF MET/R WG/13  
Report on Agenda Items

---

3.2. Noting that outdated SIGMET leaflets (WC/WS/WV) containing CCx usage instructions were found to be still accessible from the ICAO website via internet searches, even though the associated links had been removed, the meeting requested the Secretariat to ensure the associated files are removed so the outdated leaflets cannot be accessed. [ACTION 04]

3.3. In addition, the meeting suggested requesting the ad hoc group on the SIGMET Guide to consider improvements to the guidance on using the WMO header when correcting a SIGMET. [ACTION 05]

WP/09 – SIGMET COORDINATION COMMON PRACTICES AND GUIDELINES (Ad hoc group on SIGMET Coordination)

3.4. The ad hoc group on SIGMET coordination presented the identified practices for coordinating SIGMET on tropical cyclones and thunderstorms in the Asia/Pacific Region and proposed appropriate updates to incorporate the information in related guidance materials.

3.5. The meeting noted differences in the States' implementation of SARPs related to the coordination of SIGMET information for tropical cyclones. The meeting requested the secretariat to invite States concerned to provide details of their relevant practices on WC SIGMET handover procedure to assist the ad hoc group in collating information to support States on coordinating SIGMET information for tropical cyclones. [ACTION 06]

3.6. The meeting requested that the ad hoc group on the SIGMET Guide consider including the information in Appendix B and C of WP/09 concerning the criteria for issuance of WS SIGMET, in a future update to the SIGMET Guide, Appendix L or as a separate Appendix, to enhance the information in the APAC Regional SIGMET Guide concerning coordinating SIGMET for thunderstorms. [ACTION 07]

<b>Decision MET/R WG/13-01:</b> Guidance on the criteria for issuance of SIGMET for thunderstorms
---

The ad hoc group on the SIGMET Guide is requested to enhance the guidance in the APAC Regional SIGMET Guide concerning coordinating SIGMET for thunderstorms.
---

WP/08 – OCEANIC SIGMET COORDINATION AND RELATED IMPROVEMENTS IN SIGMET SERVICES (Fiji, Hong Kong China, Indonesia, Papua New Guinea and Solomon Islands)

3.7. The meeting noted the latest Oceanic SIGMET Coordination group developments involving Fiji, Hong Kong China, Papua New Guinea and Solomon Islands, covering four flight information regions (FIRs). A SIGMET coordination trial between Indonesia and Papua New Guinea commenced in Jan 2024, with Indonesia joining the group as a trial member.

3.8. The meeting noted the project supported the corrective action for rectifying APANPIRG air navigation deficiencies and contributed to the capacity-building efforts on SIGMET issuance.

3.9. The meeting noted that the group of States had documented in WP/8, Appendix A, the procedures they used to coordinate SIGMET. They proposed that the procedures could be included in the SIGMET coordination guidance in the Asia/Pacific Regional SIGMET Guide. The meeting appreciated the development of such guidance material. It requested the ad hoc group on SIGMET coordination to further consider the suitability of the text used (such as the words 'shall' and 'should') in the procedures in WP/8, Appendix A, for possible inclusion in the Regional guidance and to coordinate with the ad hoc group on the SIGMET Guide accordingly. [ACTION 08]

3.10. The meeting also requested to update the latest developments of the Oceanic SIGMET Coordination group in the *Online repository for APAC SIGMET Coordination activities*. [ACTION 09]

WP/10 – INDONESIA'S LOCAL PRACTICES ON VOLCANIC ASH SIGMET ISSUANCE (Indonesia)

3.11. Indonesia presented practices employed by its MWOs for issuing SIGMET for volcanic ash from a volcano close to the boundary between FIRs.

3.12. For the issue reported by Indonesia concerning the issuance of SIGMET for volcanic ash when a Volcanic Ash Advisory (VAA) has not been issued, the meeting noted that SIGMET for volcanic ash should be based on the VAA from the associated VAAC. Therefore, the meeting advised Indonesia to coordinate the establishment and implementation of procedures with the VAAC to ensure the timely issuance of VAA and SIGMET according to the ICAO provisions.

3.13. The meeting was informed of ongoing action to develop guidance on SIGMET issuance where volcanic ash is forecast to cross FIR boundaries (MET/S WG action item 11/04 refers) and, therefore, requested the ad hoc group on SIGMET coordination in cooperation with the ad hoc group on the Regional SIGMET Guide to also consider Indonesia's criteria for assigning MWO responsibility for SIGMET when volcanic ash impacts adjacent FIRs, for possible inclusion in the regional guidance material. [ACTION 10]

IP/11 – WORKSHOP ON VOLCANIC ASH IMPACT HANDLING FOR AVIATION (Indonesia)

3.14. Indonesia presented information on activities to engage aviation stakeholders and promote best practices in Collaborative Decision-Making (CDM) concerning volcanic ash information and flight safety.

IP/14 and SP/12 – THE DEVELOPMENTS OF DETECTION, WARNING AND SERVICE OF LOW-LEVEL WIND SHEAR AND TURBULENCE (China)

3.15. China presented information on developments in detecting and warning of low-level wind shear and turbulence to support ATM operations in China. The construction of an integrated ground-based detection network, development of comprehensive alarm systems, and implementation of comprehensive weather information service processes have helped to improve the accuracy, timeliness and refinement of aviation weather products and services, enhance the support to ATM operations, ensure flight safety and increase operation efficiency.

IP/02 – THE NEW IMPLEMENTATION OF TAILORED MET INFORMATION AND SERVICES TO SUPPORT ATM OPERATIONS (China)

3.16. China presented information on the new implementation of tailored MET information and services to support ATM operations, which was prepared for inclusion in the APAC regional guidance.

3.17. The meeting requested the ad hoc group on the Regional Guidance for Tailored MET to support ATM Operations to consider the information provided by China as an example for inclusion in Appendix 1 of the guidance and seek approval for updating the guidance from the MET SG. [ACTION 11]

<b>Decision MET/R WG/13-02:</b> Updating the Regional Guidance for Tailored MET to support ATM Operations
---



REPORT OF MET/R WG/13  
Report on Agenda Items

The ad hoc group on the Regional Guidance for Tailored MET to support ATM Operations is requested to include China's example in Appendix 1 of the updated guidance.

WP/12 and SP/14 – DISSEMINATION OF TAF FORECASTS (India)

3.18. India discussed an issue concerning verifying wind forecast in TAF compared to the guidance on the operationally desirable accuracy of forecasts as given in ICAO Annex 3, Attachment B.

3.19. The meeting recommended that India consider establishing additional criteria for TAF, based on the ICAO Annex 3, to meet users' needs in consultation with the appropriate ATS authority and the operators concerned.

IP/12 and SP/15 – INSAT 3DR SOUNDER DERIVED WIND INDEX AND DRY MICROBURST INDEX ROLE IN AVIATION (India)

3.20. India presented information on the wind index (WI) and Dry microburst index (DMI) applied to thunderstorm forecasts to support aviation operations.

IP/03 – COLLABORATION BETWEEN KIRIBATI MET SERVICE AND AIR TRAFFIC SERVICES (Kiribati)

3.21. The Chair (on behalf of Kiribati) presented information on the collaboration between the Kiribati Meteorological Service and the Kiribati Air Traffic Services, including the challenges and activities faced by Kiribati.

3.22. The meeting was informed of an arrangement for providing meteorological service for aerodromes in Kiribati by Fiji on Kiribati's behalf. The meeting requested the Secretariat to facilitate the necessary liaison between the meteorological authorities in Kiribati and Fiji to support the ongoing effectiveness of the arrangement and the rectification of air navigation deficiencies related to MET in Kiribati.

IP/04 – ESTABLISHING AN INTEGRATED WEATHER INFORMATION SUPPORT CONCEPT FOR AIR TRAFFIC CONTROL SERVICES IN THE REPUBLIC OF KOREA (Republic of Korea)

3.23. The Republic of Korea presented information on their comprehensive interviews and surveys with the users and the inclusion of this information to enhance the utilization and integration of aviation weather information to support air traffic controllers.

**MET/R WG/13 and ATFM/SG/14 joint plenary session, incl. MET/ATM Seminar Report**

Flimsy 01 – MET/ATM Seminar Report, 24 April 2024 (Secretariat)

3.24. The Secretariat provided a summary of the MET/ATM Seminar. Further details are provided in the Flimsy 01. The presentations are available on the meeting website:

<https://www.icao.int/APAC/Meetings/Pages/2024-MET-R-WG13.aspx>.

WP/05 – SURVEY OF STATE METEOROLOGICAL INFORMATION SUPPORTING AIR TRAFFIC MANAGEMENT (Ad hoc group)

3.25. The meeting reviewed progress on the designated ad hoc group's report of the 2021 survey of current and future MET information services provided by States to support ATM and ATFM.

REPORT OF MET/R WG/13  
Report on Agenda Items

---

3.26. The ad hoc group recommended that the survey report should be finalised and published (along with the survey data) to share the outcomes with Member States and in relevant ATM and Airspace Forums.

3.27. Based on the ad hoc group's recommendation, the meeting agreed that subject to final editorial and formatting improvements by the Secretariat, the survey report can be published on the ICAO APAC website and made available for States and stakeholders. [ACTION 12]

**Decision MET/R WG/13-03: Publishing the Survey of State MET Information Supporting ATM**

The secretariat is requested to publish the Survey of State MET Information Supporting ATM report on the ICAO APAC website.

3.28. Considering the report was produced based on information collected in 2021, the meeting requested the ad hoc group to develop a proposal on the appropriate timing and content for conducting a future follow-up survey. The Chair of the ATFM/SG invited the ATFM/SG members to nominate experts (within the next two weeks) to join the members of the MET/R WG ad hoc group on analysis of MET information requirements. [ACTION 13]

**Decision MET/R WG/13-04: Follow-up Survey of State MET Information Supporting ATM**

The ad hoc group on the Survey of State MET Information Supporting ATM is requested to propose the appropriate time and content of a future follow-up survey.

*WP/07 and SP/17 – APAC USE CASES AND USER REQUIREMENTS FOR SWIM-BASED  
MET INFORMATION SERVICES SUPPORTING ATFM (Ad hoc group)*

3.29. The meeting reviewed progress on the designated ad hoc group's draft reference document of use cases and user requirements for SWIM-based MET information services supporting ATM (in particular ATFM) in the APAC region.

3.30. After reviews of the draft reference document by MET SG/27 and ATM/SG/11 in September and October 2023, the ad hoc group proposed an additional "USE CASE 5: Use of Quantitative Volcanic Ash Concentration Information in Trajectory-based Operation" to be included in the document, along with editorial changes.

3.31. The ad hoc group recommended the document be a living reference under regular review by the ad hoc group, and the collection of use cases could be expanded and improved based on known or expected events. The reference document is expected to assist in developing appropriate MET information services and the associated SWIM-enabled MET applications to meet the operational needs of ATFM in the APAC Region.

3.32. The meeting requested the ad hoc group to present a paper to the upcoming MET/SG and ATM/SG meetings with proposals to publish the draft reference document on the ICAO website and include a procedure for updating the document with new cases and making it a living document. [ACTION 14]

**Decision MET/R WG/13-05: Publishing the APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM**

REPORT OF MET/R WG/13  
Report on Agenda Items

The ad hoc group on APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM is requested to propose procedures for publishing and updating the document on the ICAO website.

ATFM/SG/14 WP/14 – ASIA PACIFIC SEAMLESS ANS PLAN UPDATE (Secretariat)

3.33. ICAO presented the progress of the Asia/Pacific Seamless ANS Plan update for review by ATM/SG/12.

3.34. The secretariat presented the guiding principles adopted and the process agreed by APANPIRG/33 for updating the Plan. The draft version of the Plan required further consultation with APAC States/ Administrations and APANPIRG Sub-Groups before being endorsed by APANPIRG.

3.35. ICAO expressed a priority to be applied by the Regions to fully develop ANP Vol III, the update of the Seamless ANS Plan and its migration into ANP Vol. III would be conducted simultaneously.

3.36. The meeting was invited to review and provide feedback to the Secretariat on the proposed revision of the Seamless ANS Plan through their respective POCs. The chair reminded the States to participate in the update process and provide feedback to the ICAO APAC office within the timelines.

3.37. Noting the major changes for Seamless ANS Plan V4.0 and adding items to V3.0, the ICAO APAC Seamless ANS Reporting Portal was prepared. A workshop with demonstrations and interactive sessions was held to facilitate States using the Portal in April 2024.

3.38. The meeting was also invited to provide Seamless ANS Plan implementation status through the Seamless ANS Plan reporting tool through their respective POCs.

WP/06 – MET INFORMATION NEEDED TO SUPPORT THE ELEMENTS OF THE APAC SEAMLESS ANS PLAN (Ad hoc group)

3.39. The meeting reviewed progress on the designated ad hoc group's identification of the MET requirements to support the elements of the APAC Seamless ANS Plan, including the ad hoc group's mapping document (ref: WP/06, Appendix B), which maps APAC Seamless ANS Plan Priority 1 Elements to the GANP's ASBU AMET elements.

3.40. The ad-hoc group proposed integrating its mapping document (mentioned above) into appropriate existing regional guidance material and conducting a similar activity to map the APAC Seamless ANS Plan Priority 2 Elements to the GANP's ASBU AMET elements.

3.41. The meeting considered the above mapping document's value as a companion to the Seamless ANS Plan as an appendix and requested the Secretariat to publish the document accordingly. [**ACTION 15**]

**Decision MET/R WG/13-06:** Mapping APAC Seamless ANS Plan to ASBU AMET elements

The secretariat is requested to publish the document mapping APAC Seamless ANS Plan Priority 1 Elements to the GANP's ASBU AMET elements as a companion (appendix) to the Seamless ANS Plan.

3.42. The meeting noted that, under the MET/R WG work plan, the ad hoc group would continue to review and propose future updates to the mapping document based on future updates of the Seamless ANS Plan and to map the APAC Seamless ANS Plan Priority 2 Elements to the GANP's ASBU AMET elements. [**ACTION 16**]

REPORT OF MET/R WG/13  
Report on Agenda Items

**Decision MET/R WG/13-07:** Updates to the mapping of APAC Seamless ANS Plan to ASBU AMET elements

The ad hoc group on MET Information needed to Support the Elements of the APAC Seamless ANS Plan is requested to propose future updates to the document mapping APAC Seamless ANS Plan Priority 1 Elements to the GANP's ASBU AMET elements and include the mapping of APAC Seamless ANS Plan Priority 2 Elements.

ATFM/SG/14 WP/15 – ICAO APAC-MID ATM CONTINGENCY PLANNING WORKSHOP  
(Secretariat)

3.43. ICAO presented brief information about the ICAP APAC/MID contingency Planning Workshop to be held from 25-27 June 2024 in Bangkok, Thailand, followed by the ICAO APAC ATM Contingency Table Top exercise on 28 June 2024. The objective and draft agenda of the workshop were shared.

3.44. The workshop would provide a great opportunity for States/Administrations to better manage regional and intra-region contingencies through collaborative decision-making (CDM) practices and sub-regional cross-border ATFM initiatives.

3.45. The meeting was invited to provide recommendations and share experiences to improve The APAC and MID Regional ATM contingency planning, response and management.

ATFM/SG/14 IP/04 – PLANNING FOR THE EXPECTED AND UNEXPECTED: NEW  
GUIDANCE MATERIAL FROM CANSO (CANSO)

3.46. The information paper presented by CANSO brings to the notice of the Plenary session a new reference, "Planning for the Expected and Unexpected: a Special Event and Disruption Planning Reference for ANSPs".

3.47. The publication contained 10 case studies. Each discussed the event/disruption context, the multi-stakeholder coordination workflow, and associated ATM/ATFM solutions. The publication is accessible via the [CANSO website](#).

IP/06 – COLLABORATIVE DECISION-MAKING BETWEEN THE AUSTRALIAN BUREAU  
OF METEOROLOGY, AIRSERVICES AUSTRALIA AND OTHER ATM STAKEHOLDERS  
(Australia)

3.48. Australia presented information on Meteorological Collaborative Decision Making (MET CDM), used in Australia, to formulate aircraft arrival rates for Air Traffic Flow Management (ATFM) and technology developments to enhance network management decisions.

IP/05 – ATM-TAILORED MET INFORMATION AND SERVICES OF JAPAN AND  
SINGAPORE (Japan and Singapore)

3.49. The meeting noted information presented by Japan and Singapore concerning practices and challenges associated with providing and using MET information and services to support ATM operations.

SP/16 – AeroMetSci-2024 (Japan and Singapore on behalf of WMO)

REPORT OF MET/R WG/13  
Report on Agenda Items

---

3.50. Promotion of WMO AeroMetSci-2024, a conference on aviation, weather and climate: scientific research and development for enhanced aeronautical meteorological services in a changing climate, 21 – 25 October 2024, WMO Headquarters, Geneva, Switzerland.

**[End of MET/R WG/13 and ATFM/SG/14 joint plenary session]**

*IP/07 – AIRCAST: AUTOMATIC INTEGRATED REAL-TIME CONVECTION FORECAST  
(Hong Kong, China)*

3.51. Hong Kong, China presented the development of a new product named Automatic Integrated Real-time Convection forecAST (AIRCAS<sup>T</sup>), tailor-made for the air traffic controllers of the Hong Kong Civil Aviation Department to provide extended significant convection forecast up to 8 hours to support their tactical decision-making.

3.52. The meeting also noted the importance of identifying suitable technology for efficient query of forecast information. AIRCAST is in trial operation in 2024 and HKCAD's ATFM team welcomed the initiative and was positive on the potential benefits of AIRCAST to operational air traffic flow management.

*IP/08 – REPRESENTATIVENESS OF WEATHER OBSERVATIONS AT THE HONG KONG  
INTERNATIONAL AIRPORT UNDER THREE-RUNWAY SYSTEM (Hong Kong, China)*

3.53. Hong Kong, China, presented the factors that have been considered when selecting weather elements, specifically winds and RVR readings, to be reported in METAR/SPECI at the Hong Kong International Airport (HKIA) under Three-runway System (3RS) to meet “representativeness” requirements outlined in ICAO Annex 3.

3.54. The meeting also noted that the ATC and airlines receive more real-time observation data for obtaining the full picture within the aerodrome via dedicated channels in addition to the METAR/SPECI reports.

*IP/09 – INA-SIAM SYSTEM (Indonesia)*

3.55. Indonesia presented an overview of the implementation of the INA-SIAM system in supporting aviation meteorological services in Indonesia.

3.56. The meeting suggested Indonesia could consider producing a paper at a future ICAO APAC meeting to include its example in the Regional Guidance for Tailored MET to support ATM Operations under Appendix 1.

*IP/13 – PRACTICES AND CHALLENGES ON VERIFICATION OF IMPACT-BASED  
METEOROLOGICAL INFORMATION TO SUPPORT ATM OPERATIONS (Japan)*

3.57. Japan presented information on JMA's practices and challenges in verifying impact-based ATM-tailored meteorological information and its recent enhancement on translating meteorological conditions into impact levels for ATM in coordination with ATFM units.

**4. Future work program and terms of reference**

*WP/11 – REVIEW MET/R WG WORK PROGRAM AND TERMS OF REFERENCE  
(Secretariat)*

REPORT OF MET/R WG/13  
Report on Agenda Items

---

- 4.1. The Meeting reviewed the MET/R WG terms of reference and work plan document, which was last reviewed and endorsed by the MET SG/27.
- 4.2. The meeting suggested a review of the terminology used to describe the MET service users to ensure the MET/R WG terms of reference sufficiently address the need to support all users of MET service, which includes operators, flight crew members, air traffic services units, search and rescue services units, airport managements and others concerned with the conduct or development of international air navigation (i.e., as stipulated in ICAO Annex 3, para. 2.1.2), and might not be identified in the definition for ATM, which includes air traffic services, airspace management and air traffic flow management. [**ACTION 17**]
- 4.3. The meeting received updates to the MET/R WG membership details for experts from China, Fiji, Thailand and Vietnam, as **Appendix B** indicates.
- 4.4. The Chair reiterated the critical need for the MET/R WG to regularly report progress on the work plan, as indicated in the terms of reference communication strategies. The meeting also noted the need to establish or clarify the designated members responsible for leading and reporting progress on the MET/R WG deliverables in some instances.
- 4.5. The meeting also received updates from meeting participants indicating their intention to contribute to the MET/R WG deliverables, as **Appendix B** indicates.
- 4.6. Following the discussions related to SIGMET coordination under Agenda Item 1, para. 1.2-1.3, the meeting formulated a new deliverable no. 9 on SIGMET coordination, as indicated in **Appendix B**.
- 4.7. The proposed updates to the MET/R WG terms of reference and work plan document are presented in **Appendix B**.

## **5. Any other business**

### *Representation of MET service users and submission of papers in MET/R WG*

- 5.1. The Chair noted the absence of members from IATA and IFALPA in the MET/R WG meeting. Considering the MET/R WG's focus on the collaboration and relationship with MET service users, development of MET service user requirements, and promotion of MET service user education, the meeting requested the Secretariat to continue to facilitate and encourage participation in the MET/R WG by representatives from IATA and IFALPA. [**ACTION 18**]
- 5.2. The Chair also noted that some IPs included proposals for action and, therefore, reminded the meeting to ensure that, in the future, proposals for action should be presented in WPs.

## **6. Next Meeting**

- 6.1. The Secretariat and Chair informed the meeting that the next meeting of the MET/R WG, in conjunction with the ATFM/SG and a MET/ATM Seminar, would be held tentatively in April/May 2025.
- 6.2. The meeting was reminded that Hong Kong, China, was considering hosting the next meeting of the MET/R WG in conjunction with the ATFM/SG in 2025\*.

REPORT OF MET/R WG/13  
Report on Agenda Items

---

*[\*Editorial note: following the meeting's adoption of the report, the Secretariat was informed that Hong Kong, China, would consider hosting a future meeting of the MET/R WG in conjunction with the ATFM/SG after 2025]*

6.3. Following the discussions related to the meeting agenda and SIGMET coordination under WP/01, WP/02 and WP/03, and considering positive feedback from meeting participants on the MET/ATM Seminar and the MET/R WG and ATFM/SG joint plenary session, the meeting requested the Chair and Secretariat to consider a plan for the next meeting, including the MET/ATM Seminar and MET/R WG and ATFM/SG joint plenary session.

6.4. A detailed list of presentations should be available before the MET/ATM Seminar. The meeting agenda should include specific items for the joint plenary session and the major work plan deliverables, such as SIGMET coordination.

-----

MET/R WG/13  
Appendix A to the Report

**MET/R WG – LIST OF ACTIONS**

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

**New action items recorded by MET/R WG/13**

<b>ACTION ITEM</b>	<b>DESCRIPTION</b>	<b>BY DATE</b>	<b>RESPONSIBILITY</b>	<b>STATUS/REMARKS</b>
MET/R WG/13 <b>01</b>	Update the agenda for the next meeting to include a specific item on SIGMET coordination. [Ref: MET/R WG/13 Report, 1.2.]	MET/R WG/14	Chair and Secretariat	To begin
MET/R WG/13 <b>02</b>	Incorporate the unresolved Action Item MET/R WG/09-01 into the MET/R WG work plan deliverables and include an appropriate presentation in the next MET/ATM seminar on special air reports. [Ref: MET/R WG/13 Report, 2.4.]	MET/R WG/14	Chair and Secretariat	To begin
MET/R WG/13 <b>03</b>	Publish the Regional SIGMET Guide updated guidance on SIGMET for volcanic ash crossing FIR boundaries and VAAC backup procedures. [Ref: MET/R WG/13 Report, 2.9.]	ASAP	Secretariat	To begin
MET/R WG/13 <b>04</b>	Remove the outdated SIGMET leaflets (WC/WS/WV) containing CCx usage instructions from the ICAO website. [Ref: MET/R WG/13 Report, 3.2.]	ASAP	Secretariat	To begin
MET/R WG/13 <b>05</b>	Consider improvements to the SIGMET Guide on using the WMO header when correcting a SIGMET. [Ref: MET/R WG/13 Report, 3.3.]	MET/R WG/14	Ad hoc group on the SIGMET Guide	To begin
MET/R WG/13 <b>06</b>	Invite States concerned to provide details of their relevant practices on WC SIGMET handover procedure to assist the ad hoc group in collating information to support States on coordinating SIGMET information for tropical cyclones. [Ref: MET/R WG/13 Report, 3.5.]	ASAP	Secretariat	To begin
MET/R WG/13 <b>07</b>	Consider including the information in Appendix B and C of WP/09 concerning the criteria for issuance of WS SIGMET in a future update to the SIGMET Guide to enhance the information concerning coordinating SIGMET for thunderstorms. [Ref: MET/R WG/13 Report, 3.6.]	MET/R WG/14	Ad hoc group on the SIGMET Guide	To begin
MET/R WG/13 <b>08</b>	Consider the suitability of the text used (such as the words 'shall' and 'should') in the procedures used to coordinate SIGMET in WP/8, Appendix A, for possible inclusion in the regional guidance and to coordinate with the ad hoc group on the SIGMET Guide. [Ref: MET/R WG/13 Report, 3.9.]	MET/R WG/14	Ad hoc group on SIGMET coordination	To begin
MET/R WG/13 <b>09</b>	Update the latest developments of the Oceanic SIGMET Coordination group in the Online repository for APAC SIGMET Coordination activities. [Ref: MET/R WG/13 Report, 3.10.]	ASAP	Ad hoc group on SIGMET coordination	To begin
MET/R WG/13 <b>10</b>	Consider Indonesia's criteria for assigning MWO responsibility for SIGMET when volcanic ash impacts adjacent FIRs for possible inclusion in the regional guidance material. [Ref: MET/R WG/13 Report, 3.13.]	MET/R WG/14	Ad hoc group on SIGMET coordination in cooperation with the ad hoc group on the Regional SIGMET Guide	To begin
MET/R WG/13 <b>11</b>	Consider the information provided by China in IP/02 as an example for inclusion in Appendix 1 of the Regional Guidance for Tailored MET to support ATM Operations and seek approval from the MET SG to update the guidance. [Ref: MET/R WG/13 Report, 3.17.]	MET SG/28	Ad hoc group on the Regional Guidance for Tailored MET to support ATM Operations	To begin
MET/R WG/13 <b>12</b>	Finalize the editorial and formatting improvements to the Survey of MET information supporting ATM report in WP/05 and make it available to States and stakeholders on the ICAO APAC website. [Ref: MET/R WG/13 Report, 3.27.]	ASAP	Secretariat	To begin
MET/R WG/13	Develop a proposal on the appropriate timing and content for conducting a future follow-up Survey of MET	MET/R WG/14	Ad hoc group on the Survey of MET	To begin



MET/R WG/13  
Appendix A to the Report

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/REMARKS
13	information supporting ATM. [Ref: MET/R WG/13 Report, 3.28.]		information supporting ATM	
MET/R WG/13 14	Present a paper to the upcoming MET/SG and ATM/SG meetings with proposals to publish the draft reference document ( <i>APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM</i> ) on the ICAO website and include a procedure for updating the document with new cases and making it a living document. [Ref: MET/R WG/13 Report, 3.32.]	MET SG/28 and ATM/SG/12	Ad hoc group on APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM	To begin
MET/R WG/13 15	Publish the document in WP/06, Appendix B, which maps APAC Seamless ANS Plan Priority 1 Elements to the GANP's ASBU AMET elements, accordingly as a companion (appendix) to the Seamless ANS Plan. [Ref: MET/R WG/13 Report, 3.41.]	ASAP	Secretariat	To begin
MET/R WG/13 16	Update the MET/R WG work plan to reflect that the ad hoc group on MET information needed to support the elements of the APAC Seamless ANS Plan would continue to review and propose future updates to the mapping document based on future updates of the Seamless ANS Plan and to map the APAC Seamless ANS Plan Priority 2 and 3 Elements to the GANP's ASBU AMET elements. [Ref: MET/R WG/13 Report, 3.42.]	ASAP	Secretariat	To begin
MET/R WG/13 17	Review the terminology used to describe the MET service users to ensure the MET/R WG terms of reference sufficiently address the need to support all MET service users, including those stipulated in ICAO Annex 3, para. 2.1.2), which might not be identified in the definition of ATM (i.e., air traffic services, airspace management and air traffic flow management). [Ref: MET/R WG/13 Report, 4.2.]	ASAP	Chair and Secretariat	To begin
MET/R WG/13 18	Continue to facilitate and encourage participation in the MET/R WG by representatives from IATA and IFALPA. [Ref: MET/R WG/13 Report, 5.1.]	ASAP	Chair and Secretariat	To begin

**Unresolved action items recorded by MET/R WG/11**

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/REMARKS
MET/R WG/11 01	Propose further updates to the (MET/R WG work plan) Deliverable No. 2 and Deliverable No. 5 timeframe, responsibility, and requirements details. [Ref: MET/R WG/11 Report, 5.2.] - Deliverable 2: <i>Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ANS Plan</i> - Deliverable 5: <i>A coordinated review of the APAC ANP Volume III, including proposals for improvements to the ANRF and other parts of Volume III, to clarify the MET-related implementation planning guidance</i>	MET/R WG/12	Chair and Secretariat	In progress <del>To begin</del>

**Unresolved action items recorded by MET/R WG/09**

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/REMARKS
MET/R WG/09 01	Publicise the SIGMET Guide and, in particular, the guidance indicating the importance of exchanging special air-reports between airlines, ATS units and MWOs (and aerodrome meteorological offices (AMOs)) in support of improved SIGMET service and flight safety, by way of ICAO State letter (and/or other channels) with distribution to pilots and ATS units supported by States and relevant organisations, as appropriate [include reference to the ICAO APAC Webinar on <i>Special Air-Reports needed by MET to Support Flight Safety</i> , conducted on 17 June 2021]	July 2020 Ongoing	Secretary and MET/R WG members	Superseded by action item MET/R WG/13-02 In progress

MET/R WG/13  
Appendix A to the Report

**Extract from MET SG – LIST OF ACTIONS**

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

**New action items recorded by MET SG/27**

MET SG – LIST OF ACTIONS				
Action No.	Detailed description of actions	Responsibility	Target date	Status
...				
27/03	<p><b>Update to Regional SIGMET Guide:</b> Include the proposed example on guidance on SIGMET for volcanic ash crossing FIR boundaries, Appendix A of WP/10, in the next update of the APAC Regional SIGMET Guide. [Ref: Report of MET SG/27, para. 4.7.]</p> <p>Ref: MET/R WG/13 Report, para. 2.9., and MET/R WG/13 action item 03.</p>	Secretariat	Dec 2023	<b>TO COMMENCE</b>
...				
27/05	<p><b>Document of cases of SIGMET coordination:</b> Identify common SIGMET coordination practices from the document of cases of SIGMET coordination in WP/11 and develop further the document to separate the procedural information, which could potentially be used to supplement to the Asia/Pacific Regional SIGMET Guide. [Ref: Report of MET SG/27, para. 4.16.]</p> <p>Ref: MET/R WG/13 Report, para. 2.10., and MET/R WG/13 WP/09 – SIGMET coordination common practices and guidelines</p>	Ad hoc group	Jul 2024 (MET SG/28)	<b>IN PROGRESS</b> <del>TO COMMENCE</del>
...				
27/07	<p><b>Update of VAAC backup procedures in APAC Regional SIGMET Guide:</b> Include the proposed updates for the example in Appendix A of WP/10 and the proposal in WP/13 in the eleventh edition of the Asia/Pacific Regional SIGMET guide. [Ref: Report of MET SG/27, para. 4.22.]</p> <p>Ref: MET/R WG/13 Report, para. 2.09., and MET/R WG/13 action item 03.</p>	Secretariat	Dec 2023	<b>IN PROGRESS</b> <del>TO COMMENCE</del>
...				
27/13	<p><b>APAC SIGMET coordination activities</b> <del>Proposed amendment to ICAO Annex 3:</del> Update the online repository with the new SIGMET coordination activities between China and adjacent countries. [Ref: Report of MET SG/27, para. 6.6.]</p> <p>Ref: MET/R WG/13 Report, para. 2.11.</p>	Ad hoc group	Dec 2023	<b>COMPLETED</b> <del>TO COMMENCE</del>

-----

MET/R WG/13  
Appendix B to the Report

**ICAO ASIA AND PACIFIC METEOROLOGICAL REQUIREMENTS WORKING GROUP  
(MET/R WG)**

**TERMS OF REFERENCE AND WORK PLAN**

**Editorial note:** Proposed updates show deleted text using ~~text to be deleted~~ and added text with grey shading (text to be inserted).

**TERMS OF REFERENCE**

DESCRIPTION	
Name and establishment of the group	The Meteorological Requirements Working Group (MET/R WG) was established by the Meteorology Sub-group (MET SG) of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) [MET SG/19, Decision 19/2 refers].
Administrative arrangements	The membership and appointment of members, chairing, frequency of meetings and quorum, and recording of meetings shall be determined and conducted following the working arrangements and instructions provided in the APANPIRG Procedural Handbook.
Reporting mechanism	The MET/R WG shall report its work progress and coordination requirements to the MET SG, generally in a report to the MET SG meeting presented by the chairperson of the MET/R WG. The MET/R WG may also provide reports to other relevant bodies as necessary (e.g., contributory bodies of APANPIRG) with assistance from the ICAO Secretariat.
Objective	Improve safety, efficiency and sustainability of air traffic management (ATM <sup>1</sup> ) operations by providing meteorological (MET) information needed to meet current and future requirements of the ATM system.
Benefits	Increase safety – optimize safety risk management Increase efficiency – save time and fuel Increase sustainability – reduce carbon emissions
Functions and delegated authority	Under guidance from the ICAO Secretariat, support the MET SG to assist APANPIRG in its planning and implementation work by carrying out designated tasks on specifically defined problems, including: <ul style="list-style-type: none"><li>a) Coordinate with other relevant contributory bodies of APANPIRG such as ATM/SG and ATFM/SG;</li><li>b) Recommend updates to the Asia/Pacific Regional Air Navigation Plan and other regional guidance material as necessary, based on analysis and evaluation of the current and future requirements for MET information in support of ATM, as well as ATM information required to support the provision of MET services;</li><li>c) Facilitate the exchange of expertise in the Asia/Pacific Region on the integration of MET information into ATM systems to support collaborative decision making (CDM) and the migration of MET information into the SWIM environment;</li><li>d) Facilitate the monitoring and implementation of the sub-regional exchange of MET information (including in digital format) and associated inter-agency agreements that support the integration of MET information in ATM operations in line with the priorities defined in the ASIA/PAC Seamless ATM Plan;</li><li>e) Promote coordination between the MET and ATM communities in the Asia/Pacific Region to enhance the level of understanding of MET requirements and capabilities in support of ATM; and</li><li>f) Report to the MET SG for further coordination through the ICAO Secretariat with APANPIRG and other relevant bodies.</li></ul>

MEMBERSHIP		
State/Organization Name	Position/organization (field of expertise)	Contact
<b>AUSTRALIA</b> Mr. Ashwin NAIDU (Chair)	Manager Senior Aviation Customer Lead Australian Bureau of Meteorology (MET)	Tel: +61 2 9296 1503 E-mail: ashwin.naidu@bom.gov.au

<sup>1</sup> ATM: the dynamic, integrated management of air traffic and airspace including air traffic services, airspace management and air traffic flow management — safely, economically and efficiently — through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions [ICAO Doc 4444, PANS ATM]

MET/R WG/13  
Appendix B to the Report

MEMBERSHIP		
State/Organization Name	Position/organization (field of expertise)	Contact
<b>CHINA</b> Mr. Hanqingyuan	Deputy Director, Met Division of ATMB, CAAC (MET)	Tel: +86(10)87786529 E-mail: hanqingyuan@atmb.net.cn
<b>CHINA</b> Ms. Huomiao	Engineer MET Center of North China, Air Traffic Management Bureau, CAAC (MET)	E-mail: huomiao0826@163.com
<b>CHINA</b> Ms Li Xiya	Engineer Meteorological Center of Middle South Regional Air Traffic Management Bureau of Civil Aviation of China (MET)	E-mail: gzlixia@qq.com
<b>CHINA</b> Mr Wen Junpeng	Meteorological Center of Middle South Regional ATMB of CAAC	wenjunpeng@atmb.net.cn
<b>CHINA</b> Ms Chen Lijing	Gansu Branch of Northwest ATMB, CAAC	chenlj_1991@163.com
<b>FIJI</b> Mr William Reece	Manager Air Navigation Engineering Services	Email: williamr@fijiairports.com.fj Phone: (679) 6731198; (679) 725777 ext. 4198 Mobile (679) 9906105
<b>HONG KONG, CHINA</b> Mr. Marco Mang-hin KOK	Acting Senior Scientific Officer Hong Kong Observatory (MET)	E-mail: mhhok@hko.gov.hk
<b>HONG KONG, CHINA</b> Ms. Christy Leung Yan Yu	Scientific Officer Hong Kong Observatory (MET)	E-mail: yyleung@hko.gov.hk
<b>HONG KONG, CHINA</b> Mr. John Man-lok Chong	Scientific Officer, Hong Kong Observatory (MET)	Email: mlchong@hko.gov.hk
<b>JAPAN</b> Ms. IKEDA Michiko	Scientific Officer Office of Aviation Weather Forecasting Forecast Division Japan Meteorological Agency (MET)	E-mail: michi-ikeda@met.kishou.go.jp
<b>JAPAN</b> YONE Toshihiro (Mr)	Special assistant to the Director, Air Traffic Control Division, Air Navigation Services Department, Japan Civil Aviation Bureau (ATM)	E-mail: yone-t46kg@mlit.go.jp
<b>JAPAN</b> UENISHI Miki (Ms)	Scientific Officer, Office of Aeronautical Meteorology Planning Division, Administration Department, Japan Meteorological Agency (JMA)	E-mail: m.uenishi@met.kishou.go.jp
<b>PAKISTAN</b> Mr. Fazal Ur Rehman	Sr. Joint Director (ATM / ANS Inspector)	Tel: +92-21-99072756 Mobile: +92-306-2266788 Fax: +92-21-99242676 E-mail: fazal_ur_rehman@caapakistan.com.pk
<b>PAKISTAN</b> Mr. Syed Ali Baqadar Shah	Deputy Director (MET / Meteorological Inspector)	Tel: +92-21-99072758 Fax No: +92-21-99242676 E-mail: baqadar@hotmail.com baqadar.shah@caapakistan.com.pk
<b>REPUBLIC OF KOREA</b> Mr. Yeonghun Kim	Assistant Director Aviation Meteorological Office (AMO) of Korea Meteorological Administration (KMA) (MET)	Tel : +82 (32) 222 3008 Fax : +82 (32) 740 2807 E-mail: av_pod@korea.kr

MET/R WG/13  
Appendix B to the Report

MEMBERSHIP		
State/Organization Name	Position/organization (field of expertise)	Contact
<b>SINGAPORE</b> Mr. Yeo Cheng Xun	Senior Meteorologist Meteorological Services Singapore Singapore Changi Airport P.O. Box 8, Singapore 918141 (MET)	E-mail: YEO_Cheng_Xun@nea.gov.sg
<b>THAILAND</b> Mr. <del>Nuttawut Dandee</del> Amorn Kaewmorakot	Director of Aeronautical Meteorology Division Aeronautical Meteorology Division Thailand Meteorological Department (MET)	Tel: +66 (2) 134 0011 Ext. 216 Fax: +66 (2) 213 400 10 E-mail: <del>wut.tmd@gmail.com</del> amorn@tmd.go.th
<b>THAILAND</b> Ms. Vanatta Noipan	Acting Chief of Aeronautical Meteorology Division The Civil Aviation Authority of Thailand (MET/regulator)	Tel: +66 (0) 2568 8825 Fax: +66 (0) 25688847 E-mail: vanatta.n@caat.or.th
<b>THAILAND</b> Mr. Bunpot Kujaphun	Acting Director Aeronautical Information and Flight Data Management, AEROTHAI, Aeronautical Radio of Thailand Ltd.	E-mail: bunpot.ku@aerothai.co.th
<b>UNITED STATES</b> Ms. Almira (Alma) Ramadani	Senior Air Traffic Representative, Asia Pacific Federal Aviation Administration Air Traffic Organization, Mission Support American Embassy, Singapore	Tel: +1 202-267-2757 Email: almira.ramadani@faa.gov
<b>VIET NAM</b> Ms. Lan Oanh Nguyen (Lana)	Deputy Director, Air Navigation Department Civil Aviation Authority of Vietnam (MET)	Tel: +84 (24) 3872 3600 E-mail: lanoanh@caa.gov.vn
<b>VIET NAM</b> Ms. Thi Thanh Tam VU	Meteorological Official Department of Air Traffic Services Viet Nam Air Traffic Management Corporation (MET)	Tel: +84 (24) 3873 0320 E-mail: tamvtt@vatm.vn Vuthithanhtam86@gmail.com
<b>IATA</b> Mr. John MOORE	Assistant Director (Infrastructure) Safety and Flight Operations Asia-Pacific (Airline operators)	Tel: +65 6499 2529 E-mail: moorej@iata.org
<b>ICAO</b> Mr. <del>Shane SUMNER</del> (Secretariat)	Regional Officer ATM International Civil Aviation Organization (ICAO) Asia and Pacific Office (ATM)	Tel: <del>+66 (2) 537 8189 x159</del> Fax: <del>+66 (2) 537 8199</del> E-mail: <del>ssumner@icao.int</del>
<b>ICAO</b> Mr. Peter DUNDA (Secretariat)	Regional Officer MET International Civil Aviation Organization (ICAO) Asia and Pacific Office (MET)	Tel: +66 (2) 537 8189 x153 Fax: +66 (2) 537 8199 E-mail: pdunda@icao.int

MET/R WG/13  
Appendix B to the Report

COMMUNICATION STRATEGIES				
Description	Target Audience	Delivery Method	Frequency / Date	Responsibility
Work Plan	MET/R WG, MET SG	Document via e-mail and MET/R WG meeting	As required, but reviewed at MET/R WG and MET SG meetings	Chair and Secretariat
Interim Work Program Progress Report	MET/R WG Members	Web-conference E-mail	Quarterly/as determined by Chair	Chair and Secretariat
MET Chairs Coordination Meeting	Chairs of MET SG and its contributory working groups	Web-conference E-mail	Quarterly	Chair and Secretariat
General correspondence	MET/R WG Members	E-mail	As required	MET/R WG Members
MET/R WG Meeting	MET/R WG Members	Meeting (face-to-face or tele- /web-conference)	As required	Chair and Secretariat
Status and Milestone Reports	MET/R WG Members	E-mail and working paper at MET/R WG meeting	At least annually	Chair and Secretariat
MET/R WG Report	MET SG and ATFM SG (and ATM/SG, through MET SG) and all APAC States	ICAO website and working paper at MET SG meeting	Following each MET/R WG meeting	Chair and Secretariat

## PLAN OF WORK

DELIVERABLES
1. Documented analysis of MET information used in the Region specifically to support ATM operations
2. Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ATM Plan
3. Draft regional guidance material for tailored MET information supporting ATM operations
4. Strengthen collaboration and relationship between MET, ATM and Airspace Users
5. Coordinated review of the APAC ANP Volume III, including proposals for improvements to the ANRF and other parts of Volume III, to clarify the MET-related implementation planning guidance
6. Development of APAC Use Case and User Requirements for SWIM-based MET Information Services Supporting ATFM
7. Promote and assist ATM and Airspace Users with user education on the Space Weather Advisory service
8. Meteorological Information for the Asia Pacific Regional Framework for Collaborative ATFM
9. SIGMET coordination activities in APAC Region

MILESTONES	By date	Responsibility	Status
<b>1. Deliverable 1:</b> Analysis of MET information requirements (current and future) for the Region specifically to support ATM operations			
Final draft documented analysis of the survey of MET information requirements (current and future) for the Region specifically to support ATM operations	MET/R WG/13 MET SG/27	Ad hoc Group: Rapporteur-Australia, Singapore, New Zealand, China, Japan, Thailand, Hong Kong China, Viet Nam	Completed In-progress
1.1. Identify follow-up actions (including presenting the results at ATM and Airspace Forums)	MET SG/27/28	Ad hoc Group (above)	In progress
1.2. Formulate a proposal for the timing and content of a future survey	MET SG/28 ATM/SG/	Ad hoc Group (above) plus others identified in ATFM/SG/14 and MET/R WG/13	
<b>2. Deliverable 2:</b> Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ANS Plan			
Initial development (of the list of MET information or services necessary to support implementation of the priority 1 elements of the Asia/Pacific Seamless ANS Plan) in coordination with ATFM/SG	MET/R WG/13	Ad hoc group: Rapporteur-Singapore, Australia, China, Hong Kong China, Japan, Thailand	Completed On hold

MET/R WG/13  
Appendix B to the Report

MILESTONES	By date	Responsibility	Status
2.1. Further development (of the list of MET information or services necessary to support the implementation of the priority 2 and 3 elements of the Asia/Pacific Seamless ANS Plan) in coordination with ATFM/SG	MET/R WG/14 and ATFM/SG/15	Ad hoc group: Rapporteur-Singapore, Australia, China, Hong Kong China, Japan, Thailand	In progress
<b>3. Deliverable 3:</b> Regional guidance material for tailored MET information supporting ATM operations			
Finalize and submit to MET SG/26 the proposed updates to the Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations – as agreed in Decision MET/R WG/11/01, part a), and Draft Decision MET/R WG/11/02,	MET SG/26	Ad hoc group	Completed
Provide the Secretariat examples on State's post operational analysis and suggestions regarding the amendment to the Guidance document to enhance the post-operational analysis framework – as agreed in Decision MET/R WG/11/01, part b)	30 November 2022	MET/R WG members	Completed
Enhance the contents relevant to post-operational analysis in the main body of the Guidance based on the information provided by the MET/R WG members	MET/R WG/12	Ad hoc group	Superseded by 3.4
Review the draft Guidance attached to MET/R WG/12 WP/11 and provide comments to the ICAO RO MET	14 July 2023	MET/R WG and ATFM SG members	To begin Completed
Consider including States implementation example reported by IP06 and IP04 and finalize and submit to MET SG the proposed updates to the Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations – as agreed in Decision MET/R WG/12/xx	MET SG/27	Ad hoc group: Rapporteur-Japan, Australia, China, Hong Kong, China, Republic of Korea, Singapore, Thailand, Vietnam and IATA	To begin Superseded by 3.3
3.1. Share the States' practices and challenges of verification and evaluation of impact-based MET information to support ATM operation in the MET/ATM seminar and/or MET/R WG/13 and the ad hoc group analyze provided information and consider appropriate actions, such as include it to the Guidance	MET/R WG/13/14	MET/R WG members	To begin In progress
3.2. Analyze provided information under 3.1 and other information in the WG meetings/Seminars and consider appropriate actions, such as including it in the Guidance.	MET/R WG/14	Ad hoc group: Rapporteur-Japan, Australia, China, Hong Kong, China, Republic of Korea, Singapore, Thailand, Vietnam and IATA	To begin
3.3. Consider including China's implementation example (MET/R WG/13 – IP02) and finalize and submit the proposed updates to the Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations to MET SG – as agreed in Decision MET/R WG/13-02			To begin
<b>4. Deliverable 4:</b> Strengthen collaboration and relationship between MET, ATM and Airspace Users			
Report to ATFM/SG (and ATM SG) (including the following topics: MET/ATM webinar 2022 outcomes, MET/ATM survey results, updates on the regional MET/ATM guidance document, education on the SWX advisory service, guidance on exchanging special air-reports, etc.)	ATFM/SG/12	Chair and Secretariat	Completed
Plan for a future seminar on regional implementation of MET information to support ATM operations	MET SG/26	Chair and Secretariat in coordination with ATM/SG	Completed
Plan to conduct MET/R WG/13 in conjunction with ATFM/SG/14 to include a joint plenary component on matters of importance to both groups, including a Seminar on MET/ATM collaboration	MET SG/27	Chair and Secretariat in coordination with ATFM/SG Chair	Completed
4.1. Plan to conduct MET/R WG/14 in conjunction with ATFM/SG/15 to include a joint plenary component on matters of importance to both groups, including a Seminar on MET/ATM collaboration	MET SG/28	Chair and Secretariat in coordination with ATFM/SG Chair	To begin
4.2. Develop content for the Seminar on MET/ATM collaboration, such as examples of collaboration in the region and how to improve special air reports (ARS) availability	MET/R WG/14, MET/ATM Seminar	Secretariat in coordination with experts from States, including Fiji and India	To begin

MET/R WG/13  
Appendix B to the Report

MILESTONES	By date	Responsibility	Status
4.3. Report outcomes of the MET/ATM Seminar to MET SG, including issuing a state letter to encourage the States to improve ARS availability and make use of the reports in SIGMET issuance	MET SG/29	Chair and Secretariat	To begin
<b>5. Deliverable 5:</b> A coordinated review of the APAC ANP Volume III, including proposals for improvements to the air navigation reporting form (ANRF) and other parts of Volume III, to clarify the MET-related implementation planning guidance			
5.1. Support MET SG with the development of MET-specific requirements in the ANP, Volume III; giving consideration to:  i. The need to coordinate development of proposals for the ANP Volume III with the other APANPIRG Sub-Groups;  ii. The implications of the proposed project to migrate the APAC Seamless ANS Plan and other regional plans and guidance material into ANP Volume III; and  iii. Examples of ANP Volume III from other ICAO regions	MET SG/27	Rapporteur-Secretariat, Australia, Hong Kong China, IATA, Japan, Singapore, Thailand	To begin Pending outcomes of ICAO's development on the eANP system
<b>6. Deliverable 6:</b> Development of APAC Use Case and User Requirements for SWIM-based MET Information Services Supporting ATFM			
6.1. In coordination with other related sub-groups, working groups, etc., identify: i) SWIM-based MET information affecting ATFM operations; ii) how often these products be provided and rules for updates to meet the ATFM needs; and (iii) identify any other information required by ATFM and gaps to meet the needs of ATFM users	MET SG/27	Ad-hoc group (see below)	Completed In-progress
6.2. Identify MET and ATFM data to be exchanged using SWIM-based Information Exchange Service	MET SG/27	Ad-hoc group (see below)	Completed In-progress
6.3. Based on the findings (above), develop APAC use cases and a user requirements document for future SWIM-based MET information services supporting ATFM	MET SG/27	Ad-hoc group (see below)	Completed In-progress
6.4. Review the proposed updates to the draft reference document in Attachment A to MET/R WG/12 WP/12 and provide comments and suggestions for additional use cases, if any, to the ICAO Secretariat	14 July 2023	MET/R WG members and ATFM/SG members	Completed In-progress
6.5. Submit an updated version of the reference document to MET SG for review, giving consideration to the comments and suggestions received in 6.4.	MET SG/27	Ad-hoc group (see below)	Completed In-progress
6.6. Submit the draft reference document to MET SG and ATM SG for review, including proposals to publish the document on the ICAO website and a procedure for updating it as a living document	MET SG/28 and ATM/SG/	Ad-hoc group (see below)	To begin
<b>7. Promote and assist ANSPs and Airspace Users with user education on the Space Weather Advisory service</b>			
7.1. Seek input from end users (by way of questionnaire) on the content of a SWX workshop or seminar	MET SG/28 MET SG/27	Secretariat and MET/R WG members	To begin
7.2. Seek input from end users on the content of a SWX advisory exercise	MET SG/28 MET SG/27	Secretariat and MET/R WG members	To begin
7.3. Deliver information on Space Weather service to participants at the ICAO APAC MET/ATM seminars	MET/ATM seminars 2022 and 2023, 2024	Australia	Completed
<b>8. Meteorological Information for the Asia Pacific Regional Framework for Collaborative ATFM</b>			
8.1. Review Meteorological Information for ATFM (paragraphs 5.59-5.67) in the Regional Framework Document for Collaborative ATFM and provide inputs of the latest examples to the ICAO Secretariat and the task coordinators [Ref: Decision MET/R WG/11/05]	17 June 2022	MET/R WG members	Completed
8.2. Provide input on seasonal meteorological information for the Regional Framework	TBC	MET/R WG members	Pending advice from ATFM/SG



MET/R WG/13  
Appendix B to the Report

MILESTONES	By date	Responsibility	Status
<b>9. SIGMET coordination activities in the APAC Region: Coordinate on the next steps to promote integration and expansion of SIGMET coordination activities among States and administrations.</b>			
9.1. Maintain the online repository on SIGMET coordination activities in the APAC Region.	MET/R WG/14	Ad hoc group on SIGMET Coordination:	
9.2. Identify common SIGMET coordination practices from the document of cases of SIGMET Coordination practices and seek further inputs from States' current practice.  The following points to consider: <ul style="list-style-type: none"> <li>Collect more practices on TC SIGMET handover procedures and analyzing them to seek possible inclusion to the Regional SIGMET Guide (MET/R WG/13 – WP/09)</li> <li>VA SIGMET issuance over the multiple FIR (MET/R WG/13 – WP/10, 2.1-2.2)</li> <li>Collect more practices on SIGMET coordination procedure in addition to MET/R WG/13 – WP/08 (Appendix A) and seek any input to Appendix L of the Regional Guidance.</li> </ul>	MET/R WG/14	Joint Rapporteurs: <ul style="list-style-type: none"> <li>Hong Kong China (Christy Leung)</li> <li>Japan (Michiko Ikeda)</li> <li>Singapore (Goh Wee Poh)</li> </ul> Other members: <ul style="list-style-type: none"> <li>China (Lin Caiyan)</li> <li>Fiji (Samisoni Waqavakatoga)</li> <li>IFALPA (Jaffar Hassan)</li> <li>India (VR Durai, Dr Neeti Singh)</li> <li>Indonesia (Resa Pratikasari, Nurul Hidayati)</li> <li>Malaysia (Rafizam Ramli, Nik Nur Aimi Syahirah Nik Adnan, Chai Mui Fatt)</li> <li>Thailand (Rassmee Damrongkietwattana)</li> <li>Vietnam (Le Quang Hung, Vu Thi Thanh Tam)</li> </ul>	
9.3. Propose the SIGMET coordination guidance in the Regional SIGMET Guide following findings from 9.2  The following points to consider: <ul style="list-style-type: none"> <li>Possible common WS SIGMET (TS) issuance criteria in the Asia/Pacific Region (MET/R WG/13 – WP/09, Appendix B)</li> <li>Considerations on criteria for convective system straddle across multiple FIR (MET/R WG/13 – WP/09, Appendix C)</li> </ul>	MET SG/28		
9.4. Review, organise and support surveys on user requirements of SIGMET coordination	MET/R WG/14		

<b>Ad-hoc group for Deliverable 6: Development of APAC Use Case and User Requirements for SWIM-based MET Information Services Supporting ATFM</b>			
State / Administration / IO	Name	Position and/or Organisation	Expertise
Australia	Jesper Bronsvort	Airservices Australia	ATFM
Australia	Ashwin Naidu	BOM	MET
CANSO	Stuart Ratcliffe	CANSO	ATFM
Hong Kong China	Marco Kok ( <b>Rapporteur</b> )	HKO	MET/SWIM
Hong Kong China	John Chong	HKO	MET
Hong Kong China	Anfernee Poon	Acting Senior Operations Officer (Strategic Planning) / HKCAD	ATFM
IATA	John Moore	IATA	ATFM/MET
Japan	YONE Toshihiro	JCAB	ATFM
Japan	IKEDA Michiko	JMA	MET
Pakistan	Fazal Ur Rehman	PCAA	ATFM
Pakistan	Syed Ali Baqadar Shah	PCAA	MET
Republic of Korea	Dong-won, LEE	Assistant of Director / KMA	MET
Republic of Korea	Jiwon, LEE	Assistant of Director / KMA	MET
Singapore	Zhang HuanBin	Head, ATM development/CAAS	ATFM
Singapore	Jack Toh	Head (ATM Info System)	ATFM
Singapore	Yeo Cheng Xun	MSS	MET
Thailand	Amornrat Jirattigalachote (Amo)	Strategic Planning Manager /AEROTHAI	ATFM/SWIM
Thailand	Dudsadee Sungthong	Strategic ATFM Team/AEROTHAI	ATFM
Vietnam	Mr. Nguyen Van Dung	VATM	MET/ATFM

### LIST OF PARTICIPANTS

	STATE/NAME		TITLE/ORGANIZATION	E-MAIL
<b>1.</b>	<b>AUSTRALIA (1)</b>			
	1.	Mr. Ashwin Naidu	Aviation Customer Lead Australian Bureau of Meteorology	ashwin.naidu@bom.gov.au;
<b>2.</b>	<b>BHUTAN (2)</b>			
	2.	Mr. Karma Gayley	Senior ANS Officer, Bhutan Civil Aviation Authority	kgayley@bcaa.gov.bt;
	3.	Ms. Ugyen Lhamo	Meteorology/Hydrology officer, National Centre for Hydrology and Meteorology (NCHM)	ulhamo@nchm.gov.bt;
<b>3.</b>	<b>BRUNEI DARUSSALAM (2)</b>			
	4.	Mr. Muhammad Faiq Syazwa'ie Suliaman	Engineer, Brunei Darussalam Meteorological Department	syazwaie.suliaman@met.gov.bn;
	5.	Mr. Shahalmie Emran	Meteorological Coordinator and Technical Officer, Brunei Darussalam Meteorological Department	shahalmie.embran@met.gov.bn;
<b>4.</b>	<b>CAMBODIA (2)</b>			
	6.	Mr. Chhin Pav Ming	Deputy Director of Aeronautical Services Department	pavming.chhin@yahoo.com;
	7.	Mr. Chvea Thol	Chief of MET Standard Bureau, ANS Department	chveathol@yahoo.com;
<b>5.</b>	<b>CHINA (3)</b>			
	8.	Mr. Qingyuan Han	Deputy Director of MET Division, ATMB of CAAC	hanqingyuan@atmb.net.cn;
	9.	Mr. Junpeng Wen	Weather Forecaster, Central and Southern Air Traffic Management Bureau of CAAC	wenjunpeng@atmb.net.cn;
	10.	Ms. Lijing Chen	Weather Forecaster and Researcher, Gansu Branch of Northwest ATMB, CAAC	chenlj_1991@163.com;
<b>6.</b>	<b>HONG KONG, CHINA (6)</b>			
	11.	Mr. Yan Chun Chan	Scientific Officer, Hong Kong Observatory	ycchan@hko.gov.hk;

MET/R WG/13  
Appendix C to the Report

	STATE/NAME		TITLE/ORGANIZATION	E-MAIL
	12.	Mr. Christy Leung	Scientific Officer, Hong Kong Observatory	yyleung@hko.gov.hk;
	13.	Mr. Anfernee POON	Senior Operations Officer, Civil Aviation Department Hong Kong, China	awhpoon@cad.gov.hk;
	14.	Mr. Alex LEUNG	Conversion Training Officer, Civil Aviation Department Hong Kong, China	almleung@cad.gov.hk;
	15.	Mr. Gene KWOK	Electronics Engineer, Civil Aviation Department Hong Kong, China	gwhkwok@cad.gov.hk;
	16.	Mr. Wallace Ng	Assistant Electronics Engineer, Civil Aviation Department Hong Kong, China	wkwng@cad.gov.hk;
<b>7.</b>	<b>FIJI (1)</b>			
	17.	Mr. William Lawaniyavi Reece	Manager Air Navigation Engineering Services	WilliamR@fijiairports.com.fj;
<b>8.</b>	<b>INDIA (3)</b>			
	18.	Ms. Neeti Singh	Scientist C, India Meteorological Department	neeti.singh@imd.gov.in;
	19.	Mr. Sajeeth Kumar	General Manager (Air Traffic Management - ATS)	sajkumar@aai.aero;
	20.	Mr. Anil Krishna Deva	Joint General Manager (Air Traffic Management-ATS)	anild@aai.aero;
<b>9.</b>	<b>INDONESIA (3)</b>			
	21.	Mr. Faisal Riza	Junior Manager ATFM & ATS System, Perum LPPNPI (AirNav Indonesia)	faisal.riza@airnavindonesia.co.id;
	22.	Mr. Ardhian Riansyah Cono	Scientific Officer, The Agency for Meteorology Climatology and Geophysics (BMKG)	ardhian.cono@bmkg.go.id;
	23.	Mr. Tri Setyo Hananto	MET Information Officer, BMKG Indonesia	setyo.hananto@bmkg.go.id;
<b>10.</b>	<b>JAPAN (2)</b>			
	24.	Mr. Kenji Uchida	Senior Forecaster, Japan Meteorological Agency	k-uchida@met.kishou.go.jp;
	25.	Mr. Michiko Ikeda	Scientific Officer, Japan Meteorological Agency	michi-ikeda@met.kishou.go.jp;

MET/R WG/13  
Appendix C to the Report

	STATE/NAME		TITLE/ORGANIZATION	E-MAIL
<b>11.</b>	<b>MALAYSIA (3)</b>			
	26.	Mr. Mohamad Yusri Bin Mohamed Ali	Air Traffic Controller/Caam Safety INSPECTOR, Civil Aviation Authority of Malaysia	mohd_yusri@caam.gov.my;
	27.	Ms. Siti Fariza Mat Tahir	Forecaster, Malaysian Meteorological Department	sitifariza@met.gov.my;
	28.	Mr. Mohd Hafizi Ahmad Zubir	Air Traffic Controller, Civil Aviation Authority of Malaysia	hafizi@caam.gov.my;
<b>12.</b>	<b>MALDIVES (1)</b>			
	29.	Mr. Ali Shareef	Deputy Director General Meteorology, Maldives Meteorological Service	ali.shareef@met.gov.mv;
<b>13.</b>	<b>NEPAL (5)</b>			
	30.	Ms. Mahendra Humagai	ATCO, Manager, Civil Aviation Authority of Nepal	mahendrahmg@gmail.com;
	31.	Mr. Baburam Ghimire	ATCO, Dy. Manager, Civil Aviation Authority of Nepal (CAAN)	baburam.ghimire@caanepal.gov.np;
	32.	Mr. Nawa Raj Dahal	Deputy Manager, Civil Aviation Authority of Nepal (CAAN)	nawarajdahal63@gmail.com;
	33.	Mr. Sashi Raj Neupane	ATC, Civil Aviation Authority of Nepal (CAAN)	nsashiraj@gmail.com;
	34.	Mr. Suman Kumar Regmi	Senior Meteorologist, Department of Hydrology and Meteorology, Government of Nepal	sumankregmi@gmail.com;
<b>14.</b>	<b>PHILIPPINES (2)</b>			
	35.	Mr. Florian S. Atienza	Division Chief Air Navigation Service	fsatienza@yahoo.com;
	36.	Mr. Michael D. Madrid	Air Traffic Management Officer IV, Air Traffic Service	
<b>15.</b>	<b>REPUBLIC OF KOREA (2)</b>			
	37.	Ms. Raehyun Chung	Assistant Director, AMO, Aviation Meteorological Office	rhchung@korea.kr;
	38.	Mr. Kyoungjun Lee	Assistant Director, Aviation Meteorological Office (AMO) of Korea Meteorological Administration (KMA)	leekj15@korea.kr;
<b>16.</b>	<b>SINGAPORE (7)</b>			

MET/R WG/13  
Appendix C to the Report

	STATE/NAME		TITLE/ORGANIZATION	E-MAIL
	39.	Ms. Pei Li Lee	Principal Manager (Air Traffic Services Regulation), Civil Aviation Authority of Singapore (CAAS)	lee_pei_li@caas.gov.sg;
	40.	Mr. Xue Li Chng	Air Traffic Control Officer, Civil Aviation Authority of Singapore	chng_xue_li@caas.gov.sg;
	41.	Mr. Yi Wei Yeoh	Principal Manager (CNS/MET regulation), Civil Aviation Authority of Singapore (CAAS)	yeoh_yi_wei@caas.gov.sg;
	42.	Ms. Yvonne Foong	Senior Engineer, Civil Aviation Authority of Singapore	yvonne_foong@caas.gov.sg;
	43.	Mr. GOH Wee Poh	Head, Central Forecast Office, Forecast Operations Department, Meteorological Service Singapore	goh_wee_poh@nea.gov.sg;
	44.	Mr. Cheng Xun Yeo	Senior Meteorologist, Meteorological Service Singapore	YEO_Cheng_Xun@nea.gov.sg;
	45.	Mr. Jeffrey Loke	Head (ATS Regulation) & Head (CNS/MET Regulation), Civil Aviation Authority of Singapore (CAAS)	Jeff_LOKE@caas.gov.sg;
<b>17.</b>	<b>THAILAND (28)</b>			
	46.	Ms. Suttipong Kornrapat	Air Traffic System Engineer, Aeronautical Radio of Thailand (AEROTHAI), Bangkok, Thailand	suttipong.kr@aerorhai.co.th;
	47.	Mr. Auttaphud Suebnuang	Executive Air Traffic Systems Engineer, AEROTHAI, Aeronautical Radio of Thailand Ltd.	auttaphud.se@aerorhai.co.th;
	48.	Ms. Bunpot Kujaphun	Director, Aeronautical Information and Flight Data Management Center, Aeronautical Radio of Thailand Ltd.	bunpot.ku@aerorhai.co.th;
	49.	Mr. Dudsadee Sungthong	Executive ATM Network Officer, AEROTHAI, Aeronautical Radio of Thailand Ltd.	shart3035@gmail.com;
	50.	Mr. Narissara Na Rangsi	Aeronautical Information Assistant Manager, AEROTHAI, Aeronautical Radio of Thailand Ltd.	comm.future@gmail.com;

MET/R WG/13  
Appendix C to the Report

	STATE/NAME		TITLE/ORGANIZATION	E-MAIL
	51.	Mr. Prinya Viyasilpa	Air Traffic Engineering Manager, AEROTHAI, Aeronautical Radio of Thailand Ltd.	prinya.vi@aerothai.co.th;
	52.	Mr. Peerapat Chancharoen	AIS Officer, Airport of Thailand PLC.	peerapat.c@airportthai.co.th;
	53.	Mr. Saowakhon Tetiya	aerodrome safety officer, Airport of Thailand PLC.	saowakhon.t@airportthai.co.th;
	54.	Mr. Amnat Jenpanitsap	Administration Officer, Airports of Thailand Public Company Limited (AOT)	amnat.j@airportthai.co.th;
	55.	Ms. Chirapan Chinratana	Government Official, Civil Aviation Authority of Thailand (CAAT)	Chirapan.c@caat.or.th;
	56.	Mr. Jirakrit Thamnarak	Air Traffic Oversight Division Officer, Civil Aviation Authority of Thailand (CAAT)	jirakrit.t@caat.or.th;
	57.	Ms. Napatra Chuepan	Officer, Civil Aviation Authority of Thailand (CAAT)	napatra.c@caat.or.th;
	58.	Mr. Somchai Yimsricharoenkit	ANS Senior Officer, Civil Aviation Authority of Thailand (CAAT)	somchai.y@caat.or.th;
	59.	Mr. Pongkhun Maneesri	Meteorologist, Thai Meteorological Department	pongkhun@gmail.com;
	60.	Mr. Putchaphan Sirisap	Director of Aeronautical Weather Forecast Sub-division, Thai Meteorological Department	siri_putch@hotmail.com;
	61.	Mr. Rassmee Damrongkietwattana	Director of Aeronautical Weather Monitoring Sub-division, Thai Meteorological Department	rassmee@hotmail.com;
	62.	Mr. Bancha Kaewngam	ANS Senior Officer, The Civil Aviation Authority of Thailand (CAAT)	bancha.k@caat.or.th;
	63.	Mr. Theerut Wunkhwan	Officer, The Civil Aviation Authority of Thailand (CAAT)	theerut.w@caat.or.th;
	64.	Ms. Thitichaya Phongpaew	Officer, The Civil Aviation Authority of Thailand (CAAT)	thitichaya.p@caat.or.th;

MET/R WG/13  
Appendix C to the Report

	STATE/NAME		TITLE/ORGANIZATION	E-MAIL
	65.	Mr. Wanchai Rattanasing	Aeronautical Information Manager, AEROTHAI, Aeronautical Radio of Thailand Ltd.	wanchai.ra@aerothai.co.th;
	66.	Mr. Warapong Noothong	Meteorologist, Thai Meteorological Department	pui-74@hotmail.com;
	67.	Mr. Maethee Riwsawai	Senior Air Traffic Systems Engineer, AEROTHAI, Aeronautical Radio of Thailand Ltd.	maethee.ri@aerothai.co.th;
	68.	Mr. Rittikrit Garin	Meteorologist, Thai Meteorological Department	rittikrit@hotmail.com;
	69.	Mr. Sirawich Wattanananta	Air Navigation Operations Planning Division Officer, CAAT	Sirawich.w@caat.or.th;
	70.	Mr. Pongpob Mongkolpiyathana	Executive Air Traffic Systems Engineer, Organization Name: AEROTHAI, Aeronautical Radio of Thailand Ltd.	pongpop.mo@aerothai.co.th;
	71.	Mr. Sikarate Tarasak	Air Navigation Operations Planning, Division Officer	
	72.	Mr. Piyawut Tantimekabut	Air Traffic Management Network Manager, AEROTHAI	
	73.	Mr. Chayanin Phoosangthong	Administrative Officer of Airside Services Division, Airports of Thailand	
<b>18.</b>	<b>UNITED STATES OF AMERICA (4)</b>			
	74.	Ms. Almira (Alma) Ramadan	Senior Air Traffic Representative, Asia Pacific Federal Aviation Administration Air Traffic Organization, Mission Support	almira.ramadani@faa.gov;
	75.	Mr. Scott Farrow	Staff Support Specialist Federal Aviation Administration CDM and International Operations ATO System Operations	scott.farrow@faa.gov;
	76.	Ms. Midori Tanino	Global ATM Program Manager Federal Aviation Administration ATO International, Mission Support Services	midori.tanino@faa.gov;

MET/R WG/13  
Appendix C to the Report

	STATE/NAME		TITLE/ORGANIZATION	E-MAIL
	77.	Mr. Daniel Jacob	FAA Senior Representative- New Delhi Federal Aviation Administration-IAO U.S. Embassy New Delhi	daniel.jacob@faa.gov;
<b>19.</b>	<b>VIETNAM (4)</b>			
	78.	Mr. Phan Ba Hung	Deputy Director – Aviation MET Centre	hungphb@yahoo.com;
	79.	Mr. Nguyen Dong Anh	Deputy Manager – ATFMU	nguyendonganhvatom@gmail.com;
	80.	Mr. Mai Hong Quan	Safety Audit Manager – Safety and Quality Department	mhongquan@vatm.vn;
	81.	Ms. Tran Hoang Linh	Official - Department of ATS	linhth@vatm.vn;
<b>20.</b>	<b>IATA (4)</b>			
	82.	Mr. John Moore	Assistant Director, Safety & Flight Operations, ASPAC, International Air Transport Association (IATA)	moorej@iata.org;
	83.	Ms. Megan Yin	Senior Manager-Air Traffic System Asia Pacific, United Airlines	yuanmegan.yin@united.com;
	84.	Mr. Kittisak Sudtachart	Director – Operations Control Center, Bangkok Airways Public Co., Ltd.	kittisak@bangkokair.com;
	85.	Mr. Pakdee Dangksan	Flight Dispatch Manager, IATA / Bangkok Airways Public Company Limited	pakdee@bangkokair.com;
<b>21.</b>	<b>IFATCA (1)</b>			
	86.	Mr. Naoto Ishii	ATCO, IFATCA-Asia and Pacific	n-ishii@kokkoroso.org;
<b>22.</b>	<b>ICAO (4)</b>			
	87.	Mr. Peter Dunda	Regional Officer MET International Civil Aviation Organization Asia and Pacific Office	PDunda@icao.int
	88.	Mr. Hiroyuki Takata	Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Office	htakata@icao.int;



MET/R WG/13  
Appendix C to the Report

	STATE/NAME		TITLE/ORGANIZATION	E-MAIL
	89.	Ms. Soniya Nibhani	Regional Officer ANS (CNS) Implementation International Civil Aviation Organization Asia and Pacific Office	snibhani@icao.int;
	90.	Ms. Varapan Meefuengsart	Programme Assistant International Civil Aviation Organization Asia and Pacific Office	vmeefuengsart@icao.int;

MET/R WG/13  
Appendix D to the Report

**LIST OF WORKING AND INFORMATION PAPERS**

<b>WORKING PAPERS</b>			
<b>Agenda Item</b>	<b>WP No.</b>	<b>Title</b>	<b>Presented by</b>
1	WP/01	Provisional Agenda	Secretariat
2	WP/02	Follow-up Action from MET/R WG/12	Secretariat
2	WP/03	Follow-up Action from MET SG/27	Secretariat
2	WP/04	Follow-up Action from APANPIRG/34	Secretariat
3	WP/05	Survey of State Meteorological Information Supporting Air Traffic Management	Ad hoc group
3	WP/06	MET Information Needed to Support the Elements of the APAC Seamless ANS Plan	Ad hoc group
3	WP/07	APAC Use Cases and User Requirements for SWIM-Based MET Information Services Supporting ATFM	Ad hoc group
3	WP/08	Oceanic SIGMET Coordination and Related Improvements in SIGMET Service	Fiji, Hong Kong China, Indonesia, Papua New Guinea and Solomon Islands)
3	WP/09	SIGMET Coordination Common Practices and Guidelines	MET/R ad hoc group on SIGMET Coordination
3	WP/10	Indonesia's Local Practices on Volcanic Ash SIGMET Issuance	Indonesia
4	WP/11	Review MET/R WG Work Program and Terms of Reference	Secretariat
5	WP/12	Dissemination of TAF Forecasts	India
<b>INFORMATION PAPERS</b>			
<b>Agenda Item</b>	<b>IP No.</b>	<b>Title</b>	<b>Presented by</b>
1	IP/01	Meeting Bulletin	Secretariat
3	IP/02	The New Implementation of Tailored MET Information and Services to Support ATM Operations	China
3	IP/03	Collaboration between Kiribati MET Service and Air Traffic Services	Kiribati

MET/R WG/13  
Appendix D to the Report

WORKING PAPERS			
Agenda Item	WP No.	Title	Presented by
3	IP/04	Establishing an Integrated Weather Information Support Concept for Air Traffic Control Services in the Republic of Korea	Republic of Korea
3	IP/05	ATM-Tailored MET Information and Services of Japan and Singapore	Japan and Singapore
3	IP/06	Collaborative Decision-Making between Australian Bureau of Meteorology, Airservices Australia and Other ATM Stakeholders	Australia
3	IP/07	Aircast: Automatic Integrated Real-Time Convection Forecast	Hong Kong, China
3	IP/08	Representativeness of Weather Observations at the Hong Kong International Airport under Three-Runway System	Hong Kong, China
3	IP/09	INA-SIAM System	Indonesia
3	IP/10	Outcomes of CSI Workshop 2024	Cambodia, Japan, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Vietnam
3	IP/11	Workshop on Volcanic Ash Impact Handling for Aviation	Indonesia
5	IP/12	INSAT 3DR Sounder Derived Wind Index and Dry Microburst Index Role in Aviation	India
3	IP/13	Practices and Challenges on Verification of Impact-Based Meteorological Information to Support ATM Operations	Japan
3	IP/14	The Developments of Detection, Warning and Service of Low-Level Wind Shear and Turbulence	China

PRESENTATIONS			
Topic No.	SP No.	Title	Presented by
1	SP/01	Updates to ICAO Provisions	Secretariat
	SP/02	Cold Temperature Altitude Corrections	IFATCA
2	SP/03	CAAC MET Service to Support ATM Operations	China

MET/R WG/13  
Appendix D to the Report

PRESENTATIONS			
Topic No.	SP No.	Title	Presented by
2	SP/04	Coordination Challenges between MET and ATM in Pacific Island	Kiribati
2	SP/05	Collaborative Network Management	Australia
2	SP/06	Meteorological Challenges in Support of Air Traffic Control (ATC) Decision-Making	Australia
2	SP/07	Case Study: MET Information and Services to Support ATM - Adverse Weather over the Aerodromes	Japan
2	SP/08	Verification and Enhancement of Impact-Based MET Information to Support ATM Operations	Japan
2	SP/09	Development of Probabilistic Forecast Products Supporting ATM	Hong Kong, China
3	SP/10	Regional Operation Support – CADENA	United States
3	SP/11	Space Weather Services	Australia
3	SP/12	The Developments of Detection, Warning and Service of Low-Level Wind Shear and Turbulence	China
3	SP/13	WMO RAI Aeronautical Meteorology Webinar 2024	Leader of WMO ET-AVI
5	SP/14	Dissemination of TAF Forecasts	India
5	SP/15	INSAT 3DR Sounder Derived Wind Index and Dry Microburst Index Role in Aviation	India
5	SP/16	WMO Conference on AERO-MET-SCI-2024	Japan and WMO
3	SP/17	APAC Use Cases and User Requirements for SWIM-Based MET Information Services Supporting ATFM	Ad hoc group

-----