



ICAO

*International Civil Aviation Organization***INFORMATION PAPER****Twenty-fourth Meeting of the Meteorology Sub-group (MET SG/24) of the Asia and Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG)**

Web-conference, 16 – 20 November 2020

---

**Agenda Item 2:** Review outcomes from previous meetings**REVIEW OUTCOMES FROM MET/IE WG/18**

(Presented by Chairman of MET/IE WG)

**SUMMARY**

This paper presents a summary of the 18th meeting of the Meteorological Information Exchange Working Group (MET/IE WG) of the APANPIRG MET SG, held 27 - 29 July 2020. It includes a revised terms of reference and work plan of the group.

**1. INTRODUCTION**

1.1 The ICAO Asia and Pacific (APAC) Regional Office hosted the Eighteenth Meeting of the Meteorological Information Exchange Working Group (MET/IE WG/18) and Tenth Meeting of the Meteorological Services Working Group (MET/S WG/10), conjointly, by web-conference from 27 to 31 July 2020

1.2 The meeting was attended by 136 participants from 24 States and Administrations. Mr. Tim Hailes, National Manager, Aviation Service Development, Bureau of Meteorology, Australia, and Mr. Chan Pak Wai, Assistant Director, Hong Kong Observatory, Hong Kong China, presided as Co-chairs of the meeting and Mr. Peter Dunda, Regional Officer Aeronautical Meteorology, ICAO Asia and Pacific Office, acted as Secretary.

1.3 The meeting considered twenty-eight (28) Working Papers (WPs) and twenty (20) Information Papers (IPs). This paper will focus on the outcomes of MET/IE WG and the conjoint session portion of the MET/IE and MET/S. A separate paper details the outcomes of the MET/S meeting.

**2. DISCUSSION**

2.1 A copy of the full meeting report, and all related meeting documentation, is available at the following website:

<https://www.icao.int/APAC/Meetings/Pages/2020-MET-IE-WG18.aspx>

2.2 The meeting adopted the following agenda:

**Agenda Item 2**

16-20/11/20

MET/IE WG/17

Agenda Item 1: Organizational matters

Agenda Item 2: Outcomes from MET/IE WG related meetings

Agenda Item 3: Monitoring of meteorological information exchange

Agenda Item 4: Guidance material related to meteorological information exchange

Agenda Item 5: Future work programme and terms of reference of MET/IE WG

Conjoint MET/IE WG/18 and MET/S WG/10

Agenda Item 6: Regional tests of Advisory and SIGMET services

MET/S WG/10

Agenda Item 7-11 MET/S related items

Follow-up action from MET/IE WG/17

2.3 The meeting reviewed the status of actions from the previous meetings and agreed that in order to progress these actions in a more timely manner, the Secretariat in conjunction with the respective Chairs and relevant members of the working groups will make use of regular online coordination meetings.

2.4 The meeting noted that many of the papers were not available for review by participants with sufficient lead time before the meeting. To support participants' effective consideration of papers the MET/IE WG and MET/S WG proposed updates to their terms of reference documents to reflect the desirable deadlines, as adopted by the MET SG.

Monitoring of meteorological information exchange

2.5 The Inter-Regional OPMET Gateways (IROG) at Bangkok and Singapore conducted annual mutual backup tests of IROG operations in September 2019. Results from the tests demonstrated the IROGs' capabilities to successfully provide operational backup service for the transmission of required OPMET data

2.6 Performance Indices (PI) as computed and analysed by the Regional OPMET Data Bank (RODB) Bangkok, from the annual OPMET monitoring activity conducted by the 5 APAC RODBs, identified a total of 46 aerodrome locations in the 19 APAC States with OPMET PIs below a nominated benchmark of 0.5.

2.7 In order to use the results to facilitate improved availability, compliance and regularity of OPMET in the APAC Region, the Secretariat will inform States with low PI and advise the States to take appropriate corrective actions.

2.8 The Secretariat will also address the above communication to Regional OPMET Centres (ROCs) responsible for the collection of OPMET messages from the originating station, such that they can assist States with corrective actions to address these low PIs.

2.9 To facilitate identification and rectification of discrepancies in the OPMET PIs, the MET/IE WG will ensure the APAC RODBs review the results of the OPMET monitoring activities prior to submission to the MET/IE WG meeting

2.10 Vietnam is implementing a National OPMET Centre (NOC) capability. Vietnam and Thailand will continue to coordinate on this implementation, including development of proposed updates to the APAC ANP and ROBEX Handbook.

#### Status and Plans for IWXXM

2.11 Australia, Fiji, Hong Kong China, Indonesia, Japan, New Zealand, Singapore, Thailand provided updates on their progress with the implementation of the ICAO Meteorological Exchange Model (IWXXM). Fiji and Mongolia advised of delays in their IWXXM implementation due to current social and economic impact of COVID-19 pandemic.

2.12 Some States, such as China (including Hong Kong China), Indonesia and Singapore indicated they are able or are planning to offer other States TAC-to-IWXXM translation functions, subject to mutual agreement between the States/units concerned.

2.13 With respect to continuing delays in the implementation of IWXXM the meeting emphasised the need for APAC ROCs & RODBs to expedite the implementation of the necessary capability as delays can have significant impact on the exchange of IWXXM messages throughout the APAC Region.

#### Webinar on the Implementation of IWXXM and AMHS

2.14 To support States with the implementation of IWXXM, the MET/IE WG developed a plan for an ICAO APAC 2020 webinar on the implementation of IWXXM and Extended AMHS. A draft agenda and an organising committee were formed. Subsequently the organising committee reviewed the results of an IWXXM survey (State Letter Ref: T 4/3.2.5- AP155/20 (MET)) and successfully planned and implemented an IWXXM Seminar 27-29 October. A separate IP summarises the Seminar.

#### IWXXM Extensions

2.15 The meeting noted that, consistent with the purpose of IWXXM, which is to provide far greater information to the users and system developers than TAC messages, the IWXXM schema allows States to develop an extension to the standard IWXXM schema, to support additional meteorological information. To improve management of various State extensions it was agreed that a central repository would be beneficial.

2.16 It should be noted that the use of extensions within TAC messages represents differences with respect to the Standards in Annex 3 and, as such, any State concerned would be required to notify ICAO by filing the said differences.

#### ROBEX Handbook Updates

2.17 The MET/IE WG has a role in reviewing and updating the ROBEX Handbook on an annual basis. The meeting endorsed proposed updates to the Focal Point information in the ROBEX Handbook, Appendix I, and proposed additional updates based on input from Australia, China, New Zealand and Thailand and requested the Secretariat to prepare the updates in the ROBEX Handbook for approval by MET SG/24 (Refer to separate WP).

**Agenda Item 2**

16-20/11/20

2.18 The meeting noted that the current process of MET/IE WG to update the ROBEX Handbook on an annual basis did not reflect OPMET changes made by States in a sufficiently responsive and timely manner (especially with respect to updates to Appendices A and B of the ROBEX Handbook) and the implementation of IWXXM. Therefore, the MET/IE WG will consider options for a more streamlined process for updating the ROBEX Handbook data, such as through the development of a more dynamic, online repository for ROBEX data

2.19 The MET/IE WG agreed to investigate the development of an online repository for ROBEX data in which States would share and maintain up to date information on the IWXXM-capabilities of the ROBEX scheme and the AMHS addresses to support the required dissemination of IWXXM messages.

2.20 Given the gradual implementation of IWXXM, the ROBEX Handbook needs to also reflect APAC States' requirement for flexibility of the ROBEX scheme structure during the transition to Region-wide implementation of IWXXM exchange.

Revised and Harmonized OPMET Notification Procedure

2.21 Currently the European and Asia Pacific procedure for notifying of changes to OPMET bulletins are different. The meeting supported the proposal to align the Changes to OPMET Bulletin Procedures, or "METNO" procedures, as described in the APAC ROBEX Handbook, with the equivalent procedures in the ICAO EUR Region.

2.22 A regional focal point team, including the ICAO Regional Officer and ROBEX Focal Points from Australia, Hong Kong China, Japan and Singapore, will manage the METNO requests.

2.23 The Chair MET/IE WG and Secretariat will coordinate further development of the METNO procedures for inclusion in the next revision of ROBEX Handbook.

Location of FASID Tables

2.24 When APANPIRG endorsed the new format for the APAC ANP, based on June 2014, ICAO Council approved common template to be used for Regional ANPs, a number of tables and charts from the FASID in the legacy ANP did not migrate into the new format of the ANP.

2.25 To provide States with access to required up to date information, previously contained in the legacy FASID Tables and not replicated in the ANP, the meeting supported the proposal to incorporate the legacy FASID Tables into existing APAC regional guidance

2.26 In view of the above, the MET/IE WG formulated the following Draft Decision for consideration and possible adoption by MET SG/24:

**Draft Decision MET/SG/24/x: Updates to legacy FASID Table information**

*That, ICAO and States update and incorporate the required information from the legacy Facilities and Service Implementation Document (FASID) Tables relating to meteorology, into existing ICAO APAC regional guidance documentation as follows:*

<b>FROM: Legacy FASID Table</b>	<b>TO: Existing APAC regional guidance</b>
Table MET 2A - OPMET Information (METAR, SPECI and TAF) Required in SADIS and WIFS	APAC ROBEX Handbook
Table MET 3A - Tropical cyclone advisory centres	APAC Regional SIGMET Guide
Table MET 3B - Volcanic ash advisory centres	APAC Regional SIGMET Guide
Chart MET 1 - Areas of Responsibility of the TCACs	APAC Regional SIGMET Guide
Chart MET 2 - Map of Areas of Responsibility of VAAC and Corresponding FIR	APAC Regional SIGMET Guide

2.27 The Secretariat in conjunction with input from States will prepare the consequential updates to the legacy FASID Tables, apart from Table MET 1A, Table MET 1B and Table MET 3C, and the existing ICAO APAC regional guidance documentation, according to the above.

2.28 The Secretariat in conjunction with input from States concerned will also propose updates to the APAC ANP (Table MET I-1) to reflect the current requirements for State Volcano Observatories.

Introduction of the Fourth Global Space Weather Information Provider

2.29 The ICAO Council, at its Seventh Meeting of its 219th Session, agreed that the China/Russian Federation consortium (CRC) serve as a fourth global space weather information service provider.

2.30 The MET/IE WG will need to update the ROBEX Handbook in due course to include appropriate references to Space Weather Advisories and their corresponding WMO headers, based on further advice from the ICAO MET Panel reflecting the requirements for the global network of service providers.

Updates to Australia's MWOs

2.31 Australia recently restructured its Aviation Meteorological Service provision to establish three Meteorological Watch Offices (MWOs) in Australia. The Secretariat will incorporate the required changes in the APAC Regional SIGMET Guide and in the legacy FASID Table MET 3A and 3B information.

Review of SIGMET Test Outcomes

2.32 Results from the APAC SIGMET tests identified a number of issues concerning the dissemination and/or reception of SIGMET messages.

2.33 The Secretariat will inform, by ICAO State letter, the States concerned of the SIGMET-related errors and deficiencies identified and urge the States concerned to take proposed corrective actions. The MET/IE WG and MET/S WG will assist the States concerned with rectification of the SIGMET-related errors and deficiencies, and conducting a State-specific SIGMET test to assess whether the corrective actions have been successful.

**Agenda Item 2**

16-20/11/20

2.34 Since the meeting and the initial tests, follow-up tests have been conducted with the USA and Mongolia to address their dissemination issues.

2.35 The reception of SIGMET test messages at ROC London (for inclusion in SADIS) was low compared to APAC RODB's. The MET/IE WG will investigate the reason for this reduction and share the results with MET/S for potential corrective action.

2.36 To further facilitate the effective participation of all APAC RODBs in the annual SIGMET test, the Secretariat will inform Fiji, by ICAO State letter, of the incomplete data provided by RODB Nadi and the lack of participation in the OPMET monitoring activities.

Review MET/IE WG Terms of Reference and Work Programme

2.37 The meeting reviewed and endorsed updates to the terms of reference, including specific references to IWXXM and SWIM, updates to the MET/IE WG membership contact details and the inclusion of deadlines for submission of papers and availability of reports. It was agreed that web conference shall be arranged to update the work program.

2.38 Subsequently, on 23 August, a web conference was conducted with MET/IE members to review and revise the work programme of MET/IE (refer Appendix 1).

2.39 The meeting agreed to seek MET SG/24 approval of the updates to the terms of reference and work program document.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) Note the information in this paper;
- b) Consider the draft Decision in para 2.26; and
- c) Propose further updates to the terms of reference and work programme of MET/IE WG (refer Appendix 1), as necessary.

-----

## APPENDIX 1

**MET/IE WG – TERMS OF REFERENCE AND WORK PROGRAMME****ASIA/PACIFIC METEOROLOGICAL INFORMATION EXCHANGE WORKING GROUP  
(MET/IE WG)****TERMS OF REFERENCE****1. COMPOSITION MEMBERSHIP**

The MET/IE WG is made up of experts from the following bodies:

- APAC Regional OPMET Data Banks (RODBs): Brisbane, Nadi, Tokyo, Singapore and Bangkok;
- APAC Regional OPMET Centres (ROCs);
- World Area Forecast Centres (WAFCs), London and Washington;
- Secure Aviation Data Information Service (SADIS) and WAFS Internet File System (WIFS) Provider States, United Kingdom and United States;
- APAC Volcanic Ash Advisory Centres (VAACs): Darwin, Tokyo and Wellington;
- Designated focal points for SIGMET tests and regional OPMET bulletin exchange (ROBEX);
- Pacific Islands Aviation Weather Services (PIAWS) Panel; and
- International Air Transport Association (IATA).

State or Org./Name	Title/Organization	Contact information
<b>AUSTRALIA (Chair)</b> Mr. Tim HAILES (VAAC, ROBEX)	National Manager Aviation Service Development Systems & Technology Lead, Australian Bureau of Meteorology, GPO 1289, Melbourne VIC 3001 AUSTRALIA	Tel: +61 3 9669 4273 Mob: +61 4 2784 0175 Email: <a href="mailto:tim.hailes@bom.gov.au">tim.hailes@bom.gov.au</a>
<b>AUSTRALIA</b> Mr. Pierre KEMMERS (RODB, ROBEX)	Network Operations Line AIS Business Manager Airservices Australia GPO Box 367 Canberra ACT 2601	Tel: 02-6268 5662 +61 2 6268 4426 Mob: +61 416 509078 E: <a href="mailto:pierre.kemmers@airservicesaustralia.com">pierre.kemmers@airservicesaustralia.com</a> (primary) / <a href="mailto:YBBBYPYX@airservicesaustralia.com">YBBBYPYX@airservicesaustralia.com</a> (secondary)
<b>AUSTRALIA</b> Mr. Tristan King (VAAC, ROBEX)	Innovation Lead Australian Bureau of Meteorology, GPO 1289, Melbourne VIC 3001 AUSTRALIA	Tel: +61 3 9669 4146 E: <a href="mailto:tristan.king@bom.gov.au">tristan.king@bom.gov.au</a>
<b>AUSTRALIA</b> Mr. David House (ROBEX)	Operational Systems Specialist Australian Bureau of Meteorology, GPO Box 727, Hobart TAS 7001 AUSTRALIA	Tel: +61 3 6221 2058   E: <a href="mailto:david.house@bom.gov.au">david.house@bom.gov.au</a>
<b>CHINA</b> Ms. ZOU Juan (ROBEX)	Meteorologist, Meteorology Division, Air Traffic Management Bureau, Civil Aviation Administration of China, No. 12, East Sanhuan Road Middle, Chaoyang District, Beijing 100022 CHINA	Tel: 86-10-87786826 Fax: 86-18-87786820 Email: <a href="mailto:zoujuan@atmb.net.cn">zoujuan@atmb.net.cn</a>
<b>FIJI</b> Mr. William REECE (RODB, ROBEX)	Head of Support & Maintenance, Airports Fiji Limited, Private Mail Bag, Nadi Airport FIJI Islands	Tel: +679 673 1198 Mob: +679 990 6105 Email: <a href="mailto:williamr@fijiairports.com.fj">williamr@fijiairports.com.fj</a>
<b>HONG KONG, CHINA</b> Ms. NG Wa-mui, Miranda Mr. Patrick LAM (ROBEX)	Senior Aeronautical Communications, Supervisor, Civil Aviation Department, Air Traffic Management Division, Telecommunications Unit, 3/F, 1 Tung Fai Road, Lantau, HONG KONG, CHINA	Tel: +852 2910 6211 Fax: +852 2910 1160 Email: <a href="mailto:wmg@cad.gov.hk">wmg@cad.gov.hk</a> <a href="mailto:hhlam@cad.gov.hk">hhlam@cad.gov.hk</a>
<b>HONG KONG, CHINA</b> Mr. KOK Mang-hin, Marco (ROBEX)	Scientific Officer, Hong Kong Observatory 134A Nathan Road, Kowloon, HONG KONG, CHINA	Tel: +852 2926 8702 Fax: +852 2375 2645 Email: <a href="mailto:mhkok@hko.gov.hk">mhkok@hko.gov.hk</a>

**Agenda Item 2**

16-20/11/20

State or Org./Name	Title/Organization	Contact information
<b>JAPAN</b> Mr. Kentaro TSUBOI (RODB, SIGMET test)	Scientific Officer, Information and Communications Technology Division, Forecast Department, Japan Meteorological Agency (JMA), 1-3-4 Otemachi, Chiyodaku, Tokyo 100-8122, JAPAN	Tel: +81 3 3212 8341 (ext. 3283) Fax: +81 3 3211 8404 Email: <a href="mailto:k-tsuboi@met.kishou.go.jp">k-tsuboi@met.kishou.go.jp</a>
<b>JAPAN</b> Mr. Kazuki ITO Kazuya Kawaguchi (VAAC)	Senior Scientific Officer, Volcanology Division, Seismology and Volcanology Department, Japan Meteorological Agency (JMA), 1-3-4 Otemachi, Chiyodaku Tokyo 1008122, JAPAN	Tel: +81 3 3284 1749 Fax: +81 3 3212 3648 Email: <a href="mailto:kazuki-ito@met.kishou.go.jp">kazuki-ito@met.kishou.go.jp</a> <a href="mailto:kazuya_kawaguchi@met.kishou.go.jp">kazuya_kawaguchi@met.kishou.go.jp</a>
<b>MALAYSIA</b> Mr. Jailan bin Simon (ROBEX)	Senior Director, National Aviation Meteorological Centre, Kuala Lumpur International Airport, 1st Floor, Airport Management Centre, 64000 Sepang, Selangor Darul Ehsan, MALAYSIA	Tel. : +603-8787 2360 Fax : +603-87871019 Email : <a href="mailto:jailan@met.gov.my">jailan@met.gov.my</a>
<b>NEW ZEALAND</b> Ms Paula ACETHORP Mr. Keith MACKERSY (VAAC, ROBEX)	Chief Meteorological Officer Senior Meteorological Specialist, Civil Aviation Authority of New Zealand, PO Box 3555, Wellington NEW ZEALAND	Tel: +64 4 830 2611 +64 4 9040543 Fax: +64 4 9041543 Email: <a href="mailto:paula.acethorp@caa.govt.nz">paula.acethorp@caa.govt.nz</a>
<b>REPUBLIC OF KOREA</b> Ms. Insul SONG (ROBEX)	Assistant Director, Aviation Meteorological Office (AMO) of Korea Meteorological Administration (KMA), PO box 43, 272 Gonghang-ro, Jung-gu, Incheon, 22382 REPUBLIC OF KOREA	Tel: +82 (32) 740 2840 Fax: +82 (32) 740 2487 E-mail: <a href="mailto:songis2015@korea.kr">songis2015@korea.kr</a>
<b>REPUBLIC OF KOREA</b> Mr. Young-Lock KIM (ROBEX)	Assistant Director, Aviation Meteorological Office (AMO) of Korea Meteorological Administration (KMA) PO box 43, 272 Gonghang-ro, Jung-gu, Incheon, 22382 REPUBLIC OF KOREA	Tel: +82 (32) 740 2840 Fax: +82 (32) 740 2487 E-mail: <a href="mailto:kyl99@korea.kr">kyl99@korea.kr</a>
<b>SINGAPORE</b> Mr. Chow Kwok Wah (RODB, SIGMET test, ROBEX)	Principal Meteorologist, Meteorological Services Singapore, P.O. Box 8, Singapore Changi Airport Post Office, 918141 SINGAPORE	Tel: +65 6542 4715 Fax: +65 6545 7192 Email: <a href="mailto:chow_kwok_wah@nea.gov.sg">chow_kwok_wah@nea.gov.sg</a>
<b>THAILAND</b> Ms. Sujin PROMDUANG (RODB, ROBEX)	Director, Aeronautical Information & Flight Data Management Centre, Aeronautical Radio of Thailand Ltd., 102 Ngamduplee, Sathorn, Bangkok 10120, THAILAND	Tel: +66 (2) 285 9083 Fax: +66 (2) 287 3131 Email: <a href="mailto:sujin.pr@aerothai.co.th">sujin.pr@aerothai.co.th</a>
<b>TONGA</b> Mr. 'Ofa F' ANUNU (PIAWS Panel)	Director of Meteorology, Tonga Meteorological Service, Fuaamotu Airport TONGA	Tel: +676 877 7750 Fax: +676 35123 E-mail: <a href="mailto:ofaf@met.gov.to">ofaf@met.gov.to</a>
<b>UNITED KINGDOM</b> Ms. Karen Shorey (W AFC, SADIS)	International Aviation and SADIS Manager Met Office, FitzRoy Road, Exeter, EX1 3PB UNITED KINGDOM	Tel: Fax: Email: <a href="mailto:karen.shorey@metoffice.gov.uk">karen.shorey@metoffice.gov.uk</a>
<b>UNITED STATES</b> Mr. Pat MURPHY (W AFC, WIFS)	Federal Aviation Administration, Senior Meteorologist, Programme Lead International, FAA Headquarters, 800 Independence Ave, S.W., Washington, D.C. 20591 UNITED STATES	Tel: +1 (202) 267 2788 Email: <a href="mailto:michael.murphy@faa.gov">michael.murphy@faa.gov</a>
<b>IATA</b> (TBC)	(TBC)	Tel: Fax: Email:
<b>ICAO (Secretariat)</b> Mr. Peter DUNDA	Regional Officer Aeronautical Meteorology/Environment International Civil Aviation Organization 252/1, Vibhavadi Rangsit Road, Ladyao, Chatuchak, Bangkok 10900 THAILAND	Tel: +66 (2) 537-8189 Ext. 153 Fax: +66 (2) 537-8199 Email: <a href="mailto:PDunda@icao.int">PDunda@icao.int</a>

**2. DESCRIPTION**

Objective	Increase OPMET availability and reliability needed for flight planning (efficiency) and in-flight re-planning (safety) in support of the Global Air Navigation Plan (GANP) framework and the Aviation System Block Upgrade (ASBUs) methodology.
Benefits	Increase in safety and efficiency (time and fuel savings).
Terms of Reference Functions of the group	Under guidance from the ICAO APAC Secretariat: a) Review the OPMET exchange schemes in the APAC and other regions and develop proposals for their optimization, taking into account the requirements by the aviation users and global OPMET exchange; b) Review and update of the procedures for inter-regional OPMET exchange and ensure the availability of the required APAC OPMET data for SADIS and WIFS; c) Report on deficiencies in the format and dissemination of OPMET messages; d) Monitor and participate in inter- and intra-regional trials of digital aeronautical meteorological information exchange in support of the implementation of IWXXM and SWIM inter- and intra-regionally; e) Conduct trials and develop standardized quality control, monitoring and management procedures related to exchange of IWXXM and TAC OPMET information; f) Participate in the implementation and promote awareness of the transition to digital exchange of OPMET (IWXXM) and System Wide Information Management (SWIM); g) Conduct regular regional VAAC back-up and SIGMET tests; h) Provide support for the APAC Volcanic Ash Exercises; i) Review and update the regional guidance material related to OPMET exchange, including relevant material on IWXXM, AMHS and SWIM; j) Liaise and consult with other appropriate bodies within ICAO and WMO dealing with communication and/or management aspects of the OPMET exchange; and 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.
Work Program	The work to be addressed by the MET/IE WG includes: — Examine new and existing requirements for OPMET exchange in APAC and other neighbouring regions along with the WAFS Provider States and assess the feasibility of satisfying these requirements, taking into account the availability of the data; — Keep the ROBEX scheme and other OPMET exchange schemes under review and prepare proposals for updating and optimizing the schemes; — Review and update of the procedures for inter-regional OPMET exchange and ensure the availability of the required APAC OPMET data for SADIS and WIFS; — Review the regional guidance material on OPMET exchange to ensure procedures are provided for the exchange of all required OPMET data; — Conduct trials and develop procedures for quality control, monitoring and management of the OPMET exchange to foster implementation of quality management of OPMET data by the ROCs and the RODBs/ROGs; — Develop quality control guidance material and promote implementation of quality control for OPMET management; — Report on deficiencies in the format and dissemination of OPMET messages; — Participate in the implementation and promote awareness of the transition to digital exchange of OPMET (IWXXM) and System Wide Information Management (SWIM); — Engage with, and participate in the activities of, the SWIM Task Force; — Conduct regular regional VAAC back-up and SIGMET tests; and — Provide support for the APAC Volcanic Ash Exercises.

3. COMMUNICATION STRATEGIES				
Description	Target Audience	Delivery Method	Frequency / Date	Responsibility
Interim Work Plan Program Progress Report	MET/IE WG Members	Web-conference E-mail MET/IE WG (also reviewed by MET SG)	Quarterly/as determined by Chair As required Annually	Chair and Secretariat
Major Work Program Progress Report	MET/IE WG Members	Working Paper (MET/IE WG meeting)	Annually/published 14-days or more before the meeting	Chair and Secretariat
General correspondence	MET/IE WG Members	E-mail	As required	MET/IE WG Members
New, specific proposal for action (WP)	MET/IE WG Meeting Members	Working Paper (MET/IE WG meeting)	Annually/submitted 28-days or more before the meeting (published 14-days or more before the meeting)	MET/IE WG Members or States

**Agenda Item 2**

16-20/11/20

New, specific information (IP)	MET/IE WG Meeting Members	Information Paper (MET/IE WG meeting)	Annually/submitted 28-days or more before the meeting (published 14-days or more before the meeting)	MET/IE WG Members or States
Working Group Meeting Report	MET/IE WG Members and all APAC States	MET/IE WG Meeting Report	Annually/published 21-days or less after the meeting	Chair and Secretariat
Status & Milestone	ICAO Secretariat and MET/IE WG Members	E-mail WP at MET/IE WG	Annually	Chair
Working Group Progress Report	MET SG Meeting All APAC States	Working Paper (MET SG meeting)	Annually/submitted 28-days or more before the meeting (published 14-days or more before the meeting)	Chair and Secretariat

**WORK PROGRAM**

4. PERFORMANCE FRAMEWORK FORM (PFF)				
Activity/Tasks	Time Frame	Responsibility	Status	Milestone
Task Activity 1: Improve the Availability of OPMET information data	Ongoing	MET/IE WG		1
Task Activity 2: Improve Timeliness, compliance and regularity of OPMET exchange	Ongoing	MET/IE WG		2
Task Activity 3: Identify gaps and errors in processes, procedures and OPMET exchange SIGMET and Advisory Tests	Ongoing	MET/IE WG		3, 4, 5
Activity 4: VAAC Backup Tests	Ongoing	MET/IE WG		
Activity 5: IROG Backup Tests	Ongoing			
Task Activity 6: Review Regional guidance material related to OPMET data exchange	Ongoing	MET/IE WG		3, 4, 5, 6
Task Activity 7: Facilitate and monitor the migration to IWXXM in support of SWIM implementation	2020-2017-20210	MET/IE WG		7
Task Activity 8: Review the OPMET information exchange structure scheme	2020-20192026	MET/IE WG		8
Activity 9: MET information in SWIM	2020-2026			

5. MILESTONES			
Milestone	Accountability	Dates	Status
<b>Milestone 1:</b> Achieve 95% (90%) or greater OPMET availability for AOP (non-AOP) aerodromes where OPMET information is required at RODBs, SADIS and WIFS (i.e., aerodromes listed in former FASID Table MET 2A).	MET/IE WG	Annually Jun	
<b>Milestone 2:</b> Achieve OPMET timeliness, compliance and regularity index of 0.95 (0.90) for AOP (non-AOP) aerodromes where OPMET information is required at RODBs, SADIS and WIFS (i.e., aerodromes listed in former FASID Table MET 2A).	MET/IE WG	Annually Jun	
<b>Milestone 3:</b> SIGMET tests conducted, analysed and report complete.	MET/IE WG	Annually Jun	
<b>Milestone 4:</b> VAAC Back-up tests conducted, analysed and report complete.	VAAC Back-up Focal Points	Annually Jun	
<b>Milestone 5:</b> IROG Back-up tests conducted, analysed and report complete.	IROG Bangkok & Singapore	Annually Mar	

<b>Milestone 6:</b> RODB Monitoring procedures updated in ROBEX Handbook.	Secretariat	Annually Sep	
<b>Milestone 7:</b> Report to MET/IE WG & MET SG on IWXXM exchange & testing.	Secretariat & Chair	Annually Mar & May	
<b>Milestone 8:</b> OPMET Exchange structure review complete.	MET/IE WG	2019	
<b>Milestone 9:</b> Improved efficiency and effectiveness of ROBEX scheme.	RODBs	Annually Jun	
<b>Milestone 10:</b> Participated in the development of SWIM Meteorological services for APAC.	MET/IE WG	2023	

56. WORK PLAN				
Activity / Milestone	Accountability	Predecessors	Date	Status
<b>Activity 1: Increasing OPMET Availability for aerodromes where OPMET information is required at RODBs, SADIS and WIFS</b>				
Activity 1.1: Perform real time monitoring if required	IATA	-	If required	
Activity 1.2: Monitor and score SADIS/WIFS OPMET reception.	IATA	-	Annually Jan	
Activity 1.3: Capture Assess OPMET monitoring results & identify corrective actions	IATA and RODBs	1.2	Annually Feb Dec	
Activity 1.4: Assess OPMET monitoring results & share results with RODBs	RODB Bangkok	1.3	Annually Jan	
Activity 1.5: Prepare paper reporting results and deficiencies to MET/IE WG meeting.	IATA and RODB Bangkok	1.4	Annually Mar Feb	
Activity 1.6: Report summary of OPMET availability results to MET SG	Secretariat & Chair	1.5	Annually May	
Activity 1.7: Advise States of OPMET deficiencies and corrective actions.	Secretariat	1.6	Annually Jun	
Activity 1.8: Provide Actively engage support to States to rectify with corrective against deficiencies if requested.	RODBs ROCs	1.7	As required	
<b>Milestone 1:</b> Achieve 95% (90%) or greater OPMET availability for AOP (non-AOP) aerodromes at RODBs & WAFS.	MET/IE WG	1.8	Annually Jun	
<b>Activity 2: Improving OPMET Timeliness, compliance and regularity of OPMET exchange at RODBs, SADIS and WIFS</b>				
Activity 2.1: Monitor & collate OPMET data.	RODBs & IATA	-	Annually Dec/Jan	
Activity 2.2: Score RODB OPMET reception against PI thresholds.	RODB Bangkok	-	Annually Dec/Jan	
Activity 2.3: Analyse data and share results with RODBs	RODB Bangkok	2.2	Annually Feb Jan	
Activity 2.4: Prepare paper report results to MET/IE WG meeting & identify corrective actions	RODB Bangkok	2.3	Annually Mar Feb	
Activity 2.5: Report summary of OPMET timeliness, compliance and regularity results to METSG	Chair	2.4	Annually May	

**Agenda Item 2**

16-20/11/20

<b>56. WORK PLAN</b>				
<b>Activity / Milestone</b>	<b>Accountability</b>	<b>Predecessors</b>	<b>Date</b>	<b>Status</b>
Activity 2.6: Inform States of non-compliance and corrective actions	Secretariat	2.5	Annually Jun	
Activity 2.7: Provide support for States to rectify deficiencies if requested.	RODBs	2.6	As required	
<b>Milestone 2:</b> Achieve 95% (90%) or greater OPMET timeliness, compliance and regularity for AOP (non-AOP) aerodromes at RODBs, SADIS and WIFS.	MET/IE WG	2.7	Annually Jun	
<b>Activity 3: SIGMET and Advisory Tests</b>				
Activity 3.1: Review SIGMET Test procedures	MET/IE WG	-	Annually Aug	
Activity 3.2: State Letter regarding SIGMET Tests	Secretariat	3.1	Annually Sep	
Activity 3.3: Email States regarding SIGMET Tests	Secretariat	3.2	Annually	Last Wed in Oct
Activity 3.4: Conduct & collate data for WC SIGMET Tests	RODBs	3.2	Annually	2 <sup>nd</sup> Wed in Nov
Activity 3.5: Conduct & collate data for WV SIGMET Tests	RODBs	3.2	Annually	3 <sup>rd</sup> Wed in Nov
Activity 3.6: Conduct & collate data for WS SIGMET Tests	RODBs	3.2	Annually	4 <sup>th</sup> Wed in Nov
Activity 3.7: Analyse test data	RODB Singapore & Tokyo	3.4 - 3.6	Annually Jan	
Activity 3.8: Assess SIGMET test results to identify corrective actions from Nov tests	RODB Singapore & Tokyo	3.4 - 3.6	Annually Feb	
Activity 3.9: Report to MET/IE WG	RODB Singapore & Tokyo	3.8	Annually Mar	
Activity 3.10: Report on SIGMET Test Results to MET SG.	Chair	3.9	Annually May	
Activity 3.11: Advise States of SIGMET deficiencies	Secretariat	3.9	Annually Jun	
<b>Milestone 3:</b> Improved issuance and compliance of SIGMETs	MET/IE WG	3.11	Annually Jun	
<b>Activity 4: VAAC Back-up Tests</b>				
Activity 4.1: Review and Update VAAC Back-up Test procedures	MET/IE WG and VAACs		Annually Jan	2 months prior to test
Activity 4.2: Update VAAC Back-up Procedures	Secretariat	4.1	Annually May	
Activity 4.2: Issue Notice of VAAC Back-up Tests	Secretariat/VAACs	4.1	Annually Aug	
Activity 4.3: Conduct VAAC Back-up Test between Darwin and Tokyo	VAACs	4.2	Annually Oct – TBC	
Activity 4.4: Conduct VAAC Back-up Test between Darwin and Wellington	VAACs	4.2	Annually Oct – TBC	

<b>56. WORK PLAN</b>				
<b>Activity / Milestone</b>	<b>Accountability</b>	<b>Predecessors</b>	<b>Date</b>	<b>Status</b>
Activity 4.5: Collect test results and send to VAAC Provider State members	RODBs	4.3	Annually Oct – TBC	
Activity 4.6: Analyse Test results	VAAC Back-up Focal Points Members	4.5	Annually Nov	
Activity 4.7: Report to MET/IE WG	VAAC Back-up Focal Points Members	4.6	Annually Feb	
Activity 4.8: Report to MET SG.	Chair	4.7	Annually May	
Activity 4.9: Advise relevant States, VAACs and RODBs of any deficiencies.	Secretariat	4.7	Annually Jun	
<b>Milestone 4:</b> VAAC Back-up Tests conducted, analysed and report complete.	VAAC Back-up Focal Points Members	4.8	Annually Jun	
<b>Activity 5: IROG Back-up Tests</b>				
Activity 5.1: Investigate the feasibility & benefits of back-up arrangements of IROG Tokyo, Nadi & Brisbane	IROG Nadi, Tokyo and Brisbane	-	Nov 2020 <sup>19</sup>	
Activity 5.2: Review IROG Back-up Test procedures to include all IROG.	IROG Bangkok & Singapore	-	Apr 2019, Annually Feb	
Activity 5.3: Updated IROG Back-up Procedures in ROBEX Handbook.	Secretariat	5.2	Annually May	
Activity 5.4: Identify list of MET Bulletins to monitor.	IROG Bangkok & Singapore	-	Annually Jan/Feb	
Activity 5.5: Conduct IROG Back-up Test of Bangkok & analyse results	IROG Bangkok & Singapore	5.4	Annually Sept/Oct	
Activity 5.6: Conduct IROG Back-up Test of Singapore & analyse results	IROG Bangkok & Singapore	5.4	Annually Jan/Feb	
Activity 5.8: Report to MET/IE WG	IROG Bangkok & Singapore	5.7	Annually Mar	
<b>Milestone 5:</b> IROG Back-up Tests conducted, analysed and report complete.	IROG Bangkok & Singapore	5.7	Annually Mar	
<b>Activity 6: APAC RODB Monitoring procedures Regional guidance material related to data exchange</b>				
Activity 6.1: Review monitoring procedure in ROBEX Handbook and update as necessary.	All RODBs	-	Annually Apr	
Activity 6.2: Changes to RODB monitoring procedures and updates to Appendix A & B in ROBEX Handbook.	Secretariat	6.1	Annually May	
Activity 6.3: Advise Secretariat of changes to ROBEX Handbook.	All States	-	Annually Apr	
Activity 6.4: Incorporation of AMHS & Addressing in ROBEX Handbook.	Pierre & Marco		Sep 2020	
Activity 6.5: Complete update of ROBEX Handbook including Table MET 2A.	New Zealand & Secretariat	-	Annually May	

**Agenda Item 2**

16-20/11/20

<b>56. WORK PLAN</b>				
<b>Activity / Milestone</b>	<b>Accountability</b>	<b>Predecessors</b>	<b>Date</b>	<b>Status</b>
Activity 6.6: Review ANP Tables (initially MET II-2) and ensure all necessary aerodromes are contained in OPMET bulletins	WG	-	May Annually	
Activity 6.7: Seek MET/SG endorsement of the updated ROBEX Handbook.	Secretariat	-	Annually Jun	
<b>Milestone 6:</b> RODB Monitoring procedures published in ROBEX Handbook	Secretariat	6.7	Annually Sep	
<b>Activity 7: New OPMET Exchange Formats IWXXM Implementation</b>				
Activity 7.1: Monitor migration to IWXXM.	WG	-	As required	
Activity 7.2: Conduct survey to determine status of IWXXM Implementation Undertake IWXXM tests with other centres.	Secretariat WG		As required July 2020, May 2021	
Activity 7.3: Report to MET SG on APAC States' RODBs support IWXXM implementation status.	Secretariat		Next meeting MET SG	
Activity 7.4: Increase awareness of the requirement for States to exchange of OPMET data in IWXXM format and the impact of inability to do so.	WG		As required	
Activity 7.5: Conduct IWXXM tests and report to MET/IE WG & RODB Singapore on the status of the testing and implementation of digital OPMET exchange.	WG		Annually Mar	
Activity 7.6: Maintain a register of IWXXM tests conducted, detailing Met software, UAs and MTAs tested	RODB Singapore	7.5	As required	
Activity 7.7: Arrange provision for the next IWXXM Workshop in APAC	Secretariat/Chair, WG, RODB Bangkok	7.2	May Sep 202019	
Activity 7.8: Actively participate in the next APAC IWXXM Workshop	Secretariat/Chair, WG	7.7	June Oct 201920	
Activity 7.9: Prepare information (e.g. issues, CONOPS) for MET/P WG-MIE	WG		As required	
Activity 7.10: Development & Publishing AMHS/FTBP network map	Pierre, Secretariat		Monthly	
Activity 7.11: State IWXXM status register	Secretariat		Monthly	
<b>Milestone 7:</b> Report to MET/IE WG & MET SG on IWXXM exchange & testing.	Secretariat & Chair	7.5, 7.6 & 7.8	Annually May	
<b>Activity 8: Review OPMET MET Information Exchange Structure</b>				
Activity 8.1: Review ROBEX Scheme diagram.	All RODBs, Secretariat		May Annually	
Activity 8.2: Review the structure of the ROBEX exchange in light of the introduction of SWIM.	WG		Annually Feb	
<b>Milestone 8:</b> RODB structure review complete.	MET/IE WG	-	2020	
<b>Activity 9: Improve Efficiency and effectiveness of ROBEX Scheme</b>				

<b>56. WORK PLAN</b>				
<b>Activity / Milestone</b>	<b>Accountability</b>	<b>Predecessors</b>	<b>Date</b>	<b>Status</b>
Activity 9.1: Align content of SA bulletins with FT bulletins, where appropriate	All RODBs	-	May 2019	
Activity 9.2: Adjust FT bulletin filing time, where appropriate	All RODBs	-	May 2019	
Activity 9.3: Review ANP Table MET II-2 and ensure all necessary aerodromes are contained in OPMET bulletins	WG	-	May Annually	
Activity 9.4: Review and update ROBEX HB and ICD, including aligning with OPMET bulletin contents and changes associated with IWXXM	WG	-	Feb Annually	
Activity 8.3: Review use of the Request/Reply service	RODBs	-	May 2021 <del>19</del>	
Activity 8.4: Improve the efficiency of Request/Reply service	RODBs	8.3	Sep 2021 <del>19</del>	
<b>Milestone 8:</b> Improved efficiency and effectiveness of ROBEX Scheme	MET/IE WG	-	2021 <del>19</del>	
<b>Activity 9: Participate in the development of meteorological elements of MET information in SWIM in APAC</b>				
Activity 9.1: Assist in the definition of the APAC SWIM Met service catalogue	WG	-	May 2019 As required	
Activity 9.2: Assist in the definition of the APAC SWIM Met data catalogue	WG	-	May 2019 As required	
<b>Milestone 9:</b> Participated in the development of SWIM Meteorological services for APAC	MET/IE WG	-	2023	

-----