

International Civil Aviation Organization



ICAO

WORKING PAPER (WP/05)

ICAO Asia and Pacific (APAC)

Fourteenth Meeting of the Meteorological Requirements Working Group (MET/R WG/14)

Bangkok, Thailand, 28 April to 2 May 2025

Agenda Item 5: Future work program and terms of reference

REVIEW MET/R WG TERMS OF REFERENCE AND WORK PLAN

(Presented by the Secretariat)

SUMMARY

This paper presents the terms of reference and work plan of the Meteorological Requirements Working Group (MET/R WG). The meeting is invited to review the document and propose updates for possible approval by the Meteorology Sub-Group (MET SG).

1. INTRODUCTION

1.1 Under the auspices of the Meteorology Sub-Group (MET SG) of the APAC Air Navigation Planning and Implementation Regional Group (APANPIRG), the Meteorological Requirements Working Group (MET/R WG) is a forum to support States with implementing meteorological (MET) services required by air traffic management (ATM) operations for improved safety, efficiency and sustainability of air traffic.

1.2 The meeting will review the MET/R WG's terms of reference and work plan and propose updates as necessary to ensure the MET/R WG continues to meet its objectives of supporting increased safety, efficiency, and sustainability of the global air traffic system.

2. DISCUSSION

2.1 The MET/R WG's terms of reference and work plan describe the MET/R WG's establishment, administrative arrangements, reporting mechanism, objective, benefits, functions, delegated authority, membership, communication strategies, deliverables and milestones.

2.2 The terms of reference and work plan were last reviewed by the Twenty-eighth Meeting of the Meteorology Sub-Group (MET SG/28). They included updates to the MET/R WG's membership by China, Fiji, Thailand, and ICAO and updates to the work plan, including adding a new deliverable (No. 9) on SIGMET coordination and removing several completed tasks under the existing deliverables (Nos. 1, 2, 3, 4, 6, 7, and 8).

2.3 The MET/R WG should review and propose updates to its terms of reference and work plan regularly to reaffirm its relevance (under the MET SG and APANPIRG) and ensure it continues to focus

on the ATM system's requirements for MET services to support increased safety, efficiency, and sustainability of the global air traffic system.

2.4 **Appendix A** provides a copy of the MET/R WG's terms of reference and work plan, after the last review by MET SG/28. It includes additional proposed updates for the meeting's consideration.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) review the terms of reference and work plan in **Appendix A**; and
- c) agree on and propose necessary updates for further consideration and possible approval by the MET SG.

APPENDIX A**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 strikethrough (~~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: <ul style="list-style-type: none"> 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]

MET/R WG/14 – WP/05
Appendix A

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:gzlixia@qq.com
CHINA Mr Wen Junpeng	Meteorological Center of Middle South Regional ATMB of CAAC	wenjuncpeng@atmb.net.cn
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: mhhok@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 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
REPUBLIC OF KOREA Mr. Yeonghun Kim	Assistant Director Aviation Meteorological Office (AMO) of Korea Meteorological Administration (KMA) (MET)	Tel : +82 (32) 222 3008 Fax : +82 (32) 740 2807 E-mail: av_pod@korea.kr
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

MET/R WG/14 – WP/05
Appendix A

MEMBERSHIP		
State/Organization Name	Position/organization (field of expertise)	Contact
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

MET/R WG/14 – WP/05
Appendix A

PLAN OF WORK

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

MILESTONES	By date	Responsibility	Status
1. Deliverable 1: 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 results at ATM and Airspace Forums)	MET SG/2829	Ad hoc Group: Rapporteur-Australia, Singapore, New Zealand, China, Japan, Thailand, Hong Kong China, Viet Nam	In progress
1.2. Formulate a proposal for the timing and content of a future survey	MET SG/2829 ATM/SG/	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			
2.1. Further development (of the list of MET information or services necessary to support the implementation of the priority 2 and 3 elements of the Asia/Pacific Seamless ANS Plan) in coordination with ATFM/SG	MET/R WG/14 and ATFM/SG/15	Ad hoc group: Rapporteur-Singapore, Australia, China, Hong Kong China, Japan, Thailand	In progress
3. Deliverable 3: 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/43	MET/R WG/14	MET/R WG members	In progress
3.2. Analyze provided information under 3.1 and other information in the WG meetings/Seminars and consider appropriate actions, such as including it in the Guidance.	MET/R WG/14	Ad hoc group: Rapporteur-Japan, Australia, China, Hong Kong, China, Republic of Korea, Singapore, Thailand, Vietnam and IATA	To begin
3.3. Consider including China's implementation example (MET/R WG/13 – IP02) and finalize and submit the proposed updates to the Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations to MET SG – as agreed in Decision MET/R WG/13-02		Ad hoc Group (as above)	Completed 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	In progress 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	In progress 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

MET/R WG/14 – WP/05
Appendix A

MILESTONES	By date	Responsibility	Status
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/2729	Ad-hoc group: Rapporteur-Secretariat, Australia, Hong Kong China, IATA, Japan, Singapore, Thailand	To begin Pending outcomes of ICAO's development on the eANP system
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
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/2829	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/2829	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
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	Ad hoc group on SIGMET Coordination:	In progress
9.2. Identify common SIGMET coordination practices from the document of cases of SIGMET Coordination practices and seek further inputs from States' current practice. The following points to consider: <ul style="list-style-type: none"> 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) 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. 	MET/R WG/14	Joint Rapporteurs: <ul style="list-style-type: none"> Hong Kong China (Christy Leung) Japan (Michiko Ikeda) Singapore (Goh Wee Poh) Other members: <ul style="list-style-type: none"> 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 Syahirah Nik Adnan, Chai Mui Fatt) Thailand (Rassmee Damrongkietwattana) Vietnam (Le Quang Hung, Vu Thi Thanh Tam) 	In progress
9.3. Propose the SIGMET coordination guidance in the Regional SIGMET Guide following findings from 9.2 The following points to consider: <ul style="list-style-type: none"> 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		In progress

MET/R WG/14 – WP/05
Appendix A

*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 Bronsvort	Airservices Australia	ATFM
Australia	Ashwin Naidu	BOM	MET
CANSO	Stuart Ratcliffe	CANSO	ATFM
Hong Kong China	Marco Kok (Rapporteur)	HKO	MET/SWIM
Hong Kong China	John Chong	HKO	MET
Hong Kong China	Anfernee Poon	Acting Senior Operations Officer (Strategic Planning) / HKCAD	ATFM
IATA	John Moore	IATA	ATFM/MET
Japan	YONE Toshihiro	JCAB	ATFM
Japan	IKEDA Michiko	JMA	MET
Pakistan	Fazal Ur Rehman	PCAA	ATFM
Pakistan	Syed Ali Baqadar Shah	PCAA	MET
Republic of Korea	Dong-won, LEE	Assistant of Director / KMA	MET
Republic of Korea	Jiwon, LEE	Assistant of Director / KMA	MET
Singapore	Zhang HuanBin	Head, ATM development/CAAS	ATFM
Singapore	Jack Toh	Head (ATM Info System)	ATFM
Singapore	Yeo Cheng Xun	MSS	MET
Thailand	Amornrat Jirattigalachote (Amo)	Strategic Planning Manager /AEROTHAI	ATFM/SWIM
Thailand	Dudsadee Sungthong	Strategic ATFM Team/AEROTHAI	ATFM
Vietnam	Mr. Nguyen Van Dung	VATM	MET/ATFM
