



ICAO

*International Civil Aviation Organization***WORKING PAPER****Asia and Pacific (APAC)
Twelfth Meeting of the Meteorological Requirements
Working Group (MET/R WG/12)**

Bangkok, Thailand 02 to 05 May 2023

Agenda Item 5: Future work program and terms of reference**REVIEW MET/R WG WORK PROGRAM AND TERMS OF REFERENCE**

(Presented by the Secretariat)

SUMMARY

This paper presents the terms of reference and work program of the Meteorological Requirements Working Group (MET/R WG) and invites the meeting to review and propose updates as necessary for possible approval by the Meteorology Subgroup (MET SG).

1. INTRODUCTION

1.1 The MET/R WG supports the MET SG (and APANPIRG) to improve safety, efficiency and sustainability of air traffic management (ATM) operations by providing meteorological (MET) information needed to meet current and future requirements of the ATM system.

1.2 This paper invites the meeting to review the terms of reference and work program of the group and to propose updates as necessary to ensure the MET/R WG continues to meet its objectives to support increased safety, efficiency, capacity and sustainability of the global air traffic system.

2. DISCUSSION

2.1 A copy of the MET/R WG terms of reference and work plan document, last reviewed by the Twenty-sixth Meeting of the Meteorology Sub-Group (MET SG/26), is provided in **Appendix A** of this paper.

3. ACTION BY THE MEETING

3.1 This paper invites the meeting to review the terms of reference and work program of the MET/R WG in **Appendix A** of this paper and propose further updates, as necessary, based on the agreements reached by the meeting for further review and possible approval by 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.

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

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
CHINA Mr. Hanqingyuan	Deputy Director, Met Division of ATMB, CAAC (MET)	Tel: +86(10)87786529 E-mail: hanqingyuan@atmb.net.cn
CHINA Ms. Huomiao	Engineer MET Center of North China, Air Traffic Management Bureau. CAAC (MET)	E-mail: huomiao0826@163.com
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
HONG KONG, CHINA Mr. Marco Mang-hin KOK	Acting Senior Scientific Officer Hong Kong Observatory (MET)	Tel: +852 2926 8441 Mobile: +852 6226 7907 Fax: +852 2375 2645 E-mail: mhkok@hko.gov.hk
HONG KONG, CHINA Ms. Christy Leung Yan Yu	Scientific Officer Hong Kong Observatory (MET)	Tel: +852 2926 5013 Fax: +852 2375 2645 E-mail: yyleung@hko.gov.hk
JAPAN HAYAMI, Erika (Ms)	Senior Coordinator for International Aeronautical Meteorology Planning Division, Administration Department, Japan Meteorological Agency (JMA)	E-mail: e-hayami@met.kishou.go.jp
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 Ms. ITOU Miho	Special assistant to the Director Air Traffic Control Division, Japan Civil Aviation Bureau (ATM)	tel: +81-3-5253-8749 E-mail: itou-m46be@mlit.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	Executive Meteorologist Meteorological Services Singapore Singapore Changi Airport P.O. Box 8, Singapore 918141 (MET)	E-mail: YEO_Cheng_Xun@nea.gov.sg
THAILAND Mr. Nuttawut Dandee	Director of Aeronautical Meteorology Division Aeronautical Meteorology Division Thailand Meteorological Department (MET)	Tel: +66 (2) 134 0011 Ext. 216 Fax: +66 (2) 213 4009 –10 E-mail: wut.tmd@gmail.com
THAILAND Mr. Somchai Yimsricharoenkit	Chief of Aeronautical Meteorology Division The Civil Aviation Authority of Thailand (MET/regulator)	Tel: +66 (0) 2568 8825 Fax: +66 (0) 25688847 E-mail: somchai.y@caat.or.th

MEMBERSHIP		
State/Organization Name	Position/organization (field of expertise)	Contact
THAILAND Ms. Sujin Promduang	Director of Aeronautical Information and Flight Data Management Center Aeronautical Radio of Thailand Ltd. (AIS)	Tel: +66 (2) 2859083 Fax: +66 (2) 287 8538 E-mail: sujin.pr@aerothai.co.th
UNITED STATES Mr. Michael WATKINS	FAA Senior Asia/Pacific Air Traffic Representative Singapore (MET/ATM)	Tel: +65 6476 9462 E-mail: michael.w.watkins@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 Mr. Shane SUMNER (Secretariat)	Regional Officer ATM International Civil Aviation Organization (ICAO) Asia and Pacific Office (ATM)	Tel: +66 (2) 537 8189 x159 Fax: +66 (2) 537 8199 E-mail: ssumner@icao.int
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 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

DELIVERABLES
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

MILESTONES	By date	Responsibility	Status
1. Deliverable 1: Analysis of MET information used in the Region specifically to support ATM operations			
1.1. Final draft documented analysis of MET information used in the Region specifically to support ATM operations	MET/R WG/12	Ad hoc Group 2	To begin
1.2. Identify follow-up actions (including presenting the results at ATM and Airspace Forums)	MET/R WG/12	Ad hoc Group 2	To begin
2. Deliverable 2: Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ANS Plan			
2.1. Further development (of the list of MET information or services necessary to support the implementation of each element of the Asia/Pacific Seamless ANS Plan) pending outcomes of the ICAO A40 review of GANP 2019	TBD	TBD	On hold
3. Deliverable 3: Draft regional guidance material for tailored MET information supporting ATM operations			
3.1. Finalize and submit to MET SG/26 the proposed updates to the Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations – as agreed in Decision MET/R WG/11/01, part a), and Draft Decision MET/R WG/11/02,	MET SG/26	Ad hoc group	In-progress Completed
3.2. Provide the Secretariat examples on State's post operational analysis and suggestions regarding the amendment to the Guidance document to enhance the post-operational analysis framework – as agreed in Decision MET/R WG/11/01, part b)	30 November 2022	MET/R WG members	To-begin Completed
3.3. Enhance the contents relevant to post-operational analysis in the main body of the Guidance based on the information provided by the MET/R WG members	MET/R WG/12	Ad hoc group	To begin
4. Deliverable 4: Strengthen collaboration and relationship between MET, ATM and Airspace Users			
4.1. Report to ATFM/SG (and ATM SG) (including the following topics: MET/ATM webinar 2022 outcomes, MET/ATM survey results, updates on the regional MET/ATM guidance document, education on the SWX advisory service, guidance on exchanging special air-reports, etc)	ATFM/SG/12	Chair and Secretariat	To-begin Completed
4.2. Plan for a future seminar on regional implementation of MET information to support ATM operations	MET SG/26	Chair and Secretariat in coordination with ATM/SG	To-begin Completed
5. 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			
5.1. Support MET SG with the development of MET-specific requirements in the ANP, Volume III	As required	MET/R WG	To begin
6. Deliverable 6: Development of APAC Use Case and User Requirements for SWIM-based MET Information Services Supporting ATFM			
6.1. In coordination with other related sub-groups, working groups, etc., identify: i) SWIM-based MET information affecting ATFM operations; ii) how often these products be provided and rules for updates to meet the ATFM needs; and (iii) identify any other information required by ATFM and gaps to meet the needs of ATFM users	MET/R WG/12	Ad-hoc group 8 (see below)	In progress

MILESTONES	By date	Responsibility	Status
6.2. Identify MET and ATFM data to be exchanged using SWIM-based Information Exchange Service	MET/R WG/12	Ad-hoc group 8 (see below)	In progress
6.3. Based on the findings (above), develop APAC use cases and a user requirements document for future SWIM-based MET information services supporting ATFM	MET/R WG/12	Ad-hoc group 8 (see below)	In progress
7. Promote and assist ATM 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/26 MET SG/27	Secretariat and MET/R WG members	To begin
7.2. Seek input from end users on the content of a SWX advisory exercise	MET SG/26 MET SG/27	Secretariat and MET/R WG members	To begin
8. Meteorological Information for the Asia Pacific Regional Framework for Collaborative ATFM			
8.1. Review Meteorological Information for ATFM (paragraphs 5.59-5.67) in the Regional Framework Document for Collaborative ATFM and provide inputs of the latest examples to the ICAO Secretariat and the task coordinators [Ref: Decision MET/R WG/11/05]	17 June 2022	MET/R WG members	To begin Completed

Ad-hoc group 8			
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	Anfernee Poon	Acting Senior Operations Officer (Strategic Planning) / HKCAD	ATFM
IATA	John Moore	IATA	ATFM/MET
Japan	ITOU Miho	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	Aw Ying Kit	Senior Engineer, ATM Systems /CAAS	ATFM
Singapore	Yeo Cheng Xun	MSS	MET
Thailand	Amornrat Jirattigalachote (Amo)	Strategic Planning Manager /AEROTHAI	ATFM/SWIM
Thailand	Dudsadee Sunthong	Strategic ATFM Team/AEROTHAI	ATFM
Vietnam	Mr. Nguyen Van Dung	VATM	MET/ATFM
