

International Civil Aviation Organization

FIFTH MEETING OF THE ASIA/PACIFIC METEOROLOGICAL REQUIREMENTS WORKING GROUP (MET/R WG/5)

Bangkok, Thailand, 19 – 21 April 2016

Agenda Item 6: Future work programme

REVIEW TERMS OF REFERENCE AND WORK PROGRAMME

(Presented by the Secretariat)

SUMMARY

This paper presents the terms of reference and work programme of the Meteorological Requirements Working Group (MET/R WG) for review by the meeting.

1. INTRODUCTION

1.1. The main objectives of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) may be summarised as the following: (a) development of the Asia/Pacific Regional Air Navigation Plan and other relevant regional documentation; (b) facilitation of the implementation of air navigation systems and services in the Asia/Pacific Region; and (c) rectification of deficiencies in the air navigation field.

1.2. The Meteorological Requirements Working Group (MET/R WG), formerly known as the Meteorological Requirements Task Force (MET/R TF), was established by the Meteorology Subgroup (MET SG) *[MET SG/19 Decision 19/2 — Expert working groups of the Meteorology Subgroup, refers]* of APANPIRG as a contributory body which assists APANPIRG in its planning and implementation work specifically related to problems requiring expert advice for their resolution.

1.3. This paper presents the terms of reference and work programme of the MET/R WG for review by the meeting.

2. **DISCUSSION**

MET/R TF

2.1. Prior to the establishment of the MET/R WG, the terms of reference and work programme of the (former) MET/R TF focussed on the objective to improve safety, efficiency and sustainability of ATM and operators by providing MET information needed to meet current and future requirements.

2.2. A copy of the MET/R TF terms of reference and work programme document, which was updated by the MET/R TF/4 meeting held in Tokyo, Japan, from 29 June to 3 July 2015, is provided at the **Attachment A** to this paper.

MET/R WG

2.3. With the establishment of MET/R WG to replace the MET/R TF, the MET SG provided the MET/R WG with terms of reference to assist APANPIRG with its planning and implementation work in close alignment with the Global Air Navigation Plan (GANP) and Aviation System Block Upgrade (ASBU) strategies and the Asia/Pacific regional priorities, and to facilitate coordination, where necessary, with the Meteorology Panel [MET SG/19 Decision 19/2 — Expert working groups of the Meteorology Sub-group, refers].

2.4. A copy of the MET/R WG terms of reference document referred to above is provided at the **Attachment B** to this paper.

2.5. When establishing the MET/R WG, MET SG/19 considered that the tasks (previously) assigned to the MET/R TF and the existing membership would be transferred to the MET/R WG.

2.6. In view of the above, a draft, new terms of reference and work programme document for the MET/R WG, with terms of reference further consolidated to reflect the project management principles adopted for the contributory bodies of APANPIRG (Decision APANPIRG/26/65 — *Revised APANPIRG Structure, Terms of Reference and APANPIRG Sub Group Empowerment*, refers), is provided at the **Attachment C** to this paper for review by the meeting.

3. ACTION REQUIRED BY THE MEETING

3.1. The meeting is invited to:

- a) Note the information contained in this paper;
- b) Review and revise the draft MET/R WG terms of reference and work programme document at **Attachment C** to this paper, as necessary; and
- c) Forward the draft, new MET/IER WG terms of reference and work programme document to the MET SG for further review and possible adoption.

WORK PROGRAMME OF THE METEOROLOGICAL REQUIREMENTS TASK FORCE Extracted from the Report of MET/R TF/4

1. TASK TEAM				
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ATTACHMENT A

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2. DESCRIPT	TION					
Objective	Improve safety, efficiency and sustainability of ATM and operators by providing MET information needed to meet current and future requirements.					
Benefits	Increase efficiency – save time and fuel as well as reduce carbon emissions					
Terms of Reference	Under guidance from ICAO Secretariat:					
	 a) Obtain and evaluate the current and future requirements for MET (including space weather) in support of ATM (includes ATFM), as well as ATM in support of MET, in the ASIA/PAC Region and update Regional Air Navigation Plan accordingly and provide guidance material to assist States to develop MET services to meet these requirements; 					
	 Assess aeronautical meteorological services, systems and architecture in the region and how they can integrate weather information into ATM, airspace user systems and decision support tools; 					
	c) Investigate sub-regional exchange of MET information (including digital) and associated agreements that facilitate ATM operations particularly over busy routes that overlap different FIRs;					
	d) Promote coordination between MET and ATM communities in the ASIA/PAC Region to enhance the level of understanding of MET requirements and capabilities in support of ATM;					
	e) To study the successful involvement of MET in the development of CDM/ATFM in other regions with a view to future application in ASIA/PAC;					
	f) Monitor regional implementation of global policies associated with source data and delivery of MET information for ATM;					
	g) Coordinate with MET/H TF on framework for Provide support to other appropriate bodies under the MET Sub-Group and ATM Sub-Group on the development of ATM contingency plan for specific phenomenon including volcanic ash, radioactive cloud, tropical cyclone and tsunami with reference to developments made by the global ICAO groups and WMO developments;					
	 h) Coordinate with the ATFM/SG to Provide expertise on MET services and information to assist appropriate bodies under the ATM Sub-Group in the establishment of sub-regional ATFM and to identify what kind of MET services/information can be considered as the most important for it; 					
	i) Enhance regional implementation of MET services in support of ATM in line with the priorities defined in the ASIA/PAC Seamless ATM Plan, closely referring to the Global Air Navigation Plan (GANP) and the Aviation System Block Upgrades (ASBUs); and					
	j) Report to the MET Sub-group of APANPIRG for further co-ordination through the ICAO Secretariat with other relevant bodies (ATM/SG, APSAPG, CNS/SG).					

3. COMMUNICATION STRATEGIES					
Description	Target Audience	Delivery Method	Frequency / Date	Responsibility	
Work Plan	Task Force Members	Document via email	As required but reviewed at least quarterly	Chair	
General correspondence	Task Force Members	Email	As required	Task Force Members	
Task Force Meeting	Task Team Members	Meeting	As required, supplemented by teleconference	Chair	
Status & Milestone Reports	ICAO Secretariat and Task Team Members	Report via email	At least half-yearly	Chair	
Task Force Report	MET SG	Working Paper	Yearly	Chair	

4. PERFORMANCE FRAMEWORK FORM (PFF)				
Tasks	Time Frame	Responsibility	Status	Milestone
Task 1: Conduct MET/R TF meeting-to obtain regional MET requirements to support ATM	2016 (Mar)	Chair, secretariat	To commence	1
Task 2: Conduct survey on regional ATM requirements for MET information	2016 (Mar)	Chair, secretariat, Ad hoc group	to commence	1
Task 3: Conduct MET/ATM seminar in coordination with WMO to promote regional implementation of MET to support ATM	2016 or 2017	Chair, secretariat	To commence	1
Task 4: Assess aviation meteorological services, systems and architecture in the region and how they can integrate weather information into ATS/aircraft operator decision support tools	201 <mark>5</mark> -2016	MET/R TF ATFM/SG	In progress	2
Task 5: Investigate sub-regional exchange of MET information and associated agreements that facilitate ATM operations particularly over busy routes that overlap different FIRs	201 <mark>5</mark> -2016	MET/R TF ATFM/SG	In progress	3
Task 6: Facilitate implementation of MET services to support ATM in the terminal area in accordance with current and evolving ICAO and WMO standards, procedures and policies	201 <mark>5</mark> -2016	MET/R TF	In progress	4
Task 7: Monitor regional implementation of global policies associated with source data and delivery of MET information for ATM	201 <mark>5</mark> -2016	MET/R TF	Future	5

5. MILESTONES			
Milestone	Accountability	Dates	Status
Milestone 1: Determine regional MET requirements for ATM	MET/R TF	2016	To begin
Milestone 2: Develop guidance material on how to provide/use weather information in support of ATM decision making tools	MET/R TF	2016	To begin
Milestone 3: Implement sub-regional exchange of MET information to facilitate ATM operations in busy routes	MET/R TF	TBD	To begin

Milestone 4: Develop regional implementation plan for the Meteorological Services for the Terminal Area	MET/R TF	TBD	future
Milestone 5: Implement global policies associated with source data and delivery of MET products for ATM	MET/R TF	TBD	To begin

6. WORK PLAN				
Activity / Milestone	Accountability	Predecessors	Date	Status
Activity 1: Develop regional MET requirements	for ATM	•		
Activity 1.1: Conduct MET/R TF meetings and MET/ATM seminars to contribute in developing MET requirements for ATM	MET/R TF	-	Nov 13- completed (at least every 18 months)	In progress
Activity 1.2: Analyse existing surveys (e.g. ATFM survey) and develop new surveys, when necessary, to determine regional ATM requirements for MET	MET/R TF	-	201 <mark>6</mark>	To commence
Activity 1.4: Recommend regional MET requirements for ATM to MET SG-and AMOFSG (through direct membership) meetings	MET/R TF	-	Annual (AMOFSG 	To begin
Milestone 1: Determine regional MET requirements for ATM				
Activity 2: Developing methods to use weather in	nformation in decis	ion support tools	-	•
Activity 2.1: Develop a list to guide States on the MET information or services necessary to support implementation of each element of the APAC Seamless ATM Plan, and report to the next meeting of the MET/R TF. Note: this should include requirements for aircraft reporting	Ad hoc group (Australia, China, Hong Kong, China, and Japan)	-	201 <mark>6</mark>	To begin
Activity 2.2:		-		
Activity 2.3:		-		
Milestone 2: Develop guidance material on how to provide/use weather information in support of ATM decision making tools				
Activity 3: Developing sub-regional exchange of	MET information	to facilitate ATM	operations	
Activity 3.1: develop a proposal in close collaboration with other appropriate bodies and assisted by the Secretariat, for capacity building activities in the APAC region to foster the implementation of digital MET information exchange, and report to MET SG	Ad hoc group (Australia, Hong Kong, China, New Zealand and Singapore) ROBEX WG	-	July 2015	In progress
Activity 3.2: States develop agreements on the exchange of MET information that provides benefits to ATM operations on sub-regional level	States ATFM/SG	-		To begin In progress
Activity 3.3: States report developments to MET/R TF and MET SG meetings	States/ MET/R TF	3.2		To begin

Milestone 3: Implement sub-regional exchange of MET information to facilitate ATM operations in busy routes				To begin
Activity 4: Developing regional implementation	plan for Meteorol	ogical Services for	the Terminal	Area
Activity 4.1: Monitor developments of Meteorological Services for the Terminal Area	MET/R TF	-	Annual	In progress
Activity 4.2: Monitor Annex 3relevant ICAO provisions developments	MET/R TF	4.1		future
Activity 4.3: Develop regional implementation plan for Meteorological Services for the Terminal Area	MET/R TF	4.2		future
Activity 4.4: Monitor regional implementation of Meteorological Services for the Terminal Area	MET/R TF	4.3		future
Activity 4.5: Report implementation progress to MET SG	MET/R TF	4.4		future
Milestone 4: Develop regional implementation plan for the Meteorological Services for the Terminal Area				future
Activity 5: Implementing global policies associat	ed with source da	ta and delivery of	MET product	s for ATM
Activity 5.1: Implement global policies associated with source data and delivery of MET products for ATM	MET/R TF	-		To begin
Activity 5.2: Report results to MET/R TF and MET SG meetings	MET/R TF	5.1		future
Milestone 5: Implement global policies associated with source data and delivery of MET products for ATM				

Terms of Reference of the Meteorological Requirements Working Group (MET/R WG)

Under guidance from ICAO APAC MET Secretariat:

a) Identify and evaluate the current and future requirements for MET in support of ATM (includes ATFM), as well as ATM in support of MET; **[a]**

b) Develop and provide guidance and reference material to assist States to meet MET requirements; **[a]**

c) Assess aeronautical meteorological services, systems and architecture and how they can integrate weather information into ATM, airspace user systems and decision support tools; **[b]**

d) Promote coordination between MET and ATM communities to enhance the level of understanding of MET requirements and capabilities in support of ATM; **[d]**

e) Study the successful involvement of MET in the development of CDM/ATFM in other regions with a view to future application; [b]

f) Monitor regional implementation of global policies, including those associated with source data and delivery of MET information for ATM; **[b]**

g) Provide support to other appropriate bodies under the MET Sub-group and ATM Sub-group on the development of ATM contingency plan for specific phenomenon including volcanic ash, radioactive cloud, tropical cyclone and tsunami; [a]

h) Provide expertise on MET services and information to assist appropriate bodies under the ATM Sub-group in the establishment of sub-regional ATFM and to identify MET service requirements; **[C]**

i) Enhance regional implementation of MET services in line with the priorities defined in the ASIA/PAC Seamless ATM Plan, closely referring to the Global Air Navigation Plan (GANP) and the Aviation System Block Upgrades (ASBUs); **[C]**

j) Monitor the relevant activities of the MET Panel and appropriate bodies; and **[b, d]**

k) Provide advice and report to the MET Sub-group on the above issues for further co-ordination through the ICAO Secretariat with other appropriate bodies. [e]

Note: Corresponding dot points in the terms of reference of the draft work programme document for MET/R WG presented at the **Attachment C** are highlighted in **[yellow]**.

DRAFT WORK PROGRAMME METEOROLOGICAL REQUIREMENTS WORKING GROUP (MET/R WG)

1. TERMS OF R	EFERENCE DESCRIPTION
Name and establishment of 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 in accordance with the working arrangements and instructions provided in the APANPIRG Procedural Handbook.
Reporting mechanism	The MET/R WG shall report its work progress and co-ordination requirements to the MET SG, normally in the form of a report to the MET SG meeting presented by the chairperson of the MET/R WG. Reports may also be provided 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) operations by providing meteorological (MET) information needed to meet current and future requirements of the ATM system.
	<i>Note:</i> Air traffic management (ATM) is defined as 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 <i>[ICAO Doc 4444, PANS ATM]</i> .
Benefits	Increase safety – optimize <mark>safety</mark> risk management in hazardous MET conditions . Increase efficiency – save time and fuel. Increase sustainability – reduce carbon emissions.
Terms of Reference	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) Recommend Prepare updates to the Asia/Pacific Regional Air Navigation Plan and other regional guidance material as necessary, based on analyses and evaluation of the current and future requirements for MET information (including space weather information) in support of ATM (including air traffic flow management (ATFM)), as well as ATM information required to support the provision of MET services;
	 b) Facilitate the exchange of expertise in the Asia/Pacific Region on the integration of MET information into ATM, ATFM and airspace-user systems to support collaborative decision making (CDM) and the associated decision support tools;
	 c) Facilitate the monitoring and implementation of 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, particularly where major traffic flows affect multiple flight information regions (FIRs);
	 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
	e) Report to the MET SG for further co-ordination through the ICAO Secretariat with APANPIRG and other relevant bodies.

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COMMUNICATION STRATEGIES					
Description	Target Audience	Delivery Method	Frequency / Date	Responsibility	
Work Plan	MET/R WG, MET SG	Document via email and MET/R WG meeting	As required, but reviewed at MET/R WG and MET SG meetings	Chair and Secretariat	
General correspondence	MET/R WG Members	Email	As required	MET/R WG Members	
MET/R WG Meeting	MET/R WG Members	Meeting	As required; may be supplemented by tele- / web- conference	Chair and Secretariat	
Status and Milestone Reports	MET/R WG Members	Email and working paper at MET/R WG meeting	At least annually	Chair and Secretariat	
MET/R WG Report	MET SG and all APAC States	ICAO website and working paper at MET SG meeting	Following each MET/R WG meeting	Chair and Secretariat	

DELIVERABLES						
1.	Input to the draft update to the Regional SIGMET Guide to assist States in aligning cross-FIR-boundary SIGMET information in coordination with MET/S WG					
2.	Documented Analysis of MET information used in the Region specifically to support ATM operations					
3.	3. Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ATM Plan					
4.	Draft regional guidance material for tailored MET information supporting ATM operations					
5. Seminar on regional implementation of MET information to support ATM operations						
MI	LESTONES	By date	Responsibility	Status		
Deliverable 1: Draft update to the Regional SIGMET Guide to assist States in aligning cross-FIR-boundary SIGMET information						
<mark>1.1</mark>	Input to First draft of guidance for inclusion in Regional SIGMET Guide for review by MET/R WG members	<mark>May</mark> 2016	Secretariat in coordination with MET/S WG	In progress		
<mark>1.2</mark>	Input to First draft of guidance for inclusion in	Jun 2016	Secretariat in coordination with			

	I SIGMET Guide for review by MET SG	Juli 2010	MET/S WG, MET SG		
Deliverable 2: Analysis of MET information used in the Region specifically to support ATM operations					
•	on regional requirements for MET information ort ATM operations	Oct/Nov 2015	Secretariat	Completed	

2.2 Preliminary draft documented analysis of MET information used in the Region specifically to support ATM operations	Jun 2016	MET/R WG Secretariat and Chair	In progress		
2.3 Final draft documented analysis of MET information used in the Region specifically to support ATM operations	Next meeting	Ad hoc group: Australia (Rapportuer), Singapore, New Zealand, China, Japan, Thailand, Hong Kong China			
Deliverable 3: Draft regional guidance material on MET information needed to support the elements of the APAC Seamless ATM Plan					
3.1 First draft of a list on the MET information or services necessary to support implementation of each element of the Asia/Pacific Seamless ATM Plan	<mark>Jul</mark> 2016 ATM/SG	Ad hoc group: Australia, China, Hong Kong, China, and Japan, Thailand, Singapore (Rapportuer)	In progress		
Deliverable 4: Draft regional guidance material for tailored MET information supporting ATM operations					
4.1 List of tailored MET information or services used in the region to support ATM operations	<mark>Jun</mark> 2016	Ad hoc group: Australia, China, Hong Kong, China, Japan (Rapporteur), Republic of Korea, Singapore, Thailand and Viet Nam	In progress		
4.2 List of sub-regional exchange of MET information and associated agreements that facilitate ATM operations, particularly where major traffic flows affect multiple FIRs	Jun 2016	As above	In progress		
4.3 First draft of regional guidance material for tailored MET information supporting ATM operations	<mark>Aug</mark> 2016	As above	In progress		
Deliverable 5: Seminar on regional implementation of MET information to support ATM operations					
5.1 Propose date/location for seminar on regional implementation of MET information to support ATM operations for consideration by MET SG	Jun 2016	Chair and Secretariat	In progress		
5.2 Plan for seminar on regional implementation of MET information to support ATM operations	2016 TBA	Chair and Secretariat	In progress		
