INTERNATIONAL CIVIL AVIATION ORGANISATION

REPORT OF THE FIFTEENTH MEETING OF THE METEOROLOGICAL REQUIREMENTS WORKING GROUP (MET/R WG/15)

7 – 10 April 2026

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

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HISTORY OF THE MEETING AND SEMINAR

1. Dates and venue

1.1. The ICAO Asia and Pacific (APAC) Office hosted the Fifteenth Meeting of the Meteorological Requirements Working Group (MET/R WG/15) from 7 to 10 April 2026. A joint plenary session with the Sixteenth Meeting of the APAC Air Traffic Flow Management and Airport Collaborative Decision-Making Steering Group (ATFM & A-CDM/SG/16) was conducted on 8 April 2026.

2. Attendance

2.1. MET/R WG/15 was attended by 54 participants from 17 Member States, 1 Special Administrative Region, and 1 International Organization, namely Australia, Bhutan, China, Hong Kong China, India, Indonesia, Japan, Malaysia, Nepal, Papua New Guinea, the Philippines, Republic of Korea, Singapore, Thailand, United States of America, Viet Nam, and ICAO. The list of participants is in **Appendix D**.

2.2. Information on the ATFM & A-CDM/SG/16 attendance is available on the following website: https://www.icao.int/APAC/meetingdocs?fid=27050.

3. Officers and Secretariat

3.1. Mr Ashwin Naidu, Aviation Customer Lead, Australian Bureau of Meteorology, presided as the MET/R WG/15 meeting Chairperson. Mr Peter Dunda, Regional Officer, Aeronautical Meteorology and Environment, ICAO APAC Office, assisted as Secretary.

3.2. Mr Ashwin Naidu and Mr Piyawut Tantimekabut, ATM Expert (Director Level), AEROTHAI, Thailand, co-chaired of the joint plenary session of MET/R WG/15 and ATFM & A-CDM/SG/16.

4. Language and Documentation

4.1. The meeting's working language was English, including all documentation and this Report. The meeting considered 13 Working Papers (WP), 12 Information Papers (IP), and 2 Flimsies (FL). The list of papers is in **Appendix E**.

4.2. Of the papers mentioned above, 5 WPs and 1 FL were considered in detail, while 9 IPs were highlighted, in the joint plenary session of MET/R WG/15 and ATFM & A-CDM/SG/16. In addition, these IPs were considered in detail by the MET/R WG/15 session, together with the remaining 8 WPs and 2 IPs.

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[1] 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

[1] ICAO Asia/Pacific Air Navigation Planning and Implementation Regional Group

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 adopted three Decisions as tabulated in **Appendix A** and listed below:

- **Decision MET/R WG 15–01 –** *Future MET/ATM Seminar*
- **Decision MET/R WG/15-02 –** *Future activities related to the Survey of State MET Information Supporting ATM*
- **Decision MET/R WG/15-03**– *Update on Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations*

5.3. In addition, the meeting agreed to 2 new action items, as indicated in the *Report on Agenda Items* below and presented in the *List of Actions* in **Appendix B**.

— END OF SECTION —

REPORT ON AGENDA ITEMS – MET/R WG/15

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: SIGMET coordination
Agenda Item 5: Future work program and terms of reference
Agenda Item 6: Any other business
Agenda Item 7: Next Meeting

2. Review outcomes of related meetings

WP/02 – FOLLOW-UP ACTION FROM MET/R WG/14 (Secretariat)

2.1. The meeting reviewed the follow-up status of the draft conclusion, decisions, and action items arising from MET/R WG/14, as presented by the Secretariat.

2.2. The meeting noted that:

- The MET/R WG/14 draft conclusion and all associated decisions were considered completed or closed, noting that several decisions had been reclassified as action items following the review by MET SG/29.
- One MET/R WG/13 decision (Decision 13-04) remained in progress, noting that, in conjunction with the consideration of WP/10, the meeting would make a decision on the development of a future survey of State MET information supporting ATM.
- Of the MET/R WG/14 action items:
    - Three action items were completed;
    - One action item (MET/R WG/14-03, point 2) remained in progress, with the meeting noting that, through WP/10, a decision would be taken on the development of a future survey of State MET information supporting ATM;
    - One action item (MET/R WG/14-02) was yet to begin, with the meeting noting that a presentation on the ICAO MET Panel's Hazardous Weather Information Service (HWIS) developments would be included in a future MET/ATM seminar. The meeting further agreed to revise this action item to also include updates on AMOIS and AMFIS developments;
    - One action item (MET/R WG/14-06) remained in progress, noting that Decision MET SG/29/12 had endorsed updates to the document "APAC Use Cases and User Requirements for SWIM-based Meteorological Information Services Supporting ATFM" and that, in conjunction with WP/11, the meeting would request the Secretariat to publish the editorially improved version of the document; and
    - Two action items (MET/R WG/14-07 and MET/R WG/14-08) remained in progress concerning the development of regional guidance on SIGMET coordination.
- In addition, four MET/R WG/13 action items remained in progress, primarily related to SIGMET coordination and participation in MET/R WG activities.

2.3. Overall, the meeting noted that good progress had been made in closing earlier outcomes, while several items would continue to be monitored and progressed through ongoing work under the MET/R WG.

2.4. The meeting agreed to:

- endorse the updated status of draft conclusions, decisions, and action items as presented in the revised lists in **APPENDIX A** and **APPENDIX B**;
- progress outstanding items in accordance with the updated work plan and agreed timelines;
- take decisions on the future development of a regional survey of State MET information supporting ATM in conjunction with the consideration of WP/10; and
- revise the relevant action item (MET/R WG/14-02) to include future briefings on AMOIS, AMFIS, and HWIS developments at a MET/ATM seminar.

WP/03 – FOLLOW-UP ACTION FROM MET SG/29 (Secretariat)

2.5. The meeting reviewed the follow-up status of Draft Conclusions, Conclusions, Decisions and action items arising from MET SG/29, as presented by the Secretariat.

2.6. The meeting noted that MET SG/29 resulted in six Draft Conclusions, two Conclusions, seven Decisions and a significant number of action items, covering both strategic and technical matters. It was noted that:

- All Draft Conclusions, except one, were adopted by APANPIRG, including those related to publication of MET seminar recordings, management of obsolete guidance material, the IWXXM update notification process, sharing of turbulence reports, and enabling the use of quantitative volcanic ash (QVA) information by airlines;
- Several Conclusions and Decisions adopted by MET SG/29 had been completed, including publication of guidance material and regional documentation, while others remained in progress, notably those relating to updates of the Regional SIGMET Guide, SWIM-based MET use cases, and selected elements of the APAC Seamless ANS Plan;
- Action items from MET SG/29 showed mixed progress, with a number completed and others continuing, particularly those related to IWXXM implementation, SIGMET testing and coordination, ROBEX Handbook updates, SWIM-related activities, QVA implementation, space weather, and engagement with ATM stakeholders.

2.7. The meeting further noted that a number of earlier action items from MET SG/28, MET SG/27 and earlier meetings remained in progress, primarily related to SIGMET coordination, IWXXM readiness, APAC Air Navigation Plan amendments, space weather activities, and support to States in addressing meteorological deficiencies. These items would continue to be monitored through the established MET SG follow-up mechanisms.

2.8. Overall, the meeting recognised that substantial progress had been made since MET SG/29, while noting the need for continued attention to several ongoing regional and global implementation activities.

WP/04 – FOLLOW-UP ACTION FROM APANPIRG/36 (Secretariat)

2.9. The meeting reviewed the outcomes of APANPIRG/36 that are relevant to the work programmes of the MET Sub-Group (MET SG), MET/R WG and MET/IE WG, as presented by the Secretariat.

2.10. The meeting noted that APANPIRG/36 adopted fourteen Conclusions and five Decisions, of which seven Conclusions are directly relevant to meteorological activities in the region. These Conclusions address, inter alia:

- the updating of APAC Air Navigation Plan (ANP) Volume III in alignment with the Global Air Navigation Plan;
- publication of MET Seminar presentation recordings;
- improved management of obsolete planning and implementation guidance on the ICAO APAC website;
- establishment of an IWXXM update notification process;
- enhanced sharing of turbulence reports between operators and meteorological service providers;
- enabling the operational use of quantitative volcanic ash concentration (QVA) information by airlines; and
- updates to the APANPIRG Air Navigation Deficiencies reporting framework.

2.11. The meeting further noted that a draft conclusion (presented by MET SG/29) proposing the establishment of a dedicated group to address long-standing air navigation deficiencies was not adopted by APANPIRG/36. Instead, APANPIRG agreed that Sub-Group Chairs and the Secretariat would work together to develop practical and sustainable solutions to long-standing deficiencies, particularly to support Pacific Small Island Developing States (PSIDS). Progress on this approach will be reported to APANPIRG/37.

2.12. The meeting also noted the updated information on air navigation deficiencies in the MET field, including long-standing deficiencies related to SIGMET provision, volcanic ash reporting, MET observations, and access to WAFS products. The importance of States maintaining corrective action plans, focal point information, and regular status updates was emphasised.

2.13. Overall, the meeting recognised that APANPIRG/36 outcomes provide clear direction for strengthening regional MET implementation, interoperability, and coordination with other air navigation domains.

3. Collaboration between MET and ATM stakeholders

IP/02 *– METEOROLOGICAL SUPPORT FOR CONTROL OPERATION DECISION-MAKING BASED ON WEATHER SERVICE ZONES (China)*

3.1. The meeting noted China's presentation on the use of weather service zones as a common operational reference to improve communication and coordination between meteorological (MET) units and air traffic control (ATC).

3.2. The meeting noted that:

- Weather service zones were developed to describe the location, extent and impact of convective weather within terminal and control areas in a way that is directly relevant to ATC operations;
- In the pre-tactical phase, high-resolution numerical weather prediction outputs are overlaid onto weather service zones, enabling ATC units to assess expected weather impacts, conduct capacity assessments and plan airspace use in advance;
- In the tactical phase, real-time radar and warning products combined with weather service zones support on-site decision-making, including sector configuration, flow management measures and airspace availability;
- The use of clearly defined zones helps establish shared situational awareness during briefings and coordination calls between meteorologists and controllers.

3.3. The meeting also noted that further enhancements could include the use of impact-based colour coding for zones, while recognising that achieving highly reliable, fine-scale forecasts remains technically challenging and requires a combination of modelling and expert judgement.

IP/03 *– DEEP CONVECTION NOTIFICATION SERVICE SUPPORTING DEMAND CAPACITY BALANCING AT THE HONG KONG INTERNATIONAL AIRPORT (Hong Kong China)*

3.4. The meeting noted Hong Kong, China's presentation on the Deep Convection Notification Service (DCNS) developed to support demand-capacity balancing at Hong Kong International Airport through enhanced MET-ATM collaboration.

3.5. The meeting noted that:

- The DCNS provides early situational awareness to support Airport Acceptance Rate (AAR) determination and timely Air Traffic Flow Management (ATFM) decisions during convective weather;
- A three-tier notification framework is used to communicate the probability of occurrence, expected severity, likely time window, and estimated duration of deep convection affecting runway operations;
- Notifications may be issued up to 72 hours in advance, based on aviation forecasters' professional judgment integrating radar-based nowcasting, numerical weather prediction and AI-assisted short-term storm tracking;
- The service supports proactive planning for capacity reductions caused by hazards such as microbursts, thereby reducing the risk of excessive delays, holding and safety impacts.

3.6. The meeting recognised that the DCNS demonstrates how impact-focused MET information can directly support ATFM decision-making at a high-capacity international airport.

IP/04 *– BMKG DAILY AVIATION WEATHER BRIEFING TO INMC AIRNAV INDONESIA: A PRACTICAL MODEL FOR MET-ATM COLLABORATION IN A COMPLEX TROPICAL ENVIRONMENT (Indonesia)*

3.7. The meeting noted Indonesia’s long-standing practice of daily aviation weather briefings conducted by BMKG to the Indonesia Network Management Centre (INMC) of AirNav Indonesia as a practical and mature model of MET–ATM collaboration in a complex tropical environment.

3.8. The meeting noted that:

- The daily briefing has been operational since 2025 and is delivered each morning prior to peak traffic periods, providing timely meteorological situational awareness for ATFM decision-making;
- The briefing integrates multiple products—satellite imagery, wind analyses, SIGWX charts, TAF and METAR summaries, volcanic activity information—delivered through the INA-SIAM digital platform;
- The use of simplified and visualised products, such as the TAF awareness map, supports faster interpretation of nationwide weather impacts by ATM users;
- Regular interaction during briefings and follow-up updates during rapidly evolving weather strengthens collaborative decision-making and operational trust between BMKG and AirNav Indonesia.

3.9. The meeting also noted planned future enhancements, including expanded briefing coverage during severe weather, greater use of probabilistic information and further alignment with

SWIM-enabled information exchange. The meeting also noted that this initiative could be considered as an example for inclusion in the Regional Guidance material for other States' reference.

IP/05 *– TROPICAL CYCLONE SENYAR (2025): TC SIGMET ISSUANCE IN FIR JAKARTA, IMPACT ON AVIATION OPERATIONS, AND TELECOMMUNICATIONS RESILIENCE (Indonesia)*

3.10. The meeting noted Indonesia's detailed case study on Tropical Cyclone Senyar (November 2025), focusing on TC SIGMET issuance, aviation operational impacts and the resilience of meteorological and telecommunications services.

3.11. The meeting noted that:

- TC Senyar represented a rare near-equatorial tropical cyclone, presenting both scientific and operational challenges for SIGMET issuance in Jakarta FIR;
- BMKG applied procedures consistent with the APAC Regional SIGMET Guide, including timely issuance, updates and cancellation of TC SIGMETs, and a clear transition back to WS SIGMETs after cyclone dissipation;
- The cyclone caused significant aviation disruptions, extreme rainfall, aerodrome impacts and prolonged outages of METAR transmission at some locations due to telecommunications and power failures;
- Despite severe infrastructure damage, continuity of essential aviation meteorological services was maintained through coordination with ANSPs and MET services.

3.12. The meeting further noted the value of the lessons identified in the paper, including proposals to enhance regional SIGMET guidance for rare or atypical tropical cyclone scenarios and to strengthen telecommunications resilience supporting aviation meteorological services.

IP/06 *– INTEGRATED WIND SHEAR INFORMATION SERVICE AT JEJU INTERNATIONAL AIRPORT (Republic of Korea)*

3.13. The meeting noted the presentation by the Republic of Korea on the implementation of an integrated low-level wind shear (LLWS) information service at Jeju International Airport to support safe flight operations and ATM decision-making.

3.14. The meeting noted that:

- Jeju International Airport experiences frequent and localized wind shear due to complex surrounding terrain;
- Multiple observational systems (LLWAS, LIDAR, wind profilers and AMOS), which were previously used independently, have been integrated into a single monitoring and visualization system;
- The integrated system provides near real-time graphical, numerical and runway-specific wind shear information, improving situational awareness and timely information sharing between MET services and ATC;
- The system supports a Tailored MET approach, enabling meteorological information to be more directly aligned with operational ATM needs.

3.15. The meeting further noted plans to incorporate additional data sources, including TDWR, to further enhance detection and decision support for wind shear hazards. The meeting also noted that this initiative could be considered as an example for inclusion in the Regional Guidance material for other States' reference.

IP/07 *– SUPPORTING AIR TRAFFIC FLOW MANAGEMENT USING QUANTIFIED CONVECTIVE CLOUD PREDICTION INFORMATION (Republic of Korea)*

3.16. The meeting noted the presentation by the Republic of Korea on the use of quantified convective cloud prediction information to support proactive and data-driven ATFM decision-making.

3.17. The meeting noted that:

- Conventional convective cloud products did not sufficiently distinguish between weather with high and low operational impact, leading at times to overly conservative ATFM measures;
- A new convective cloud prediction chart was developed, differentiating clouds by altitude and focusing on those above key flight levels that most affect air traffic flow;
- Convective cloud coverage is quantified and classified into risk levels, which are directly linked to predefined operational capacity guidelines for specific airspace sectors and entry fixes;
- These quantified thresholds are applied in CDM meetings involving MET, ATFM and ATC units to determine capacity reductions in a consistent and transparent manner.

3.18. The meeting noted that the application of quantified weather data has improved predictability, objectivity and timeliness of ATFM decisions and represents an effective example of MET information being directly translated into operational outcomes.

IP/09 *– INTERACTION BETWEEN LOW-ALTITUDE ECONOMY AND MET/ATM (Hong Kong China)*

3.19. The meeting noted Hong Kong, China's overview of Low-Altitude Economy (LAE) development and the associated evolution of meteorological support, highlighting emerging requirements for MET–ATM–UTM integration.

3.20. The meeting noted that:

- Following the establishment of a dedicated inter-departmental working group in 2024, Hong Kong, China adopted a phased approach to LAE development, including pilot projects from early 2025 and the launch of "Regulatory Sandbox X" in 2026;
- The Hong Kong Observatory has developed a prototype low-altitude weather service platform, tested since mid-2025 by a broad range of users, integrating observations and high-resolution forecasts to provide continuous, risk-based weather assessments for diverse LAE applications;
- The initiative emphasises future harmonisation of meteorological support across conventional aviation, UTM and LAE operations through standardised interfaces, advanced numerical weather prediction, and enhanced observation technologies;
- Emerging challenges, including space weather and ionospheric effects on GNSS and communications, were identified as factors requiring consideration in future low-altitude operations.

3.21. The meeting noted that this work provides valuable insight into future MET requirements beyond traditional ATM, as low-altitude and advanced air mobility operations expand.

IP/10 *– TAILORED MET FOR ATM INITIATIVES IN THAILAND (Thailand)*

3.22. The meeting noted Thailand's update on the progressive implementation of Tailored MET information and services to support ATM operations through close collaboration between the Thai Meteorological Department (TMD) and AEROTHAI.

3.23. The meeting noted that:

- Increasing traffic demand at major Thai aerodromes has highlighted the limitations of relying solely on standard ICAO Annex 3 products for ATM decision-making;
- Since August 2024, TMD has been providing daily weather briefings as part of the ATFM web conference, delivering MET information specifically tailored to ATM requirements;
- The briefing package has evolved into a web-based, automatically updated product, incorporating satellite imagery, quantitative precipitation information, significant weather charts, decoded TAFs and SIGMET information with radar overlays;
- A clear roadmap for Tailored MET for ATM is in place, progressing from data integration to nowcasting, short-range forecasting and full capability by 2029.

3.24. The meeting noted that Thailand's approach demonstrates how Tailored MET services can be implemented incrementally using existing resources while strengthening MET–ATM collaboration. The meeting also noted that this initiative could be considered as an example for inclusion in the Regional Guidance material for other States' reference.

IP/12 *– AN EVALUATION METHOD FOR THE QUALITY AND INFLUENCE OF LOW-LEVEL WIND SHEAR WARNINGS BASED ON ATM OPERATIONS IN CHINA (China)*

3.25. The meeting noted China's presentation on a quantitative evaluation method for assessing the quality and operational influence of low-level wind shear (LLWS) warnings, based on actual ATM operations.

3.26. The meeting noted that:

- The proposed method evaluates LLWS warnings by analysing real operational responses, including normal operations, aborted take-offs or landings, and pilot reports (PIREPs), rather than relying solely on meteorological verification statistics;
- Pilot and airline responses to warnings are used to assess the level of user trust and operational impact of LLWS warnings, thereby reducing the influence of subjective judgement;
- An influence index was introduced to measure how strongly LLWS warnings affect operational decisions, with higher values indicating greater user confidence in the warnings;
- LLWS warnings were classified into three categories based on ATM outcomes:
    - Red warnings (correct warnings, supported by PIREPs),
    - White warnings (false warnings, with no PIREPs and largely normal operations), and
    - Grey warnings (excluded from evaluation due to limited operational response);
- Standard performance indicators, including hit rate, false rate, miss rate and confidence rate, were applied using this classification framework.

3.27. The meeting further noted the long-term application of the method at Lanzhou Zhongchuan International Airport, which demonstrated a significant improvement in warning quality over time, with hit rates increased markedly and user trust in LLWS warnings steadily strengthened.

3.28. The meeting recognised that the approach provides a practical example of linking meteorological warning quality directly to ATM operational outcomes and may offer useful insights for other States seeking to enhance impact-based verification of safety-critical weather warnings.

Start – Joint Plenary Session of MET/R WG/15 and ATFM & A-CDM/SG/16

WP/05 *– STRENGTHENING MET–ATM COLLABORATION: PROPOSAL FOR A JOINT MET/ATM SEMINAR IN 2027 (Secretariat)*

3.29. The meeting noted the information presented in WP/05, which proposed conducting a joint MET/ATM Seminar in conjunction with the next meetings of the MET/R WG and the ATFM & A-CDM/SG. The proposal aimed to strengthen collaboration between meteorology and ATM communities by providing a structured forum to share developments, operational experiences, and user needs, building on the positive outcomes of previous joint seminars and plenary sessions.

3.30. In support of the proposal, the Secretariat provided the following summary of key messages shared in earlier presentations of MET/R WG/15 Information Papers (IP), as an example of the information that could be shared in MET/ATM seminars:

- IP/02 – The use of shared, well-defined weather service zones provides a common operational "language" between MET and ATM, enabling more refined, timely, and coordinated capacity and flow management decisions under convective weather impacts at both pre-tactical and tactical phases.
- IP/03 – Early, probabilistic notification of deep convection—developed through close MET–ATM collaboration—enables more timely and proportionate AAR adjustments and ATFM measures, thereby reducing operational disruption and risk at high-capacity airports such as HKIA.
- IP/04 – Regular, structured MET–ATM briefings supported by an integrated digital platform (INA-SIAM) significantly enhance shared situational awareness and enable more timely, coordinated ATFM decisions in a complex tropical environment characterized by convective weather and volcanic hazards.
- IP/05 – The TC Senyar case demonstrates that effective TC SIGMET issuance—supported by close MET–ATM coordination—and resilient observation and telecommunications arrangements are critical to maintaining ATM decision-making continuity during rare, high-impact tropical cyclone events in near-equatorial airspace.
- IP/06 – An integrated low-level wind shear information service that fuses multiple observation systems into a single, real-time display strengthens MET–ATM shared situational awareness and supports timely, safety-critical ATC decisions during approach and departure operations at complex airports such as Jeju.
- IP/07 – Quantifying convective cloud forecasts and explicitly linking them to predefined sector capacity guidelines enables more objective, predictable, and proactive ATFM decisions through MET–ATM collaborative decision-making, particularly under convective summer weather conditions.
- IP/09 – The emergence of the low-altitude economy and Advanced Air Mobility requires closer MET–ATM–UTM integration, with harmonised, interoperable low-altitude weather services to ensure safe, efficient, and scalable operations in a boundary-less airspace environment.
- IP/10 – The Thailand experience shows that close MET–ATM collaboration and the progressive introduction of tailored, dynamically updated weather briefings—integrated into daily ATFM decision processes—significantly improves situational awareness and supports more effective demand–capacity balancing under adverse weather conditions.
- IP/12 – Evaluating low-level wind shear warnings using actual ATM operational responses—such as aborted procedures and pilot reports—provides a more objective, user-centric measure of warning quality, trust, and real operational impact, directly linking MET performance to flight safety and ATM decision-making.

3.31. The meeting expressed broad support for the concept of a future MET/ATM Seminar. The meeting further discussed the proposed timing for the Seminar. One view expressed was that a 2028 timeframe might be more feasible, taking into account the number of planned priorities and major deliverables across the ATFM & A-CDM/SG in 2027. Other interventions supported proceeding with a 2027 timeframe, emphasizing the importance of maintaining momentum in ongoing MET–ATM developments. These included national and regional initiatives, the continued evolution of global

standards for MET services, and the strong operational interdependence between MET services and ATFM.

3.32. It was noted that the proposed Seminar would be relevant not only to the ATFM & A-CDM community, but also to the broader ATM community, and that this wider relevance should be reflected in the Seminar's scope and design. In addition, the meeting observed that the Seminar could also be of value to the airspace users and the CNS community, particularly if topics related to SWIM and information exchange were included.

3.33. The meeting highlighted the unique opportunity presented by the MET/R WG and ATFM & A-CDM/SG meetings being held in parallel and onsite, which would facilitate enhanced participation, closer coordination, and more efficient use of resources.

3.34. Overall, the discussion reflected general agreement in principle on the proposal, with broad support for a 2027 timeframe, while recognizing the need to consider scheduling constraints across groups and to refine the scope to ensure maximum benefit for all relevant operational communities.

3.35. The meeting agreed in principle to proceed with the proposal to conduct a joint MET/ATM Seminar in conjunction with the next MET/R WG and ATFM & A-CDM/SG meetings in 2027, subject to further coordination on scheduling.

3.36. The meeting agreed to establish a small joint task group, comprising the Chairs of the MET/R WG and the ATFM & A-CDM/SG, with volunteers from both groups, and supported by the Secretariat. From MET/R WG, the volunteers included Hong Kong China, Japan, Nepal, Thailand, and the United States. The meeting noted that ATFM & A-CDM/SG also agreed to volunteer members for the task group.

3.37. The task group was requested to further develop the proposal, as outlined in WP/05, including:

- refining the scope and objectives of the Seminar;
- identifying the most appropriate timing;
- ensuring the Seminar addresses the needs of relevant communities, including ATM, ATFM, A-CDM, MET, CNS, and airspace users; and
- considering appropriate formats and participation options, including online participation.

3.38. The task group was requested to report progress and recommendations to both the MET/R WG and the ATFM & A-CDM/SG for further consideration. The meeting adopted the following Decision:

Decision MET/R WG 15–01 – *Future MET/ATM Seminar*	
What: That, a small joint task group be established, comprising the Chairs of the MET/R WG and the ATFM & A-CDM/SG, with volunteers from both groups and supported by the Secretariat, to: a) Further develop the proposal for a joint MET/ATM Seminar in conjunction with the next meetings of the MET/R WG and the ATFM & A-CDM/SG, as outlined in WP/05, including: • refining the scope and objectives of the Seminar; • identifying the most appropriate timing; • ensuring the Seminar addresses the needs of relevant communities, including ATM, ATFM, A-CDM, MET, CNS, and airspace users; and	Expected impact: Ops/Technical

• considering appropriate formats and participation options, including online participation. b) And report progress and recommendations to both the MET/R WG and the ATFM & A-CDM/SG for further consideration.	
Why: To strengthen MET–ATM operational integration by creating a focused, collaborative forum that builds on demonstrated benefits from past joint initiatives and addresses future requirements—improving shared situational awareness, decision-making under adverse weather, and alignment with evolving operational needs.	Follow-up: MET/R WG and ATFM & A-CDM/SG
When: MET/R WG/16	Status: Adopted by MET/R WG
Who: Sub-groups, ICAO APAC RO	

***WP/10** – FOLLOW-UP ON THE SURVEY OF STATE MET INFORMATION SUPPORTING ATM AND DEVELOPMENT OF FUTURE ACTIVITIES (Ad hoc group)*

3.39. The meeting noted the update provided by the MET/R WG ad hoc group on follow-up activities related to the 2021 ICAO APAC Regional Survey on Meteorological (MET) Information Supporting Air Traffic Management (ATM).

3.40. The meeting noted that the refined survey report, titled "2021 Survey of State Meteorological Information Supporting Air Traffic Management", has been approved for publication by MET SG/29 and is available on the ICAO APAC eDocuments website. The report provides a useful regional reference on the status of MET–ATM integration and highlights the importance of timely MET information, improved system integration, and closer coordination between MET and ATM stakeholders.

3.41. The meeting further noted that:

- Actions arising from MET SG/28 and MET/R WG/14 with respect to refinement and publication of the 2021 survey have been completed;
- Initial consideration has been given to the value of conducting a future survey; however, discussions to date indicate that further clarification is required regarding the objectives, scope, and expected operational benefits of any follow-up survey;
- The outcomes of the 2021 survey have been shared with the ATM community, but limited feedback has been received so far on future survey needs or priorities.

3.42. The meeting noted the importance of conducting a follow-up survey and agreed that further work is required to define its scope and operational value. Furthermore, the meeting recognised that any future survey on MET information supporting ATM would benefit from joint development by both MET and ATM communities, including ATFM stakeholders, to ensure alignment with operational requirements, regional priorities, and ongoing initiatives such as SWIM and MET–ATM integration. The meeting noted that the ATFM & A-CDM/SG agreed to provide members to support the MET/R WG ad hoc group by the end of the respective MET/R WG and ATFM & A-CDM/SG meetings.

3.43. Considering the potential benefit of considering updated information in comparison with the 2021 Survey data, rather than agreeing to put further development of a survey on hold, the meeting agreed to adopt the proposed Decision in WP/10, modified to continue development of a survey, as follows:

Decision MET/R WG 15–02 – *Future activities related to the Survey of State MET Information Supporting ATM*	
What: That, the MET/R WG: a) note that the refined report 2021 Survey of State Meteorological Information Supporting Air Traffic Management has been approved for publication following MET SG/29; b) agree to continue the development of a well-defined proposal for a follow-up regional survey, and to expand the existing ad hoc group to include representatives from the ATFM & A-CDM/SG community, in order to clarify the survey's operational value and scope, and relevance to ATM stakeholders;	Expected impact: Ops/Technical
Why: The 2021 survey provided useful regional information on MET support to ATM. Before initiating further survey activities, additional discussion is required to confirm the operational need, define the scope, and ensure alignment with current regional priorities, including MET-ATM integration, SWIM, and ATFM. Discussion at a joint MET/ATM plenary session will allow both communities to provide input and ensure that any future survey is developed collaboratively and delivers practical benefits.	Follow-up: MET/R WG and ATFM & A-CDM/SG
When: MET/R WG/16	Status: Adopted by MET/R WG
Who: Sub groups, ICAO APAC RO	

WP/13 *– UPDATES OF ASIA/PACIFIC REGIONAL GUIDANCE FOR TAILORED METEOROLOGICAL INFORMATION AND SERVICES TO SUPPORT AIR TRAFFIC MANAGEMENT OPERATIONS (MET/R WG ad hoc group)*

3.44. The meeting noted the information presented in WP/13, which described proposed updates to the Asia/Pacific Regional Guidance for Tailored Meteorological Information and Services to Support Air Traffic Management Operations. The updates focus primarily on enhancing the guidance related to the verification and evaluation of impact-based MET information in support of ATM decision-making, drawing on States' experiences and examples shared through previous MET/R WG meetings, seminars, and information papers.

3.45. During the discussion, it was suggested that, in addition to review by the MET community, the ATFM & A-CDM community should also be invited to review and provide comments on the draft guidance to the ICAO APAC Office. This was seen as an important step to enhance the operational relevance of the guidance and to ensure alignment with ATM and ATFM user needs. The meeting noted that the ATFM & A-CDM/SG agreed to provide members to support the MET/R WG ad hoc group by the end of the respective MET/R WG and ATFM & A-CDM/SG meetings.

3.46. It was also noted that several information papers submitted to the MET/R WG contained practical operational examples that could add value to the guidance material. The meeting considered that these examples would be suitable for inclusion as example appendices, helping to illustrate how tailored MET information can be applied in real-world ATM and ATFM operational contexts.

3.47. Overall, the discussion emphasized the importance of cross-domain review and the inclusion of practical, real-world examples to improve the usability, clarity, and effectiveness of the regional guidance for States and operational stakeholders.

3.48. The meeting supported continued cross-domain collaboration in the further development of the guidance, including incorporation of lessons learned and examples arising from MET/R WG discussions, joint plenary sessions, and related activities.

3.49. The meeting also supported inclusion of examples of meteorological thresholds utilized for supporting ATM decision making to the Guidance appendices subject to appropriate considerations by the ad hoc group (Ref. MET/ATM Seminar 2025 SP/04 and SP/07).

3.50. The ad hoc group was encouraged to take these points into account in finalizing the draft guidance taking into account the discussion of IP/04, IP/06, and IP/10 for further consideration and possible approval by the Meteorology Sub-Group.

3.51. The meeting adopted the following Decision:

<table>
<tr><td colspan="2">Decision MET/R WG/15-03 – Update on Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations</td></tr>
<tr><td>What:
The MET/R WG ad hoc group (Australia, China, Hong Kong China, Japan (rapporteur), Republic of Korea, Singapore, Thailand, Viet Nam and IATA) be tasked:

a) with coordinating the internal review of the draft Asia/Pacific Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations contained in MET/R WG/15 WP/13, including consolidation of comments submitted to ICAO APAC Office by 1 June 2026 from MET/R WG and ATFM & A-CDM/SG members; and

b) to consider the consolidated inputs, together with the outcomes of MET/R WG/15 and the joint plenary session, and to finalise the draft Guidance for submission to MET SG/30 for consideration and possible approval.</td><td>Expected impact:
☐ Political / Global
☐ Inter -Regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To seek approval by MET SG and provide States with updated guidance material supporting ATM operations.</td><td>Follow-up: ☐ Required from States</td></tr>
<tr><td>When: June-July 2026</td><td>Status: Draft to be submitted for adoption by MET SG/30</td></tr>
<tr><td colspan="2">Who: ☒ Sub Groups ☐ RASG-APAC ☒ APAC States ☒ ICAO APAC RO ☐ ICAO HQ
☐ Other: XXXX</td></tr>
</table>

WP/11 – APAC USE CASES FOR SWIM-BASED MET INFORMATION SERVICES SUPPORTING ATFM (Ad hoc group)

3.52. The meeting noted the progress of work undertaken by the MET/R WG ad hoc group to identify and document operational use cases for System-Wide Information Management (SWIM)–based meteorological (MET) information services supporting Air Traffic Flow Management (ATFM) in the APAC Region.

3.53. The ad hoc group was originally established by MET/R WG/9 in 2020 to bring together MET and ATFM subject matter experts from across the region. Its work aims to improve understanding of how digital MET, aeronautical and flight information exchanged through SWIM can support ATFM decision-making, particularly in cross-border operations.

3.54. The meeting noted that:

- The First Edition of the reference document was approved by MET SG/28 and published in July 2024.
- Since then, additional work has been completed, including:
    - Incorporation of a new use case derived from a SWIM demonstration, focusing on optimising slot allocation during convective weather through the integration of MET and surveillance data.
    - A series of editorial improvements, as guided by MET SG/29, including clarification of the document scope and avoidance of duplication with related ICAO materials.
- The updated document, prepared as the Second Edition dated April 2026, presents a consolidated set of use cases illustrating operational benefits of SWIM-based MET information services for ATFM users.
- The document is intended as a living reference, which may be further expanded or refined as additional operational experience and use cases become available.

3.55. Overall, the meeting recognised that the reference document supports continued coordination between MET and ATM communities and contributes to regional harmonisation of SWIM-enabled services.

3.56. The meeting discussed the current status of the ad hoc group's work and acknowledged the steady progress made in developing and maintaining the use case document.

3.57. During the discussion, it was noted that, to support the next phase of work and any future updates, it would be beneficial to reconfirm and update the membership of the ad hoc group. This was considered important to:

- Ensure appropriate MET and ATFM expertise continues to be represented;
- Maintain effective coordination between the MET and ATM communities; and
- Support the timely completion of remaining and future work tasks related to the use case document.

3.58. The meeting therefore requested that updated confirmation of ad hoc group membership be provided by the end of the respective MET/R WG and ATFM & A-CDM/SG meetings. It was noted that the membership updates provided during the meeting would be reflected in the MET/R WG work plan.

3.59. Regarding inputs encouraged under paragraph 3.1 c) of the working paper, the meeting emphasised the importance of continued contributions from States and Administrations and noted that any inputs or additional use cases related to SWIM-based MET information services supporting ATFM should be provided by 1 June 2026.

3.60. The meeting also discussed the proposed editorial updates to the Second Edition of the document and agreed that these improvements adequately addressed the guidance provided by MET SG/29.

3.61. The meeting requested the Secretariat to publish the editorially improved Second Edition of the document entitled "APAC Use Cases for SWIM-based MET Information Services Supporting ATFM" (dated April 2026) on the ICAO APAC eDocument website, in accordance with Decision MET SG/29/12. **[ACTION – MET/R WG/15-01]**

WP/07 *– PROBABILISTIC LOW-LEVEL WINDSHEAR FORECASTING FOR HONG KONG INTERNATIONAL AIRPORT USING MACHINE LEARNING ALGORITHM (Hong Kong, China)*

3.62. Hong Kong, China, presented a study on probabilistic low-level windshear (LLWS) forecasting for Hong Kong International Airport (HKIA) using a machine learning approach, aimed at supporting enhanced MET-ATM collaboration. The system utilizes the XGBoost algorithm to identify key meteorological factors, and generates hourly LLWS probability forecasts up to 72 hours ahead, with the probabilities updated every 12 hours based on the latest available information.

3.63. The meeting noted that the provision of hourly probabilistic forecasts enables early alerts to operational stakeholders, thereby supporting improved situational awareness and more proactive decision-making for aircraft landing and take-off operations. Verification results, including reliability diagrams, demonstrated that the model provides generally reliable probability forecasts, while quantitative verification using the Critical Success Index (CSI) indicated reasonable forecast skill.

3.64. The meeting noted that the current forecasts do not include an indication of wind shear severity, which could be considered as a potential area for future enhancement. It was also noted that the probabilistic output is generated automatically using machine learning, whereas some existing operational products rely on manual adjustment based on forecaster expertise. While the LLWS probability information was considered potentially useful for assessing impacts on traffic flow, the meeting recognised that it is not yet intended for direct, quantitative adjustment of Airport Acceptance Rate (AAR).

Flimsy/01 *– ALIGNING NEXT-GENERATION MET INFORMATION WITH ATM/ATFM REQUIREMENTS FOR SEAMLESS OPERATION (Chair MET/R WG)*

3.65. The meeting noted the presentation by the MET/R WG Chair on the need to align next-generation meteorological (MET) information services with Air Traffic Management (ATM) and Air Traffic Flow Management (ATFM) requirements to support seamless and efficient operations.

3.66. The meeting recognised that weather remains a major constraint on air traffic capacity and efficiency, and that increasing traffic demand requires improved predictability of weather impacts, earlier decision-making, and greater consistency of information across the region. It was noted that current MET products are not always easily integrated into automated ATFM systems and may lack regional consistency.

3.67. The meeting noted that ICAO is transitioning from static, text-based MET products to dynamic, data-centric and machine-readable information services, enabling seamless integration into ATM, ATFM and airline decision-support systems. In this context, the ICAO MET Panel is developing standards for Aerodrome Meteorological Observation Information Service (AMOIS), Aerodrome Meteorological Forecast Information Service (AMFIS) and Hazardous Weather Information Service (HWIS), which will form the foundation of future MET services.

3.68. The meeting further noted that these next-generation MET services are expected to provide impact-based and operationally relevant information, supporting improved network efficiency, flow performance, and decision-making by ATC, pilots, dispatchers, airlines, ANSPs and aerodrome operators.

3.69. With specific reference to the APAC Region, the meeting noted the importance of:

- aligning MET capabilities with ATM/ATFM operational requirements;
- identifying priority operational use cases (such as convective weather and turbulence);
- ensuring interoperability across States; and
- strengthening regional coordination between MET and ATM/ATFM communities.

3.70. The meeting agreed to take account of the above discussion when reviewing and proposing updates to the relevant sections of the MET/R WG Terms of Reference for submission to the MET Sub-Group. These updates would reflect the transition towards next-generation, data-centric MET information services and strengthen coordination with ATM and ATFM stakeholders. The meeting also agreed that the development of ICAO information service standards, including AMOIS, AMFIS and HWIS, should be considered as a topic for a future MET/ATM seminar.

End – Joint Plenary Session of MET/R WG/15 and ATFM & A-CDM/SG/16

4. SIGMET coordination

WP/08 *– PROGRESS UPDATE OF THE AD HOC GROUP ON SIGMET COORDINATION (Ad hoc group)*

4.1. The meeting noted the progress report provided by the ad hoc group on SIGMET Coordination regarding efforts to improve interoperability between SIGMET coordination platforms in the APAC Region.

4.2. The meeting noted that:

- Interoperability challenges had been identified where Meteorological Watch Offices (MWOs) participate in more than one SIGMET coordination platform;
- To address this, the platform providers initiated the development of real-time chat message exchange between platforms, with an initial operational scope focused on the Operational SIGMET Coordination (OSC) group;
- A technical trial conducted between September and October 2025 confirmed the feasibility and reliability of the solution;
- The real-time chat message exchange capability entered operational use on 10 November 2025, enabling coordinated chat communications to be shared seamlessly across platforms for participating States;
- User feedback is being actively collected to support future enhancements and possible expansion to other coordination groups.

4.3. During the discussion, it was noted that the chat facilities are very useful in supporting operational SIGMET coordination. It was also reiterated that continued user feedback is encouraged and essential to further improve the usability, efficiency, and interoperability of the platforms.

4.4. The meeting noted the availability of real-time chat message exchange capabilities for SIGMET Coordination groups operating across multiple platforms and encouraged platform users to continue providing feedback to support ongoing refinement and potential extension of the service.

WP/09 *– PROGRESS UPDATE FOR OCEANIC SIGMET COORDINATION GROUP (Fiji, Hong Kong China, Indonesia, Papua New Guinea and Solomon Islands)*

4.5. The meeting noted the progress update on the Oceanic SIGMET Coordination Project, which supports coordination of SIGMET issuance across Flight Information Region (FIR) boundaries among participating oceanic States and Administrations.

4.6. The meeting noted that:

- The Oceanic SIGMET Coordination Project was established in 2020 and has progressively expanded, with Papua New Guinea joining operationally in 2023 and operational coordination between Indonesia and Papua New Guinea commencing in 2024;
- The Project is conducted using a regional SIGMET coordination platform, which has significantly increased the frequency and effectiveness of SIGMET coordination among participating Meteorological Watch Offices (MWOs);
- SIGMET coordination activity increased markedly from 2023 onwards and reached a record level in 2025, reflecting growing operational uptake and reliance on the platform;
- A recent case study demonstrated effective cross-FIR coordination of significant convection between Papua New Guinea, Solomon Islands and Fiji, resulting in harmonised and seamless WS SIGMET coverage across adjacent FIRs;
- Regular review meetings are held to exchange operational experience, consolidate common practices, and address variations in SIGMET issuance, including practices related to the minimum validity period of WS SIGMETs;
- Training activities conducted in 2025 supported capacity building and promoted the consistent application of advanced forecasting and nowcasting techniques among participating States.

4.7. During the discussion, it was noted that the platform has been useful in supporting SIGMET issuance in Papua New Guinea, particularly in enhancing coordination and situational awareness for transboundary hazardous weather.

4.8. The meeting encouraged States and Administrations to continue sharing their experience and best practices in SIGMET coordination within the Region and recognized the value of the coordination platform in supporting consistent and effective SIGMET issuance across FIR boundaries.

***WP/12** – PAPUA NEW GUINEA – UPDATE ON SIGMET DEFICIENCIES AND REQUEST FOR CLOSURE OF APMET22, APMET08 AND APMET24 (Papua New Guinea)*

4.9. The meeting noted the update provided by Papua New Guinea on the actions taken to address APANPIRG air navigation deficiencies in the MET field related to SIGMET services, specifically deficiencies APMET22, APMET08, and APMET24, and the progress made on APMET04.

4.10. The meeting noted that:

- Papua New Guinea has implemented a comprehensive SIGMET procedure covering thunderstorms, volcanic ash, turbulence and tropical cyclones, aligned with ICAO Annex 3 and the APAC Regional SIGMET Guide;
- Operational SIGMET issuance has been restored for both the Port Moresby and Nauru FIRs, with evidence of national and international dissemination validated through receipt by ATS units, Regional OPMET Databanks and VAAC Darwin;
- Operational records and acknowledgements are available to demonstrate sustained and compliant SIGMET operations;
- The remaining task for deficiency APMET04 relates to the formalisation of coordination arrangements for volcanic activity through an inter-agency Memorandum of Agreement, which is planned for completion by September 2026.

4.11. During the discussion, the Secretariat reiterated the APANPIRG procedure for rectification of deficiencies and removal from the Open List, noting in particular that:

- When a State considers a deficiency to be rectified, it must submit an official written report to the ICAO Regional Office providing full details and evidence of the corrective actions taken;
- Papua New Guinea has submitted a report, and the Regional Office will seek to validate that the reported actions have rectified the deficiency;
- Once confirmation is obtained, APANPIRG will be informed and the deficiency status reviewed and removed from the Open List;
- Where States provide satisfactory evidence of resolution, the ICAO APAC Office, in consultation with the Chair of the relevant Sub-Group and with the subsequent approval of the APANPIRG Chair, may take action to remove the deficiency from the Open List.

4.12. The Secretariat also reminded the meeting that, in accordance with this procedure, the Working Group is not the appropriate body to endorse closure of deficiencies but can note and provide support. Therefore, it was agreed that the Working Group should "note" rather than "endorse" the proposed closure of air navigation deficiencies. It was further noted that the Secretariat will assist Papua New Guinea in completing the remaining procedural steps required for formal closure.

IP/08 *– UPDATES ON SIGMET COORDINATION ACTIVITIES SUPPORTED BY HKO (Hong Kong, China)*

4.13. The meeting noted the update provided by Hong Kong, China, on regional SIGMET coordination projects supported by the Hong Kong Observatory, including the GHKPSV, HMSU, SSEA and Mekong coordination groups.

4.14. The meeting noted that:

- The SSEA coordination group expanded operationally in 2025, with Karachi and Lahore transitioning from trial to operational status, enhancing cross-FIR SIGMET coordination in South and South-East Asia;
- Ad hoc online briefings, particularly for thunderstorm and tropical cyclone events, have been conducted to improve alignment of SIGMET issuance across affected FIRs and strengthen shared situational awareness;
- The coordination groups consolidated common practices on the minimum validity periods of WS SIGMETs for thunderstorms, while recognising variations to accommodate local operational needs;
- Ongoing reviews and regular communications, including daily exchanges in some groups, have supported more timely and consistent coordination among MWOs;
- Platform enhancements introduced between 2025 and 2026, including a new Tropical Cyclone Track Archival Viewer, hot-tower imagery in the Chart Archival Viewer, and improved chatroom functionality, have further streamlined inter-MWO communication and operational coordination.

4.15. The meeting recognised that these developments continue to strengthen regional collaboration, interoperability, and consistency in SIGMET coordination across the Asia/Pacific Region.

IP/11 *– OUTCOMES OF CSI WORKSHOP 2026 (Cambodia, Japan, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Vietnam)*

4.16. The meeting noted the outcomes of the Collaborative SIGMET Issuance (CSI) Workshop 2026, held in March 2026, which brought together participating and neighbouring organizations to strengthen regional SIGMET issuance and coordination practices.

4.17. The meeting noted that:

- The Workshop focused on improving the use of Cumulonimbus (CB) Nowcasts, including their application in SIGMET issuance, cross-FIR coordination, and their potential contribution to the future Hazardous Weather Information Service (HWIS);
- Hands-on exercises demonstrated that CB Nowcasts can support better assessment of the development, persistence, and expansion of convective weather, assisting meteorologists in defining appropriate SIGMET areas;
- Participants discussed challenges related to the implementation of IWXXM, particularly differences in automation and reliance on TAC-to-IWXXM translation, and recognised the importance of addressing these issues to support consistent and timely regional coordination;
- In this context, it was noted that SIGMET coordination platforms can support the generation of SIGMET information in IWXXM format, which may assist States in overcoming implementation challenges and improving interoperability;
- The Workshop reviewed the increasing use of special air-reports (ARS), noting progress in data-sharing arrangements between MWOs and ANSPs, while also recognising that timeliness of ARS dissemination remains a key challenge for operational use;
- Practices related to tropical cyclone (TC) SIGMET handover were shared, highlighting the value of early communication, chat-based coordination tools, and mutual understanding of analysis differences between TC advisory centres and MWOs.

4.18. The meeting recognised that the CSI Workshop provided a valuable forum for sharing practical experience, identifying common challenges, and promoting more harmonised and effective SIGMET coordination across the APAC Region.

5. Future work program and terms of reference

WP/06 – REVIEW MET/R WG TERMS OF REFERENCE AND WORK PLAN (Secretariat)

5.1. The meeting reviewed the discussion paper and the associated draft amendment proposal to the MET/R WG Terms of Reference (ToR) and work plan. The meeting noted that the proposed amendments were prepared in response to a previous request to review and update the ToR, with the aim of reflecting the transition towards next-generation, data-centric meteorological information services and strengthening coordination with ATM and ATFM stakeholders, for consideration by the Meteorology Sub-Group.

5.2. The meeting also noted that the paper invited a review of both the ToR and the work plan, and agreement on any necessary updates for further consideration and possible approval by the Meteorology Sub-Group. In this context, the meeting recalled an existing action item tasking the Chair and the Secretariat to review the terminology used to describe MET service users, to ensure that the ToR adequately addresses the needs of all MET service users, including those identified in ICAO Annex 3, paragraph 2.1.2, and not only those falling under the definition of ATM.

5.3. During the discussion, the following points were noted:

- Concern was expressed that the draft ToR refers specifically to coordination with ATM/SG but does not explicitly reference other APANPIRG sub-groups, such as CNS/SG or AOP/SG. The meeting agreed to note this concern in the report, while recognising that the intent of the current proposed update is to strengthen coordination specifically with ATM, and therefore not to broaden the scope at this stage.
- An overlap and duplication between certain bullet points in the functions and delegated authority sections was identified, discussed, and resolved during the meeting.

- Clarification was sought regarding references to strategic-, pre-tactical- and tactical-phases of ATM and ATFM decision-making, noting the absence of planning and post-operations phases. To avoid any ambiguity and omission, the meeting agreed that the ToR should not specify individual phases.
- It was noted that references in the proposed functions section to the maintenance and application of regional MET–ATM/ATFM operational use cases, including SWIM-based MET information services, were considered more appropriate for the work plan. The meeting agreed to transfer this level of detail to the work plan accordingly.
- It was noted that an existing function relating to facilitating monitoring and implementation of sub-regional exchange of MET information falls within the remit of the MET/IE WG. The Chair agreed, and the meeting supported removal of this item from the MET/R WG functions.
- An inconsistency was identified in the proposed communication strategy regarding the frequency of Joint MET–ATM/ATFM technical coordination sessions compared with the MET/R WG meeting frequency. The Chair recalled that MET/R WG meetings had previously been held at approximately 18-month intervals and proposed moving from "as required" to an annual meeting cycle to align with the revised coordination approach.
- Based on the discussions at the joint plenary session, the Chair proposed the introduction of a new deliverable relating to MET information services, and the meeting agreed that this should be developed further and presented as a new proposal to MET SG/30. **[ACTION – MET/R WG/15-02]**
- The Chair proposed the removal of Deliverable 7 related to education on the Space Weather Advisory service, noting that this falls under the remit of the Meteorology Sub-Group and its MET exercises advisory group. The meeting agreed.
- It was noted that the terminology used in the MET/R WG work plan refers to "deliverables", while the MET/IE WG uses "activities". The Chair noted the inconsistency and indicated that this would be reviewed following advice from the Meteorology Sub-Group.
- A request was made to retain the names of individual members in the ad hoc group for Deliverable 9, to support continuity of work and effective engagement. The meeting agreed.
- Several updates to ad hoc group membership were provided by meeting participants and would be reflected in the proposed updates to the MET/R WG ToR and work plan.
- Additional updates to the work plan were proposed to reflect outcomes from discussions under agenda items 2, 3 and 4, as well as additional information provided during the meeting. These updates were recorded for submission to the Meteorology Sub-Group.

5.4. With regard to MET/R WG membership, the Chair noted that no representatives from international organisations representing MET information users, including IATA, IFATCA, IFALPA and CANSO, were present at the meeting.

6. Any other business

6.1. No papers or proposals were submitted for discussion under this agenda item.

7. Next Meeting

7.1. The next meeting dates were tentatively proposed for the second or third week of May 2027, or the third week of April 2027, subject to further coordination with the ATFM & A-CDM/SG, alignment with other meeting schedules, and subsequent advice and endorsement by the MET Sub-Group (MET SG). The Chair invited States interested in hosting the next meeting to inform the Chair and the Secretariat as soon as possible. Hosting the meeting would provide an opportunity to promote information sharing and to showcase national or regional initiatives and developments. The Chair noted that further details on hosting requirements are available upon request.

— END OF SECTION —

APPENDICES

APPENDIX A: LIST OF DRAFT CONCLUSIONS, DRAFT DECISIONS, AND DECISIONS

MET/R WG/15 – Decisions (D)

No	Title of Decision	Text of Decision (What:)	Responsibility (Who:)	Target Date (When:)	Status/ Remarks
(1)	(2)	(3)	(4)	(5)	(6)
D 15-01	**Future MET/ATM Seminar**	What: That, a small joint task group be established, comprising the Chairs of the MET/R WG and the ATFM & A-CDM/SG, with volunteers from both groups and supported by the Secretariat, to: a) Further develop the proposal for a joint MET/ATM Seminar in conjunction with the next meetings of the MET/R WG and the ATFM & A-CDM/SG, as outlined in WP/05, including: • refining the scope and objectives of the Seminar; • identifying the most appropriate timing; • ensuring the Seminar addresses the needs of relevant communities, including ATM, ATFM, A-CDM, MET, CNS, and airspace users; and • considering appropriate formats and participation options, including online participation. b) And report progress and recommendations to both the MET/R WG and the ATFM & A-CDM/SG for further consideration.	Task group, comprising the Chairs of the MET/R WG and the ATFM & A-CDM/SG, with volunteers from both groups and supported by the Secretariat	MET SG/30	**TO BEGIN**
D 15-02	**Future activities related to the Survey of State MET Information Supporting ATM**	What: That, the MET/R WG: a) note that the refined report 2021 Survey of State Meteorological Information Supporting Air Traffic Management has been approved for publication following MET SG/29; b) agree to continue the development of a well-defined proposal for a follow-up regional survey, and to expand the existing ad hoc group to include representatives from the ATFM & A CDM/SG community, in order to clarify the survey's operational value and scope, and relevance to ATM stakeholders;	MET/R WG	MET SG/30	**TO BEGIN**
D	**Update on Regional Guidance for**	What:	MET/R WG ad hoc group	MET SG/30	**TO BEGIN**

No	Title of Decision	Text of Decision (What:)	Responsibility (Who:)	Target Date (When:)	Status/ Remarks
(1)	(2)	(3)	(4)	(5)	(6)
15-03	**Tailored Meteorological Information and Services to Support ATM Operations**	The MET/R WG ad hoc group (Australia, China, Hong Kong China, Japan (rapporteur), Republic of Korea, Singapore, Thailand, Viet Nam and IATA) be tasked: a) with coordinating the internal review of the draft Asia/Pacific Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations contained in MET/R WG/15 WP/13, including consolidation of comments received by 1 June 2026 from MET/R WG and ATFM & A-CDM/SG members; and b) to consider the consolidated inputs, together with the outcomes of MET/R WG/15 and the joint plenary session, and to finalise the draft Guidance for submission to MET SG/30 for consideration and possible approval.	(Australia, China, Hong Kong China, Japan (rapporteur), Republic of Korea, Singapore, Thailand, Viet Nam and IATA)		

MET/R WG/14 – Draft Conclusion (DC) and Decisions (D)

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

No	Title of Decision	Text of Decision (What:)	Responsibility (Who:)	Target Date (When:)	Status/ Remarks
(1)	(2)	(3)	(4)	(5)	(6)
DC 14-01	**To include mapping of MET information needed to support APAC Seamless ANS Plan (ASAP) elements as an Appendix**	Publish the mapping document (MET/R WG/14, WP/06, Appendix B) as an appendix to the APAC Seamless ANS Plan (ASAP)	Secretariat	MET SG/29	**COMPLETED** (Ref: Decision MET SG/29/04 – *MET information elements of the APAC Seamless ANS Plan (ASAP)*, Report of MET SG/29, paragraph 2.24.)
D 14-02	**Deliverable 2 of MET/R WG workplan as completed**	Consider Deliverable 2 (Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ATM Plan) of the MET/R WG workplan as completed and closed. The ad-hoc group will be dissolved thereafter	MET/R WG	MET/R WG/14	**COMPLETED** (Ref: Report of MET SG/29, paragraph 2.24. and 2.31.)
~~**D 14-03**~~	~~**Finalisation, Communication, and Future Planning for the Regional Survey on MET Services Supporting ATM**~~	~~(1) finalise and publish the refined 2021 survey report on MET services supporting ATM on the ICAO APAC eDocuments website;~~ ~~(2) develop a draft framework and concept note for a~~	~~MET/R WG ad hoc group~~	~~(1) MET SG/29,~~ ~~(2) MET/R WG/15 and~~	**CLOSED** Reclassified as MET/R WG/14 action item 03 (Ref: Report of MET SG/29, paragraph 2.32.)

No	Title of Decision	Text of Decision (What:)	Responsibility (Who:)	Target Date (When:)	Status/ Remarks
(1)	(2)	(3)	(4)	(5)	(6)
		future regional survey for review at MET/R WG/15 and ATFM SG/16; and (3) support the ATFM SG in preparing a summary of the 2021 survey outcomes for presentation to ATM SG/13.		ATFM SG/16, (3) ATM SG/13	
D 14-04	**Updating the Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations (MET-ATM Guidance)**	Adopt the updated implementation example from the Republic of Korea (MET/R WG/14, WP/07, Appendix A) and request that the MET/R WG ad-hoc group consolidate it in an update to the MET-ATM Guidance, Appendix 1, and obtain approval for publication from the MET SG	MET/R WG ad hoc group	MET SG/29	**CLOSED** Reclassified as MET/R WG/14 action item 04 (Ref: Report of MET SG/29, paragraph 2.32.)
D 14-05	**Enhancing the APAC Use Cases and User Requirements for SWIM-based Meteorological Information Services Supporting ATFM with an additional use case**	Adopt the use case of MET information services for ATFM in SWIM demonstration from MET/R WG/14, WP/10, for inclusion in future updates of the APAC Use Cases and User Requirements for SWIM-based Meteorological Information Services Supporting ATFM, and request the ad hoc group to consolidate the adopted changes and submit the proposed updates to MET SG for approval and publication on the ICAO APAC eDocument website.	MET/R WG ad hoc group	MET SG/29	**CLOSED** Reclassified as MET/R WG/14 action item 05 (Ref: Report of MET SG/29, paragraph 2.32.)
D 14-06	**Updating the APAC Use Cases and User Requirements for SWIM-based Meteorological Information Services Supporting ATFM**	Adopt the editorial improvements proposed by the ad hoc group (WP/12, Attachment A) for inclusion in future updates of the APAC Use Cases and User Requirements for SWIM-based Meteorological Information Services Supporting ATFM and request the ad hoc group to consolidate the adopted changes and seek endorsement from MET SG.	MET/R WG ad hoc group	MET SG/29	**CLOSED** Reclassified as MET/R WG/14 action item 06 (Ref: Report of MET SG/29, paragraph 2.32.)
D 14-07	**Consolidate user feedback on WC SIGMET issuance procedures for inclusion in APAC Regional SIGMET Guide**	Collect and analyse user feedback on the differences in the WC SIGMET issuance practices across the Asia Pacific Region,and consider proposing regional guidelines for acceptable and harmonised TC SIGMET issuance procedures.	Ad-hoc group—on SIGMET coordination	MET/R WG/15	**CLOSED** Reclassified as MET/R WG/14 action item 07 (Ref: Report of MET SG/29, paragraph 2.32.)
D 14-08	**Collecting States' practices and user requirements on the WS SIGMET validity duration**	Collect and analyse the States' practices of the minimum duration of the validity period of WS SIGMET for TS and consider further work to ensure that stakeholder requirements are adequately captured.	Ad-hoc group—on SIGMET coordination,	MET/R WG/15	**CLOSED** Reclassified as MET/R WG/14 action item 08 (Ref: Report of MET SG/29, paragraph 2.32.)

MET/R WG/13 – Decisions

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

Decision No	Title of Decision	Text of Decision (What:)	Responsibility (Who:)	Target Date (When:)	Status/ Remarks
(1)	(2)	(3)	(4)	(5)	(6)
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.	Secretariat	MET SG/29	**COMPLETED** [Ref: https://www.icao.int/sites/default/files/APAC/Documents/edocs/MET/FINAL-DRAFT-REPORT-2021-ICAO-APAC-ATM-ATFM-MET-SURVEY.pdf] ~~**IN PROGRESS**~~ ~~[Ref: Decision MET/R WG/14-03]~~
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.	Ad hoc group on the Survey of State MET Information Supporting ATM	MET SG/30	**IN PROGRESS** [Ref: Decision MET/R WG/14-03] [Ref: MET/R WG/15, WP/10]
13-06	**Mapping of 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.	Secretariat	MET SG/29	**SUPERSEDED** [Ref: MET SG/29, Decision MET SG/29/04] ~~**IN PROGRESS**~~ ~~[Ref: Draft Conclusion MET/R WG/14-01]~~

— END OF SECTION —

APPENDIX B: LIST OF ACTIONS

MET/R WG – List of Actions

New action items recorded by MET/R WG/15

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/ REMARKS
MET/R WG/15 **01**	Publish the editorially improved Second Edition of the document entitled "APAC Use Cases for SWIM-based MET Information Services Supporting ATFM" (dated April 2026) on the ICAO APAC eDocument website, in accordance with Decision MET SG/29/12. [Ref: MET/R WG/15 Report, para. 3.59. to 3.60.]	MET SG/30	Secretariat	**TO BEGIN**
MET/R WG/15 **02**	Develop a proposal for the introduction of a new MET/R WG deliverable relating to MET information services. [Ref: MET/R WG/15 Report, para. 5.3.]	MET SG/30	MET R WG Chair and Secretariat	**TO BEGIN**

Action items recorded by MET/R WG/14

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

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/ REMARKS
MET/R WG/14 **01**	Assist the Solomon Islands in preparing the appropriate report detailing the rectification of the deficiency (Index No. AP-MET-20). [Ref: MET/R WG/14 Report, para. 3.45]	MET SG/29	Secretariat, in coordination with the ad hoc group on air navigation deficiencies	**COMPLETED** (Ref: Report of MET SG/29, paragraphs 3.21. to 3.25.) ~~**TO BEGIN**~~
MET/R WG/14 **02**	Arrange for the presentation of an update on the MET Panel's new information services, including AMOIS, AMFIS, HWIS developments. [Ref: MET/R WG/14 Report, para. 4.10]	MET SG/29 or MET/R WG/15	Secretariat and Chair	**TO BEGIN**
MET/R WG/14 **03**	(1) finalise and publish the refined 2021 survey report on MET services supporting ATM on the ICAO APAC eDocuments website; (2) develop a draft framework and concept note for a future regional survey for review at MET/R WG/15 and ATFM SG/16; and (3) support the ATFM SG in preparing a summary of the 2021 survey outcomes for presentation to	(1) MET SG/29, (2) MET/R WG/15 and ATFM SG/16,	MET/R WG ad hoc group	~~**TO BEGIN**~~ Reclassified from Decision MET/R WG/14-03 (Ref: Report of MET SG/29, paragraph 2.32.) (1) **COMPLETED** [Ref: https://www.icao.int/sites/default/files/APAC/Documents/edocs/MET/FINAL-DRAFT-REPORT-2021-ICAO-APAC-ATM-ATFM-MET-SURVEY.pdf] (2) ~~**SUPERSEDED**~~ **IN PROGRESS** [Ref: MET/R WG/15, WP/10] (3) **COMPLETED** [Ref: ATM/SG/13, IP/11]

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/ REMARKS
	ATM SG/13.	(3) ATM SG/13		
MET/R WG/14 **04**	Adopt the updated implementation example from the Republic of Korea (MET/R WG/14, WP/07, Appendix A) and request that the MET/R WG ad-hoc group consolidate it in an update to the MET-ATM Guidance, Appendix 1, and obtain approval for publication from the MET SG	MET SG/29	MET/R WG ad hoc group	~~**TO BEGIN**~~ Reclassified from Decision MET/R WG/14-04 (Ref: Report of MET SG/29, paragraph 2.32.) **COMPLETED** [Ref: MET SG/29 WP/11 and Decision MET SG/29/10, and https://www.icao.int/sites/default/files/APAC/Documents/edocs/MET/2025-08_APPENDIX-1-KOR.pdf]
MET/R WG/14 **05**	Adopt the use case of MET information services for ATFM in SWIM demonstration from MET/R WG/14, WP/10, for inclusion in future updates of the APAC Use Cases and User Requirements for SWIM-based Meteorological Information Services Supporting ATFM, and request the ad hoc group to consolidate the adopted changes and submit the proposed updates to MET SG for approval and publication on the ICAO APAC eDocument website.	MET SG/29	MET/R WG ad hoc group	~~**TO BEGIN**~~ Reclassified from Decision MET/R WG/14-05 (Ref: Report of MET SG/29, paragraph 2.32.) **COMPLETED** [Ref: MET SG/29 WP/14 and Decision MET SG/29/12]
MET/R WG/14 **06**	Adopt the editorial improvements proposed by the ad hoc group (WP/12, Attachment A) for inclusion in future updates of the APAC Use Cases and User Requirements for SWIM-based Meteorological Information Services Supporting ATFM and request the ad hoc group to consolidate the adopted changes and seek endorsement from MET SG.	MET SG/29	MET/R WG ad hoc group	~~**TO BEGIN**~~ Reclassified from Decision MET/R WG/14-06 (Ref: Report of MET SG/29, paragraph 2.32.) (Ref: Report of MET SG/29, paragraph 2.32.) **COMPLETED** [Ref: MET SG/29 WP/14 and Decision MET SG/29/12; and MET/R WG/15 WP/11]
MET/R WG/14 **07**	Collect and analyse user feedback on the differences in the WC SIGMET issuance practices across the Asia Pacific Region, and consider proposing regional guidelines for acceptable and harmonised TC SIGMET issuance procedures.	MET/R WG/15	Ad-hoc group on SIGMET coordination	~~**TO BEGIN**~~ **IN PROGRESS** [Ref: MET/R WG/15 WP/09, IP/08, and IP/14] Reclassified from Decision MET/R WG/14-07 (Ref: Report of MET SG/29, paragraph 2.32.)
MET/R WG/14 **08**	Collect and analyse the States' practices of the minimum duration of the validity period of WS SIGMET for TS and consider further work to ensure that stakeholder requirements are adequately captured.	MET/R WG/15	Ad-hoc group on SIGMET coordination,	~~**TO BEGIN**~~ **IN PROGRESS** [Ref: MET/R WG/15 WP/09, IP/08, and IP/14] Reclassified from Decision MET/R WG/14-08 (Ref: Report of MET SG/29, paragraph 2.32.)

Action items recorded by MET/R WG/13
(Note: Proposed updates are indicated with ~~strikethrough~~ and highlighted text)

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/ REMARKS
MET/R WG/13 **06**	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 and ad hoc group on SIGMET coordination	**IN PROGRESS** Ref: MET SG/28 WP/12, MET/R WG/14 WP/08, Decision MET/R WG/14-07
MET/R WG/13 **08**	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 **10**	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 SG/29	Ad hoc group on SIGMET coordination in cooperation with the ad hoc group on the Regional SIGMET Guide	**COMPLETED** [Ref: MET SG/29 WP/13] ~~**IN PROGRESS**~~
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	**IN PROGRESS**

— END OF SECTION —

APPENDIX C: TERMS OF REFERENCE AND WORK PROGRAM

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

Editorial note: Proposed updates show deleted text using strikeout (~~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~~ resilience and environmental sustainability of air traffic management (ATM[†]) operations and other aeronautical activities by ~~providing meteorological (MET) information~~ enabling the provision and effective use of fit-for-purpose, interoperable meteorological (MET) information services, including data-centric services, needed to meet current and future requirements of the ATM system, including trajectory-based operations, collaborative ATFM and SWIM-enabled environments, and all MET service users.
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, taking into account the needs of all MET service users, including those identified in ICAO Annex 3, paragraph 2.1.2, and not limited to ATM stakeholders, including: a) Consider and address the meteorological information requirements of all aeronautical MET service users, including but not limited to air traffic services, aircraft operators, flight crew members, aerodrome operators, search and rescue services, and other users specified in ICAO Annex 3. b) ~~a)~~ Coordinate systematically and proactively with ~~other~~ relevant contributory bodies of APANPIRG, in particular ATM/SG and ATFM & A-CDM/SG, to ensure early and continuous alignment of MET information services with ATM and ATFM operational requirements, including through agreed operational use cases and implementation priorities. c) ~~c)~~ Promote ~~coordination~~ mutual understanding and effective collaboration between the MET and ATM communities in the Asia/Pacific Region ~~to enhance the level of understanding of MET requirements~~, including awareness of MET capabilities, limitations and constraints, ~~in~~ to support informed planning and use of MET information in ~~of~~ ATM operations. d) Identify, document and promote MET contributions to ATM and ATFM operational decision-making, including support for predictability, uncertainty management, confidence indicators and impact-based decision support, to improve operational outcomes and performance. e) ~~e)~~ Facilitate the exchange of expertise in the Asia/Pacific Region on the integration of MET information, including data-centric and service-oriented MET information, into ATM systems to support collaborative decision making (CDM), increasing levels of automation, and the migration of MET information into the SWIM environment. f) ~~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

[†] 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]

DESCRIPTION	
	services. ~~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;~~ g) ~~f)~~ Report to the MET SG for further coordination through the ICAO Secretariat with APANPIRG and other relevant bodies.
Membership	Membership should, where practicable, ensure balanced representation of MET service providers, ATM and ATFM operational experts, system and SWIM specialists, and airspace user perspectives.

MEMBERSHIP		
State/Organization Name	Position/organization (field of expertise)	Contact
AUSTRALIA 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
CHINA Mr. Hanqingyuan	Deputy Director, Met Division of ATMB, CAAC (MET)	Tel: +86(10)87786529 E-mail: hanqingyuan@atmb.net.cn
CHINA Ms. Chen Ran	Meteorological Center of South West Regional ATMB of CAAC	rebeccacr2008@163.com
CHINA Ms Chen Lijing	Gansu Branch of Northwest ATMB, CAAC	chenlj_1991@163.com
FIJI Mr William Reece	Manager Air Navigation Engineering Services	Email: williamr@fijiairports.com.fj Phone: (679) 6731198; (679) 725777 ext. 4198 Mobile (679) 9906105
HONG KONG, CHINA Ms. Christy Leung Yan Yu	Scientific Officer Hong Kong Observatory (MET)	E-mail: yyleung@hko.gov.hk
HONG KONG, CHINA Mr. John Man-lok Chong	Scientific Officer, Hong Kong Observatory (MET)	Email: mlchong@hko.gov.hk
JAPAN Ms. IKEDA Michiko	Scientific Officer Office of Aviation Weather Forecasting Forecast Division Japan Meteorological Agency (MET)	E-mail: michi-ikeda@met.kishou.go.jp
JAPAN 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
JAPAN FUJIMOTO Masato (Mr)	Japan Meteorological Agency (MET)	E-mail: fujimoto-ms@met.kishou.go.jp
PAKISTAN 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
PAKISTAN 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

MEMBERSHIP		
State/Organization Name	Position/organization (field of expertise)	Contact
REPUBLIC OF KOREA Ms. Sinae Park	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
SINGAPORE 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
THAILAND Mr. 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: amorn@tmd.go.th
THAILAND 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
THAILAND Mr. Bunpot Kujaphun	Acting Director Aeronautical Information and Flight Data Management, AEROTHAI, Aeronautical Radio of Thailand Ltd.	E-mail: bunpot.ku@aerothai.co.th
UNITED STATES 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
VIET NAM 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
IATA Mr. John MOORE	Assistant Director (Infrastructure) Safety and Flight Operations Asia-Pacific (Airline operators)	Tel: +65 6499 2529 E-mail: moorej@iata.org
ICAO 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

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~~ At least annually	Chair and Secretariat
Joint MET–ATM/ATFM technical coordination session, such as joint plenary meeting session and MET/ATM seminar	MET–ATM/ATFM	Virtual or face to face	At least annually	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

WORK PLAN

DELIVERABLES
1. Documented analysis of MET information requirements (current and future) for the Region specifically to support ATM operations
~~2. Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ANS Plan~~
3. Further development of 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 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

DELIVERABLES	By date	Responsibility	Status
1. Deliverable 1: Documented analysis of MET information requirements (current and future) for the Region specifically to support ATM operations			
1.1. Identify follow-up actions (including presenting the survey results at ATM and Airspace Forums) (a) finalise and publish the refined 2021 survey report on MET services supporting ATM on the ICAO APAC eDocuments website; and (b) support ATFM SG in preparing a	(a) MET SG/29 (b) ATM SG/13.	Ad hoc Group: Rapporteur-Australia, Singapore, ~~New Zealand,~~ China, Japan, Thailand, Hong Kong China~~*~~, Viet Nam ~~*Ira Chan, Christy Leung, John Chong~~	~~**In progress**~~ **COMPLETED**

DELIVERABLES	By date	Responsibility	Status
summary of the 2021 survey outcomes for presentation to ATM SG/13.			
1.2. Formulate a proposal for the timing and content of a future survey develop a draft framework and concept note for a future regional survey for review at MET/R WG/15 and ATFM SG/16;	MET/R WG/15 and ATFM SG/16	Ad hoc Group (as above) plus others identified in ATFM/SG/14 and MET/R WG/13	**SUPERSEDED**
1.3. Continue the development of a well-defined proposal for a follow-up regional survey, in order to clarify the survey's operational value and scope, and relevance to ATM stakeholders		Ad hoc Group (as above), expanded to include representatives from the ATFM & A CDM/SG community	**To Begin**
2. ~~Deliverable 2:~~ ~~Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ANS Plan~~			
~~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~~ ~~*Ira Chan, Christy Leung, John Chong~~	**~~COMPLETED~~**
3. Deliverable 3: Further development of Regional guidance material for tailored MET information supporting ATM operations			
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~~	MET/R WG/14	MET/R WG members	**Completed**
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/15	Ad hoc group: Rapporteur-Japan, Australia, China, Hong Kong China~~*~~, Republic of Korea, Singapore, Thailand, Vietnam and IATA ~~*Ira Chan (key coordinating person), Christy Leung, John Chong~~	**~~To begin~~ Superseded**
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		Ad hoc Group (as above)	**Completed**
3.4. Include the Republic of Korea's implementation example (MET/R WG/14, WP/07) in 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/14-xx	MET SG/29	Ad hoc Group (as above)	**Completed**
3.5. Consider updating the Guidance based on the outcomes of MET/R WG meetings, as necessary.	MET/R WG/16	Ad hoc Group (as above)	**To Begin**
3.6. Consider appropriate inclusion of examples of meteorological thresholds utilized for supporting ATM decision making to the Guidance appendices (Ref. MET/ATM Seminar 2025 SP/04 and SP/07).	MET/R WG/16	Ad hoc Group (as above)	**To Begin**
3.7. Consolidate the draft guidance update to seek approval of MET SG	MET SG/30	Ad hoc Group (as above)	**To Begin**
4. Deliverable 4: Strengthen collaboration and relationship between MET, ATM and Airspace Users			
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	**Completed**
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	**Completed**

DELIVERABLES	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	~~**In progress**~~ **Completed**
4.4. Plan to conduct MET/R WG/15 in conjunction with ATFM/SG/16 to include a joint plenary component on matters of importance to both groups, including a Seminar on MET/ATM collaboration, taking into consideration feedback from the 2025 MET/ATM Seminar, including promoting and facilitating online participation in the Seminar.	MET/R WG/15 and ATFM/SG/16	Chair and Secretariat in coordination with ATFM/SG Chair	~~**To begin**~~ **Superseded**
4.5. Further develop the proposal as outlined in WP/05 for a joint MET/ATM Seminar in conjunction with the next MET/R WG and ATFM & A-CDM/SG meetings. This would include refining the scope, identifying the most appropriate date, and ensuring the seminar addresses the needs of relevant operational communities.	MET/R WG/16 (2027)	Small joint task group, comprising the Chairs of both groups and volunteers from each of MET/R WG and ATFM & A-CDM/SG, incl. HKG, JPN, THA, NPL, USA	**To Begin**
5. Deliverable 5: 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/30	Ad-hoc group: Rapporteur-Secretariat, Australia, Hong Kong China~~*~~, IATA, Japan, Singapore, Thailand ~~*Ira Chan, Christy Leung, John Chong~~	**To begin Pending outcomes of ICAO's development on the eANP system**
6. Deliverable 6: Development of APAC Use Case for SWIM-based MET Information Services Supporting ATFM			
6.1. 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*)	**Completed**
6.2. Update the reference document to include the example from MET/R WG/14, WP/10, and submit the proposed updates to MET SG for consideration and approval for publication on the ICAO APAC eDocument website.	MET SG/29	Ad-hoc group (see below*) [Editorial note: to be updated]	~~**To begin**~~ **Superseded by 6.3**
6.3. Publish the editorial changes as highlighted in Attachment A to MET/R WG/15 WP/11, as the Second Edition of the document, dated April 2026.	MET SG/30	Secretariat	**To Begin**
6.4. Incorporate inputs provided by 1 June 2026 by States and Administrations on use cases for SWIM-based MET information services supporting ATFM into the document	MET SG/30	Ad-hoc group	**To Begin**
~~**7. Promote and assist ANSPs and Airspace Users with user education on the Space Weather Advisory service**~~			
~~7.1. Seek input from end users (by way of questionnaire) on the content of a SWX workshop or seminar~~	~~MET SG/29~~	~~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/29~~	~~Secretariat and MET/R WG members~~	~~**To begin**~~
8. Meteorological Information for the Asia Pacific Regional Framework for Collaborative ATFM			
8.1. Provide input on seasonal meteorological information for the Regional Framework	TBC	MET/R WG members	**Pending advice from ATFM/SG [Obtain advice]**
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.			

DELIVERABLES	By date	Responsibility	Status
9.1. Maintain the online repository on SIGMET coordination activities in the APAC Region.	MET/R WG/16	Ad hoc group on SIGMET Coordination: Joint Rapporteurs: - Hong Kong China (Christy Leung) - Japan (Michiko Ikeda) - Singapore (Goh Wee Poh) Other members: - China (Lin Caiyan) - Fiji (Samisoni Waqavakatoga) - IFALPA (Jaffar Hassan) - India (VR Durai, Dr Neeti Singh) - Indonesia (Resa Pratikasari, Nurul Hidayati) - Malaysia (Rafizam Ramli, Fatimah Syahirah, Syahirah Nik Adnan, Chai Mui Fatt) - Thailand (Rassmee Damrongkietwattana) - Vietnam (Le Quang Hung, Vu Thi Thanh Tam)	**ONGOING**
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: • 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) **COMPLETED** • ~~Seek user feedback on TC SIGMET handover procedures (MET/R WG/14, WP/08)~~ • VA SIGMET issuance over the multiple FIR (MET/R WG/13 – WP/10, 2.1-2.2) **COMPLETED** • Collect more practices on SIGMET coordination procedure in addition to MET/R WG/13 – WP/08 (Appendix A) and seek any input to Appendix K of the Regional Guidance. Collect and analyze the States' practices of minimum duration of the validity period of WS SIGMET for TS (MET/R WG/14, WP/13) **COMPLETED** [Ref: MET/R WG/15 WP/09, IP/08]	MET/R WG/16		**In progress**
9.3. Propose the SIGMET coordination guidance in the Regional SIGMET Guide following findings from below The following points to consider: • Possible common WS SIGMET (TS) issuance criteria in the Asia/Pacific Region (MET/R WG/13 – WP/09, Appendix B) • Considerations on criteria for convective system straddle across multiple FIR (MET/R WG/13 – WP/09, Appendix C)	MET SG/28		**Completed**
9.4. Review, organise and support surveys on user requirements of SIGMET coordination Seek user feedback on TC SIGMET handover procedures (MET/R WG/14, WP/08)	MET/R WG/16		**In progress**

***Ad-hoc group for Deliverable 6: Development of APAC Use Case and User Requirements for SWIM-based MET Information Services Supporting ATFM**

State / Administration / IO	Name	Position and/or Organisation	Expertise
Australia	Jesper Bronsvoort	Airservices Australia	ATFM
Australia	Ashwin Naidu **(Co-Rapporteur)**	BOM	MET
CANSO	Stuart Ratcliffe	CANSO	ATFM
Hong Kong China	Marco Kok **(Co-Rapporteur)**	Acting Senior Scientific Officer / HKO	MET/SWIM
Hong Kong China	Ira Chan	Scientific Officer / HKO	MET
Hong Kong China	Anfernee Poon	Senior Operations Officer (Strategic Planning) / HKCAD	ATFM
IATA	John Moore	IATA	ATFM/MET
Japan	YONE Toshihiro	JCAB	ATFM
Japan	IKEDA Michiko	JMA	MET
Japan	FUJIMOTO Masato (Mr)	JMA	MET
Pakistan	Fazal Ur Rehman	PCAA	ATFM
Pakistan	Syed Ali Baqadar Shah	PCAA	MET
Republic of Korea	Heeju Jeong	Assistant of Director / KMA	MET
Republic of Korea	Keuno Park	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	Ms. Tran Hoang Linh	VATM	ATFM

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APPENDIX D: LIST OF PARTICIPANTS

STATE/NAME	TITLE/ORGANIZATION	E-MAIL

— END OF SECTION —

APPENDIX E: LIST OF PAPERS

WORKING PAPERS			
WP No.	**Agenda Item**	**Title**	**Presented by**
WP/01	1	PROVISIONAL AGENDA	Secretariat
WP/02	2	FOLLOW-UP ACTION FROM MET/R WG/14	Secretariat
WP/03	2	FOLLOW-UP ACTION FROM MET SG/29	Secretariat
WP/04	2	FOLLOW-UP ACTION FROM APANPIRG/36	Secretariat
WP/05	3	STRENGTHENING MET–ATM COLLABORATION: PROPOSAL FOR A JOINT MET/ATM SEMINAR IN 2027	Secretariat
WP/06	5	REVIEW MET/R WG TERMS OF REFERENCE AND WORK PLAN	Secretariat
WP/07	3	PROBABILISTIC LOW-LEVEL WINDSHEAR FORECASTING FOR HONG KONG INTERNATIONAL AIRPORT USING MACHINE LEARNING ALGORITHM	Hong Kong China
WP/08	4	PROGRESS UPDATE OF THE AD HOC GROUP ON SIGMET COORDINATION	Ad hoc group
WP/09	4	PROGRESS UPDATE FOR OCEANIC SIGMET COORDINATION GROUP	Fiji, Hong Kong China, Indonesia, Papua New Guinea and Solomon Islands
WP/10	3	FOLLOW-UP ON THE SURVEY OF STATE MET INFORMATION SUPPORTING ATM AND DEVELOPMENT OF FUTURE ACTIVITIES	Ad hoc group
WP/11	3	APAC USE CASES FOR SWIM-BASED MET INFORMATION SERVICES SUPPORTING ATFM	Ad hoc group
WP/12	4	PAPUA NEW GUINEA – UPDATE ON SIGMET DEFICIENCIES AND REQUEST FOR CLOSURE OF APMET22, APMET08 AND APMET24	Papua New Guinea
WP/13	3	UPDATES OF ASIA/PACIFIC REGIONAL GUIDANCE FOR TAILORED METEOROLOGICAL INFORMATION AND SERVICES TO SUPPORT AIR TRAFFIC MANAGEMENT OPERATIONS	Ad Hoc Group

INFORMATION PAPERS			
IP No.	**Agenda Item**	**Title**	**Presented by**
IP/01	1	MEETING BULLETIN	Secretariat
IP/02	3	METEOROLOGICAL SUPPORT FOR CONTROL OPERATION DECISION-MAKING BASED ON WEATHER SERVICE ZONES	China
IP/03	3	DEEP CONVECTION NOTIFICATION SERVICE SUPPORTING DEMAND CAPACITY BALANCING AT THE HONG KONG INTERNATIONAL AIRPORT	Hong Kong China
IP/04	3	BMKG DAILY AVIATION WEATHER BRIEFING TO INMC AIRNAV INDONESIA: A PRACTICAL MODEL FOR MET-ATM COLLABORATION IN A COMPLEX TROPICAL ENVIRONMENT	Indonesia
IP/05	3	TROPICAL CYCLONE SENYAR (2025): TC SIGMET ISSUANCE IN FIR JAKARTA, IMPACT ON AVIATION OPERATIONS, AND TELECOMMUNICATIONS RESILIENCE	Indonesia

INFORMATION PAPERS

IP No.	Agenda Item	Title	Presented by
IP/06	3	INTEGRATED WIND SHEAR INFORMATION SERVICE AT JEJU INTERNATIONAL AIRPORT	Republic of Korea
IP/07	3	SUPPORTING AIR TRAFFIC FLOW MANAGEMENT USING QUANTIFIED CONVECTIVE CLOUD PREDICTION INFORMATION	Republic of Korea
IP/08	4	UPDATES ON SIGMET COORDINATION ACTIVITIES SUPPORTED BY HKO	Hong Kong China
IP/09	3	INTERACTION BETWEEN LOW-ALTITUDE ECONOMY AND MET/ATM	Hong Kong China
IP/10	3	TAILORED MET FOR ATM INITIATIVES IN THAILAND	Thailand
IP/11	4	OUTCOMES OF CSI WORKSHOP 2026	Cambodia, Japan, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Vietnam
IP/12	3	AN EVALUATION METHOD FOR THE QUALITY AND INFLUENCE OF LOW-LEVEL WIND SHEAR WARNINGS BASED ON ATM OPERATIONS IN CHINA	China

FLIMSIES

FL No.	Title	Presented by
FL/01	ALIGNING NEXT-GENERATION MET INFORMATION WITH ATM/ATFM REQUIREMENTS FOR SEAMLESS OPERATION	Chair MET/R WG
FL/02	PROPOSED UPDATES TO TERMS OF REFERENCE	Secretariat

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