



## Sixth Meeting of the Pacific Meteorological Council (PMC-6)

Sustaining Weather, Climate, Water and Ocean Services for a Resilient Blue Pacific

14-16 August 2023, Sofitel Hotel, Denarau, Fiji

### Agenda item 9.1: Progress on the Pacific Islands Aviation Weather Services (PIAWS) Panel and Terms of Reference (ToR)

#### Purpose of the paper:

1. To provide information on the works of the Panel and other related items since the Fifth Meeting of the Pacific Meteorological Council (PMC-5) in August 2019 and seek the Meeting's guidance and decision pertaining to the followings.
  - 1) PIAWS Panel ToR and membership.
  - 2) Task Team on the International Civil Aviation Organization (ICAO) compliance.
  - 3) Compliance with, and capacity development of National Meteorological and Hydrological Services (NMHSs) staff and auditors on, the International Organization for Standards (ISO) 9001: 2015.
  - 4) Compliance with the CAR Part 174 corresponding document – aviation meteorology exposition and CAR Part 100 corresponding documents – Quality Management System (QMS) manual and Safety Management System (SMS).
  - 5) Coordination with ICAO Asia and Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) Meteorology Sub-Group (MET SG) and its Working Groups and the Volcanic Exercise Steering Group (VOLCEX SG).
  - 6) Services agreements (SAs) between NMHSs and Civil Aviation Authorities (CAAs).
  - 7) SAs between Fiji Meteorological Service (FMS) and other Pacific Island States' NMHSs.
  - 8) Competency assessment and capacity development for Aeronautical Meteorological Observers (AMOs) and Aeronautical Meteorological Forecasters (AMFs).
  - 9) Cost recovery.
  - 10) Information on the proposed Amendment 81 to ICAO Annex 3 *Meteorological Services for International Air Navigation* and introduction of PANS-MET (*Procedures for Air Navigation Services – Meteorology*).

#### Background:

1. The PIAWS Panel, established by the Third Meeting of the Pacific Meteorological Council (PMC-3) in 2015 to provide advice to PMC on matters relating to meteorological services to aviation including quality management, competency standards, capacity development, cost recovery, and exchange of meteorological information for aviation in the Pacific region.

#### PIAWS Panel ToR and membership:

1. With the leadership of the Chair and vice Chair, 'Ofa Fa'anunu (Tonga) and Paula Acethorp (New Zealand), respectively, the Panel had 8 virtual meetings, working with

the Task Team on ICAO compliance which was established by PMC-5 in 2019, established the QMS Task Team in 2023 to progress and implement the Council's decisions.

2. The Panel reviewed its ToR and the updated version is presented in *Annex 1* to this report. The Meeting is invited to review the ToR and endorse it.

#### **Task Team on ICAO compliance:**

1. The Task Team was endorsed at PMC-5 in 2019 and assigned with 2 focus tasks, namely: (a) to develop workplan for addressing (ICAO Asia and Pacific (APAC) air navigation deficiencies in the meteorology field) in consultation with the concerned ICAO Contracting States (in the Pacific region) and; (b) to understand the current capabilities with regards to ICAO Meteorological Information Exchange Model (IWXXM) , and to develop workplan to assist each ICAO Contracting States in the Pacific region to meet IWXXM requirements. With the leadership of the Task Team's Chair, Paula Acethorp (New Zealand), the Team had 4 virtual meetings to discuss these items.
2. A "deficiency" is a situation where a facility, service or procedure does not comply with a regional air navigation plan approved by ICAO Council, or with related ICAO Standards and Recommended Practices (SARPs), and which situation has a negative impact on the safety, regularity and/or efficiency of international civil aviation. A work plan has been developed for each concerned Pacific Island State and the Team has worked with them to address these deficiencies.
3. Several of the deficiencies relate to the provision of information on volcano activity or warnings on airborne volcanic ash via SIGMET. The Wellington and Darwin Volcanic Ash Advisory Centers (VAACs) in coordination with the New Zealand CAA, developed a series of exercises to assist the concerned Pacific Island States to improve their processes related to these deficiencies. These exercises contributed to the successful resolution to the deficiency on SIGMET provision for Solomon Islands and the evidence for the progress towards resolving the volcanic activity provision deficiency for Tonga.
4. Deficiencies relate to the provision of meteorological observations have also progressed significantly since PMC-5 with the Solomon Islands successfully resolving their deficiency on METAR (aerodrome observations) provision. Kiribati and Nauru are in the process of gathering information to support the resolution of their respective observation deficiencies. Further, Papua New Guinea are also in the evidence gathering phase to support the resolution of their deficiency on volcanic activity information provision.
5. IWXXM is an information model designed for the operational exchange of meteorological information for aviation. The Team conducted a survey on the status of implementing IWXXM in the Pacific Island States and region and the results indicated that 14 States responded to the survey and 5 States have no plans to implement IWXXM. Following several discussions, MetService New Zealand (in their capacity as Wellington Regional Operational Meteorological (OPMET) data Center (ROC)) is providing a regional IWXXM translation services to Pacific Island States as an interim measure while each ICAO Contracting State in the Pacific region address IWXXM at the national level.

#### **QMS Task Team:**

1. The PIAWS Panel established the QMS Task in 2023. With the leadership of Solomon Sammy (Solomon Islands) the Team's ToR was developed and approved, focusing on compliance with, and capacity development of NMHSs staff and auditors in, ISO 9001: 2015 and CAR Parts 174 corresponding requirements – aviation meteorology exposition and CAR Part 100 corresponding documents – QMS manual and SMS.

2. The Meeting is invited to provide guidance on the roles of the QMS Task Team as presented in the ToR (refer to *Annex 2*).
3. More information on ISO 9001: 2015 and CAR Parts 174 and 100 will be provided under Agenda Item 9.3: QMS and beyond.

#### **SAs between NMHSs and CAAs.**

1. In 2019, The Council requested SPREP to assist with the development of SAs or equivalents between NMHSs and CAAs. The SAs would address QMS in particular CAR Parts 174 and 100 implementation and compliances, provision, delivery and exchange of meteorological information to aviation. Some Pacific Island States have put in place such SAs as part of compliance with the New Zealand CAR Parts 174 and 100.
2. However, more works needed in this area for NMHSs yet to, and / or in the process of, implementing CAR Parts 174 and 100.

#### **SAs between Fiji Meteorological Service (FMS) and other Pacific Island States' NMHSs**

1. In 2019, the Council requested FMS to develop SAs or equivalents with other NMHSs in the Pacific region on the provision of meteorological services to aviation. FMS supported this but they would like to have this extended to include meteorological information for the public and mariners. Furthermore, following discussions in various forums such as the PMC and PIAWS Panel, there are requests for Memorandum of Understandings (MoUs) or Service Letter of Agreements (SLAs) or equivalents between FMS/RSMC Nadi and other Pacific Island States' NMHSs for provision of meteorological services including services to aviation during normal and emergencies times.
2. FMS and Kiribati Meteorological Service (KMS) are discussing a draft SLA as part of compliance with CAR Parts 174 and 100.
3. Bilateral arrangements through SAs, or SLAs or equivalents between FMS and other Pacific Island States' NMHSs could be organized to meet CAR Parts 174 and 100 standards' requirements. There is still more works needed to address this item especially relating to provision of meteorological services to other sectors and stakeholders during normal and emergencies times.
4. Also refer to Agenda Item 9.2, especially on Challenges No. 3 - *Challenges also remain in ensuring that when TAFs (aerodrome forecasts) are provided on behalf of other States, the provision is supported by suitable SLAs or MoUs. The related Recommendation – Recommend assistance for Pacific Island States, who have TAFs issued on their behalf without formal arrangements in place, in developing agreements with the issuing State.*

#### **Competency assessment and capacity development for AMOs and AMFs**

1. In 2019, the Council requested SPREP to continue to help Pacific Island States' NMHSs on competency assessment and capacity development for AMOs and AMFs. Furthermore, the Council noted the challenges to implement and maintain the competency assessment for AMOs and AMFs.
2. Hence, more works needed to address the competency assessment and capacity development of AMOs and AMFs in the Pacific Island States' NMHSs.

#### **Cost recovery.**

1. With respect to cost recovery, in 2019, the Council endorsed the nomination, through the Chair of the ICAO MET Panel, of an expert from the PIAWS Panel to be a member of the ICAO MET Panel Working Group on the Met Cost Recovery Guidance and

Governance (MCRGG) Ad Hoc Group addressing action MCRGG5/01 on the development of recommendations for cost recovery. The PIAWS Panel agreed on its representatives, but due circumstances beyond the Panel control, they did not participate in the MCRGG meeting.

2. Section 3.1 (d) (i) of the Panel's current ToR relates to cost recovery for meteorological services to aviation. Furthermore, Section 3.1 (e) of the ToR calls for coordination and discussion with the Pacific Aviation Safety Office (PASO). The Panel had a special session with PASO on the development of a draft ToR for cost recovery for meteorological services to aviation.
3. At the national level, FMS agreed to develop its framework for cost recovery for meteorological services to aviation. The ToR has been developed and endorsed by FMS, and currently been circulated to potential experts to consider undertaking the tasks.

### **Information on proposed Amendment 81 to Annex 3 and introduction of PANS-MET**

1. The PIAWS Panel noted the issuance of the ICAO State Letter regarding the proposed Amendment 81 to ICAO Annex 3 *Meteorological Service for International Air Navigation* and the introduction of PANS-MET. Furthermore, a second ICAO State Letter was noted, proposing the introduction of a recommended practice to use 'information services' (in the context of System Wide Information Management or SWIM) for the provision of meteorological information to users.
2. A summary of the State Letters was drafted by two members of the Panel for sharing with the other Panel members, to assist in the review of the proposed Amendments.
3. In brief, the current Amendment 80 to Annex 3 is proposed to be split into a new Amendment 81 to Annex 3 containing only the requirements, and a new PANS-MET which contains the 'means of compliance' for those requirements. Significant other changes include:
  - 1) Further development of space weather (SWX) information services.
  - 2) Introduction of quantitative volcanic ash (QVA) concentration information and elevation of the Volcano Observatory Notice for Aviation (VONA) to a recommended practice (refer to Agenda Item 9.4).
  - 3) Further development of IWXXM including a recommendation for higher resolution observations only to be provided in IWXXM form.
  - 4) Further development of the World Area Forecast System (WAFS), including improved spatial and temporal resolution of gridded information, and changes to the provision of significant weather (SIGWX) information.
  - 5) Improved definition of meteorological authority and introduction of a definition for the meteorological service provider, better distinguishing between the roles and responsibilities of both entities.
4. The upcoming Twenty-seventh ICAO APANPIRG Meteorology Sub-Group meeting (MET SG/27) will include short webinars on some of the above topics (likely QVA, VONA and SWX), available both in person at the meeting in Bangkok and virtually via Microsoft Teams during the first day of the meeting (4 September 2023). More information will be provided at the meeting site in due course: <https://www.icao.int/APAC/Meetings/Pages/2023-MET-SG-27.aspx>

### **Recommendations:**

The Meeting is invited to:

1. **Note** the PIAWS Panel's report and express appreciation to the Chair and vice Chair of the Panel, 'Ofa Fa'anunu (Tonga) and Paula Acethorp (New Zealand), respectively and the Chair of the Task Team on ICAO compliance, Paula Acethorp (New Zealand) and the

Chair of the Task Team on QMS, Solomon Sammy (Solomon Islands) for their leadership of the Panel and Task Teams.

2. **Endorse** the re-establishment the PIAWS Panel's and the related ToR as presented in Annex 1.
3. **Endorse** the establishment of the QMS Task Team and related ToR as presented in Annex 2.
4. **Request** assistance for the concerned Pacific Island States to address their ICAO APAC air navigation deficiencies in the meteorology fields.
5. **Request** assistance for Pacific Island States to implement IWXXM at the national level.
6. **Recommend** assistance for Pacific Island States to address cost recovery for meteorological services to aviation.
7. **Recommend** assistance for Pacific Island States to develop SAs between NMHSs and CAAs.
8. **Recommend** assistance for FMS and other Pacific Island States' NMHSs to address SAs or equivalents for meteorological services to aviation and other sectors / stakeholders during normal and emergencies times.
9. **Recommend** assistance for Pacific Island States to meet current and future requirements for ICAO.

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## **Annex 1**

### **Pacific Meteorological Council (PMC)**

#### **Pacific Islands Aviation Weather Services (PIAWS) Panel**

##### **Final Draft Terms of Reference (8 August 2023)**

### **1. Introduction and Purpose**

The Pacific Islands Aviation Weather Services (PIAWS) Panel was established by the Third Meeting of the Pacific Meteorological Council (PMC-3) in 2015 to serve in the capacity of an advisory body to the Pacific Meteorological Council (PMC) on matters relating to meteorological services to aviation in the Pacific region, implementing specific activities, as directed by the PMC.

### **2. Roles and Responsibilities**

- a) Follow up on the resolutions, decisions and recommendations of the PMC, as directed to the PIAWS Panel;
- b) Collaborate with relevant World Meteorological Organization (WMO) programme of services for aviation and the Regional Association V (South-West Pacific) Working Group's Expert Teams on Services for Aviation (ET-AVI) and Expert Team on WMO-IATA Collaborative AMDAR Programme (ET-WICAP), as necessary, to ensure meteorological services to aviation are regionally coordinated and sustainable in their delivery, supported by appropriate observing networks, data sharing, and capacity development;
- c) Collaborate with the International Civil Aviation Organization (ICAO) Asia and Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) Meteorology Sub Group (MET SG), their respective working groups, as necessary, to ensure meteorological services to aviation delivered by Pacific Island States respond to the needs of the region and are in compliance with applicable ICAO standards, recommended practices and guidelines;
- d) Collaborate with the Pacific Aviation Safety Office (PASO) with the aim of promoting the importance of enhanced meteorological services to aviation and their contribution to safety and efficiency of air transport in the Pacific region;
- e) Facilitate the sharing of knowledge, experience and technology among members, particularly in the areas of:
  - Competency standards;
  - Capacity development of Aeronautical Meteorological Observers and Forecasters (AMOs/AMFs);
  - Meteorological data production and exchange;
  - Quality management system implementation, in conformity with the ISO 9001: 2015;
  - New Zealand Civil Aviation Rule (CAR) Parts 174 and 100) and national aviation regulation compliance and certification;
- f) Collaborate with members of the PMC to develop a regional roadmap for phased improvements of meteorological services to aviation, addressing Pacific Island States and region priorities related to meteorological services' needs for aviation;

- g) Establish, when appropriate, task teams within the PIAWS Panel to implement specific time-bound tasks considered important or urgent by the Panel or PMC to address the most urgent needs for meteorological services to aviation of the Pacific Island States and region; and
- h) The regular reporting to PMC members on the progress of PIAWS Panel.

**3. Membership**

The PIAWS Panel core membership comprises of experts from the following countries and organizations: Australia, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, USA, Vanuatu, SPREP, USP, WMO, PASO and ICAO APAC Regional Office, but at the same time it remains open-ended to allow for other PMC members to volunteer their experts and experts from other organizations to participate in PIAWS Panel’s activities.

**4. Working Arrangements**

- a) The PIAWS Panel will elect a Chair and vice Chair for a term of three years.
- b) Meetings will be held at least twice a year, with virtual meetings as appropriate. The PIAWS Panel may invite experts either from its PMC members or related organizations to the Panel’s meetings and discussions.
- c) Meetings of PIAWS Panel shall be coordinated and convened by its Chair, with the support of SPREP/WMO/Pacific Meteorological Desk Partnership (PMDP).

**5. Revision and Approval of ToR**

The PIAWS Panel will keep its ToR under review and will update, and then submit to PMC for consideration and approval.

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## **Annex 2**

### **Pacific Islands Aviation Weather Services (PIAWS) Panel**

#### **Quality Management Systems Task Team (QMS TT)**

##### **Terms of Reference (8 August 2023)**

### **1. Introduction and Purpose**

The Pacific Islands Aviation Weather Services (PIAWS) Panel reports to the Pacific Meteorological Council (PMC) on matters relating to meteorological services to aviation in the Pacific region, implementing specific activities, as directed by the PMC. The Quality Management System Task Team (QMS TT) was established by the PIAWS Panel to coordinate and assist the development and implementation of ISO 9001: 2015 and New Zealand Civil Aviation Rule (CAR) Parts 174 and 100 for the Pacific Islands States; and on any specific tasks as required by, and report to, the PIAWS Panel on progress.

### **2. Roles and Responsibilities**

- a) Follow up and action on the resolutions, decisions and recommendations of the PIAWS Panel's meeting on matters relating to QMSs.
- b) To support Pacific Island States' NMHSs to develop, implement and maintain QMSs in compliance with the ISO 9001: 2015, New Zealand CAR Parts 174 and 100), CAS, including through education and training programmes: (i) ISO 9001: 2015 fundamentals; (ii) Management systems auditing (QM Internal Auditor); (iii) QM Lead Auditor; (iv) Safety Management System (SMS) – New Zealand CAR Parts 174 and 100; and (v) Competency frameworks and assessments.
- c) Facilitate the sharing of knowledge and experience among members, particularly in the areas above b) [(i) to (v)].
- d) To provide audit support to Pacific Island States' NMHSs through twinning arrangements including the identification of non-conformities prior to a certification external audit.
- e) Collaborate with the World Meteorological Organization (WMO) Regional Association V Working Group on Services; specifically, the Expert Team on Services for Aviation (ET-AVI).
- f) The regular reporting to PIAWS Panel members on the progress of the QMS TT.

### **6. Membership**

The QMS TT core membership comprises of QMS experts, practitioners and focal points from the following countries and organizations: Australia, Cook Islands, Federated States of Micronesia, French Polynesia, Fiji, Kiribati, Republic of Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Vanuatu, SPREP, WMO, ICAO APAC Regional Office and PASO.

### **7. Revision and Approval of ToR**

The QMS TT members will keep its ToR under review and will update it as and when necessary and submit to the PIAWS Panel for consideration and approval.

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