

INTERNATIONAL CIVIL AVIATION ORGANIZATION



**REPORT OF THE FIFTEENTH MEETING OF THE ASIA/PACIFIC METEOROLOGICAL
INFORMATION EXCHANGE WORKING GROUP (MET/IE WG/15)**

Bangkok, Thailand, 20 – 22 March 2017

The views expressed in this Report should be taken as those of the
Meeting and not the Organization

Approved by the Meeting
and published by the ICAO Asia and Pacific Office, Bangkok

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INTRODUCTION

1. Meeting

1.1 The Fifteenth Meeting of the Asia/Pacific (APAC) Meteorological Information Exchange Working Group (MET/IE WG/15) of the APAC Air Navigation Planning and Implementation Regional Group (APANPIRG) was held at the Koitate Wing, ICAO Asia and Pacific Regional Office, Bangkok, Thailand from 20 – 22 March 2017.

1.2 The MET/IE WG was established at the Nineteenth Meeting of the Meteorology Sub-group of APANPIRG (MET SG/19), Decision 19/2 — *Expert working groups of the Meteorology Sub-group (MET SG)*, refers, and replaces the former expert group known as the Regional OPMET¹ Bulletin Exchange Working Group (ROBEX WG).

1.3 The meeting included a conjoint session on 22 March 2017 with the Seventh Meeting of the APAC Meteorological Services Working Group (MET/S WG/7) to discuss items of interest to both groups. A Report on discussions from the conjoint session is included at the end of this Report.

2. Attendance

2.1 The meeting was attended by 49 participants from 18 States and two International Organizations, including Australia, Bhutan, Cambodia, China, Hong Kong China, Fiji Islands, India, Indonesia, Japan, Malaysia, Myanmar, New Zealand, Philippines, Republic of Korea, Singapore, Thailand, United States, Viet Nam, the International Air Transport Association (IATA) and ICAO. A list of participants is provided at **Attachment 1** to this Report.

3. Officers and Secretariat

3.1 Mr. Tim Hailes, National Manager Aviation Meteorological Services, Bureau of Meteorology, Australia, presided as Chair of the meeting.

3.2 Mr. Peter Dunda, Regional Officer Aeronautical Meteorology, ICAO Asia and Pacific Office, acted as Secretary for the meeting.

4. Language and Documentation

4.1 The MET/IE WG met as a plenary throughout the meeting, including the conjoint session with the MET/S WG. The working language of the meeting was English inclusive of all documentation and this Report. A total of 14 Working Papers (WP), 12 Information Papers (IP) and 1 Flimsy were considered by the meeting. An additional 3 WPs and 1 IPs were considered during the conjoint session. The list of working and information papers is provided at **Attachment 2** to this Report.

¹ Operational meteorological (information)

1. Organizational matters

Provisional agenda (WP/01)

- 1.1 The provisional agenda was adopted as circulated prior to the meeting and shown below:

MET/IE WG/15

- Agenda Item 1: Organizational matters
- Agenda Item 2: Review of follow-up from previous meetings
- Agenda Item 3: Meteorological information exchange schemes
- Agenda Item 4: Meteorological information exchange in digital form
- Agenda Item 5: Quality control, monitoring and management of meteorological information exchange
- Agenda Item 6: Guidance material related to meteorological information exchange
- Agenda Item 7: Future work programme
- Agenda Item 8: Any other business

MET/IE WG/15 and MET/S WG/7 (Conjoint session – 22 March 2017)

- Agenda Item 1: VAAC backup tests
- Agenda Item 2: SIGMET tests

2. Review of follow-up from previous meetings

Review of follow-up from previous meetings (WP/02)

- 2.1 The task list from the previous meeting (MET/IE WG/14) and outstanding tasks remaining from the thirteenth meeting (Regional OPMET Bulletin Exchange Working Group – ROBEX WG/13) was reviewed and the status of tasks updated by the meeting. The updated task list is provided at the **Attachment 3** to this Report.

- 2.2 With respect to action item 14/12, concerning the location of information in the legacy ANP FASID Tables MET 3A, 3B, 3C, 5 and 6 and Charts MET 1 and 2, the Secretariat informed the meeting that the Regional Office had agreed to maintain links for States to access the information via the ICAO APAC website (i.e., on the eDocuments page) and advised that the longer term solution for maintaining the information was still in progress.

- 2.3 With respect to action item 14/9, concerning coordination of the MET/IE WG work programme with other expert groups such as CNS SG to promote the requirements for AMHS implementation with its extended services to support IWXXM data exchange via File Transfer Body Part (FTBP), the Secretariat informed the meeting that the recently established SWIM TF would conduct a kick-off meeting in May 2017 and presents further opportunity to promote the requirements for AMHS in the Region.

3. Meteorological information exchange schemes

SIGMET/AIRMET changes (IP/02)

- 3.1 Republic of Korea informed the meeting of improvements to the implementation of SIGMET and AIRMET service in Republic of Korea to comply with Annex 3 and Regional ANP provisions.

4. Meteorological information exchange in digital formStatus and plans for IWXXM and AMHS within APAC (WP/04)

4.1 The meeting was reminded that a survey of States was conducted in 2015 to assess the status and plans for implementation of both IWXXM and AMHS in the Region and that the results of the survey were discussed at MET/IE WG/14. However, as half the States in the Region did not respond to the survey, MET/IE WG/14 considered that many States will require support for IWXXM implementation and that the survey should be redistributed to seek further information from States (task 14/3, refers).

4.2 Subsequently, the Chair of MET/IE WG informed the twentieth meeting of the Meteorology Sub-Group (MET SG/20) of the results of the survey and recommended requesting the World Meteorological Organization (WMO) to distribute future surveys through its channels to facilitate better response rate from States. MET SG/20 also noted the related discussion at the *workshop on implementing IWXXM for exchange of OPMET data*, held in Paris, France, from 31 May to 2 June 2016, on possible coordination between the ICAO APAC and EUR/NAT Regions on a revised survey to ascertain States' level of implementation of IWXXM and to request information from States on associated issues. As a result, MET SG/20 adopted the following decision:

MET SG/20 Decision 20/7 – IWXXM and AMHS Survey

Revise and recirculate the IWXXM and AMHS survey, in coordination with the ICAO EUR/NAT Region, with distribution of the survey assisted through the WMO's channels, and produce an analysis of the Regional status of implementation of IWXXM and AMHS.

4.3 In view of the above, the Chair of MET/IE WG in collaboration with the EUR/NAT region [*Workshop on Implementing the ICAO Meteorological Information Exchange Model (IWXXM) for the exchange of OPMET data* (Paris, France, 31 May to 2 June 2016), Summary of Discussions, paragraph 2.21 refers] drafted a revised survey, which was presented for review and discussion by the meeting. The meeting agreed that the survey should be redistributed to States as soon as possible in order that responses could be obtained in time for analysis and review by the upcoming MET SG/21 meeting, to be held in Bangkok, Thailand, from 29 May to 1 June 2017. The meeting also agreed that prior to distribution; the survey should be reviewed by the CNS SG Secretary to seek concurrence on its readiness for distribution, but did not envisage significant issues which would result in a delay. It was also agreed that the upcoming first meeting of the System Wide Information Management Task Force (SWIM TF/1), to be held in Bangkok, Thailand, from 10 to 12 May 2017, should be informed of the requirements for AMHS with File Transfer Body Part (FTBP) to support IWXXM transfer, issuance of the survey and any preliminary survey results, if available at that time. In view of the above, the meeting adopted the following decision:

MET/IE WG/15 Decision 15/1 – IWXXM and AMHS Survey

That, the updated survey on IWXXM and AMHS, as provided in the **Attachment 5** to the Report, is distributed to States prior to 31 March 2017

Action:

Who	What	When
Secretariat	Coordinate with CNS SG Sec; distribute survey to States; request WMO to distribute to its members in APAC	31/03/17
Secretariat and/or Chair	Prepare and deliver status report on IWXXM and AMHS Survey (and other relevant MET/IE WG/15 outcomes) for discussion and coordination at SWIM TF/1	26/04/17

Status and plans for IWXXM in Singapore (IP/03)

4.4 Singapore updated the meeting on the status of its planning and implementation of IWXXM, including the successful generation of the required OPMET messages (METAR/SPECI, TAF, SIGMET, AIRMET and volcanic ash and tropical cyclone advisory information) in IWXXM version 2.0 in March 2017 including the OPMET bulletins in parallel to TAC OPMET bulletins.

4.5 Additionally, Singapore had successfully tested exchange of IWXXM messages with RODB Bangkok using FTBP XML file format through VPN in November 2016 and was in the process of enabling Message Switching System capability for exchange of data in IWXXM form via AMHS by 2018.

Status and plans for IWXXM in Republic of Korea (IP/05)

4.6 Republic of Korea presented information on its status of planning and implementation for IWXXM, including application of the IWXXM version 2.0 for METAR/SPECI, TAF, SIGMET and AIRMET on February 5, 2017. Note: Republic of Korea also reported producing special air-report information in WXXM form (with reference to <http://www.wxmx.aero>). The Secretariat advised that the ICAO provisions in Annex 3 that require OPMET information to be formatted in accordance with IWXXM do not apply to special air-report information.

4.7 Furthermore, the Korea Meteorological Administration has transmitted the OPMET in IWXXM form to the air navigation service provider by dedicated network, and development and testing was underway for graphical display of the OPMET information. A website for verification and monitoring of the OPMET in IWXXM version 2.0 form was also under development and it was expected that this would provide useful feedback to the IWXXM developers.

4.8 Republic of Korea also informed the meeting that implementation of AMHS would be promoted to support IWXXM, but noted that guidance on the Regional OPMET exchange schema for IWXXM, such as the ROBEX Handbook, would be required.

Plans for IWXXM in Japan (IP/04)

4.9 Japan provided a brief overview of its plans for implementation of IWXXM noting that the existing AMHS connection to the COM Centre in Fukuoka for transmission of data outside Japan did not currently support the transfer of IWXXM format messages.

4.10 However, while the RODB Tokyo did not currently handle OPMET messages in IWXXM format, Japan has plans to upgrade the connection at Fukuoka in 2017 to enable AMHS with extended services, which will make it possible to exchange OPMET messages in IWXXM format internationally using FTBP.

4.11 Furthermore, by March 2018, Japan planned to develop and test the IWXXM database at RODB Tokyo and the necessary interface with the AMHS Message Transfer Agent (MTA) of the Fukuoka COM centre to enable international exchange of IWXXM OPMET data by Japan. The plans did not, currently, include provisions for a data translation centre to convert TAC data into IWXXM.

Plans for IWXXM in Australia (IP/08)

4.12 Australia provided a brief update on the status and plans for implementation of IWXXM noting that changes required to support IWXXM in Australia would include enabling the international exchange of IWXXM messages between the designated meteorological service provider and connected National OPMET/ROBEX Centres, capability to generate IWXXM bulletins, enabling

FTBP on AMHS connections from RODB Brisbane (to RODBs Singapore and Nadi) and enabling exchange of IWXXM bulletins with the connected ROBEX partners (i.e., RODBs Singapore and Nadi, initially, followed by other states upon connections being upgraded to AMHS (Basic + FTBP)).

4.13 Australia advised that the Bureau of Meteorology currently has the capability to generate SIGMET in IWXXM version 1.1, with plans to commence trial generation of AIRMET, SIGMET and volcanic ash and tropical cyclone advisory information in IWXXM version 2.x format from mid-2017. Plans were also under development for operational generation of OPMET in IWXXM form, in parallel to TAC, rather than translated from TAC.

4.14 Plans were also in development for testing generation, ingestion and exchange of IWXXM (with New Zealand) over non-aviation networks. From an RODB perspective, solutions for the acceptance and storage of IWXXM reports, and the generation of IWXXM bulletins were still to be determined, as was the timeframe for implementation. Initially, responses to requests for IWXXM data (RQX) would be manually generated.

Status and plans for implementation of IWXXM in India (IP/12)

4.15 India provided an overview of its plans for the implementation of IWXXM and indicated an envisaged timeframe for implementation by 2018, initially through conversion of TAC to IWXXM. In response to a query from India, the Chair clarified that the ICAO standards are limited to those for aviation specific meteorological information exchange and does not have a remit to standardise general meteorological input formats.

4.16 Additionally, India updated the meeting on the implementation of tropical cyclone advisory information in graphical form by TCAC New Delhi and provided information about the provision of Doppler Weather Radar data in India to support ATM and ATFM. Noting that discussion on these items was outside the scope of the meeting's terms of reference, the Secretariat invited India to consider forwarding these items for discussion by the Meteorological Services Working Group (MET/S WG) and Meteorological Requirements Working Group (MET/R WG) respectively.

Joint (international) test on IWXXM exchange over extended AMHS (IP/09)

4.17 Hong Kong China, Thailand and Singapore informed the meeting on a number of joint tests of IWXXM exchange conducted over extended AMHS services during 2016 to 2017 and the plans for future tests were envisaged to support the coordinated regional approach to planning and implementation of IWXXM.

4.18 One of the tests used automatic TAC-to-IWXXM OPMET message conversion (by Hong Kong China). AMHS extended services were used for message transfer (between Hong Kong China and Thailand). IWXXM bulletins were compressed to reduce bandwidth use; however the exchange of messages with attachments larger than 6 KB was not successful. IWXXM messages prepared by Singapore were successfully sent with FTBP attachment between Singapore and Thailand.

4.19 Further tests will be conducted to address the observed issues, simulate a more 'operational-like' environment and include additional end-to-end testing between Singapore and Hong Kong China via Thailand later in 2017. The organizers anticipate that further end-to-end IWXXM exchange testing would support IWXXM implementation initiatives in the Region.

Update on the ICAO METP WG-MIE (IP/06)

4.20 Australia provided a summary of the status of matters being considered by ICAO METP WG-MIE, including: proposals for Amendment 78 to Annex 3 to include Standards for

provision of OPMET in IWXXM form, in addition to TAC, from November 2020, and additional fields in VAA, TCA and SIGMET/AIRMET to indicate the operational status (TEST or EXERCISE) events; development of the *"Guidelines for the Implementation of OPMET data exchange using IWXXM"*; the inclusion of standardized 'Extensions' in IWXXM to enable additional data to be included with the full message; agreement that changes to the IWXXM schema should not be applicable sooner than eighteen months following publication in Annex 3; development of a draft *Plan for Meteorology in System Wide Information Management (SWIM)* and draft *Roadmap for Meteorology in System Wide Information Management (SWIM)*; testing of IWXXM exchange over AMHS extended services and other communications requirements heading towards a SWIM environment; collection of IWXXM statistics (e.g., availability, timeliness, IWXXM validation, operational/non-operational, data volume and use of extensions); and updates to the *Manual of Aeronautical Meteorological Practice* (Doc 8896) and *Manual on the Digital Exchange of Aeronautical Meteorological Information* (Doc 10003) which are expected to be published in the coming months.

Proposed workshop on the implementation of IWXXM, in Hong Kong China (IP/10)

4.21 Hong Kong China outlined a proposal to organize and host a 3-day workshop from 10 to 12 October 2017 (in partnership with WMO and ICAO) on the implementation of IWXXM for the exchange of OPMET data with a view to raise the capability of stakeholders in the Region and facilitate IWXXM implementation.

4.22 The proposal indicated that participation would be targeted at personnel responsible for the provision, exchange and dissemination of meteorological information for international civil aviation (e.g. aeronautical meteorological services providers, air navigation service providers, national communication centres and RODBs). IATA expressed interest and support in the workshop proposal on behalf of the users of OPMET and it was suggested that consideration be given to invite IATA to join the workshop in order to represent the user perspective for IWXXM OPMET information. Formal invitations would be issued in due course, but capacity is expected to be limited to not exceed 40 participants. A list of tentative topics was presented to the meeting and is shown below:

Proposed workshop on implementation of IWXXM for the exchange of OPMET data Hong Kong, China, 10 - 12 October 2017	
<u>Tentative topics to be covered</u>	
1.	IWXXM and its importance to the Global Air Navigation Plan (GANP) and Aviation System Block Upgrade (ASBU);
2.	Collaboration of WMO and ICAO in the development and governance of IWXXM;
3.	Regional considerations with respect to the <i>Guidelines for the implementation of OPMET Data Exchange using IWXXM</i> ;
4.	Technical aspects related to IWXXM with emphasis on assisting participants to kick start their own implementation project, such as: (a) Introduction of IWXXM and the use of it for message encoding; (b) Translation of TAC to IWXXM bulletins; (c) Validation of IWXXM bulletins and available resources; and (d) Infrastructural and operational requirements for IWXXM bulletin exchange;
5.	Experience sharing on IWXXM implementation and gap identification; and
6.	Discussion on preparation for local and regional implementation.

4.23 The meeting concurred that the experience sharing aspect of the proposed workshop would help build capacity among States through the exchange of lessons learned in the IWXXM implementation initiatives of States. The hosts, supported by the Chair and Secretariat, had considered

that, given the size limitation of the proposed workshop, and the diverse range in preparedness for IWXXM implementation of the target States, it would be premature to include potential vendors of IWXXM technological solutions in such a workshop at this early stage in Regional implementation..

Guidelines for the implementation of OPMET data exchange using IWXXM (WP/07)

4.24 The Chair MET/IE WG presented the *Guidelines for the Implementation of OPMET data exchange using IWXXM* document that was developed by the METP WG-MIE and endorsed and recommended by MET Panel as guidance for Planning and Implementation Regional Groups (PIRGs) to facilitate the transition from TAC form to IWXXM in the Regions (MET Panel, Recommendation 5/5 — *Guidelines for the Implementation of OPMET data exchange using IWXXM*, refers).

4.25 It is intended that the document will remain a living document, and as such it will be required to be kept consistent with current developments in IWXXM and its implementation. It is further proposed that the METP WG-MIE retain responsibility during the transition period for maintaining the document and released versions will be distributed through PIRGs to ICAO member States. The Chair clarified that while updates to the document would be the responsibility of the MET Panel, any Region-specific additional or supplementary information to the document would be the responsibility of Regions and would belong outside the guidelines document.

5. Quality control, monitoring and management of meteorological information exchange

Availability of OPMET data from APAC (WP/05)

5.1 IATA summarized the results of monitoring conducted on the availability of OPMET data for the APAC region, which focussed on global availability via the SADIS and WIFS and highlighted deficiencies in OPMET availability.

5.2 The requirements used in the monitoring for OPMET data availability on SADIS and WIFS were based on the requirements of FASID Table MET 2A, which was last updated on 28 April 2014. The meeting noted that, as a result of the adoption of the new common template for Regional air navigation plans, the future status of FASID Table MET 2A was uncertain and this would have an impact on the OPMET monitoring performed by IATA on behalf of the group.

5.3 The meeting was informed that the ANP still includes the requirement for OPMET provision at all the aerodromes listed in the ANP in the Aerodrome Operational Planning (AOP) Tables (this is provided in the new Table MET II-2), but no longer includes requirements for OPMET to be provided (in SADIS and WIFS) for the additional set of aerodromes that are not listed in the AOP Tables and are listed in the FASID Table MET 2A (which is no longer in the ANP).

5.4 Furthermore, the ongoing maintenance of a database for requirements for OPMET provision (via SADIS and WIFS) from aerodromes no longer listed in the ANP (i.e., now only in FASID Table MET 2A) is still under discussion in the MET Panel. With respect to this matter, the Secretariat informed the meeting that the MET Panel considered the provision of OPMET data from (so-called) “non-AOP” aerodromes was a State responsibility and, at present, many ICAO regions were maintaining lists of OPMET data for “non-AOP” aerodromes that were being disseminated internationally. The MET Panel had also noted that there was no mandate under the convention to provide this data through ICAO systems and, in this regard, suggested that IATA raise this matter formally with ICAO.

5.5 Notwithstanding the issues discussed above, IATA informed the meeting that significant improvement and a relatively high level of overall availability of OPMET data from the APAC region has been achieved and maintained since 2009. Nevertheless, the monitoring statistics

also show that OPMET data was frequently not available at a number of locations and further details were provided in the statistics attached to the IATA paper. The monitoring information also highlighted a small number of locations where OPMET was not consistently available on both SADIS and WIFS.

5.6 The meeting agreed that the IATA OPMET availability monitoring results should be promulgated to States concerned to facilitate corrective action by those States to improve the availability of OPMET for international aviation. Noting the outstanding action on this same issue from the previous meeting (task 14/6, refers) the meeting would revise the work programme of the MET/IE WG to further address this issue.

Availability of non-scheduled OPMET data from APAC (WP/06)

5.7 IATA summarized the results of monitoring conducted on the availability of non-scheduled OPMET data for the APAC region, which focussed on global availability via the SADIS and WIFS and highlighted deficiencies in OPMET availability.

5.8 The monitoring showed that with one exception all non-scheduled OPMET data were available on both SADIS and WIFS. The exception related to the availability of AIRMET messages from one State, Republic of Korea, which were not found to be available on the WIFS. With respect to AIRMET, the Secretariat reminded the meeting that there was no Regional Air Navigation Agreement for provision of AIRMET information in the APAC Region; however one State, Australia, has indicated in the ANP that there is a requirement for AIRMET provision by its MWOs. Republic of Korea indicated that it had requested a proposed an amendment to the ANP accordingly (WP/8).

Inter-regional OPMET gateway (IROG) backup exercise (WP/10)

5.9 Thailand informed the meeting of results from the 12th real-time backup exercise conducted by RODB Singapore and RODB Bangkok on 8 February 2017, which is conducted annually to validate the dissemination for notification messages between IROGs and ensure that the procedure for handover and takeover of responsibility are functional in the event that RODB Singapore experiences technical problems.

5.10 Details of the success of the exercise are provided in the paper by Thailand. The meeting considered whether a broader programme for IROG backup exercises would be warranted in the Region given that other RODBs were also designated as IROGs for the APAC Region. The meeting agreed to consider this issue together with the future work programme of the MET/IE WG (at agenda item 7).

OPMET performance indicators (WP/14)

5.11 Thailand presented OPMET Performance Indicators (PIs) as measured by the five APAC RODBs: Bangkok, Brisbane, Nadi, Singapore and Tokyo during an agreed monitoring period from 1 to 31 January 2017, which highlighted some deficiencies in the availability and compliance of OPMET data from a number of APAC aerodromes covered by the monitoring.

5.12 In relation to the discussion on the above, and in particular concerning availability of OPMET data from India, the meeting noted that the ROBEX Handbook would need to be updated to reflect the actual availability of TAF provision at specific aerodromes in India where service provision is not for the full 24-hour period. The meeting also noted the ROBEX Handbook would need to be updated in relation to the realignment of location indicators at aerodromes in Indonesia (refer to previous meeting's agreement for ROBEX Handbook updates).

OPMET exchange between APAC and MID (IP/11)

5.13 Thailand updated the meeting on quality control initiatives for the OPMET exchange between MID and APAC Regions conducted by IROG Bangkok as part of the APAC ROBEX scheme, and informed the meeting that IROG Bangkok will continue to work in this role with MID Region States to facilitate improved quality of OPMET data exchange between the two Regions.

5.14 In view of the issues raised above concerning receipt of redundant OPMET messages from MID Region, RODB Bangkok would coordinate with other APAC RODBs to determine the extent of the issue. The Chair recommended that the activities discussed continue to be managed at the operational level, between IROGs concerned, but direct support from the ICAO Secretariat to liaise with MID Region may be requested as necessary.

Upgrade of quality control program in METAR (IP/07)

5.15 Republic of Korea presented information on the upgrade of quality control functions in its METAR preparation system to improve compliance of METAR for international distribution and to decrease the number of METAR (format) errors. It was noted that the quality control of METAR message preparation in Republic of Korea had resulted in a significant reduction in the rate of format errors in METAR produced over the period from 2011 to 2016.

6. Guidance material related to meteorological information exchangeProposal for amendment to the ASIA/PAC ANP (WP/08)

6.1 Republic of Korea discussed a proposal to amend the data in the ASIA/PAC ANP, Volume II, Tables MET II-1, and MET II-2, related to the assignment of responsibilities to the Republic of Korea for the provision of meteorological services within the INCHEON FIR (specifically AIRMET service) and at aerodromes in Republic of Korea (specifically related to requirements for TREND forecast, 30-hour validity TAF and the availability of OPMET service with respect to full 24-hour service vs. partial service).

6.2 The meeting noted that consequential amendment to other related guidance material would need to be considered by the group. The meeting also considered that improvements could be proposed to the format of information and the tables in the ANP and an adhoc group was formed to develop proposals for improvement of the ANP template, based on discussions in the group, to be forwarded to the MET SG/21 meeting for further consideration (Australia [Rapporteur], Secretariat).

Changes to ICD handbook (WP/09)

6.3 Australia advised that it has identified some inconsistencies in the OPMET ICD Handbook, whereby two old entries Australia bulletin entries remain within Appendix E. Specifically; there are currently two entries for both SAAU31 and SAAU32, these being from source centre (CCCC) of AMMC and YBBN. The AMMC is an old entry and should be deleted.

6.4 The meeting was also informed that changes to requirements at an additional Australian aerodrome (YGLA), which were promulgated to the Secretariat in a separate correspondence. The meeting noted that the proposed changes related to OPMET information for aerodromes not listed in the ANP (i.e., aerodromes listed in the FASID Table MET 2A, which is no longer in the ANP) and, as discussed earlier in the agenda item [paragraphs 5.2-5.4 refer], the ongoing maintenance of that list of aerodromes is still under discussion. It was also noted that the ROBEX Handbook recommended that, in addition to all international aerodromes listed in the ANP, OPMET from a number of domestic aerodromes, required by the users, should also be included in the regular ROBEX exchange, if so agreed by the States concerned (ROBEX Handbook, paragraphs 6.1.2 and

6.1.3, refer). The ROBEX Handbook and the ICD Handbook should also be updated to include YGLA.

Amendment to ROBEX handbook (WP/03)

6.5 New Zealand presented a proposed amendment to the ROBEX Handbook for listing the dissemination of OPMET for a non-AOP aerodrome in New Zealand.

6.6 In response to a request for clarification by the Chair, New Zealand advised that due to particular operational considerations at the Queenstown aerodrome the required filing time of TAFs was 30 minutes after commencement of the validity periods.

Changes to ROBEX handbook (WP/11)

6.7 India presented that Kathmandu (VNKT) is yet to change its METAR issue timings to HH+00 and HH+30 as mentioned in page A-7 of Table A of ROBEX Handbook (2008, e12, amended on 3 Dec 2015) from its erstwhile HH+20 and HH+50 and hence the end users are deprived of crucial METARs of Kathmandu in the METAR bulletin compiled by Kolkata (VECC). As VOTV and VANP are issuing round the clock METARs, the limited hours asterix mark may be removed at page A-8 of Table A of ROBEX Handbook(2004, amended 3 Dec2015). As the METARs received from Paro (VQPR) through AFTN is compiled by VECC in the METAR bulletin and that too for the limited operational hours of VQPR, it is considered necessary to link VQPR with VECC through an AFTN linkage (from its currently shown VABB connectivity) in the ROBEX Schematic diagram at page 8 of the ROBEX Handbook (2004, e12, 3Dec2015). Moreover, in the same diagram, it is necessary to correct VGZR as VGHS.

6.8 India further highlighted that as only short TAFs (9hrs validity) are issued for the non-scheduled operations at VOHY domestic aerodrome and IATA had expressed its satisfaction for the round the clock long TAF (30 hrs validity) being issued for VOHS and hence inclusion of VOHS in lieu of VOHY in the ROBEX bulletin in the CNS/MET SG/14 meeting of APANPIRG, July 2010, the entry of VOHY may be deleted at pages A-8 (for limited hours METARs), B-7 (as long TAF is not at all issued for VOHY) and also in Asia Pacific OPMET Data banks ICD documentation (2004, amended 3 Dec2015) at pages A-5, B-4, D-9, E-10 and E-25.

6.9 The proposed changes to ROBEX Handbook tables would need to be properly formatted in a draft documents for further coordination between the States concerned, i.e., India and Nepal. The meeting noted that the above discussion was also relevant to a previous action to update the ROBEX scheme diagram (action 14/1 refers).

Amendment to ROBEX handbook (WP/12)

6.10 Hong Kong China presented a proposed amendment to the ROBEX Handbook for listing the dissemination of OPMET bulletins.

6.11 The meeting considered that all the ROBEX Handbook changes discussed in the meeting would be combined with outstanding updates proposed at the previous meeting but not yet published and presented in time for final review and endorsement by the MET SG/21 meeting.

6.12 In further discussion related to the above papers on ROBEX Handbook updates, the Chair recommended that since the ROBEX Handbook had been updated by an iterative process over several years, it would be prudent to consider a major review and update of the Handbook as a whole to address the significant issues such as the migration to IWXXM exchange, the structure of OPMET bulletins and previous outstanding action to merge information contained in the ROBEX Handbook and the ICD (action 14/11 and work programme activity 6.4). An adhoc group was formed to progress this task, comprising NZ [Rapporteur], Secretariat, Chair, IATA and all the RODBs.

7. Future work programme

Review terms of reference and work programme (WP/13)

7.1 The terms of reference for the MET/IE WG were provided by the MET SG when it established the MET/IE WG as the replacement for the ROBEX WG (MET SG/19 Decision 19/2, refers). The previous meeting (MET/IE WG/14) had reviewed and revised a work programme document for the MET/IE WG, incorporating the terms of reference provided by the MET SG and the existing membership, tasks and work programme of the (former) ROBEX WG.

7.2 The meeting conducted a breakout group session to revise and update the terms of reference and work programme document taking into account the status of previous agreed tasks and milestones, outcomes from discussions that occurred during the meeting and the need for the group to focus its work programme closely on the terms of reference and to ensure tasks are aligned the objectives of the group and are specific. The revised work programme was then reviewed and accepted by the meeting and is provided at the **Attachment 4** to this report.

8. Any other business

Plans for IWXXM implementation in Fiji (Flimsy/01)

8.1 Fiji updated the meeting on its plans for implementation and testing of IWXXM, including: generation and dissemination of IWXXM data as well as TAC conversion and other IWXXM data management considerations; upgrades to AMHS connectivity (to RODB Brisbane) to enable AMHS with extended services; acquisition of IWXXM data as attachment to AMHS messages; storage of IWXXM data in the database; and plans to test IWXXM data generation, exchange and ingestion with local and Regional partner States.

8.2 Solutions for data querying/manipulation/visualization and a firm timeframe for IWXXM implementation were yet to be established.

Next Meeting

8.3 The next meeting was tentatively scheduled for 19 to 21 March 2018 in Bangkok, Thailand, back-to-back with the MET/S WG/8 meeting and including a conjoint session on the last day to address agenda items common to both groups.

Report on Conjoint Session

1. VAAC backup tests

Backup operations between VAACs Darwin and Tokyo (WP/C01)

1.1 Australia and Japan informed the meeting of the aims and outcomes of a mutual backup test conducted between the VAAC Darwin and VAAC Tokyo on 14 December 2016; as part of a backup arrangement between the two VAACs which is tested annually in accordance with relevant provisions in ICAO Doc 9766 — *Handbook of the International Airways Volcano Watch (IAVW)* – Appendix D.

1.2 A copy of the set of procedures specifically developed and used for the backup test was provided as information for the meeting in an attachment to the paper (WP/C01). The procedures included agreement on the date and time for the backup test, the list of AFTN addresses necessary for required distribution of the volcanic ash advisory information and the content and format for the backup test volcanic ash advisory messages.

1.3 The backup test report indicated that timely and successful dissemination and receipt of backup test messages was observed, however a lower than expected number of acknowledgements from required recipients of the backup test messages (i.e., ACCs/FICs, MWOs, WAFCs and RODBs) was not sufficient to fully demonstrate the success of the backup arrangement.

1.4 A number of recommendations arising from the backup test outcomes were proposed for discussion and possible further action by the meeting. These would be further considered by the meeting for integration where appropriate in the MET/S WG work programme, to be discussed under agenda item 7, and included the following:

- That, VAACs Darwin and Tokyo continue to promote the implementation and understanding of the IAVW, through active engagement with regional MWOs;
- That, VAACs Darwin and Tokyo use the backup test results to identify the necessity to update the AFTN addresses required for dissemination of volcanic ash advisory information; and
- That, VAACs Darwin and Tokyo continue to conduct backup tests on an annual basis.

1.5 The paper also included the AFTN addresses used for disseminating Volcanic Ash Advisories. Singapore noted that one Singapore AFTN address is no longer required and Chair requested Singapore to email VAAC's Darwin and Tokyo to advise of this required change.

2. SIGMET tests

Review of WS SIGMET test 12 (WP/C02)

2.1 Singapore reported to the meeting results of the WS SIGMET test 12 conducted on 16 November 2016 in accordance with the work programme of the MET/S WG. Test results included: the identification of MWOs from which test messages were not received; comparisons of test message reception at the APAC RODBs and EUR OPMET centres; and the identification of non-compliant format and content in test messages.

2.2 Notwithstanding that SIGMET test messages were received from an additional two States compared with the previous year's test, the results indicated that there were still six States, namely Afghanistan, DPR Korea, Fiji, French Polynesia, Nauru and Papua New Guinea, from which test messages were not received (at the OPMET centres participating in the test), and on average the availability of the test messages at the APAC RODBs was slightly lower than the previous year (90%, down from 95%).

2.3 Further discussion related to the WS (WC and WV) SIGMET test results was provided at paragraphs 2.7 to 2.8, below.

Progress with SIGMET tests – WC and WV (WP/C03)

2.4 In close coordination with the SIGMET test results reported above, Japan reported to the meeting results from the WC and WV SIGMET test 12 conducted on 2 and 9 November 2016 in accordance with the work programme of the MET/S WG. Test results included: the identification of MWOs from which test messages were not received; comparisons of test message reception at the APAC RODBs; and the identification of non-compliant format and content in test messages.

2.5 Results showed a decline in the availability of the test WC SIGMET messages on average at the APAC RODBs compared to the previous two years (60%, down from 63% and 83%). On the other hand, there was an improvement in the availability of the test WV SIGMET messages on average at the APAC RODBs since the previous year's test (83%, up from 78%).

The States from which test WC and WV SIGMET messages were not received included: [list here from the paper]. Australia informed the meeting that software issues prevented onward transmission of test WC SIGMETs from RODB Brisbane, but that the issue was since resolved. The meeting also noted that WC SIGMET test was not received from WAAA MWO due to [Indonesia to provide words here]. The meeting noted that a relatively short preparation time provided for the WC SIGMET test by the SIGMET test invitation letter may have been a contributing factor in the above results.

2.6 The meeting noted the SIGMET test results in the reports from both Singapore and Tokyo, including: continued failure to record full participation in the SIGMET tests by all required States and MWOs; variances in availability of the test messages between the required OPMET centres; and the repetition of common errors in formatting and code of test SIGMET messages.

2.7 The meeting noted that whilst RODB Nadi collated data in support of analysis for the WS SIGMET test, no equivalent data from RODB Nadi was made available for the WC and WV SIGMET test analysis. The representative from RODB Nadi acknowledged the requirement for RODB support for the SIGMET tests and committed to participating in all 3 phases of the SIGMET test during 2017.

2.8 In view of the above, the meeting considered what additional follow up action would be required to improve results from the SIGMET tests and, hence, SIGMET service generally in the Region, which could be integrated where appropriate in the MET/S WG work programme, to be discussed further under agenda item 7.

Review of SIGMET monitoring – WC and WV (IP/C01)

2.9 Japan also presented results of an APAC SIGMET monitoring activity focussing on SIGMET information provided for tropical cyclone and volcanic ash during July 2016; conducted in accordance with the agreed work programme of the MET/S WG.

2.10 While the SIGMET monitoring activity was primarily conducted to assist the Region with validation of reported SIGMET-related air navigation deficiencies, and to facilitate corrective action, the meeting noted that the results of the SIGMET monitoring activity indicated some commonality with issues identified in the annual SIGMET tests, such as the availability of SIGMET messages and incorrect usage of format and code in SIGMET information.

2.11 With respect to the ability of the SIGMET monitoring activity to assess the timeliness and accuracy of SIGMET issued for actual tropical cyclone and volcanic ash events, the meeting noted that additional, careful examination of the relevant SIGMET information would be necessary in order to conduct a detailed investigation; along with significant workload considerations for the States concerned and the MET/S WG.

**Fifteenth meeting of the Asia/Pacific Meteorological
Information Exchange Working Group (MET/IE WG/15)**
(Bangkok, Thailand, 20 – 22 March 2017)

Attachment 1 to the Report

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International Civil Aviation Organization

**FIFTEENTH MEETING OF THE ASIA/PACIFIC METEOROLOGICAL
INFORMATION EXCHANGE WORKING GROUP (MET/IE WG/15)**

Bangkok, Thailand, 20 – 22 March 2017

LIST OF WORKING AND INFORMATION PAPERS

WP/IP No.	Agenda Item	Subject	Presented by
WP/1	-	Provisional Agenda	Secretariat
WP/2	2	Review of Follow-up from Previous Meetings	Secretariat
WP/3	6	Amendment to ROBEX Handbook	New Zealand
WP/4	4	Status and Plans for IWXXM and AMHS within APAC	Chair MET/IE WG
WP/5	5	Availability of OPEMT Data from ASIA/PAC	IATA
WP/6	5	Availability of Non-scheduled OPMET Data from ASIA/PAC	IATA
WP/7	6	Guidelines for the Implementation of OPMET Data Exchange Using IWXXM	Chair MET/IE WG
WP/8	6	Proposal to Amend the ASIA/PAC ANP, Vol. II	Republic of Korea
WP/9	6	Changes to Australian Entries in OPMET ICD Handbook	Australia
WP/10	5	ASIA/PAC Inter-regional OPMET Gateway between RODB Bangkok and RODB Singapore	Thailand
WP/11	6	Changes to ROBEX Handbook	India
WP/12	6	Amendment to ROBEX Handbook	Hong Kong, China
WP/13	7	Review MET/IE WG Terms of Reference and Work Programme	Secretariat
WP/14	5	ASIA/PAC Performance Indicators	Thailand

LIST OF INFORMATION PAPERS

IP/1	-	Meeting Bulletin	Secretariat
IP/2	3	SIGMET/AIRMET Changes	Republic of Korea

WP/IP No.	Agenda Item	Subject	Presented by
IP/3	4	Status and Plans for IWXXM in Singapore	Singapore
IP/4	4	Plans for IWXXM in Japan	Japan
IP/5	4	Status and Plans for IWXXM in Republic of Korea	Republic of Korea
IP/6	4	Update on the ICAO METP WG-MIE	Australia
IP/7	5	Upgrade of Quality Control Program in METAR	Republic of Korea
IP/8	4	Plans for IWXXM in Australia	Australia
IP/9	4	The Joint Test on IWXXM Exchange over Extended AMHS among Hong Kong China, Thailand and Singapore	Hong Kong China, Thailand and Singapore
IP/10	4	Proposed WMO VCP/ICAO APAC Workshop on the Implementation of IWXXM for the Exchange of OPMET Data to be held in Hong Kong, China	Hong Kong, China
IP/11	5	OPMET Exchange between ASIA/PAC and Middle East Region	Thailand
IP/12	4	Status and Plans for Implementation of IWXXM in India	India

CONJOINT WORKING PAPERS

WP/C1	C1	Mutual Back-up Operation between VAACs Darwin and Tokay	Australia and Japan
WP/C2	C2	Review of WS SIGMET Test 12	RODB Singapore
WP/C3	C2	Progress with SIGMET Tests – WC and WV	Japan

CONJOINT INFORMATION PAPERS

IP/C1	C2	Review of SIGMET Monitoring – WC and WV	Japan
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MET/IE WG/15
Attachment 3 to the Report

MET/IE WG – TASK LIST

(Note: **Highlighted** text indicates updated information)

ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/REMARKS
13/2	Draft revisions to the guidance for OPMET monitoring (e.g., in the ROBEX Handbook and IATA OPMET monitoring practices) to address the specific requirements in ROBEX WG/13 Decision 13/2 and present to MET SG/21 .	June 2017	Secretariat and ROBEX WG	IN PROGRESS [Ref: ROBEX WG/13 Decision 13/2]
13/3	Consider the feasibility of realigning the locations in corresponding METAR (SA) and TAF (FT) bulletins and report to MET SG/21 .	June 2017	Secretariat and ROBEX WG	IN PROGRESS [Ref: ROBEX WG/13 Decision 13/3]
13/6	Draft revisions to the ROBEX Handbook to address the specific requirements in ROBEX WG/13 Decision 13/6 and present to MET SG/21 .	June 2017	Secretariat and ROBEX WG	IN PROGRESS [Ref: ROBEX WG/13 Decision 13/6]
13/7	Investigate feasibility of including provisions in the regional guidance material related to the issuance of routine TAF at intervals of three (3) hours; present draft material to MET SG/21 .	June 2017	Secretariat and ROBEX WG	TO BEGIN [Ref: ROBEX WG/13 Decision 13/7]
14/1	Draft an updated IROG schematic for the ROBEX Handbook	June 2017	Secretary, Thailand	TO BEGIN [Ref: MET/IE WG/14 Report para. 3.6]
14/2	Process amendment to the ROBEX Handbook, Tables A, B and C, to reflect the updated OPMET bulletins compiled by RODB Bangkok	June 2017	Secretary, Thailand	TO BEGIN [Ref: MET/IE WG/14 Report para. 3.8]
14/3	Re-distribute the survey on the status of planning and implementation of IWXXM and AMHS	June 2017	Secretary	IN PROGRESS [Ref: MET/IE WG/14 Report para. 4.3; MET SG/20 Decision 20/7 – IWXXM and AMHS Survey]

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ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/REMARKS
14/4	Obtain confirmation from Fiji on: a) The status of planning and implementation of IWXXM at RODB Nadi [Within two years, RODB Nadi would have test capability for AMHS links]; and b) Fiji's intentions with respect to supporting and participating in the IWXXM workshop [Fiji participated; Leonard Bale, Fiji Meteorological Service, Ministry of Infrastructure and Transportation]	Apr 2016	Secretary	COMPLETED [Ref: MET/IE WG/14 Report para. 4.18; Workshop on Implementing the ICAO Meteorological Information Exchange Model (IWXXM) for the exchange of OPMET data (Paris, France, 31 May – 2 June 2016) SUMMARY OF DISCUSSIONS]
14/5	Obtain instruction from MET SG on any necessary follow-up action related to capacity building for the planning and implementation of digital exchange of meteorological information [MET SG/20 Decision 20/12: Develop a coordinated regional strategy for capacity building initiatives to support implementation of digital exchange of meteorological information taking into consideration relevant outcomes from the workshop on implementing IWXXM, coordination with the WMO and the METP WG-MIE, as well as consideration of the following suggestions: a) opportunities for side meetings or briefing sessions at appropriate regional meetings; b) Regional workshops*, including “train the trainer”; and c) development and distribution of education materials.]	Jun 2016	Chair, Secretary	COMPLETED [Ref: MET/IE WG/14 Report para. 4.18; MET SG/20 Decision 20/12 – Capacity building initiatives to support implementation of the exchange of meteorological information in IWXXM format]
14/6	Forward OPMET monitoring information to States concerned and SADIS/WIFS providers [Note:	Jun 2016	Secretary	IN PROGRESS [Ref: MET/IE WG/14 Report para. 5.2; work programme, Activity 1.8]
14/7	Notify Fiji of the MET/IE WG's significant concerns regarding RODB Nadi representation at the WG and participation in OPMET monitoring	Jun 2016	Secretary	IN PROGRESS [Ref: MET/IE WG/14 Report para. 5.5]
14/8	Coordinate corrective action with States concerned to facilitate resolution of OPMET performance (low compliance) issues	Jun 2016	Secretary, RODBs	TO BEGIN [Ref: MET/IE WG/14 Report para. 5.6; work programme, Activity 1.9]

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ACTION ITEM	DESCRIPTION	BY DATE	RESPONSIBILITY	STATUS/REMARKS
14/9	Recommend appropriate links to other regional (communications-related) expert groups to promote the requirements for AMHS with extended services and timelines to support IWXXM and to promote the requirement for connection between MET service and national AMHS connection to support IWXXM transfer [MET SG/20 Decision 20/8: Coordinate the MET SG work programme with the other APANPIRG Sub-groups (e.g., CNS SG) with respect to the regional planning and implementation of extended AMHS services for the exchange of meteorological information in the IWXXM form]	Jun 2016	Chair, Secretary	COMPLETED [Ref: MET/IE WG/14 Report para. 6.4; MET SG/20 Decision 20/8 – Coordination on implementation of extended AMHS]
14/10	Complete the revised draft amendments to the ROBEX Handbook	Jun 2016	Secretary	IN PROGRESS [Ref: MET/IE WG/14 Report para. 6.7]
14/11	Complete the draft amendments to the ICD	Jun 2016	Secretary, RODBs	IN PROGRESS [Ref: MET/IE WG/14 Report para. 6.10]
14/12	Publish agreed updates to information in FASID Tables MET 3A and 3B and confirm the future location for the information contained in FASID Tables MET 3A, 3B, 3C, 5 and 6 and Charts MET 1 and 2	Jun 2016	Secretary	IN PROGRESS [Ref: MET/IE WG/14 Report para. 6.15]

**ICAO ASIA/PACIFIC
METEOROLOGICAL INFORMATION EXCHANGE WORKING GROUP
(MET/IE WG)**

TERMS OF REFERENCE AND WORK PROGRAMME

1. COMPOSITION

The MET/IE WG is made up of members from States representing the five APAC Regional OPMET Data Banks (RODBs): *Australia/Brisbane, Fiji/Nadi, Japan/Tokyo, Singapore and Thailand/Bangkok*; the World Area Forecast System (WAFS), Secure Aviation Data Information Service (SADIS) and WAFS Internet File System (WIFS) Provider States: *United Kingdom and United States*; the three APAC Volcanic Ash Advisory Centres (VAACs): *Australia/Darwin, Japan/Tokyo and New Zealand/Wellington*; the designated focal points for SIGMET tests and regional OPMET bulletin exchange (ROBEX); and the International Air Transport Association (IATA).

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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 framework and the aviation system block upgrade (ASBUs) methodology.
Benefits	Increase in safety and efficiency (time and fuel savings).
Terms of Reference	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

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	<p>users and global OPMET exchange;</p> <p>b) Monitor and participate in trials of digital aeronautical meteorological information exchange inter- and intra- regionally;</p> <p>c) Develop standardized quality control, monitoring and management procedures related to exchange of IWXXM and TAC OPMET information;</p> <p>d) Review the regional guidance material related to OPMET exchange;</p> <p>e) Liaise and consult with other appropriate bodies within ICAO and WMO dealing with communication and/or management aspects of the OPMET exchange; and</p> <p>f) 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.</p>
Work Programme	<p>The work to be addressed by the MET/IE WG includes:</p> <ul style="list-style-type: none"> - 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 ROBEX centres and the RODBs/IROGs; - 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); - 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
Work Plan	MET/IE WG Members	Document via email & MET/IE WG Meeting	As required but reviewed at the MET/IE WG Meeting and the MET SG	Chair
General correspondence	MET/IE WG Members	Email	As required	MET/IE WG Members
Working Group Meeting	MET/IE WG Members	Meeting	Annually	Chair
Status & Milestone Reports	ICAO Secretariat and MET/IE WG Members	Report via email & WP at MET/IE WG Meeting	Annually	Chair
Working Group Report	All APAC States	Working Paper at MET SG	Annually	Chair

4. PERFORMANCE FRAMEWORK FORM (PFF)				
Tasks	Time Frame	Responsibility	Status	Milestone
Task 1: Improve the availability of OPMET data	Ongoing	MET/IE WG		1
Task 2: Improve timeliness, compliance and regularity of OPMET exchange	Ongoing	MET/IE WG		2
Task 3: Identify gaps and errors in processes, procedures and OPMET exchange	Ongoing	MET/IE WG		3, 4, 5
Task 4: Review regional guidance material related to OPMET data	Ongoing	MET/IE WG		3, 4, 5, 6
Task 5: Facilitate and monitor the migration to IWXXM in support of SWIM	2017-2020	MET/IE WG		7
Task 6: Review the OPMET Exchange structure	2017	MET/IE WG		8

5. MILESTONES			
Milestone	Accountability	Dates	Status
Milestone 1: 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	
Milestone 2: 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	
Milestone 3: SIGMET tests conducted, analysed and report complete.	MET/IE WG	Annually Jun	
Milestone 4: VAAC Back-up tests conducted, analysed and report complete.	VAAC Back-up Focal Points	Annually Jun	
Milestone 5: IROG Back-up tests conducted, analysed and report complete.	Bangkok RODB	Annually Mar	
Milestone 6: RODB Monitoring procedures updated in ROBEX Handbook.	Secretariat	Annually Sep	
Milestone 7: Report to MET/IE WG & MET SG on IWXXM exchange & testing.	Secretariat & Chair	Annually Mar & May	
Milestone 8: OPMET Exchange structure review complete.	MET/IE WG	2017	

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Milestone 9: Improved efficiency and effectiveness of ROBEX scheme.	RODBs	Annually Jun	
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6. WORK PLAN				
Activity / Milestone	Accountability	Predecessors	Date	Status
Activity 1: Increasing OPMET availability for aerodromes where OPMET information is required at RODBs, SADIS and WIFS				
Activity 1.1: Perform real time monitoring if required	RODBs & IATA	-	If required	
Activity 1.2: Monitor and score RODB OPMET reception against PI thresholds.	RODBs	-	Annually Dec/Jan	
Activity 1.3: Monitor and score SADIS/WIFS OPMET reception.	IATA	-	Annually Jan	
Activity 1.4: Assess OPMET monitoring results & advise the OPMET centre of corrective actions	RODB Bangkok & IATA	1.2 & 1.3	Annually Feb	Sep 2017, Annually Feb
Activity 1.5: Prepare papers reporting results and deficiencies to MET/IE WG meeting.	RODB Bangkok & IATA	1.2 & 1.3	Annually Mar	
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.	Secretariat	1.6	Annually Jun	
Activity 1.8: Provide support for States to rectify deficiencies if requested.	RODBs	1.7	As required	
Milestone 1: Achieve 95% (90%) or greater OPMET availability for AOP (non-AOP) aerodromes at RODBs & WAFS.	MET/IE WG	1.8	Annually Jun	
Activity 2: Improving OPMET timeliness, compliance and regularity at RODBs, SADIS and WIFS				
Activity 2.1: Monitor & collate OPMET data.	RODBs & IATA	-	Annually Dec/Jan	
Activity 2.2: Analyse data	RODB Bangkok & IATA	2.1	Annually Feb	
Activity 2.3: Prepare paper report results to MET/IE WG meeting	RODB Bangkok & IATA	2.2	Annually Mar	
Activity 2.4: Report summary of OPMET timeliness, compliance and regularity results to METSG	Chair	2.3	Annually May	
Activity 2.5: Inform States of non-compliance	Secretariat	2.4	Annually Jun	

6. WORK PLAN				
Activity / Milestone	Accountability	Predecessors	Date	Status
Activity 2.6: Provide support for States to rectify deficiencies if requested.	RODBs	2.5	As required	
Milestone 2: Achieve 95% (90%) or greater OPMET timeliness, compliance and regularity for AOP (non-AOP) aerodromes at RODBs, SADIS and WIFS.	MET/IE WG	2.6	Annually Jun	
Activity 3: SIGMET Tests				
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: Conduct & collate data for WC SIGMET Tests	RODBs	3.2	Annually	1st Wed in Nov
Activity 3.4: Conduct & collate data for WV SIGMET Tests	RODBs	3.2	Annually	2nd Wed in Nov
Activity 3.5: Conduct & collate data for WS SIGMET Tests	RODBs	3.2	Annually	3rd Wed in Nov
Activity 3.6: Analyse test data	RODB Singapore & Tokyo	3.3 - 3.5	Annually Jan	
Activity 3.7: Assess SIGMET test results to identify corrective actions from Nov tests	RODB Singapore & Tokyo	3.3 - 3.5	Jun 2017, Annually Feb	
Activity 3.8: Report to MET/IE WG	RODB Singapore & Tokyo	3.6	Annually Mar	
Activity 3.9: Report on SIGMET Test Results to MET SG.	Chair	3.7	Annually May	
Activity 3.10: Advise States of SIGMET deficiencies	Secretariat	3.8	Annually Jun	
Milestone 3: Improved issuance and compliance of SIGMETs	MET/IE WG	3.9	Annually Jun	
Activity 4: VAAC Back-up Tests				
Activity 4.1: Review VAAC Back-up Test procedures	MET/IE WG and VAACs		Annually Jan	
Activity 4.2: Update VAAC Back-up Procedures	Secretariat	4.1	Annually May	
Activity 4.3: Issue Notice of VAAC Back-up Tests	Secretariat/VAA Cs	4.1	Annually Aug	
Activity 4.4: Conduct VAAC Back-up Test between Darwin and Tokyo	VAACs	4.3	Annually Oct – TBC	
Activity 4.5: Conduct VAAC Back-up Test between Darwin and Wellington	VAACs	4.3	Annually Oct – TBC	

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6. WORK PLAN				
Activity / Milestone	Accountability	Predecessors	Date	Status
Activity 4.6: Collect test results and send to VAAC Provider State members	RODBs	4.4	Annually Oct – TBC	
Activity 4.7: Analyse Test results	VAAC Back-up Focal Points Members	4.5	Annually Nov	
Activity 4.8: Report to MET/IE WG	VAAC Back-up Focal Points Members	4.6	Annually Feb	
Activity 4.9: Report to MET SG.	Chair	4.8	Annually May	
Activity 4.10: Advise relevant States, VAACs and RODBs of any deficiencies.	Secretariat	4.7	Annually Jun	
Milestone 4: VAAC Back-up Tests conducted, analysed and report complete.	VAAC Back-up Focal Points Members	4.8	Annually Jun	
Activity 5: IROG Back-up Tests				
Activity 5.1: Investigate the feasibility & benefits of back-up arrangements of IROG Tokyo, Nadi & Brisbane	IROG Tokyo, Nadi & Brisbane	-	Nov 2017	
Activity 5.2: Review IROG Back-up Test procedures to include all IROG.	All IROGs	-	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 Tests	IROG Bangkok & Singapore	5.4	Annually Jan/Feb	
Activity 5.6: Collect & analyse test results	IROG Bangkok & Singapore	5.5	Annually Feb	
Activity 5.7: Report to MET/IE WG	IROG Bangkok	5.6	Annually Mar	
Milestone 5: IROG Back-up Tests conducted, analysed and report complete.	IROG Bangkok	5.7	Annually Mar	
Activity 6: APAC RODB Monitoring procedures				
Activity 6.1: Letter to ROBEX Centres requesting confirmation that ROBEX Handbook Appendix A, B & C has the correct information regarding the Bulletins. Also ask for Hours of Operation and Issue Times of METAR and TAF.	Secretariat	-	Annually May	

6. WORK PLAN				
Activity / Milestone	Accountability	Predecessors	Date	Status
Activity 6.2: Review monitoring procedure in ROBEX Handbook and update as necessary.	All RODBs	-	Annually Aug	
Activity 6.3: Any changes to RODB monitoring procedures and updates to Appendix A, B and C in ROBEX Handbook.	Secretariat	6.1 & 6.2	Annually Sep	
Activity 6.4: Perform a major review of ROBEX Handbook.	New Zealand (Rap), RODBs, Chair, Secretariat	-	May 2017	
Milestone 6: RODB Monitoring procedures updated in ROBEX Handbook	Secretariat	6.4	Annually Sep	
Activity 7: New OPMET Exchange Formats				
Activity 7.1: Monitor migration to IWXXM.	WG	-	As required	
Activity 7.2: Undertake IWXXM tests with other centres.	WG		2018	
Activity 7.3: Report to MET SG on plans for implementation of XML schema at APAC RODBs.	Secretariat		Next meeting MET SG	
Activity 7.4: Consider options and strategies for the exchange of OPMET data in IWXXM format	WG		Feb 2018	
Activity 7.5: 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 7.6: Report to MET/IE WG on the status of the testing and implementation of digital OPMET exchange.	RODBs		Annually Mar	
Activity 7.7: Report to MET/IE WG regarding testing and implementation of digital OPMET exchange internationally.	Secretariat		Annually Mar	
Activity 7.8: Prepare information (e.g. issues, CONOPS) for MET/P WG-MIE	WG		As required	
Milestone 7: Report to MET/IE WG & MET SG on IWXXM exchange & testing.	Secretariat & Chair	7.7	Annually May	
Activity 8: Review OPMET Exchange Structure				
Activity 8.1: Review ROBEX Scheme diagram vs Table in 11.1 of ROBEX Handbook.	All RODBs		May Annually	
Activity 8.2: Review AFTN network diagram and add an AMHS diagram in the ROBEX Handbook.	Secretariat	-	May Annually	Note: a replacement CNS Chart is not available.

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6. WORK PLAN				
Activity / Milestone	Accountability	Predecessors	Date	Status
Activity 8.3: Review role and responsibilities of OPMET exchange within APAC, including: <ul style="list-style-type: none"> o Capability; o IWXXM readiness; o Delivery methods (internet, AMHS); and o Need for 5 RODBs. 	WG	-	2017	
Activity 8.4: Investigate the necessity to include guidance related to IWXXM in the ROBEX Handbook.	WG		Nov 2017	
Milestone 8: RODB structure review complete.	MET/IE WG	-	2017	
Activity 9: Improve Efficiency and effectiveness of ROBEX Scheme				
Activity 9.1: Align content of SA bulletins with FT bulletins, where appropriate	All RODBs	-	May 2017	
Activity 9.2: Adjust FT bulletin filing time, where appropriate	All RODBs	-	TBA	
Activity 9.3: Advise States who issue TAFs early of ICAO required lead times	Secretariat	-	June 2017	
Activity 9.4: Review ANP Table MET II-2 and ensure all necessary aerodromes are contained in OPMET bulletins	All RODBs	-	May Annually	
Activity 9.5: Review and update ROBEX HB and ICD to align with OPMET bulletin contents	All RODBs	-	Feb Annually	
Activity 9.6: Review and update ROBEX HB and ICD to eliminate duplication of OPMET bulletin information.	MET/IE WG	-	June 2017	
Milestone 9: Improved efficiency and effectiveness of ROBEX Scheme	MET/IE WG	-	2017	

IWXXM Implementation Planning Questionnaire

ICAO APAC Region

NOC (National OPMET Centre): The role of the NOC is to collect and validate all FASID required OPMET messages generated by all originating units within a State and send them to the Regional OPMET Centre (ROC) according to the regional distribution schema.

ROC (Regional OPMET Centre or ROBEX Centres): A ROC is responsible for collection of OPMET messages from the originating stations or NOCs in their area of responsibility and for compiling these messages into ROBEX bulletins.

RODB (Regional OPMET Data Bank): Within the APAC Region, there are currently five RODBs: Bangkok, Brisbane, Nadi, Singapore and Tokyo.

The RODBs are supplied with required OPMET data by the ROCs. These databases can be queried via the Aeronautical Fixed Service (AFS) by using a specified query language.

IROG (Inter-Regional OPMET Gateway): Within the APAC Region, the IROGs are the RODBs.

An IROG is responsible for the collection of all required OPMET data from its Inter-Regional Area(s) of Responsibility (IAoR) and its dissemination to the ROCs in its Region. Furthermore, IROGs are responsible for collection and dissemination of their Region's required OPMET data to their partner IROGs. The IROG is responsible for the validation of the bulletins sent to the IROGs of its IAoR and received from their IAoR.

For further details on the above, refer to the ROBEX Handbook available at:

<http://www.icao.int/APAC/Pages/edocs.aspx>

Date:

State:

Completed by: *(in case of questions)*

Name:

E-mail:

Phone-number:

COM-Centre Name:

COM-Centre Location Indicator:

NOC-Centre Name:

NOC-Centre Location Indicator:

Please respond to the following questions, all in the context of the transition to IWXXM MET message exchange.

Aeronautical Fixed Services (AFS) related

Question 1:

Does your AFS COM-Centre plan to implement a subset of the extended Air Traffic Services Message Handling Services (ATSMHS) that includes File Transfer Body Parts (FTBP) which is required for the exchange of IWXXM messages?

- ☐ **No File Transfer Body Part support planned**

Please indicate the reasons for the decision:

- ☐ **Yes, File Transfer Body Part support planned to be operational by:**

Date or expected period:

- ☐ **Yes, File Transfer Body Part support already operationally implemented although AFS partially supported as constraints with some counter parts which not ready to accept IWXXM**

Detail:

- ☐ **Yes, File Transfer Body Part support already operationally implemented.**

Question 2: For NOC only States

Do you intend to establish a direct ATS Message Handling System (AMHS)-connection between your AFS COM-Centre and AFS COM-Centre of your associated Regional OPMET Centre?

- ☐ **No:** *Please indicate the reasons for the decision:*

- ☐ **Yes, but no co-ordination started.**

- ☐ **Yes, co-ordination already started. Planned to be operational by:**

- ☐ **Yes, connection already in place**

Question 3: For ROC States

- A) Do you intend to establish an AMHS-connection between your AFS COM-Centre and all other ROC AFS COM-Centres in the APAC ICAO-Region?

- ☐ **No:** *Please indicate the reasons for the decision*

- ☐ **Yes, but co-ordination not yet started.**

- ☐ **Yes, co-ordination already started. Planned to be operational by:** *Name of Centre(s) & date or expected period*

- ☐ **Yes, connection already in place.** *Name of Centre(s)*

- B) Do you intend to establish an AMHS-connection between your AFS COM-Centre and all of your associated Inter-Regional OPMET Gateways (IROGs) in other ICAO regions?

- ☐ **No:** *(Please indicate the reasons for the decision)*

- ☐ **Yes, but co-ordination not yet started.**

- ☐ **Yes, co-ordination already started. Planned to be operational by:** *Name of IROG(s) & date or expected period*

- ☐ **Yes, connection already in place:** *Please indicate name IROG(s)*

Regional OPMET Bulletin Exchange (ROBEX) related

Question 4:

Does your MET-Switch system plan to support the exchange of IWXXM MET-messages by means of a sub-set of extended ATSMHS including File Transfer Body Parts?

- ☐ **No File Transfer Body Part support planned** *Please indicate the reasons for the decision*
- ☐ **Yes, File Transfer Body Part support planned between MET-Switch and the national COM-Centre by:** *Date or expected period*
- ☐ **File Transfer Body Part support already operationally in place between MET-Switch and the national COM-Centre**

Question 5: For RODBs only

A) Does your OPMET-DB plan to support **storage** of IWXXM formatted OPMET data?

- ☐ **No:** *Please indicate the reasons for the decision*
- ☐ **Yes, planned to be operational by:** *Date or expected period*

B) Does your OPMET-DB plan to support IWXXM formatted OPMET data **request and reply service**?

☐ **No:** *Please indicate the reasons for the decision*

☐ **Yes, IWXXM formatted OPMET data requests planned to be operational**
by: *Date or expected period*

IWXXM related questions

Question 6:

A) Do you plan to provide your national OPMET data in IWXXM format?

☐ **No:** *Please indicate the reasons for the decision:*

☐ **IWXXM METAR/SPECI planned to be available by:**

Date or expected period:

Version of IWXXM to be supported (1.0, 1.1, 1.2, 2.0, 2.1, unknown):

☐ **IWXXM TAF planned to be available by:**

Date or expected period:

Version of IWXXM to be supported (1.0, 1.1, 1.2, 2.0, 2.1, unknown):

☐ **SIGMET planned to be available by:**

Date or expected period:

Version of IWXXM to be supported (1.0, 1.1, 1.2, 2.0, 2.1, unknown):

B) If your State generates AIRMETs, do you plan to provide your AIRMETs in IWXXM format?

☐ **No:** *Please indicate the reasons for the decision:*

☐ **IWXXM AIRMETs planned to be available by:**

Date or expected period:

Version of IWXXM to be supported (1.0, 1.1, 1.2, 2.0, 2.1, unknown):

C) If your State generates Volcanic Ash Advisories (VAA), do you plan to provide your VAA in IWXXM format?

☐ **No:** *Please indicate the reasons for the decision:*

☐ **IWXXM VAA planned to be available by:**

Date or expected period:

Version of IWXXM to be supported (1.0, 1.1, 1.2, 2.0, 2.1, unknown):

D) If your State generates Tropical Cyclone Advisories (TCA), do you plan to provide your TCA in IWXXM format?

☐ **No:** *Please indicate the reasons for the decision:*

☐ **IWXXM TCA planned to be available by:**

Date or expected period:

Version of IWXXM to be supported (1.0, 1.1, 1.2, 2.0, 2.1, unknown):

Question 7:

Do you plan to receive OPMET data in IWXXM format?

☐ **No:** *Please indicate the reasons for the decision:*

☐ **Yes, ready for receipt of OPMET data in IWXXM format by:** *Date or expected period:*

Question 8:

What should be organised to raise awareness and promote the implementation of IWXXM and extended ATSMHS?

- ☐ **Dedicated APAC workshop by ICAO**
- ☐ **Dedicated APAC workshop by WMO**
- ☐ **Dedicated APAC workshop by ICAO & WMO**
- ☐ **Dedicated period during one of the following APAC ICAO meetings**
 - ☐ **MET-IE WG**
 - ☐ **METSG**
- ☐ **Jointly with ACSICG**
- ☐ **Other**

Thank you for taking the time to complete this survey. Any further comments on the implementation of extended ATSMHS or the transition to IWXXM are welcomed.