"Science to Services for a Resilient Pacific"

Fifth Meeting of the Pacific Meteorological Council (PMC-5) Working Papers (Apia, Samoa, 7-9 August 2019)

Agenda Item 11.1: Progress on Pacific Islands Aviation Weather Services.

Purpose: The purpose of the working paper is to introduce and provide information, seek strategic guidance and decisions from the meeting on the followings.

1. Progress on Implementing the 4th Session of the Pacific Meteorological Council (PMC-4) Decisions.

2. Coordination with the International Civil Aviation Organization (ICAO) Asia-Pacific Regional Office, Bangkok, Thailand.

3. Air Navigation Deficiencies in the MET Fields.

4. Cost Recovery.

4. The ICAO Meteorological Exchange Model (IWXXM).

5. Volcanic Ash Test Exercises and Volcanic Ash Advisory Centers (VAACs) Backup Test Exercise.

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6. SIGMET Collaboration and Harmonization.

7. ISO 9001-2015 including CAR Document Part 174, Competency Assessment and Capacity Development for Aeronautical Meteorological Observers (AMOs) and Aeronautical Meteorological Forecasters (AMFs).

8. 18th World Meteorological Congress (Cg-18) Resolutions and Regional Association V (South-West Pacific) (RA V-17) Resolutions and Decisions

1. Background:

1.1. The reporting time period is from September 2017 to July 2019. Further information related to the PMC-5/WP 11.1, presented in Attachment 1 to the PMC-5/WP 11.1.

1.2. The 3rd Session of the Pacific Meteorological Council (PMC-3) established the Pacific Islands Aviation Weather Services (PIAWS) Panel and subsequently endorsed the initial Terms of Reference (TOR) for the Panel. The 4th Session of the Pacific Meteorological Council (PMC-4) reviewed and endorsed the updated TOR for the Panel. The current TOR for the Panel is presented in Annex 1 of Attachment 1 to the PMC-5/WP 11.1. The List of members of the Panel is presented in Annex 2 of Attachment 1 to the PMC-5/WP 11.1. The Panel presented 6 working papers during the PMC-4 under agenda item 12. A summary of the PMC-4 decisions related to aviation weather services is presented in Annex 3 of Attachment 1 to the PMC-5/WP 11.1.

2. Update:

2.1. Progress in Implementing the PMC-4 Decisions

2.1.1. A summary of the PMC-4 decisions related to aviation weather services and progress of implementing these decisions are presented in Annex 3 of Attachment 1 to the PMC-5/WP 11.1. The PIAWS Panel had 3 meetings via video-conference and face-to-face. The meetings focused on progress on implementing the PMC-4 decisions and RA V-17 resolutions and decisions, related to aviation weather services. The discussions also focused on the preparation for the face-to-face meeting on 5 August 2019 in Apia, Samoa, and the working paper for the 5th Session of the Pacific Meteorological Council (PMC-5).

2.2. Coordination with the ICAO Asia-Pacific Regional Office

2.2.1. The PIAWS Panel also continued to coordinate its works with the ICAO Asia-Pacific Regional Office through participating in the Meteorology Sub-Group (MET SG) of the Asia-Pacific Air Navigation Planning and Implementing Regional Group (APANPIRG).

2.3. Air Navigation Deficiencies in the MET Fields

2.3.1. The updated list of APANPIRG air navigation deficiency in the MET fields for the ICAO Member States in the Pacific region is presented in Table 1 below. More information on recent discussion on deficiencies in the MET fields can be accessed on 2019 MET SG/23 WP11.

2.3.2. The APANPIRG procedural handbook requires that ICAO Member States provide full report to the ICAO on the corrective action taken to resolve deficiencies.

2.3.3. Solomon Islands and Tonga have reported progress on their Corrective Action Plans (CAPs) as indicated in the Attachment which can be accessed on 2019 MET SG/23 WP11. However due to the lack of sufficient data to support the validation by the ICAO (and Member States and appropriate international organizations where required) of the corrective action taken, deficiencies have not yet been removed from the open list.

2.3.4. The APANPIRG/28 (September 2017) noted the updates on the CAP implementation provided by Tonga with respect to the dissemination of required volcano observation information indicate that APANPIRG may remove the deficiency AP-MET-17 from the open list subject to the concurrence of the ATS units, MWOs and VAACs concerned. The VAAC Wellington is now working with Tonga Meteorological Service on a series of tests to demonstrate proficiency on providing volcano observation information.

2.3.5. Kiribati and Nauru have taken corrective actions to address their deficiencies in the MET fields related to aerodromes observations or reports. However, they are yet to submit reports of the corrective actions to the ICAO as per guidelines and procedures in the APANPIRG procedural handbook

2.3.6. The Secretary, in conjunction with support from Member States, to assist Solomon Islands to perform the OPMET monitoring to support the validation of the corrective action and to prepare the full report to enable APANPIRG to remove the deficiencies.

Table 1: Summary of APANPIRG air navigation deficiencies in the MET field (extracted from ICAO Asia-Pacific MET/S WG/8 WP/03: Review of air navigation deficiencies in the Met field)

Met facilities and services	Pacific States	Def. ID	Status
Aerodrome meteorological observations or reports.	Kiribati Nauru Solomon Islands	AP-MET-02 AP-MET-21 AP-MET-01	Open Open Open
Meteorological watch office (MWO) or SIGMET information.	Nauru Papua New Guinea	AP-MET-24 AP-MET-08	Open Open

	Papua New Guinea Solomon Islands	AP-MET-22 AP-MET-23	Open Open
Volcanic ash/activity information.	Papua New Guinea Tonga	AP-MET-04 AP-MET-17	Open Open
WAFS forecasts and/or flight briefings.	Kiribati Nauru Solomon Islands	AP-MET-18 AP-MET-19 AP-MET-20	Open Open Open

2.4. Cost Recovery

2.4.1. The existing task in the ICAO APANPIRG Meteorology Services Working Group (MET/S WG) work plan is to assist the PIAWS Panel to develop an effective cost recovery strategy and requested the Secretary to coordinate with the Chair of the MET/S WG to progress this work.

2.4.2. One of the action items/outcomes for ICAO APANOIRG MET SG work plan (2019/2020) is for "Information on ICAO provisions related to meteorological authority and quality assurance, cost recovery, competency, training and qualifications for meteorological service provision shared with States

2.4.3. ICAO APANPIRG MET SG/23 noted that Hong Kong, China agreed to share information from the previous cost recovery workshop.

2.4.4. ICAO APANPIRG MET SG/23 agreed to assign ICAO Member State(s) or expert(s) to assist the PMC PIAWS Panel with development of an effective cost recovery strategy.

2.4.5. One of the ICAO MET Panel Working Group on MET Cost Recovery Guidance and Governance (MCRGG) has the job card is to "develop an appropriate guidance on the cost recovery aspects of sub-regional, regional, multi-region6al or global service provision".

2.5. ICAO Meteorological Exchange Model (IWXXM)

2.5.1. The Meteorological information (OPMET) exchange in digital form – the ICAO Meteorological Exchange Model (IWXXM) format is currently a recommended practice and will become the ICAO Annex 3 Standard on 5 November 2020. Amendment 78 to the ICAO Annex 3 specifies that the ICAO Member States should disseminate specific meteorological information (i.e., METAR/SPECI, TAF, SIGMET, AIRMET and volcanic ash and tropical cyclone advisory information) in the IWXXM form. Amendment 78 also states that from 5 November 2020, the exchange of IWXXM formats, including Space Weather Advisories (SWXA), will become a standard practice, and the ICAO Member States shall disseminate all the above specific meteorological information in the IWXXM form.

2.5.2. The Air Traffic Services (ATS) Message Handling System (AMHS) path with File Transfer Body Part (FTBP) capability is necessary to allow global exchange OPMET data in IWXXM format between Regional OPMET Centres (ROCs) and Inter-Regional OPMET Gateways (IROGs), which will also provide information to the Regional OPMET Data Banks (RODBs), the Secure Aviation Data Information Service (SADIS) and the World Area Forecast System (WAFS) Internet File System (WIFS). This also allows for quality control, management, monitoring, and comparison and dissemination of OPMET by the RODBs.

2.6. Volcanic Ash Test Exercises and VAACs Backup Test Exercise

2.6.1. The 5th Meeting of the ICAO APANPIRG Volcanic Exercise Steering Group (VOLCEX SG/5) decided for the volcanic exercise in 2018 (ICAO APAC VOLCEX 18/01) for Papua Guinea to be put 'on-hold' due to on-going internal issues including services disruption at the Papua New Guinea National Weather Service (PNG NWS).

2.6.2. The volcanic exercise in 2019 (ICAO APANPIRG VOLCEX 19/01) conducted from 2100 UTC on 6 May to 0300 UTC on 7 May 2019 based on a simulated the eruption of Raoul Island (29.27°S 177.92°W) located in the Kermadec Islands region of the South Pacific. The exercise scenario featured a high-level eruption of Raoul Island, with volcanic ash cloud contaminating the Auckland Oceanic (NZZO) and Nadi (NFFF) Flight Information Regions (FIRs), and affecting major air traffic routes in the South Pacific. Volcanic ash deposition was also simulated at both Nadi (NFFN) and Nausori (NFNA) International Airports in Fiji. Ms Paula Acethorp from the Civil Aviation Authority of New Zealand (CAA NZ), led the ICAO APANPIRG VOLCEX 19/01. Exercise participants included the New Zealand Volcano Observatory, the aviation meteorological service providers and air navigation service providers (ANSPs) of both of New Zealand and Fiji, the NOTAM Offices of New Zealand and Fiji, and three airlines who routinely operate flights into Fiji airspace. In addition, other aviation organisations or service providers observed the exercise and provided advice or observations as necessary to the participants. A further VOLCEX exercise is now planned for 2020, simulating an eruption of a Tongan volcano.

2.6.3. The Volcanic Ash Advisory Centers (VAACs) Wellington and Darwin conducted a backup test on 25 February 2019, but participation by the Meteorological Watch Offices (MWOs) in these VAACs area of responsibility was very low. The MWOs within the VAACs area of responsibility are encouraged to participate to ensure that in the event of a real backup occurrence, they are certain of receiving the backup VAAs. The next backup test is scheduled for October 2019.

2.7. SIGMET Collaboration and Harmonization

2.7.1. A SIGMET provides concise information issued by a MWO concerning the occurrence or expected occurrence of specific en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations. Information on the requirements for the dissemination and exchange of SIGMET is published in the ICAO Asia-Pacific Regional SIGMET Guide (6th edition May 2017) (SIGMET Guide). The updated draft Asia-Pacific Regional SIGMET Guide, 7th edition, June 2019 is presented as Attachment 1 to 2019 MET SG/23 WP21.

2.7.2. The purpose of the collaboration between the MWOs on the creation of SIGMETs is to address SIGMET discontinuity between Flight Information Regions (FIRs) and the requirements for harmonized en-route hazardous weather information.

2.7.3. SIGMET coordination trial between the Australian Bureau of Meteorology (ABoM) and Indonesia Bureau of Meteorology, Climatology and Geophysics (IBMKG) took place between 12 and 26 November 2018. Following the trial, ABoM has commenced discussions with the MWO Wellington regarding a SIGMET coordination trial.

2.7.4. The Operational SIGMET Coordination (OSC) initiative in south-east Asia, undertaken by the MWOs of Indonesia, Malaysia, Singapore, Vietnam, and extended to Australia and Indonesia in 2018.

2.8. ISO 9001-2015 including CAR Document Part 174, Competency Assessment and Capacity Development for the AMOs and AMFs

2.8.1. For Samoa, refer to Section 20.1 of Attachment 1 to the PMC-5/WP 11.1.

2.8.2. For Vanuatu, refer to Section 20.2 of Attachment 1 to the PMC-5/WP 11.1.

2.8.3. For Fiji, refer to Section 20.3 of Attachment 1 to the PMC-5/WP 11.1.

2.8.4 For Kiribati, refer to Section 20.4 of Attachment 1 to the PMC-5/WP 11.1.

2.8.5. For the Solomon Islands, refer to Section 20.5 of Attachment 1 to the PMC-5/WP 11.1.

2.8.6. For Papua New Guinea, refer to Sections 20.6, 20.7, 20.8 and 20.9 of Attachment 1 to the PMC-5/WP 11.1.

2.8.7. For Tonga, refer to Sections 21.1 and 21.2 of Attachment 1 to the PMC-5/WP 11.1.

2.9. Cg-18 Resolutions and RA V-17 Resolutions and Decisions

2.9.1. Refer to Section 17 of Attachment 1 to the PMC-5/WP 11.1 for the 18th World Meteorological Congress (Cg-18) resolution related to aviation weather services.

2.9.2. Refer to Section 18 of Attachment 1 to the PMC-5/WP 11.1 for the 17th Session of WMO Regional Association V (South-West Pacific) resolutions and decisions related to aviation weather services.

Recommendations:

The Meeting (PMC-5) is invited to:

- Note the report on progress of the Pacific Islands Aviation Weather Services.
- Acknowledge the development partners and ICAO Member States for their continued assistance to the development of aviation weather services in the Pacific region.
- Acknowledge the US NOAA and the University of Hawaii (UH) for their continued support to enable the PIAWS Panel to have its meetings via tele-video-conference facilities.
- Review and endorse the updated TOR for the PIAWS Panel as presented in Attachment 2 to the PMC-5/WP 11.1.
- Request members of the PMC to nominate experts from their countries and organizations, and invite Civil Aviation Authorities (CAAs), International Air Transport Association (IATA), and International Federation of Pilots (IFPL) to nominate representatives, as members of the PIAWS Panel.
- Request PMC to endorse the establishment of a PIAWS Panel Task Team (Members: Fiji, New Zealand, and Tonga) on ICAO compliance: (a) to develop a work plan for addressing deficiencies in consultation with the concerned ICAO Member States; and (b) to understand current capabilities with regards to the IWXXM implementation and dissemination and to develop a work plan to assist each ICAO Member State in the Pacific region to meet the IWXXM requirements.
- Request PMC to endorse the nomination, through the Chair of the ICAO MET Panel, of an expert from the PIAWS Panel to be a member of the Met Panel Working Group on the Met Cost Recovery Guidance and Governance (MCRGG) Ad Hoc Group addressing actions MCRGG5/01 on the development of recommendations for cost recovery. The expert will be determined by the PIAWS Panel.
- Encourage members of the PMC through their MWOs to coordinate with respective national authorities for participating in and coordination with the ICAO Asia-Pacific Regional Office, APANPIRG Meteorology Sub-Group (MET SG) and its Working Groups (WGs), and Volcanic Exercise Steering Group (VOLCEX SG) on activities such volcanic ash test exercises, SIGMET collaboration and harmonization, and VAACs back-up test exercises.

- Request PMC to endorse the request to New Zealand to pursue the development of a web portal for Volcano Observatory Notice to Airmen (VONA), subjected to funding.

- Recognize the benefits to implement the PMC decisions which are related aviation weather services, it is very crucial and important for regular coordination and communication with the ICAO APANPIRG MET SG and its WGs, and VOLCEX SG.

- Request SPREP to provide financial support to the PIAWS Panel to coordinate and communicate with, and participate in the ICAO Asia Pacific Regional Office activities and bodies such as the ICAO APANPIRG MET SG and its WGs, and VOLCEX SG.

- Request SPREP to assist members of the PMC to develop Services Agreement or equivalent between National Meteorological Services (NMSs) and CAAs.

- Request Fiji Meteorological Service to develop Services Agreements with other NMSs in the Pacific region on the provision of aviation services.

- Acknowledge Papua New Guinea National Weather Service (PNG NWS) and Solomon Islands Meteorological Service (SIMS) efforts leading to be authorized by their respective CAA under Civil Aviation Rule Part 14 to provide aviation meteorological services.

- Acknowledge Fiji Meteorological Service efforts which will lead auditing under ISO 9001: 2015 on 20 and 21 August 2019.

- Request SPREP to organize training for NMSs personnel and auditors on ISO 9001-2015.

- Acknowledge efforts of other members of the PMC which will eventually lead to compliance with Civil Aviation Rule Part 174 and Part 100.

- Request SPREP to continue to provide assistance to members of the PMC to develop Civil Aviation Rule Part 174 corresponding document – the Aviation Meteorology Exposition and CAR Part 100 corresponding documents – the Quality Management System (QMS) manual and Safety Management System (SMS).

- Acknowledge efforts by members of the PMC for compliance with the requirements for competency assessment, and capacity development for the AMOs and AMFs.

- Request SPREP to continue to provide assistance to members of the PMC on competency assessment and capacity development for the AMOs and AMFs.

- Welcome the progress on the planning of the South-West Pacific Conference on Meteorology for Aviation which is planned for 2020; and members of PMC are invited to consider hosting the event.

Attachment 1 to PMC-5/WP 11.1: Information Paper – Progress on Pacific Islands Aviation Weather Services.

Attachment 2 to PMC-5/WP 11.1: Updated TOR for PIAWS Panel

Attachment 3 to PMC-5/WP 11.1: Progress in implementing PMC-4 decisions
(6 August 2019)