

International Civil Aviation Organization

ICAO

**NINTH MEETING OF THE ASIA AND PACIFIC
METEOROLOGICAL REQUIREMENTS WORKING
GROUP (MET/R WG/9)**

Web-conference, 07 May 2020 and 11 – 14 May 2020

Agenda Item 2: Review outcomes from related meetings**REVIEW OUTCOMES FROM MET/R WG/8 AND MET SG/23**

(Presented by the Secretariat)

SUMMARY

This paper reviews relevant outcomes from the Eighth Meeting of the Meteorological Requirements Working Group (MET/R WG/8) and the Twenty-Third Meeting of the Meteorology Sub-Group (MET SG/23). The paper invites the meeting to update its plan of work with respect to the following subject matters: *Regional Guidance for Tailored MET to Support ATM Operations; Regional guidance for the alignment of cross-FIR-boundary SIGMET information; APAC Regional Document for SWIM-based MET Information Services Supporting ATFM; Survey of State Meteorological Information Supporting Air Traffic Management; and the MET/R WG plan of work and terms of reference document.*

1. INTRODUCTION

1.1 This paper reviews relevant outcomes from the Eighth Meeting of the Meteorological Requirements Working Group (MET/R WG/8), Singapore, 30 – 31 May 2019, and the Twenty-Third Meeting of the Meteorology Sub-Group (MET SG/23), Bangkok, Thailand, 17 – 20 June 2019, of the Asia/Pacific (APAC) Air Navigation Planning and Implementation Regional Group (APANPIRG).

1.2 MET/R WG/8 formulated one Draft Conclusion (for further consideration by MET SG) and adopted three Decisions (relating to the work of the MET/R WG). For ease of reference, these are reproduced in the **Appendix A** to this paper.

1.3 MET/R WG/8 also reflected relevant outcomes of its discussions in the updated MET/R WG plan of work. For ease of reference, this is reproduced in the **Appendix B** to this paper.

1.4 MET SG/23 formulated two Draft Conclusions and one Draft Decision (for further consideration by APANPIRG) and adopted three Conclusions and two Decisions (relating to the work of the MET SG). Two of the MET SG/23 Conclusions and one Decision are of direct relevance to the business of MET/R WG/9. For ease of reference, these are reproduced in the **Appendix C** to this paper.

1.5 In addition, MET SG/23 generated twenty-four tasks for action by members of the MET SG and its working groups and/or the Secretariat. Five of the MET SG/23 tasks are of direct relevance to the business of MET/R WG/9. For ease of reference, these are reproduced in the **Appendix D** to this paper.

Agenda Item 2

11-14/05/20

1.6 The respective Chairs of all the ICAO APAC MET-groups conducted an informal web-meeting on 26 September 2019 to discuss follow-up action on the outcomes from MET SG/23 (i.e., MET SG/23 task: 23/2 and 23/3). A summary of the discussion is provided in the **Appendix E** to this paper.

1.7 This paper discusses progress on the follow-up action to the MET/R WG/8 and MET SG/23 outcomes, arranged by subject matter, and invites the meeting to agree on appropriate updates to the MET/R WG plan of work. For ease of reference, these are highlighted in the **Appendix F** to this paper.

2. DISCUSSIONRegional Guidance for Tailored MET to Support ATM Operations

2.1 Decision MET/R WG/8/1 – *Update on Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations*, required members of MET/R WG to review the working-draft guidance document and the designated ad-hoc group to present the finalized guidance to MET SG/23 and to inform the Air Traffic Management Sub-Group (ATM/SG), as reflected by MET/R WG/8 in deliverable 4 (4.4 and 4.5) of the plan of work.

2.2 Follow-up action on Decision MET/R WG/8/1, and deliverable 4 (4.4 and 4.5) of the plan of work, was completed with MET SG/23: WP/24 – *Updates on APAC Regional Guidance for Tailored MET Information and Services to Support ATM Operation*, and ATM/SG/7: WP/35 – *Meteorology Issues Relevant to ATM*.

2.3 Conclusion MET SG/23/6 – *Endorsement of updates to Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations*, endorsed the updated guidance presented in MET SG/23: WP/24, as a reference for [use by] States and Organizations concerned. The guidance is now available at the ICAO APAC website: www.icao.int/apac > APAC eDocuments > MET > *Regional guidance for tailored MET to support ATM*.

2.4 In addition, MET SG/23 task: 23/14, tasked the Secretariat to conduct an ATM-focussed review of the above guidance document. As follow-up to MET SG/23 task: 23/14, the Secretariat presented ATM/SG/7: WP/35 – *Meteorology Issues Relevant to ATM*, which informed the ATM/SG of the availability of the guidance document and invited the ATM/SG to consider how States and Organizations concerned would reference it in order to facilitate implementation of the APAC Seamless ATM Plan.

2.5 Proposed updates to the MET/R WG plan of work, based on the discussion above, are highlighted in the **Appendix F** to this paper (under Deliverable 4).

2.6 **MET/R WG/9: WP/06** – *Updates of Asia/Pacific Regional Guidance for Tailored Meteorological Information and Services to Support Air Traffic Management Operations*, provides the meeting with further discussion and proposals related the above guidance document.

Regional guidance for the alignment of cross-FIR-boundary SIGMET information

2.7 Decision MET/R WG/8/2 – *Regional guidance for the alignment of cross-FIR-boundary SIGMET information*, required members of MET/R WG to review the working-draft guidance and the designated ad-hoc group to present the finalized guidance to MET SG/23, for possible inclusion in the APAC Regional SIGMET Guide, as reflected by MET/R WG/8 in deliverable 1 (1.3) of the plan of work.

2.8 Follow-up action on Decision MET/R WG/8/2, and deliverable 1 (1.3) of the plan of work, was completed with MET SG/23: WP/23 – *Regional Guidance for the Alignment of Cross-FIR-Boundary SIGMET Information*.

2.9 Conclusion MET SG/23/5 – *Endorsement of APAC Regional guidance for the alignment of cross-FIR-boundary SIGMET information*, endorsed the guidance presented in MET SG/23: WP/23, as a reference for [use by] States and Organizations concerned.

2.10 In addition, MET SG/23 task: 23/12, tasked the Meteorological Services Working Group (MET/S WG) to incorporate the *Guidelines for Operational SIGMET Coordination* into the SIGMET Guide. MET SG/23 task: 23/12, also tasked the MET/S WG (rather than the MET/R WG) to keep the guidance under review and propose updates as necessary. This makes redundant deliverable 1 (1.4) of the MET/R WG plan of work. The guidance is now available (as Appendix K to the Regional SIGMET Guide) at the ICAO APAC website: www.icao.int/apac > APAC eDocuments > MET > *Asia/Pacific Regional SIGMET Guide*.

2.11 Proposed updates to the MET/R WG plan of work, based on the discussion above, are highlighted in the **Appendix F** to this paper (under Deliverable 1).

APAC Regional Document for SWIM-based MET Information Services Supporting ATFM

2.12 Draft Conclusion MET/R WG/8/3 – *APAC Regional Document for SWIM-based MET Information Services Supporting ATFM*, proposed that the MET/R WG establish an ad-hoc group to develop Regional reference material, in conjunction with relevant global documents, for SWIM-based MET Information Services Supporting Air Traffic Flow Management (ATFM).

2.13 The initial follow-up action on Draft Conclusion MET/R WG/8/3, was completed with the proposal put forward in MET SG/23: WP/25 – *Proposed Regional Document for SWIM-based MET Information Services Supporting ATFM in the APAC Region*.

2.14 Decision MET SG/23/7 – *Development of APAC User Requirements for SWIM-based MET Information Services Supporting ATFM*, considered that the proposal presented in MET SG/23: WP/25 needed more mature terms of reference in order to proceed and, therefore, decided that the MET/R WG, in conjunction with the Air Traffic Flow Management Steering Group (ATFM SG), should establish a dedicated ad-hoc group to develop user cases and user requirements for future SWIM-based MET information services supporting ATFM.

2.15 **MET/R WG/9: WP/04** – *APAC User Requirements for SWIM-based MET Information Services Supporting ATFM*, provides the meeting with further discussion and proposals related the above matter, which the meeting should consider when formulating appropriate action in response to Decision MET SG/23/7.

2.16 Proposed updates to the MET/R WG plan of work, based on the discussion above, are highlighted in the **Appendix F** to this paper (under Deliverable 8).

Survey of State Meteorological Information Supporting Air Traffic Management

2.17 Decision MET/R WG/8/4 – *Survey of State Meteorological Information Supporting Air Traffic Management*, required members of MET/R WG to review the draft survey questionnaire and the designated ad-hoc group to present the finalized survey questionnaire to MET SG/23, as reflected by MET/R WG/8 in deliverable 2 (2.4 and 2.5) of the plan of work, and, if approved, inform ATM SG/7 and circulate the survey questionnaire for States to respond in October/November 2019.

Agenda Item 2

11-14/05/20

2.18 Follow-up action was partially completed on Decision MET/R WG/8/4, and completed on deliverable 2 (2.4 and 2.5) of the plan of work, with MET SG/23: WP/12 – *Proposed Survey of State Meteorological Information Supporting Air Traffic Management*. However, follow-up action on Decision MET/R WG/8/4 to circulate the survey questionnaire for States to respond is yet to be completed.

2.19 MET SG/23 considered it was premature to adopt the survey questionnaire presented in MET SG/23: WP/12, and therefore, MET SG/23 task: 23/13, tasked the designated ad-hoc group to continue to develop the survey questionnaire, including more clear terms of reference aligned with the scope of work of the MET/R WG.

2.20 **MET/R WG/9: WP/05** – *Survey of State Meteorological Information Supporting Air Traffic Management*, provides the meeting with further discussion and proposals related the above matter, which the meeting should consider when formulating appropriate action in response to MET SG/23 task: 23/13 and as follow-up to Decision MET/R WG/8/4.

2.21 Proposed updates to the MET/R WG plan of work, based on the discussion above, are highlighted in the **Appendix F** to this paper (under Deliverable 2).

MET/R WG plan of work and terms of reference

2.22 MET SG/23 task: 23/2, tasked the Chairs of MET/S WG and MET/R WG, in conjunction with the Chair of MET SG and Secretariat, to update and coordinate the work plans of MET/S WG and MET/R WG in relation to the next steps to promote integration and expansion of SIGMET coordination activities among States/Administrations.

2.23 Similarly, MET SG/23 task: 23/3, tasked the Chairs of all the ICAO APAC MET-groups, in conjunction with the Secretariat, to update and coordinate the terms of reference and work plans of all the MET WGs to realign with the overall work plan of the MET SG.

2.24 Follow-up action on MET SG/23 task: 23/2 and 23/3 was initiated in an informal web-meeting of the respective Chairs on 26 September 2019 (**Appendix E** refers). The Chairs proposed, inter-alia, that the MET/R WG's tasks related to SIGMET coordination activities, i.e., at deliverable 7 in the MET/R WG plan of work, should focus more on tasks that determine the [end-]users' requirements in relation to the SIGMET coordination activities – whereas implementation of the SIGMET coordination [activities] is considered to be more appropriate under the MET/S WG plan of work (**Appendix E**, 2.4, refers). The Chairs also suggested that all the ICAO APAC MET-groups implement a harmonized format and structure for their terms of reference documents (**Appendix E**, 3.1, refers).

2.25 Proposed updates to the MET/R WG plan of work, based on the discussion above, are highlighted in the **Appendix F** to this paper (under Deliverable 7).

2.26 **MET/R WG/9: WP/09** – *Review and update of the Work Programme*, provides the meeting with further discussion and proposals related the above matters.

3. ACTION BY THE MEETING

3.1 In view of the discussion above, the meeting may agree to update the MET/R WG plan of work as reflected in **Appendix F** to this paper and as follows:

3.1.1 Notwithstanding additional proposals to be presented in MET/R WG/9: WP/06 – *Updates of Asia/Pacific Regional Guidance for Tailored Meteorological Information and Services to Support Air Traffic Management Operations*, which may lead to the agreement on new action, close the deliverables 4.4 and 4.5 and the follow-up action on Decision MET/R WG/8/1 – *Update on Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations*;

3.1.2 Close the deliverables 1.3 and 1.4 and the follow-up action on Decision MET/R WG/8/2 – *Regional guidance for the alignment of cross-FIR-boundary SIGMET information*;

3.1.3 Establish a new deliverable 8 as follow-up to Decision MET SG/23/7 – *Development of APAC User Requirements for SWIM-based MET Information Services Supporting ATFM*, taking into account the proposals to be presented in MET/R WG/9: WP/04 – *APAC User Requirements for SWIM-based MET Information Services Supporting ATFM*;

3.1.4 Close the deliverables 2.4 and 2.5 and revise the follow-up action on Decision MET/R WG/8/4 – *Survey of State Meteorological Information Supporting Air Traffic Management*, taking into account additional proposals to be presented in MET/R WG/9: WP/05 – *Survey of State Meteorological Information Supporting Air Traffic Management*; and

3.1.5 Taking into account the additional proposals to be presented in MET/R WG/9: WP/09 – *Review and update of the Work Programme*, revise the deliverable 7, related to SIGMET coordination activities in APAC Region, to focus more on tasks that determine the [end-]users' requirements in relation to the SIGMET coordination activities.

-Agenda Item 2

11-14/05/20

APPENDIX A

Reproduced from the Report of the Eighth Meeting of the Asia/Pacific Meteorological Requirements Working Group (MET/R WG/8), Singapore, 30 – 31 May 2019

MET/R WG/8 formulated or adopted the following (1) Draft Conclusion* and (3) Decisions*:

Decision MET/R WG/8/1 – Update on Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations

That:

- a) The members of MET/R WG should review the working draft guidance (as attached to MET/R WG/8 – WP/05) and provide comment to the ICAO RO MET no later than 10 June 2019; and
- b) The ad-hoc group, composed of members from Australia, China, Hong Kong China, Japan (rapporteur), New Zealand, Republic of Korea, Singapore, Thailand, Vietnam and IATA, should then finalize the updates to the guidance for presentation to and possible approval by MET SG/23 and inform the ATM/SG.

Decision MET/R WG/8/2 – Regional guidance for the alignment of cross-FIR-boundary SIGMET information

That:

- a) The members of MET/R WG should review the working draft guidance (as attached to MET/R WG/8 – WP/06) and provide comment to the ICAO RO MET no later than 10 June 2019; and
- b) The ad-hoc group, composed of members from Japan and Singapore, should then finalize the updates to the guidance for presentation to and possible approval by MET SG/23 for inclusion in the APAC Regional SIGMET Guide.

Draft Conclusion MET/R WG/8/3 – APAC Regional Document for SWIM-based MET Information Services Supporting ATFM

What: That, the MET/R WG, with support from nominated subject matter experts from relevant APANPIRG subgroups, establish an ad-hoc group to develop Regional reference material, in conjunction with relevant global documents, for SWIM-based MET Information Services Supporting ATFM.

Expected impact: Ops/Technical

Why: To assist States in developing and implementing SWIM-based MET Information Services required to support ATFM in APAC Region.

Follow-up: Required from States

When: 17-Jun-19

Status: Draft to be adopted by Subgroup

Who: Sub group

Decision MET/R WG/8/4 – *Survey of State Meteorological Information Supporting Air Traffic Management*

That:

- a) The members of MET/R WG should review the draft survey questionnaire and provide comment(s) to the ad-hoc group, composed of members from Australia (Rapporteur), China, Japan, Hong Kong China, New Zealand, Singapore, and Thailand, no later than 10 June 2019; and
- b) The ad-hoc group should then finalize the survey questionnaire for review and possible approval by MET SG/23 (in June 2019) and inform ATM SG/7 (in August 2019) and then circulate the survey questionnaire for States to respond in October/November 2019.

***NOTE:** MET/R WG/8 recorded its outcomes in the form of Draft Conclusions, Draft Decisions and Decisions within the following definitions:

- a) **Draft Conclusions** (formulated for further consideration by MET SG) deal with matters involving economic, environmental or political aspects, or global implications, that, according to APANPIRG terms of reference, require the attention of States, or action by the ICAO, in accordance with established APANPIRG procedures;
- b) **Draft Decisions** (formulated for further consideration by MET SG) deal with matters of concern only to APANPIRG and its contributory bodies; and
- c) **Decisions** (adopted by MET/R WG) relate solely to matters dealing with the internal working arrangements of the Sub-group.

-Agenda Item 2

11-14/05/20

APPENDIX B

Reproduced from the Report of the Eighth Meeting of the Asia/Pacific Meteorological Requirements Working Group (MET/R WG/8), Singapore, 30 – 31 May 2019.

MET/R WG/8 updated the following MET/R WG plan of work:

PLAN OF WORK
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. 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
6. 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
7. SIGMET coordination activities in APAC Region; Coordinate on the next steps to promote integration and expansion of SIGMET coordination activities among States/Administrations.

PLAN OF WORK			
MILESTONES	By date	Responsibility	Status
Deliverable 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			
1.1 Input to First draft of guidance for inclusion in Regional SIGMET Guide for review by MET/R WG members (taking into consideration lessons learnt from the SIGMET coordination projects occurring in the Region)	next meeting of MET/R WG	Ad hoc group 1: Japan, Singapore and Secretariat in coordination with MET/S WG	Completed
1.2 First draft of guidance for inclusion in Regional SIGMET Guide for review by MET SG	MET SG/22	Secretariat in coordination with MET/S WG, MET SG	Completed
1.3 Submit the latest version of the guidance for possible approval by MET SG	MET SG/23	Ad hoc group 1: Japan, Singapore and Secretariat in coordination with MET/S WG	In progress
1.4 Review the guidance and propose updates as necessary for possible approval by MET SG	meeting of MET/R WG	Ad hoc group 1: Japan, Singapore and Secretariat in coordination with MET/S WG	To begin
Deliverable 2: Analysis of MET information used in the Region specifically to support ATM operations			
2.1 Survey on regional requirements for MET information to support 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	Secretariat and Chair	Completed

PLAN OF WORK			
MILESTONES	By date	Responsibility	Status
2.3 Final draft documented analysis of MET information used in the Region specifically to support ATM operations	Next meeting	Ad hoc group 2: Australia (Rapporteur), Singapore, New Zealand, China, Japan, Thailand, Hong Kong China	Completed
2.4 Develop a revised questionnaire and conduct a survey, taking into account outcomes from the review of the survey results by the MET SG and ATM/SG and how this can support the next MET/ATM seminar	By 10 June 2019	Ad hoc group 2	In progress
2.5 Submit draft survey questionnaire to MET SG/23 for approval	By 10 June 2019 for MET SG/23 on 17 June	As above	In progress
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	Jul 2016 ATM/SG	Ad hoc group 3: Australia, China, Hong Kong, China, and Japan, Thailand, Singapore (Rapporteur)	Completed
3.2 Revise the draft list and present to ATM/SG/5	17 July 2017	Ad hoc group 3	Completed
3.3 Further development pending outcomes of ICAO A40 review of GANP 2019	TBD	TBD	On hold
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	Jun 2016	Ad hoc group 4: Australia, China, Hong Kong, China, IATA, Japan (Rapporteur), Republic of Korea, Singapore, Thailand and Viet Nam	Completed
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	Completed
4.3 First draft of regional guidance material for tailored MET information supporting ATM operations	Aug 2016	As above	Completed
4.4 Draft of version 2 produced, based on survey results and outcomes/recommendations provided by MET SG and/or ATM/SG	Jun 2018	As above	In progress
4.5 Submit the regional guidance material for tailored MET information supporting ATM operations for possible approval by MET SG and inform the ATM/SG	By 10 June 2019 for MET SG/23 on 17 June	As above	To begin

Agenda Item 2

11-14/05/20

PLAN OF WORK			
MILESTONES	By date	Responsibility	Status
4.6 Review the regional guidance material for tailored MET information supporting ATM operations and propose updates as necessary for possible approval by MET SG	Next meeting of MET/R WG	As above	To begin
Deliverable 5: Seminar on regional implementation of MET information to support ATM operations			
5.1 Plan for future seminar on regional implementation of MET information to support ATM operations (May 2020) – initial proposal for MET SG/23 to consider	By 10 June 2019 for MET SG/23 on 17 June	Chair and Secretariat (organizing committee)	To begin
Deliverable 6: 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			
6.1 First draft of proposed APAC ANP Volume III improvements (pending outcomes from the ICAO eANP WG development on ANP Vol III common template)	TBD	TBD	On hold
Deliverable 7: SIGMET coordination activities in APAC Region; Coordinate on the next steps to promote integration and expansion of SIGMET coordination activities among States/Administrations.			
7.1 Consolidated progress report on SIGMET coordination activities in the APAC Region and recommendations based on lessons learnt: - new and existing SIGMET coordination activities - WP (MET/R WG) and SP (MET/ATM Seminar) - key lessons learnt/recommendations for regional guidance on SIGMET coordination - identify opportunities for integration and expansion of SIGMET coordination activities	Next meeting of MET/R WG and MET/ATM Seminar	Ad-hoc group (Japan and Singapore, Hong Kong, China, Malaysia, India, Viet Nam, Thailand, Fiji, IFALPA...) coordinated by the Chairperson and Secretary	To begin

APPENDIX C

Reproduced from the Report on the Twenty-Third Meeting of the Asia/Pacific Meteorology Sub-Group (MET SG/23), 17 – 20 June 2019, Bangkok, Thailand.

MET SG/23 adopted the following (2) Conclusions* and (1) Decision*, which are of direct relevance to the business of MET/R WG/9:

Conclusion MET SG/23/5 – Endorsement of <i>APAC Regional guidance for the alignment of cross-FIR-boundary SIGMET information</i>	
What: That, a) MET SG endorses the <i>Guidelines for Operational SIGMET Coordination</i> (at Appendix 4 to the Report on MET SG/23) as a reference for States and Organizations concerned; and b) ICAO makes the Guidelines available (as an Appendix) in the <i>APAC Regional SIGMET Guide</i> .	
Why: To assist States in aligning SIGMET information across FIR boundaries using the lessons learnt from international SIGMET coordination projects.	
Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical	
Follow-up: <input type="checkbox"/> Required from States	
When: As soon as practicable	Status: Adopted by Subgroup
Who: <input checked="" type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: MET/S WG	

Conclusion MET SG/23/6 – Endorsement of updates to <i>Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations</i>	
What: That, a) MET SG endorses the updated <i>Regional Guidance for Meteorological Information Supporting ATM</i> (at Appendix 5 to the Report on MET SG/23) as a reference for States and Organizations concerned; and b) ICAO makes the Guidance available at the APAC Office website and informs the ATM/SG.	
Why: To make available to States the updated guidance material developed by the MET/R WG ad-hoc group (Australia, China, Hong Kong, China, Japan (rapporteur), New Zealand, Republic of Korea, Singapore, Thailand, Vietnam and IATA), which was reviewed and supported by MET/R WG/8.	
Expected impact: Ops/Technical	Status: Adopted by Subgroup
Follow-up: MET SG	Who: ICAO
When: As soon as practicable	
Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical	
Follow-up: <input type="checkbox"/> Required from States	
When: As soon as practicable	Status: Adopted by Subgroup
Who: <input checked="" type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other:	

Decision MET SG/23/7 – Development of <i>APAC User Requirements for SWIM-based MET Information Services Supporting ATFM</i>	
What: That, MET/R WG, in conjunction with the ATFM SG, establish an ad-hoc group to develop user cases and user requirements for future SWIM-based MET information services supporting ATFM.	
Why: To further support a proposal presented by Australia, Hong Kong China and Thailand to develop a regional document for SWIM-based MET information services specifically to support	

Agenda Item 2

11-14/05/20

ATFM in Asia/Pacific Region, taking into account the need to reflect the requirements of the ATFM community in the proposal and the need for more mature terms of reference for the proposal.	
Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical	
Follow-up: <input type="checkbox"/> Required from States	
When: As soon as practicable	Status: Adopted by Subgroup
Who: <input checked="" type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: MET/R WG	

*NOTE: MET SG/23 recorded its outcomes in the form of Draft Conclusions, Draft Decisions, Conclusions and Decisions within the following definitions:

- a) **Draft Conclusions** (formulated for further consideration by APANPIRG) deal with matters involving economic, environmental or political aspects, or global implications, that, according to APANPIRG terms of reference, will not be dealt with by the Sub-group but require the attention of States, or action by the ICAO, in accordance with established APANPIRG procedures;
- b) **Draft Decisions** (formulated for further consideration by APANPIRG) deal with the matters of concern only to APANPIRG and its contributory bodies;
- c) **Conclusions** (adopted by MET SG) deal with matters of a technical nature and of regional applicability that, according to the Sub-group’s terms of reference, require the attention of States, or action by the ICAO, in accordance with established APANPIRG procedures; and
- d) **Decisions** (adopted by MET SG) relate solely to matters dealing with the internal working arrangements of the Sub-group.

APPENDIX D

Reproduced from the Report on the Twenty-Third Meeting of the Asia/Pacific Meteorology Sub-Group (MET SG/23), 17 – 20 June 2019, Bangkok, Thailand.

MET SG/23 generated the following five tasks, which are of direct relevance to the business of MET/R WG/9:

Action No.	Detailed description of actions	Responsibility	Target date
...
23/02	Update the work plan of MET/S WG to coordinate with MET/R WG on the next steps to promote integration and expansion of SIGMET coordination activities among States/Administrations (Ref: Conclusion MET/SG/22/03) [Report, para. 2.9]	Chairs MET/S WG and MET/R WG, in conjunction with Chair MET SG and Secretariat	Before APANPIRG/30
23/03	Conduct a coordinated review and update of the terms of reference and work plans to realign the working groups with the work plan of the MET SG [Report, para. 2.10]	Chairs MET/IE WG, MET/S WG, MET/R WG and MET SG, in conjunction with Secretariat	Before APANPIRG/30
...
23/12	Incorporate the <i>Guidelines for Operational SIGMET Coordination</i> into the SIGMET Guide and to keep it under review and propose updates as necessary [Report, para. 6.9.]	MET/S WG (SIGMET Guide) ad-hoc group	As soon as practicable
23/13	Continue to develop the draft survey questionnaire (on the provision of current and future MET information and services by States specifically to support ATM and, in particular, ATFM operations) based on feedback from MET SG/23, including developing more clear terms of reference and ensuring alignment with the scope of work of the MET/R WG [Report, para. 6.11.-6.13.]	MET/R WG ad-hoc group (rapporteur Australia)	Next MET/R WG meeting
23/14	Conduct an ATM-focussed review on the <i>Asia/Pacific Regional Guidance for Tailored Meteorological Information and Services to Support Air Traffic Management (ATM) Operations</i> [Report, para. 6.14.]	Secretariat	Before ATM/SG/7

Agenda Item 2

11-14/05/20

APPENDIX ESummary of Discussion – Informal Web-Meeting

Subject: Coordinated review/update of the terms of reference (ToR) of the ICAO Asia/Pacific (APAC) Meteorology Sub-group (MET SG) and its contributory bodies

Date/Time: 26 Sep 2019, 02 to 04 UTC (approx.)

Participants: Chairpersons: Jun Ryuzaki (MET SG), Tim Hailes (MET/IE WG), Chan Pak Wai (a.k.a. PW) (MET/S WG), Ashwin Naidu (MET/R WG), Zulkarnain (APAC VOLCEX/SG)

Vice-Chairpersons: Sharon Lau (MET SG), Naoko Komatsu (MET/R WG)
ICAO Secretariat: Peter Dunda

Objective: Progress action on MET SG/23 Action No. 23/02 and 23/03 (see *Table 1*, below)

Agenda:

1. Review the ToR and work plans of: MET SG, MET/IE WG, MET/S WG, MET/R WG, VOLCEX/SG.
2. Update the work plan of MET/S WG to coordinate with MET/R WG on the next steps to promote integration and expansion of SIGMET coordination activities among States/Administrations.
3. Update of the ToR and work plans to realign the working groups with the MET SG.

SUMMARY OF DISCUSSION**1. Meteorological Information Exchange Working Group (MET/IE WG)**

1.1. At part b) of the ToR, specifically include IWXXM and SWIM in relation to digital aeronautical meteorological information exchange.

1.2. In view of the changing scope of global aeronautical meteorological service provision, in particular the transition to IWXXM and SWIM and the introduction of space weather advisory information, ... recommended keeping an eye on the traditional use of the term OPMET (in all groups' ToR).

1.3. At part d) of the ToR, specifically include SWIM in relation to the regional guidance material.

1.4. ... coordinate ... in order to finalize, as soon as possible, the ICAO letter informing States/Administrations of the 2019 APAC Regional SIGMET test.

2. Meteorological Services Working Group (MET/S WG)

2.1. At part a) of the ToR, modify the wording to avoid any implication that, aside from the establishing what is already required in accordance with the existing SARPs, policies, plans and procedures, the group is tasked to determine the users' requirements with respect to new meteorological services (Note: this should belong to MET/R WG).

2.2. In view of the reporting lines set out in the APANPIRG framework ..., add a task to monitor the work of the VOLCEX/SG.

2.3. Review and revise the whole ToR document as necessary (in conjunction with MET/R WG ToR) to ensure MET/S WG is focused more on implementation of MET services and MET/R WG is focused more on determining the requirements for MET services. This includes ASBU, SWIM, MET support to ATM, etc.

2.4. As to the reporting of SIGMET co-ordination activities in the region, extension of the coordination effort and recommendation on lessons learnt (Deliverable 7 under the work plan of MET/R WG), as it refers to the implementation of the SIGMET co-ordination, it is considered to be more appropriate to be included under the work plan of MET/S WG. ... agreed with this suggestion. As to the discussion of extending similar co-ordination to other activities beyond SIGMET in the APAC Region, ... suggested that it remain under MET/R WG.

3. Meteorological Requirements Working Group (MET/R WG)

3.1. To help ensure effective coordination between all the MET SG contributory bodies/groups, ... suggested implementing a harmonized format and structure for the ToR of all the groups.

3.2. In relation to MET SG/23, Action no. 23/13 (*Continue to develop the draft survey questionnaire (on the provision of current and future MET information and services by States specifically to support ATM and, in particular, ATFM operations) based on feedback from MET SG/23, including developing more clear terms of reference and ensuring alignment with the scope of work of the MET/R WG*), ... pointed out that this task is already captured in the MET/R WG ToR (Deliverable 2: *Analysis of MET information used in the Region specifically to support ATM operations*). [Addendum: In Action no. 23/13, MET SG requests MET/R WG to develop clear terms of reference for conducting the survey, to ensure the work is aligned with the agreed scope of work of the MET/R WG].

3.3. Coordinate with MET/S WG to clarify the task/s related to SIGMET coordination activities in the APAC Region, e.g., MET/R WG should focus more on tasks that determine the users' requirements in relation to the SIGMET coordination activities.

4. Volcanic Ash Exercises Steering Group (APAC VOLCEX/SG)

4.1. Conducted volcanic ash exercise APAC VOLCEX 19/02 in Philippines in September 2019 and will conduct APAC VOLCEX 20/01 in Republic of Korea in February 2020.

4.2. Will incorporate additional task/s in ToR related to lessons learnt from real volcanic ash events.

5. Follow-up actions

5.1 When enquired about the time schedule of taking the follow-up actions as described in sections 1 to 4 above, ... indicated that the progress of the matter would be reported at the upcoming APANPIRG meeting by the Secretariat and the proposed changes to the ToR and work plan would be discussed in another web meeting before discussion in the upcoming respective WG meetings.

Agenda Item 2

11-14/05/20

APPENDIX F

Proposed updates to the MET/R WG plan of work:

PLAN OF WORK
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. 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
6. 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
7. SIGMET coordination activities in APAC Region; Coordinate on the next steps to promote integration and expansion of SIGMET coordination activities among States/Administrations.
8. [New] Development of APAC User Requirements for SWIM-based MET Information Services Supporting ATFM

PLAN OF WORK			
MILESTONES	By date	Responsibility	Status
Deliverable 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			
1.1 Input to First draft of guidance for inclusion in Regional SIGMET Guide for review by MET/R WG members (taking into consideration lessons learnt from the SIGMET coordination projects occurring in the Region)	next meeting of MET/R WG	Ad hoc group 1: Japan, Singapore and Secretariat in coordination with MET/S WG	Completed
1.2 First draft of guidance for inclusion in Regional SIGMET Guide for review by MET SG	MET SG/22	Secretariat in coordination with MET/S WG, MET SG	Completed
1.3 Submit the latest version of the guidance for possible approval by MET SG	MET SG/23	Ad hoc group 1: Japan, Singapore and Secretariat in coordination with MET/S WG	In progress Completed
1.4 Review the guidance and propose updates as necessary for possible approval by MET SG [MET SG/23 task: 23/12, tasked the MET/S WG (rather than the MET/R WG) to keep the guidance under review and propose updates as necessary]	meeting of MET/R WG	Ad hoc group 1: Japan, Singapore and Secretariat in coordination with MET/S WG	To begin Redundant
Deliverable 2: Analysis of MET information used in the Region specifically to support ATM operations			
2.1 Survey on regional requirements for MET information to support 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	Secretariat and Chair	Completed

PLAN OF WORK			
MILESTONES	By date	Responsibility	Status
2.3 Final draft documented analysis of MET information used in the Region specifically to support ATM operations	Next meeting	Ad hoc group 2: Australia (Rapporteur), Singapore, New Zealand, China, Japan, Thailand, Hong Kong China	Completed
2.4 Develop a revised questionnaire and conduct a survey, taking into account outcomes from the review of the survey results by the MET SG and ATM/SG and how this can support the next MET/ATM seminar	By 10 June 2019	Ad hoc group 2	In progress Completed
2.5 Submit draft survey questionnaire to MET SG/23 for approval	By 10 June 2019 for MET SG/23 on 17 June	As above	In progress Completed
[2.6 Revise the follow-up action on Decision MET/R WG/8/4 – <i>Survey of State Meteorological Information Supporting Air Traffic Management</i> , taking into account additional proposals to be presented in MET/R WG/9: WP/05 – <i>Survey of State Meteorological Information Supporting Air Traffic Management</i>]			
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	Jul 2016 ATM/SG	Ad hoc group 3: Australia, China, Hong Kong, China, and Japan, Thailand, Singapore (Rapporteur)	Completed
3.2 Revise the draft list and present to ATM/SG/5	17 July 2017	Ad hoc group 3	Completed
3.3 Further development pending outcomes of ICAO A40 review of GANP 2019	TBD	TBD	On hold
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	Jun 2016	Ad hoc group 4: Australia, China, Hong Kong, China, IATA, Japan (Rapporteur), Republic of Korea, Singapore, Thailand and Viet Nam	Completed
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	Completed
4.3 First draft of regional guidance material for tailored MET information supporting ATM operations	Aug 2016	As above	Completed
4.4 Draft of version 2 produced, based on survey results and outcomes/recommendations provided by MET SG and/or ATM/SG	Jun 2018	As above	In progress Completed

Agenda Item 2

11-14/05/20

PLAN OF WORK			
MILESTONES	By date	Responsibility	Status
4.5 Submit the regional guidance material for tailored MET information supporting ATM operations for possible approval by MET SG and inform the ATM/SG	By 10 June 2019 for MET SG/23 on 17 June	As above	To begin Completed
4.6 Review the regional guidance material for tailored MET information supporting ATM operations and propose updates as necessary for possible approval by MET SG	Next meeting of MET/R WG	As above	To begin
Deliverable 5: Seminar on regional implementation of MET information to support ATM operations			
5.1 Plan for future seminar on regional implementation of MET information to support ATM operations (May 2020) – initial proposal for MET SG/23 to consider	By 10 June 2019 for MET SG/23 on 17 June	Chair and Secretariat (organizing committee)	To begin
Deliverable 6: 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			
6.1 First draft of proposed APAC ANP Volume III improvements (pending outcomes from the ICAO eANP WG development on ANP Vol III common template)	TBD	TBD	On hold
Deliverable 7: SIGMET coordination activities in APAC Region; Coordinate on the next steps to promote integration and expansion of SIGMET coordination activities among States/Administrations.			
7.1 Consolidated progress report on SIGMET coordination activities in the APAC Region and recommendations based on lessons learnt: –new and existing SIGMET coordination activities –WP (MET/R WG) and SP (MET/ATM Seminar) –key lessons learnt/recommendations for regional guidance on SIGMET coordination –identify opportunities for integration and expansion of SIGMET coordination activities	Next meeting of MET/R WG and MET/ATM Seminar	Ad hoc group (Japan and Singapore, Hong Kong, China, Malaysia, India, Viet Nam, Thailand, Fiji, IFALPA...) coordinated by the Chairperson and Secretary MET-group Chairs considered this task is more appropriate to be included under the work plan of MET/S WG	To begin
[Revise the deliverable to focus on determining the end-users' requirements; and taking into account the additional proposals to be presented in MET/R WG/9: WP/09 – <i>Review and update of the Work Programme</i>]			
Deliverable 8: [New] Development of APAC User Requirements for SWIM-based MET Information Services Supporting ATFM			
8.1 [Establish a new deliverable taking into account the proposals to be presented in MET/R WG/9: WP/04 – <i>APAC User Requirements for SWIM-based MET Information Services Supporting ATFM</i>]			