International Civil Aviation Organization

WORKING PAPER (WP/03)

ICAO Asia and Pacific (APAC)
Twenty-Ninth Meeting of the Meteorology Sub-Group (MET SG/29)

Bangkok, Thailand, 18 - 22 August 2025

Agenda Item 2: Review outcomes from previous meetings

REVIEW OF OUTCOMES FROM MET/R WG/14

(Presented by the Chair of MET/R WG)

SUMMARY

This paper presents a summary of the ICAO APAC Seminar on Meteorology/Air Traffic Management (MET/ATM Seminar) and the Fourteenth Meeting of the Meteorological Requirements Working Group (MET/R WG/14), held from 28 April to 02 May 2025 in Bangkok, Thailand. The paper includes agreed actions and the updated work plan.

1. INTRODUCTION

1.1 The ICAO Asia and Pacific (APAC) Office hosted the Fourteenth Meeting of the Meteorological Requirements Working Group (MET/R WG/14) from 28 April to 2 May 2025, including the ICAO APAC Meteorology/Air Traffic Management (MET/ATM) Seminar on 28 April 2025, in conjunction with the Fifteenth Meeting of the APAC Air Traffic Flow Management Steering Group (ATFM/SG/15). A joint plenary session of MET/R WG/14 and ATFM/SG/15 was conducted on 30 April 2025.

1.2 The MET/R WG/14 was attended by sixty (60) participants from seventeen (17) States and organizations, namely Australia, Bhutan, Brunei Darussalam, China, Hong Kong China, India, Indonesia, Japan, Malaysia, Papua New Guinea, Philippines, Republic of Korea, Singapore, Solomon Island, Thailand, Vietnam and ICAO. The meeting was chaired by Mr Ashwin Naidu, Australian Bureau of Meteorology, and Mr Peter Dunda, Regional Officer, Aeronautical Meteorology and Environment, ICAO APAC Office, assisted as Secretary.

1.3 The MET/ATM Seminar (on 28 April 2025) was attended by one hundred and sixty-two (162) in-person participants (MET/R WG/14 and ATFM/SG/15) and an additional seventy-three (73) online participants. Mr Ashwin Naidu, Mr Piyawut Tantimekabut, ATM Expert (Director Level), AEROTHAI, Thailand, and Mr Peter Dunda moderated the MET/ATM Seminar.

1.4 Additionally, Mr Ashwin Naidu and Mr Piyawut Tantimekabut presided as chairpersons of the joint plenary session of MET/R WG/14 and ATFM/SG/15.

1.5 A copy of the full meeting report, including information on seminar, joint plenary session and related meeting documentation is available at https://www.icao.int/APAC/Meetings/Pages/2025-MET-R-WG-14.aspx

2. DISCUSSION

Organisation Matter

2.1 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

2.2 Concerning attendance, the Chair noted no participants from international organisations, including IATA, IFATCA, IFALPA and CANSO.

Review of MET/ATM Seminar

2.3 The MET/ ATM Seminar provided an opportunity for States and Organisations to share information, experiences and ideas on planning and implementing meteorological services to support ATM and ATFM operations, focusing on collaborative arrangements and integrating MET information into ATM.

2.4 Thirteen presentations were conducted in three sessions.

2.4.1 Session 1 focussed on ICAO provisions and future requirements, requirement for greater collaboration between MET and ATM community and some of the ICAO provisions supporting the integration of MET information into ATM.

- SP/01: 15 Years of Progress - Can We Do Better? (IFATCA)
- SP/02: ATM and ATFM requirements for MET information (ICAO)
- SP/03: Updates on ICAO MET information services development (Chair MET/R WG and ICAO)
- SP/04: Impact-based MET information to support ATM operation (Japan)
- SP/05: Airport Collaborative Decision-Making (A-CDM) (Australia)

2.4.2 Session 2 largely focussed on benefits and challenges of collaboration between MET and ATM communities and integrating MET information within States' ATM systems.

- SP/06: Case study: Probabilistic forecast of runway headwind changes for supporting estimation of Airport Acceptance Rate (Hong Kong, China)
- SP/07: Case study: MET information being used for ATFM (Republic of Korea)
- SP/08: Case study: Use of Meteorology Information in Bangkok ATFMU (Thailand)
- SP/09: Case study: The development of user-centric engagement strategies and fit-for-purpose products in south-west China (China)

2.4.3 Session 3 focussed on the importance special AIREPs and international initiatives – reiteration of the importance of special AIREPs based on the outcomes of the 14th meeting of the Air Navigation Conference, and presentations on en-route turbulence detection and reports.

- SP/10: Importance of special air reports (Chair MET/R WG and ICAO)
- SP/11: Turbulence Aware - Facilitating industry shift to data-driven turbulence mitigation (IATA)

- SP/12: Case study: En-route turbulence detection using ADS-B data and special air reports (Hong Kong, China)
- SP/13: Case study: Temporal and spatial characteristics of aircraft turbulence on Qinghai-Tibet Plateau slope and turbulence forecasting system based on EDR (China)

2.4.4 Copies of all the Seminar presentations, including a summary of the Seminar discussions, are available at the ICAO APAC Office website (https://www.icao.int/APAC/Meetings/Pages/2025-MET-R-WG-14.aspx)

Review of follow-up from the Thirteenth Meeting of the Meteorological Requirements Working Group (MET/R WG/13)

2.5 The meeting reviewed and proposed updates to the status of follow-up actions from MET/R WG/13. The status of follow-up action on the MET/R WG/13 Decisions are provided in **Appendix A of the MET/R WG/14 report**, and the status of follow-up action on the MET/R WG List of Actions is indicated in **Appendix B of the MET/R WG/14 report**. For ease of reference, these a reproduced in **Appendix A** and **Appendix B** of this paper.

2.6 The meeting noted that follow-up action was completed for four of the seven MET/R WG/13 Decisions. However, follow-up action remained outstanding for the following three Decisions:

- 13-03: Publishing the Survey of State MET Information Supporting ATM
- 13-04: Follow-up Survey of State MET Information Supporting ATM
- 13-06: Mapping of APAC Seamless ANS Plan to ASBU AMET elements

2.7 The meeting recognised that the action required under Decisions 13-03, 13-04 and 13-06 were duplicated by new action items 13-12, 13-13 and 13-15 in the List of Actions. Therefore, the meeting agreed to close those redundant action items and continue monitoring progress on the Decisions.

2.8 The meeting noted that thirteen action items in the MET/R WG List of Actions were completed or closed, leaving six requiring monitoring and follow-up action.

2.9 Furthermore, the MET/R WG Chair acknowledged that MET SG/28 had identified shortcomings in considering and drafting Decisions from MET/R WG/13. As a result, it was emphasised that any decisions adopted at this meeting should be documented and aligned with ICAO APANPIRG requirements to ensure effective follow-up and implementation.

Review of other related meetings

2.10 The meeting noted that Twenty-eighth Meeting of the Asia/Pacific Meteorology Sub-Group (MET SG/28) resulted in one Draft Decision for further consideration by the APAC Air Navigation Planning and Implementation Regional Group (APANPIRG), two Conclusions, seven Decisions, and thirty-two new action items.

2.11 The meeting reviewed the follow-up status on these outcomes and considered further actions for the MET/R WG. The follow-up actions from the MET SG/28 Conclusions and Decisions and action items, relevant to MET/R WG are captured in the MET/R WG work plan.

2.12 The meeting reviewed outcomes from the Thirty-Fifth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/35) that were directly relevant to the MET/R WG work plan and considered further actions to support follow-up on these outcomes.

The APANPIRG/35 outcomes of direct relevance to the MET/R WG included Conclusion 35/13, which involves updating information in the APANPIRG Air Navigation Deficiencies Reporting Form, and Decision 35/11, which involves additional secretariat support.

2.12.1 Regarding APANPIRG Decision 35/11, the meeting noted that ICAO was supporting the capacity of the regional MET secretariat by recruiting additional officers.

2.12.2 Regarding APANPIRG Conclusion 35/13, the meeting noted that twelve air navigation deficiencies related to MET in the APAC region required rectification.

2.12.3 The Solomon Islands informed the meeting of its intention to prepare a report addressing the deficiency (Index No. AP-MET-20) related to the provision of WAFC forecasts for further consideration at MET SG/29.

Joint plenary session of MET/R WG/14 and ATFM/SG/15

2.13 **MET information needed to support the elements of the APAC Seamless ANS Plan**

2.13.1 In 2024, the ad hoc group updated its analysis of MET information and services required for the APAC Seamless ANS Plan (ASAP), aligned with the Global Air Navigation Plan (GANP) 2019. This analysis, including a mapping document, was presented at the joint plenary session of MET/R WG/13 and ATFM/SG/14 session and was recognised as beneficial, with a recommendation to publish it as an appendix to the ASAP.

2.13.2 The ad hoc group identified required MET services from ASBU and regional ASAP elements, focusing on Priority 1 and 2 elements. Priority 1 and 2 ASAP elements were identified as critical and recommended for regional benefits. For priority 1, AMET-B0/1-4 were considered sufficient, while Priority 2 required AMET-B1/1-4, AMET-B2/1-2, and AMET-B2/4 to support technology upgrades and FF-ICE services.

2.13.3 The updated mapping was proposed as an appendix to ASAP to improve clarity, document management, and updating it in tandem with ASAP. The updated mapping was presented in MET/R WG/14, WP/06, Appendix B, and is reproduced in **Appendix D** of this paper for ease of reference.

2.13.4 The meeting supported the proposal and formulated the following Draft Conclusion:

Draft Conclusion MET/R WG/14–01: To include mapping of MET information needed to support APAC Seamless ANS Plan (ASAP) elements as an Appendix	
What: That, the Secretariat to publish the mapping document (MET/R WG/14, WP/06, Appendix B) as an appendix to the APAC Seamless ANS Plan (ASAP)	Expected impact: Economic Ops/Technical
Why: The mapping document provides the MET information required to support the Priority 1 and 2 elements of the ASAP via a mapping analysis.	Follow-up:

These elements are critical and recommended upgrades that would bring potential benefits to the region. To ensure effective document management and user awareness, this appendix will be updated in tandem with ASAP.	
When: MET SG/29	Status: Adopted by MET/R WG and ATFM SG
Who: Sub groups, ICAO APAC RO	

2.13.5 Additionally, the ad-hoc group determined that mapping ASBU AMET elements to ASAP Priority 3 elements would be of limited current value.

2.13.6 The meeting also agreed that while future updates to the mapping may be required in response to expected updates to the GANP, the ad hoc group had completed its task (i.e., MET/R WG, work plan, Deliverable 2: Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ATM Plan) and adopted the following Decision:

Decision MET/R WG 14–02: Deliverable 2 of MET/R WG workplan as completed	
What: That, the MET/R WG considers 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.	Expected impact: Ops/Technical
Why: The ad-hoc group has completed the analysis on the MET information required to support the Priority 1 and 2 elements, and considered the requirements for Priority 3, of the ASAP. This include a mapping document that will be included as an appendix to the ASAP to ensure effective document management and user awareness.	Follow-up:
When: MET/R WG/14	Status: Adopted by MET/R WG
Who:Sub groups, MET/R WG	

2.14 **Survey of the State MET information supporting ATM and development of future activities**

2.14.1 In late 2021, ICAO APAC conducted a regional survey to assess MET services supporting ATM and ATFM. The survey outcomes were reviewed in 2024 by MET/R WG/13 and

ATFM/SG/14. MET SG/28 subsequently supported the publication of the draft final report, subject to considerations on data sensitivity, intended use, and sharing mechanisms.

2.14.2 MET SG/28 also requested:

- an assessment of the 2021 survey's value and lessons learned (MET SG Action 28/24).
- the Secretariat to present the 2021 survey outcomes to the ATM Sub-Group (MET SG Action 28/25).

2.14.3 The joint plenary session reviewed a Working Paper from the ad hoc group, addressing these actions and outlining proposals for future regional survey planning.

2.14.4 The proposed plans are detailed in a separate Working Paper for MET SG/29.

2.15 **APAC Use Cases and User Requirements for SWIM-Based MET Information Services Supporting ATFM**

2.15.1 The joint plenary session reviewed and endorsed a Working Paper from the ad hoc group, addressing:

- Outcomes from MET SG/28, including the proposal to publish the document on the ICAO APAC eDocument website and share it with other ICAO Regional Offices. The document is intended to be a living reference, continuously updated with new use cases.
- Suggested editorial improvements to the document.

2.15.2 Hong Kong, China, presented a Working Paper introducing a new MET information services use case for ATFM in the SWIM demonstration. The paper highlighted potential operational benefits of sharing MET information and surveillance data during the SWIM demonstration conducted in May 2024.

2.15.3 The meeting agreed to incorporate this use case into the reference document APAC Use Cases and User Requirements for SWIM-based Meteorological Information Services Supporting ATFM and adopted a related decision.

2.15.4 Further details are provided in a separate Working Paper for MET SG/29

2.16 **Case study on the operational capacity guidelines linked to weather forecasts**

2.16.1 The Republic of Korea presented a structured, proactive ATFM strategy for managing snowfall disruptions at Incheon International Airport. The strategy involves a stage-based approach to adjust operational capacity levels according to the severity of snow conditions, aiming to minimize impacts on air traffic flow.

2.16.2 Stakeholder coordination is achieved through the use of CDM meetings, which are held when operational constraints are anticipated due to weather. The meetings promote proactive, shared responses among all involved parties.

2.16.3 The meeting appreciated Republic of Korea's initiative and proposed a draft conclusion that the WP be added to the Regional ATFM Framework document as an appendix. [ATFM/SG/15 Draft conclusion].

2.16.4 The Secretariat will include the same in the next update of the Regional ATFM Framework document in 2027. The meeting also considered including the case study in the Regional Guidance for Tailored MET information and services to support ATM operations (See section 2.17).

2.17 **Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations (MET-ATM Guidance)**

2.17.1 The joint plenary session reviewed and endorsed a Working Paper from the Republic of Korea including recent developments related to the MET-ATM Guidance

2.17.2 The meeting agreed to include this as a new example in the Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations.

2.17.3 Further details are provided in a separate Working Paper for MET SG/29.

2.18 **MET and ATS stakeholders' collaboration in Solomon Island**

2.18.1 Solomon Island shared progress in developing local MET-ATM collaboration in the Solomon Islands.

2.18.2 The meeting was informed that significant progress had been made towards rectifying the APANPIRG Air Navigation deficiency related to the provision of WAFC forecasts in the Solomon Islands. Therefore, the meeting requested the Secretariat, in coordination with the ad hoc group on air navigation deficiencies, to assist the Solomon Islands in preparing the appropriate report detailing the rectification of the deficiency (Index No. AP-MET-20) for further consideration at MET SG/29. [ACTION MET/R WG/14-01].

2.18.3 The meeting encouraged the Solomon Islands to present a Working Paper at the upcoming MET SG/29, highlighting the important initiative as a valuable example for other Pacific Island States. The paper could help showcase practical steps for enhancing MET and ATM collaboration in the region and inspire similar efforts in other Pacific Island States.

2.19 **Trial of probabilistic forecast (PROBnn) in TAF**

2.19.1 Hong Kong, China, presented a paper on the probabilistic forecast (PROBnn) trial in TAF. The trial was conducted by the Airport Meteorological Office (AMO) at the Hong Kong International Airport based on a requirement proposed by a commercial airline, providing more information and higher flexibility for flight planning.

2.19.2 The AMO at Hong Kong International Airport issues TAFs in line with ICAO Annex 3. Although PROBnn are part of the standard terminology, they have rarely been used due to a preference for deterministic forecasts in Hong Kong. However, with the rise of model-based probabilistic forecasts and airlines' demand for better weather risk assessment, providing probabilistic information could enhance operational planning and flight safety.

2.19.3 It was noted that the trial demonstrated that PROBnn enhances forecast capabilities and user confidence. AMO plans to expand the trial in 2025 before considering official implementation.

Collaboration between MET and ATM Stakeholders

2.20 China outlined a closed loop model from its Southwest Regional Meteorological Centre. Using a "User Demand Dashboard", Aviation MET consultant working group provides tailored "one-to-one" services. Meteorologists are embedded in ATC/airline operations to document pain points and conduct post-event decision retrospectives. This approach effectively enhanced aviation weather service relevance and practicality, with improved convective warning lead times, higher flight normality rates, and reduced operational disruptions.

2.21 China also presented a paper on the implementation of a turbulence forecasting system based on EDR data. The system provides high-resolution forecasts and is performing comparably with WAFS.

2.22 Hong King, China, presented a paper on the establishment of an algorithm to detect en-route aviation turbulence using information from ADS-B navigation data. A metric of root-mean-square vertical acceleration (RMSVA) is defined, and the temporal spike properties are investigated to formulate the detection algorithm. A real-time operational run has been implemented since November 2024, and the additional turbulence information could raise user situational awareness of aviation turbulence.

2.23 Additionally, Hong Kong, China, presented the case study of probabilistic forecast of runway headwind changes for supporting estimation of Airport Acceptance Rate in Hong Kong, China. An AI model was designed for assessing the likelihood of sea breeze occurrences and westerly winds reaching 5 knots at Hong Kong International Airport. The machine learning model provided hourly probabilistic forecasts, with verification showing good alignment between predictions and actual observations. Practical examples demonstrated how ATM can utilize these forecasts for operational estimation of the Airport Acceptance Rate and early decision-making preparedness for runway use.

SIGMET coordination

2.24 The meeting reviewed several papers on SIGMET coordination in the region.

Oceanic SIGMET coordination

2.24.1 The meeting noted the latest developments of the Oceanic SIGMET Coordination group, which involves Fiji, Hong Kong, China, Indonesia, Papua New Guinea, and the Solomon Islands and covers five flight information regions (FIRs). It also noted that coordination between Indonesia and Papua New Guinea transitioned to operational status in August 2024.

2.24.2 The meeting noted the discussion of tropical cyclones and the issuance of relevant WC SIGMETs over the South Pacific Ocean, demonstrated through the example of TC Lola in October 2023. Relevant WC SIGMET issuance practices were collected within the coordination group and illustrated in the paper.

2.24.3 The meeting observed some differences in the WC SIGMET issuance practices across the APAC Region, including the practices in Australia as one of the neighbouring State, and requested the SIGMET coordination ad hoc group to collect user feedback on these practices. Based on the user

feedback, the meeting further requested the ad hoc group to consider consolidating common practices on WC SIGMET issuance for developing potential guidelines on supplementing the APAC Regional SIGMET Guide.

2.24.4 In view of the above, the meeting adopted a decision

Decision MET/R WG 14–07: Consolidate user feedback on WC SIGMET issuance procedures for inclusion in APAC Regional SIGMET Guide	
What: The ad-hoc group on SIGMET coordination collects and analyses user feedback on the differences in the WC SIGMET issuance practices across the Asia Pacific Region, and considers proposing regional guidelines for acceptable and harmonised TC SIGMET issuance procedures.	Expected impact: ☐ Political / Global ☐ Inter-Regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To support the development of harmonised regional guidelines for SIGMET issuance.	Follow-up: ☐ Required from States
When: MET/R WG/15	Status: Adopted by MET/R WG
Who: ☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☒Other: MET/R WG	

Outcomes of CSI Project Activities

2.24.5 The Collaborative SIGMET Issuance (CSI) project involves eight organizations from Southeast Asia coordinating to harmonize SIGMET issuance. Recent discussions focused on phenomena like clear air turbulence, volcanic ash clouds, and turbulence from rapidly developing convective clouds. The importance of air reports (AIREPs) for SIGMET issuance was emphasised, and challenges in issuing SIGMETs for convective turbulence were identified. Solutions include using forecast SIGMETs and information that provides high-temporal and spatial resolution with frequent updates. The Japan Meteorological Agency shared practices for issuing forecast SIGMET. Myanmar and the Philippines have started or plan to start issuing forecast SIGMETs, while some MWOs continue with observation-based SIGMETs.

2.24.6 The discussion covered the minimum duration of WS SIGMET validity, with most CSI member MWOs agreeing on a common practice of 2 hours. Reference was made to the EUR Regional SIGMET and AIRMET Guide, which suggests a minimum horizontal extent of 100 km and duration of 30 minutes for hazardous phenomena. With reference to harmonized guidelines in the EUR Region, the ad-hoc group of the Regional SIGMET Guide recommends that the APAC Regional SIGMET Guide also includes similar criteria suitable for the Region.

2.24.7 To ensure the adequate capture of APAC requirements, including those of relevant stakeholders, the meeting suggested that the ad hoc group undertake further work on this matter, especially collecting practices and user requirements from States in the Region to identify common criteria for WS SIGMET validity duration.

2.24.8 The meeting adopted the following Decision:

<table>
<tr><td colspan="2">Decision MET/R WG 14–08: Collecting States' practices and user requirements on the WS SIGMET validity duration</td></tr>
<tr><td>What: The ad-hoc group on SIGMET coordination collects and analyses 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.</td><td>Expected impact:
☐ Political / Global
☐ Inter-Regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To support the development of harmonized regional guidelines for SIGMET issuance.</td><td>Follow-up: ☐ Required from States</td></tr>
<tr><td>When: MET/R WG/15</td><td>Status: Adopted by MET/R WG</td></tr>
<tr><td colspan="2">Who: ☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☒Other: MET/R WG</td></tr>
</table>

2.25 The meeting noted the latest updates on SIGMET coordination projects supported by the Hong Kong Observatory. These include the GHKPSV SIGMET Coordination project involving MWOs in the northern and northwestern parts of the South China Sea, the HMSU SIGMET Coordination group, the South and Southeastern Asia SIGMET Coordination project, and the Mekong SIGMET Coordination groups. The meeting was also informed of the major enhancements of the HKO Regional SIGMET Coordination platform supporting these projects.

2.26 Additionally, the meeting noted HKO's plans to conduct trials for the Hazardous Weather Information Service (HWIS) from 2025 to 2027 and requested the Chair and Secretariat to arrange a presentation on HWIS developments under the MET Panel at the next MET SG or MET/R WG meeting **[ACTION MET/R WG/14−02].**

2.27 Since July 2015, the Japan Meteorological Agency has provided Himawari-8/9 derived Convective Cloud Information (CCI) for aviation safety and effective air traffic control. CCI includes rapidly developing cumulus areas (RDCA), cumulonimbus areas (CBA), and dense anvil cirrus areas (MLUA). The RDCA determination program is being localized in cooperation with meteorological agencies in Southeast Asia. To address the need for short-term CB forecasts, JMA developed the CB Nowcast, available on the SIGMET coordination platform since June 2023. CB Nowcast provides frequent updates on CB cloud movement and development, aiding SIGMET production and air traffic

management. JMA collaborates with various aviation and meteorological entities to support safe flight operations.

Future work program and Review of terms of reference

2.28 The MET/R WG/14 reviewed and proposed several updates to the Work Plan, which was last reviewed and endorsed by the MET SG/28. The draft version was presented to the entire MET/R WG meeting for further endorsement.

2.29 The latest terms of reference and work plan, including updates proposed by the meeting are provided in **Appendix C of the MET/R WG/14 report** for consideration by MET SG. For ease of reference, these are reproduced in **Appendix C** of this paper.

Any other business

2.30 India raised an issue concerning the installation and location challenges of Runway Visual Range (RVR) systems at Indian airports, particularly where RVR sensor placement conflicts with existing navigational aids like ILS, PAPI, and VASI. It sought clarification on the longitudinal and lateral placement of RVR sensors in such scenarios and requested that the meeting review the RVR site location practices. The meeting was advised that, in addition to Annex 3, other ICAO guidance relevant to this issue included the Manual of Runway Visual Range Observing and Reporting Practices (Doc 9328).

2.31 Noting that the action proposed was outside the terms of reference of the MET/R WG, the meeting suggested that the Secretariat provide India with appropriate technical advice on applying relevant ICAO guidance.

Next meeting

2.32 The next MET/R WG meeting and MET/ATM Seminar are tentatively scheduled in the first week of May 2026 in Bangkok, Thailand, in coordination with the ATFM SG.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Note the information contained in this paper;

b) Propose further updates to the Terms of Reference, Future Work Program and/or List of Actions; and

c) Endorse the draft conclusion in para 2.13.4.

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APPENDIX A

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

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	
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	
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 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.	MET/R WG ad hoc group	(1) MET SG/29, (2) MET/R WG/15 and 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	
D 14-05	**Updating the APAC Use Cases and User Requirements for SWIM-based Meteorological Information Services Supporting ATFM**	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/R WG ad hoc group	MET SG/29	

APPENDIX A to WP/03 (Rev.2)

No	Title of Decision	Text of Decision (What:)	Responsibility (Who:)	Target Date (When:)	Status/ Remarks
(1)	(2)	(3)	(4)	(5)	(6)
		MET SG for approval and publication on the ICAO APAC eDocument website.			
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	
D 14-07	**Preparation for the update to 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, consisting of Hong Kong, China, Japan, Singapore (co-rapporteurs), China, Fiji, IFALPA, India, Indonesia, Malaysia, Thailand and Vietnam	MET/R WG/15	
D 14-08	**Preparation for the update to APAC Regional SIGMET Guide**	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, consisting of Hong Kong, China, Japan, Singapore (co-rapporteurs), China, Fiji, IFALPA, India, Indonesia, Malaysia, Thailand and Vietnam	MET/R WG/15	

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)
13-01	**Guidance on the criteria for issuance of SIGMET for thunderstorms**	The ad hoc group on the SIGMET Guide is requested to enhance the guidance in the APAC Regional SIGMET Guide concerning coordinating SIGMET for thunderstorms.	Ad hoc group on the SIGMET Guide		**COMPLETED** [Ref: APAC Regional SIGMET Guide, Eleventh Edition, July 2025, App. K, 16.3-16.4 (https://www.icao.int/APAC/Pages/eDocs.aspx)]

APPENDIX A to WP/03 (Rev.2)

Decision No	Title of Decision	Text of Decision (What:)	Responsibility (Who:)	Target Date (When:)	Status/ Remarks
(1)	(2)	(3)	(4)	(5)	(6)
13-02	**Updating the Regional Guidance for Tailored MET to support ATM Operations**	The ad hoc group on the Regional Guidance for Tailored MET to support ATM Operations is requested to include China's example in Appendix 1 of the updated guidance.	Ad hoc group on the Regional Guidance for Tailored MET to support ATM Operations		**COMPLETED** [Ref: APAC Regional Guidance for Tailored MET Information and Services to support ATM Operations, Appendix 1 (https://www.icao.int/APAC/Documents/edocs/2024-07_APPENDIX-1(CHN).pdf)]
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	
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/29	
13-05	**Publishing the APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM**	The ad hoc group on APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM is requested to propose procedures for publishing and updating the document on the ICAO website.	The ad hoc group on APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM		**COMPLETED** [Ref: MET SG/28-WP/15; Decision MET SG/28-08; Action item MET SG/28-17; APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM, First Edition, July 2024 (https://www.icao.int/APAC/Pages/eDocs.aspx)]
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	
13-07	**Updates to the mapping of APAC Seamless ANS Plan to ASBU AMET elements**	The ad hoc group on MET Information needed to support the Elements of the APAC Seamless ANS Plan is requested to propose future updates to the document mapping APAC Seamless ANS Plan Priority 1 Elements to the GANP's ASBU AMET elements and include the mapping of APAC Seamless ANS Plan Priority 2 Elements.	Ad hoc group on MET Information needed to support the Elements of the APAC Seamless ANS Plan		**COMPLETED** [Ref: MET/R WG/14, WP/06]

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APPENDIX B

MET/R WG – List of Actions

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

New action items recorded by MET/R WG/14

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	To begin
MET/R WG/14 **02**	Arrange for the presentation of an update on the MET Panel's HWIS developments. [Ref: MET/R WG/14 Report, para. 4.10]	MET SG/29 or MET/R WG/15	Secretariat and Chair	To begin

Action items recorded by MET/R WG/13

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/ REMARKS
MET/R WG/13 **01**	Update the agenda for the next meeting to include a specific item on SIGMET coordination. [Ref: MET/R WG/13 Report, 1.2.]	MET/R WG/14	Chair and Secretariat	**COMPLETED** [Ref: T 4/3.2.7 - AP026/25 (MET), Att. A; MET/R WG/14-WP/01] ~~To begin~~
MET/R WG/13 **02**	Incorporate the unresolved Action Item MET/R WG/09-01 into the MET/R WG work plan deliverables and include an appropriate presentation in the next MET/ATM seminar on special air reports. [Ref: MET/R WG/13 Report, 2.4.]	MET/R WG/14	Chair and Secretariat	**COMPLETED** [Ref: MET/R WG/14-WP/05; MET/ATM Seminar presentation] ~~To begin~~
MET/R WG/13 **03**	Publish the Regional SIGMET Guide updated guidance on SIGMET for volcanic ash crossing FIR boundaries and VAAC backup procedures. [Ref: MET/R WG/13 Report, 2.9.]	ASAP	Secretariat	**COMPLETED** [Ref: APAC Regional SIGMET Guide, Eleventh Edition, July 2025, App. K, 16.3-16.4 (https://www.icao.int/APAC/Pages/eDocs.aspx)] ~~To begin~~
MET/R WG/13 **04**	Remove the outdated SIGMET leaflets (WC/WS/WV) containing CCx usage instructions from the ICAO website. [Ref: MET/R WG/13 Report, 3.2.]	ASAP	Secretariat	**COMPLETED** ~~To begin~~
MET/R WG/13	Consider improvements to the SIGMET Guide on using the WMO header when correcting a	MET/R	Ad hoc group on the	**COMPLETED**

APPENDIX B to WP/03 (Rev.2)

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/ REMARKS
05	SIGMET. [Ref: MET/R WG/13 Report, 3.3.]	WG/14	SIGMET Guide	[Ref: APAC Regional SIGMET Guide, Eleventh Edition, July 2025, para. 3.5.1.4 (https://www.icao.int/APAC/Pages/eDocs.aspx)] ~~To begin~~
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	To begin Ref: MET SG/28 WP/12, MET/R WG/14 WP/08
MET/R WG/13 **07**	Consider including the information in Appendix B and C of WP/09 concerning the criteria for issuance of WS SIGMET in a future update to the SIGMET Guide to enhance the information concerning coordinating SIGMET for thunderstorms. [Ref: MET/R WG/13 Report, 3.6.]	MET/R WG/14	Ad hoc group on the SIGMET Guide	**COMPLETED** [Ref: APAC Regional SIGMET Guide, Eleventh Edition, July 2025, App. K, 16.3-16.4 (https://www.icao.int/APAC/Pages/eDocs.aspx)] ~~To begin~~
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 **09**	Update the latest developments of the Oceanic SIGMET Coordination group in the Online repository for APAC SIGMET Coordination activities. [Ref: MET/R WG/13 Report, 3.10.]	ASAP	Ad hoc group on SIGMET coordination	To begin
MET/R WG/13 **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 MET/R WG/14	Ad hoc group on SIGMET coordination in cooperation with the ad hoc group on the Regional SIGMET Guide	In progress ~~To begin~~
MET/R WG/13 **11**	Consider the information provided by China in IP/02 as an example for inclusion in Appendix 1 of the Regional Guidance for Tailored MET to support ATM Operations and seek approval from the MET SG to update the guidance. [Ref: MET/R WG/13 Report, 3.17.]	MET SG/28	Ad hoc group on the Regional Guidance for Tailored MET to support ATM Operations	**COMPLETED** [Ref: APAC Regional Guidance for Tailored MET Information and Services to support ATM Operations, Appendix 1 (https://www.icao.int/APAC/Documents/edocs/2024-07_APPENDIX-1(CHN).pdf)] ~~To begin~~
MET/R WG/13 **12**	Finalize the editorial and formatting improvements to the Survey of MET information supporting ATM report in WP/05 and make it available to States and stakeholders on the ICAO APAC website. [Ref: MET/R WG/13 Report, 3.27.]	ASAP	Secretariat	**CLOSED:** Superseded by MET/R WG/13 Decision 13-03 ~~To begin~~

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/ REMARKS
MET/R WG/13 **13**	Develop a proposal on the appropriate timing and content for conducting a future follow-up Survey of MET information supporting ATM. [Ref: MET/R WG/13 Report, 3.28.]	MET/R WG/14	Ad hoc group on the Survey of MET information supporting ATM	**CLOSED:** Superseded by MET/R WG/13 Decision 13-04 ~~To begin~~
MET/R WG/13 **14**	Present a paper to the upcoming MET/SG and ATM/SG meetings with proposals to publish the draft reference document (*APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM*) on the ICAO website and include a procedure for updating the document with new cases and making it a living document. [Ref: MET/R WG/13 Report, 3.32.]	MET SG/28 and ATM/SG/12	Ad hoc group on APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM	**COMPLETED** [Ref: MET SG/28-WP/15; Decision MET SG/28-08; Action item MET SG/28-17; APAC Use Cases and User Requirements for SWIM-based MET Information Services Supporting ATFM, First Edition, July 2024 (https://www.icao.int/APAC/Pages/eDocs.aspx)] ~~To begin~~
MET/R WG/13 **15**	Publish the document in WP/06, Appendix B, which maps APAC Seamless ANS Plan Priority 1 Elements to the GANP's ASBU AMET elements, accordingly as a companion (appendix) to the Seamless ANS Plan. [Ref: MET/R WG/13 Report, 3.41.]	ASAP	Secretariat	**CLOSED:** Superseded by MET/R WG/13 Decision 13-06 ~~To begin~~
MET/R WG/13 **16**	Update the MET/R WG work plan to reflect that the ad hoc group on MET information needed to support the elements of the APAC Seamless ANS Plan would continue to review and propose future updates to the mapping document based on future updates of the Seamless ANS Plan and to map the APAC Seamless ANS Plan Priority 2 and 3 Elements to the GANP's ASBU AMET elements. [Ref: MET/R WG/13 Report, 3.42.]	ASAP	Secretariat	**COMPLETED** [Ref: MET/R WG/14, WP/06]
MET/R WG/13 **17**	Review the terminology used to describe the MET service users to ensure the MET/R WG terms of reference sufficiently address the need to support all MET service users, including those stipulated in ICAO Annex 3, para. 2.1.2), which might not be identified in the definition of ATM (i.e., air traffic services, airspace management and air traffic flow management). [Ref: MET/R WG/13 Report, 4.2.]	ASAP	Chair and Secretariat	To begin
MET/R WG/13 **18**	Continue to facilitate and encourage participation in the MET/R WG by representatives from IATA and IFALPA. [Ref: MET/R WG/13 Report, 5.1.]	ASAP	Chair and Secretariat	To begin

Unresolved action items recorded by MET/R WG/11

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/ REMARKS
MET/R WG/11 **01**	Propose further updates to the (MET/R WG work plan) Deliverable No. 2 and Deliverable	MET/R WG/12	Chair and Secretariat	**COMPLETED** ~~In progress~~

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/ REMARKS
	No. 5 timeframe, responsibility, and requirements details. [Ref: MET/R WG/11 Report, 5.2.] - Deliverable 2: *Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ANS Plan* - Deliverable 5: *A coordinated review of the APAC ANP Volume III, including proposals for improvements to the ANRF and other parts of Volume III, to clarify the MET-related implementation planning guidance*			

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APPENDIX C

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

TERMS OF REFERENCE AND WORK PLAN

Editorial note: Proposed updates show deleted text using 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 of air traffic management (ATM[1]) operations by providing meteorological (MET) information needed to meet current and future requirements of the ATM system.
Benefits	Increase safety – optimize safety risk management Increase efficiency – save time and fuel Increase sustainability – reduce carbon emissions
Functions and delegated authority	Under guidance from the ICAO Secretariat, support the MET SG to assist APANPIRG in its planning and implementation work by carrying out designated tasks on specifically defined problems, including: a) Coordinate with other relevant contributory bodies of APANPIRG such as ATM/SG and ATFM/SG; b) Recommend updates to the Asia/Pacific Regional Air Navigation Plan and other regional guidance material as necessary, based on analysis and evaluation of the current and future requirements for MET information in support of ATM, as well as ATM information required to support the provision of MET services; c) Facilitate the exchange of expertise in the Asia/Pacific Region on the integration of MET information into ATM systems to support collaborative decision making (CDM) and the migration of MET information into the SWIM environment; 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; e) Promote coordination between the MET and ATM communities in the Asia/Pacific Region to enhance the level of understanding of MET requirements and capabilities in support of ATM; and f) Report to the MET SG for further coordination through the ICAO Secretariat with APANPIRG and other relevant bodies.

[1] 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]

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 Li Xiya~~	~~Engineer~~ ~~Meteorological Center of Middle South Regional Air Traffic Management Bureau of Civil Aviation of China~~ ~~(MET)~~	~~E-mail:gzlixiya@qq.com~~
~~**CHINA**~~ ~~Mr Wen Junpeng~~	~~Meteorological Center of Middle South Regional ATMB of CAAC~~	~~wenjunpeng@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**~~ ~~Mr. Marco Mang-hin KOK~~	~~Acting Senior Scientific Officer~~ ~~Hong Kong Observatory~~ ~~(MET)~~	~~E-mail: mhkok@hko.gov.hk~~
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
~~**JAPAN**~~ ~~UENISHI Miki (Ms)~~	~~Scientific Officer, Office of Aeronautical Meteorology~~ ~~Planning Division, Administration Department, Japan Meteorological Agency (JMA)~~	~~E-mail: m.uenishi@met.kishou.go.jp~~
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 ~~Mr. Yeonghun Kim~~ 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. Lan Oanh Nguyen (Lana)~~	~~Deputy Director, Air Navigation Department~~ ~~Civil Aviation Authority of Vietnam (MET)~~	~~Tel: +84 (24) 3872 3600~~ ~~E-mail: lanoanh@caa.gov.vn~~
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 TBC (Secretariat)	Regional Officer ATM International Civil Aviation Organization (ICAO) Asia and Pacific Office (ATM)	Tel: TBC Fax: TBC E-mail: TBC
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	Chair and Secretariat
Status and Milestone Reports	MET/R WG Members	E-mail and working paper at MET/R WG meeting	At least annually	Chair and Secretariat
MET/R WG Report	MET SG and ATFM SG (and ATM/SG, through MET SG) and all APAC States	ICAO website and working paper at MET SG meeting	Following each MET/R WG meeting	Chair and Secretariat

PLAN OF WORK

DELIVERABLES
1. Documented analysis of MET information requirements (current and future) ~~used in~~ 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 ~~ATM~~ ANS Plan
3. ~~Draft~~ 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 and User Requirements for SWIM-based MET Information Services Supporting ATFM
7. Promote and assist ATM and Airspace Users with user education on the Space Weather Advisory service
8. Meteorological Information for the Asia Pacific Regional Framework for Collaborative ATFM
9. SIGMET coordination activities in APAC Region

~~MILESTONES~~ 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 summary of the 2021 survey outcomes for presentation to ATM SG/13.	(a) MET SG/~~28~~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**
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 SG/2829 ATM/SG/~~ 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	
2. Deliverable 2: Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ANS Plan			

~~MILESTONES~~ DELIVERABLES	By date	Responsibility	Status
2.1. Further development (of the list of MET information or services necessary to support the implementation of the priority 2 and 3 elements of the Asia/Pacific Seamless ANS Plan) in coordination with ATFM/SG	MET/R WG/14 and ATFM/SG/15	Ad hoc group: Rapporteur-Singapore, Australia, China, Hong Kong China*, Japan, Thailand *Ira Chan, Christy Leung, John Chong	**COMPLETED** ~~**In progress**~~
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** ~~**In progress**~~
3.2. Analyze provided information under 3.1 and other information in the WG meetings/Seminars and consider appropriate actions, such as including it in the Guidance.	MET/R WG/~~14~~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**
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** ~~**To begin**~~
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)	
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** ~~**To begin**~~
4.2. Develop content for the Seminar on MET/ATM collaboration, such as examples of collaboration in the region and how to improve special air reports (ARS) availability	MET/R WG/14, MET/ATM Seminar	Secretariat in coordination with experts from States, including Fiji and India	**Completed** ~~**To begin**~~
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** ~~**To begin**~~
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**
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/~~27~~29	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**

~~MILESTONES~~ DELIVERABLES	By date	Responsibility	Status
6. Deliverable 6: Development of APAC Use Case and User Requirements 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** ~~**To begin**~~
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**
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/~~28~~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/~~28~~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.			
9.1. Maintain the online repository on SIGMET coordination activities in the APAC Region.	MET/R WG/~~14~~15	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, ~~Nik Nur Aimi~~, 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) • Collect more practices on SIGMET coordination procedure in addition to MET/R WG/13 – WP/08 (Appendix A) and seek any input to Appendix L of the Regional Guidance. • Collect and analyze the States' practices of minimum duration of the validity period of WS SIGMET for TS (MET/R WG/14, WP/13)	MET/R WG/~~14~~15		**In progress**
9.3. Propose the SIGMET coordination guidance in the Regional SIGMET Guide following findings from below ~~9.2~~ 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	MET/R WG/~~14~~15		**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

*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**
CANSO	Stuart Ratcliffe	CANSO	ATFM
Hong Kong China	Marco Kok **(Co-Rapporteur)**	Acting Senior Scientific Officer / HKO	MET/SWIM
~~Hong Kong China~~	~~John Chong~~	~~HKO~~	~~MET~~
Hong Kong China	Ira Chan	Scientific Officer / HKO	MET
Hong Kong China	Anfernee Poon	~~Acting~~ Senior Operations Officer (Strategic Planning) / HKCAD	ATFM
IATA	John Moore	IATA	ATFM/MET
Japan	YONE Toshihiro	JCAB	ATFM
Japan	IKEDA Michiko	JMA	MET
Japan	FUJIMOTO Masato (Mr)	JMA	MET
Pakistan	Fazal Ur Rehman	PCAA	ATFM
Pakistan	Syed Ali Baqadar Shah	PCAA	MET
Republic of Korea	~~Dong-won, LEE~~ Heeju Jeong	Assistant of Director / KMA	MET
Republic of Korea	~~Jiwon, LEE~~ 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	~~Mr. Nguyen Van Dung~~ Ms. Tran Hoang Linh	VATM	~~MET/~~ATFM

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APPENDIX D to WP/03 (Rev.2)

(Reproduced from MET/R WG/14, WP/06, Appendix B)

Based on the paragraph on PERFORMANCE IMPROVEMENT PLAN, ASAP, the elements of ASAP are implemented in phases of *Preferred Aerodrome/Airspace and Route Specifications* (PARS) and *Preferred ANS Service Levels* (PASL), and the phases are:

- Phase II - expected implementation by 07 November 2019;
- Phase III - expected implementation by 03 November 2022;
- Phase IV - expected implementation by 27 November 2025; and
- Phase V - expected implementation by 23 November 2028;

Note:

1. Phase I – elements (expected implementation by November 2015) that had not been completed by November 2019 were moved to Phase II.
2. Phases II and III are retained due to delayed availability of the implementation reporting mechanism following the update in 2019, and taking into consideration of the impact of COVID-19 pandemic.

Mapping of Priority 1 Elements of ASAP to ASBU elements under AMET:

ASAP Elements (Priority 1)	**Description** (paragraph on PERFORMANCE IMPROVEMENT PLAN, ASAP)	**ASBU Element**	**Required ASBU AMET Element**	**Implementation Phase**
Aeronautical Meteorology	Meteorological observations, forecast, warning, climatological and historical products, and dissemination (PASL 7.44)	AMET	AMET-B0/1 – 4	PASL Phase II
Aeronautical Information Management	Provision of quality-assured digital aeronautical data and information, including AIP, terrain and obstacle, aerodrome and instrument flight procedure data sets (PASL 7.43)	DAIM-B1/1 – 6	N.A	PASL Phase II
Airport CDM	Airport CDM Information Sharing, ACIS (PARS 7.3, 7.18)	ACDM-B0/1	AMET-B0/1 – 2	PARS Phase II and III
ANSP human and simulator performance (Regional)	(PASL 7.46)	Nil	N.A	PASL Phase II
ATS Inter-facility Datalink Communications	Automated basic AIDC (PASL 7.29)	FICE-B0/1	N.A	PASL Phase II
Space Object launches and re-entry management (Regional)	(PASL 7.48)	Nil	N.A	PASL Phase II

ASAP Elements (Priority 1)	**Description** (paragraph on PERFORMANCE IMPROVEMENT PLAN, ASAP)	**ASBU Element**	**Required ASBU AMET Element**	**Implementation Phase**
Civil-Military Special Use Airspace (SUA) management (Regional)	(PARS 7.16)	Nil	N.A	PARS Phase II
Civil-Military strategic and tactical coordination (Regional)	(PASL 7.47)	Nil	N.A	PASL Phase II
Core data communications	VDL Mode O/A, AMHS (PASL 7.28)	COMI-B0/3, 7	N.A	PASL Phase II
	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS) (PARS 7.21, PASL 7.56)	COMI-B1/1	N.A	PARS Phase III PASL Phase III
Direct and Free Route Operations	Direct routing, Airspace Planning and FUA, Flexible Routings, and basic conflict detection and conformance monitoring (PASL 7.32, 7.34, 7.39)	FRTO-B0/1 – 4	AMET-B0/1, 2 and 4	PASL Phase II
Enhanced SAR systems (Regional)	(PASL 7.45)	GADS-B1/1 – 2	N.A	PASL Phase II
Ground-based Surveillance	ADS-B, MLAT, SSR-DAPS (PARS 7.8, 7.9, 7.11, 7.12, PASL 7.30, 7.31, 7.33)	ASUR-B0/1 – 3	N.A	PARS Phase II PASL Phase II
Network Operations	Initial integration of ASM with ATFM, Collaborative Network Flight Updates, Basic Network Operation Planning and Initial Airport/ATFM slots, A-CDM Network Interface and Dynamic Slot Allocation (PASL 7.41)	NOPS-B0/1 – 5	AMET-B0/1 – 3	PASL Phase II
Performance-based Navigation Approach Procedures	PBN non-precision approaches (with basic capability) (PARS 7.4, 7.5, 7.10, 7.13, 7.14, 7.21)	APTA-B0/1	AMET-B0/1 – 2	PARS Phase II
	Basic PBN SID and STAR procedures (with basic capability) (PARS 7.4, 7.5, 7.10, 7.13, 7.14, 7.21)	APTA-B0/2	AMET-B0/1 – 2	PARS Phase II
Runway Sequencing	Arrival and Departure Management (PASL 7.35)	RSEQ-B0/1 – 2	AMET-B0/1 – 2	PASL Phase II
Safety Nets	STCA, MSAW, APW, APM (PASL 7.34)	SNET-B0/1 – 4	N.A	PASL Phase II

APPENDIX D to WP/03 (Rev.2)

Mapping of Priority 2 Elements of ASAP to ASBU elements under AMET:

ASAP Elements (Priority 2)	**Description** (paragraph on PERFORMANCE IMPROVEMENT PLAN, ASAP)	**ASBU Element**	**Required ASBU AMET Element**	**Implementation Phase**
Adjacent ATS sector coordination (regional)	(PASL 7.27)	Nil	N.A.	PASL Phase II
ADS-B, SSR Mode S and PBN Airspace (regional)	(PARS 7.8, 7.9, 7.10)	ASUR-B0/1, B0/3 APTA-B0/1 – 3, B0/6	AMET-B0/1 – 2	PARS Phase II
Aeronautical Meteorology	Meteorological products supported by automated decision systems or aids using IWXXM (PASL 7.59, 7.61)	AMET-B1/1 – 4	AMET-B1/1 – 4	PASL Phase III & IV
Aeronautical Information Management	Provision of digital NOTAM improvements (PASL 7.58)	DAIM-B1/7	N.A.	PASL Phase III
Aerodrome management and coordination (regional)	(PARS 7.1)	Nil	N.A.	PARS Phase II
Aerodrome operations tools	Basic ATC surface operations tools, comprehensive situational awareness, situational awareness and alerting service (PASL 7.50)	SURF-B0/1 – 3	N.A.	PASL Phase III
	Advanced surface traffic management visual aids, pilot comprehensive awareness and runway alerting, enhanced ATC alerting, routing service to support ATC and EVS for taxiing (PASL 7.51)	SURF-B1/1 – 5	AMET-B0/1	PASL Phase III
Airport CDM	Airport CDM integration with ATM Network (PARS 7.3, 7.18)	ACDM-B0/2	N.A.	PARS Phase II & III
	Airport CDM Integration with ATM Network, AOP and APOC (PARS 7.25)	ACDM-B1/1 – 2	AMET-B1/1 – 2	PARS Phase V
Airspace classification (regional)	(PASL 7.36)	Nil	N.A.	PASL Phase II
ATC horizontal separation (regional)	(PASL 7.37)	Nil	N.A.	PASL Phase II

ASAP Elements (Priority 2)	**Description** (paragraph on PERFORMANCE IMPROVEMENT PLAN, ASAP)	**ASBU Element**	**Required ASBU AMET Element**	**Implementation Phase**
ATC sector capacity (regional)	(PASL 7.40)	Nil	N.A.	PASL Phase II
ATS surveillance data sharing (regional)	(PASL 7.31)	ASUR-B0/1 – 2	N.A.	PASL Phase II
Civil-Military common procedures and training (regional)	(PASL 7.47)	Nil	N.A.	PASL Phase II
Civil-Military integrated systems and facilities (regional)	(PASL 7.47)	Nil	N.A.	PASL Phase II
Controller-Pilot Direct communication	CPDLC (FANS 1/A & ATN B1) for domestic and procedural airspace and ADS-C (FANS 1/A) for procedural airspace (PASL 7.56)	COMS-B0/1 – 2	N.A.	PASL Phase III
	PBCS approved CPDLC (FANS 1/A+), ADS-C and SATVOICE for domestic and procedural airspace (PASL 7.56)	COMS-B1/1 – 3	N.A.	PASL Phase III
Core data communication	ACARS, ATN/OSI, VDL Mode 2 Basic, SATCOM Class C Data, HFDL (PARS 7.21, PASL 7.56)	COMI-B0/1 – 2, B0/4 – 6	N.A.	PARS Phase III PASL Phase III
	VDL Mode 2 Multi-Frequency, SATCOM Class B (SB-S) Voice and Data, ATN/IPS and AeroMACS Ground-Ground (PASL 7.56)	COMI-B1/1 – 4	AMET-B1/1 – 2	PASL Phase III
Data-Link Departure Clearance (DCL) (regional)	(PASL 7.52)	Nil	N.A.	PASL Phase III
Direct and Free Route Operations	Free Route Airspace, RNP routes, Advanced FUA and Airspace Management (ASM), Dynamic Sectorisation, Enhanced Conflict Detection Tools and Conformance Monitoring, and Multi-Sector Planner Function (PASL 7.32, 7.54)	FRTO-B1/1 – 7	N.A.	PASL Phase II & III
Electronic Flight Progress Strips (regional)	(PASL 7.42)	Nil	N.A.	PASL Phase II
Flight Level Allocation Schemes (FLAS)	(PASL 7.38)	Nil	N.A.	PASL Phase II

ASAP Elements (Priority 2)	**Description** (paragraph on PERFORMANCE IMPROVEMENT PLAN, ASAP)	**ASBU Element**	**Required ASBU AMET Element**	**Implementation Phase**
(regional)				
Flight Level Orientation Scheme (FLOS) (regional)	(PARS 7.15)	Nil	N.A.	PARS Phase II
Performance-based Navigation Approach Procedures	Basic airborne situational awareness AIRB and VSA, and performance-based horizontal separations (PARS 7.20)	CSEP-B1/1 – 4	N.A.	PARS Phase III
Navigation	SBAS, GBAS, ABAS, MON (PARS 7.5, 7.7)	NAVS-B0/1 – 4	N.A.	PARS Phase II
Network Operations	Short Term ATFM measures, Enhanced NOPS Planning, Enhanced integration of airport operations and NOPS planning, Enhanced Traffic Complexity Management, Full integration of ASM with ATFM, Initial Dynamic Airspace configurations, Enhanced ATFM slot swapping, Extended Arrival Management, ATFM Target Times and Collaborative Trajectory Options Programme (PASL 7.55)	NOPS-B1/1 – 10	AMET-B1/3	PASL Phase III
Runway Sequencing	Extended arrival metering (PASL 7.49)	RSEQ-B1/1	AMET-B1/1 – 2	PASL Phase III
Safety Nets	Enhanced STCA with aircraft parameters and in complex TMAs (PASL 7.53)	SNET-B1/1 – 2	N.A.	PASL Phase III
Space-based Surveillance	Reception of aircraft ADS-B signals from space (SB ADS-B) (PASL 7.57)	ASUR-B1/1	N.A.	PASL Phase III
SWIM services	Information service provision (PASL 7.62)	SWIM-B2/1	N.A.	PASL Phase IV
	Information service consumption (PASL 7.62)	SWIM B2/2	N.A.	PASL Phase IV
TBO	Introduction of time-based management within a flow centric approach (PASL 7.52)	TBO-B0/1	N.A.	PASL Phase III
	Initial Integration of time-based decision-making processes (PASL 7.55, 7.68)	TBO-B1/1	N.A.	PASL Phase III & IV
Terminal Area Operations	CDO (Basic) (PARS 7.14, 7.19, 7.21)	APTA-B0/4	AMET-B0/1 – 2	PARS Phase II & III
	CCO (Basic) (PARS 7.14, 7.19, 7.21)	APTA-B0/5	AMET-B0/1 – 2	PARS Phase II & III
	Performance-based aerodrome operating minima for advanced aircraft (PARS 7.14, 7.19, 7.21)	APTA-B0/7	AMET-B0/1 – 2	PARS Phase II & III

ASAP Elements (Priority 2)	**Description** (paragraph on PERFORMANCE IMPROVEMENT PLAN, ASAP)	**ASBU Element**	**Required ASBU AMET Element**	**Implementation Phase**
	Performance-based aerodrome operating minima for basic aircraft (PARS 7.14, 7.19, 7.21)	APTA-B0/8	AMET-B0/1 – 2	PARS Phase II & III
Unmanned Aircraft Systems (regional)	(PARS 7.17)	Nil	N.A.	PARS Phase II
FF-ICE services	Filing Service (PASL 7.72)	FICE-B2/2	AMET-B2/1 – 2, B2/4	PASL Phase V
	Flight Data Request Service (PASL 7.72)	FICE-B2/4	N.A	PASL Phase V

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