

THIRD MEETING OF THE PACIFIC METEOROLOGICAL COUNCIL

"Sustainable Weather and Climate Services for a Resilient Pacific"



Key Recommendations for PMC Endorsement

Endorsed in Principle 23 July 2015

20 - 23 July 2015

Fa'onelua Convention Centre, Nuku'alofa, Kingdom of Tonga



Introduction

The third Pacific Meteorology Council Meeting (PMC-3) was convened at the Fa'onehua Convention Centre in Nuku'alofa, Tonga on the 20-23 July, 2015. The meeting was attended by 86 participants from National Meteorological and Hydrological Services (NMHS) from American Samoa, Australia, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, United States of America and Vanuatu, non-government organization, media, development partners, regional organisations and donors.

The meeting theme was *"Sustainable Weather and Climate for a Resilient Pacific"* emphasizing the important role of NMHS in the sustainable development of the PICTs.

This report contains PMC outcomes and recommendations from PMC-3 for endorsement. A draft of the full proceedings report will be circulated to PMC members before the end of July for their input.

Decision

PMC is requested to endorse in principle the outcomes and recommendations of PMC-3, allowing for a 2 weeks review period (6 August 2015). Endorsed in principle on 23 July 2015 by the PMC.

Key Recommendations:

Opening Session

1. Ensure national and regional activities are aligned to the major WMO strategies relevant to NMHSs such as the outcomes from the Seventeenth World Meteorological Congress (Cg-17), including the WMO's new programme for Small Island Developing States (SIDS) and Member Island Territories, the Global Framework for Climate Services (GFCS), WMO Integrated Global Observing System, Aviation Meteorological Services, Strategy for Public Weather Services and Capacity Development for delivery of quality service.
2. Encourage NMHSs to play an active role in the implementation of the S.A.M.O.A Pathway, the Sendai Framework for Disaster Risk Reduction 2015-2030, the Post-2015 Development Agenda and in the 21st UNFCCC COP in December 2015 where a new global climate agreement will be proposed.
3. Recognise the need for ongoing investment in the area of early warning and prediction systems for severe weather, climate extremes and high impacts weather events, and to support disaster risk reduction and adaptation to climate change; thereby safeguarding important sectors at risk such as agriculture and fisheries, water, health, transport, and tourism thereby contributing to building resilience.

Session 4: Country Reports

4. Recognise the need, expressed by all PICTs, for increased observations in terms of spatial coverage and temporal frequency relating to marine weather, lightning detection, seismic activity, soil moisture, UV radiation.
5. Encourage National Governments to implement strategies to retain skilled staff at NMHSs.
6. Support specialised training on climatology, hydrology, oceanography and meteorology.

7. Adopt WMO competency standards for weather, climate and hydrology services at the national level.
8. Encourage National Governments to invest in disaster risk reduction infrastructure for NMHSs.
9. Encourage improvements to and long-term sustainability of CLIDE.
10. Support reliable communications, including the use of RANET and Chatty Beetles, mobile phones and other innovative technologies.
11. Support the development of Multi Hazard Early Warning Systems.
12. Encourage countries to develop National Meteorological Plans and Legislation as appropriate.
13. Encourage NMHSs to be proactive in establishing of cross-sectoral and community partnerships.
14. Support education and awareness programs at community levels.
15. Encourage NMHSs to meet ISO Standard for Aviation Services.
16. Encourage NMHSs to strengthen their compliance to Marine QMS to improve transportation and safety.
17. Encourage PMC members to support Nauru's request for assistance in setting up a Meteorological and Hydrological Service under the National Emergency Service.

Session 5: Outcomes of the Seventeenth World Meteorological Congress and Regional Programs

18. Note the outcomes from WMO Cg-17 and request WMO Member countries to nominate focal points and update the WMO Country Profile Database (CPDB).

Session 6: Climate Services

6.1: Pacific Islands Climate Information System

19. Note that, through the Pacific Islands Climate Information System (PaCIS) and its partners, considerable progress has been made on implementation of climate services in Pacific Islands since PMC-2.
20. Acknowledge that, building on the progress made by and modeled after PaCIS, NOAA supports a robust and sustained forum to coordinate and collaborate via the newly established PICS Panel. This includes maintaining and enhancing the products and services of the PEAC Center which plays a vital role in the region, and following through on on-going and proposed efforts emanating from the USAID-funded effort to show its commitment to the development and delivery of robust climate services to the region.

6.2: Climate and Information Prediction Services Project

21. Note through ROKPI CliPS and its partners considerable progress has been made on the implementation of the project which complements the work of GFCS and implementation of the PIMS.
22. Acknowledge that additional resources will be needed for communication, capacity building and training of NMHSs and in-country stakeholders to encourage the uptake of the CLIK tool and CliPS products for decision making in sectors such as Agriculture, Health, Water and Disaster Risk Reduction.
23. Recognise the need for strengthened collaboration between relevant partner agencies in the Pacific Islands region in the provision of climate outlook services.

6.3: Climate and Oceans Support Program in the Pacific

24. Note the changes in the project's objectives and deliverables for the next two years.
25. Provide advice and collaborate in the successful transition of climate and ocean products and services into the Regional and National operational programs to promote sustainability.
26. Provide input on the COSPPac Transition Strategy and the Work Plan for 2015 – 2016 by end of September 2015.

6.4: Climate Services in the Pacific Region

27. Note the progress of the PICS Panel and encourage its members to continue its work as an advisory body to the PMC for strengthening climate services in the Pacific Islands region.
28. Note with appreciation the financial contributions for PICS Panel meetings provided by SPREP, WMO, Environment Canada, Australian Bureau of Meteorology, Fiji Meteorological Service, and Ministry of Foreign Affairs of Finland and welcome future contributions from these and other partners.
29. Request that Vanuatu, Palau and Niue continue to represent the PMC on the PICS Panel for the next two years.
30. Endorse the establishment of an annual Regional Climate Outlook Forum (RCOF), to be called the Pacific Islands Climate Outlook Forum (PICOFO).
31. Encourage NMHSs to undertake National Climate Outlook Forums (NCOFs) and National Climate Forums (NCFs), based on the best practices and expertise of other countries and to seek national and international support to ensure the sustainability of the results achieved; and further encourage users of climate services to engage in and promote such forums.
32. Request that the PICS Panel continues exploring the potential mechanisms for establishing a Regional Climate Centre (RCC) Network for the Pacific Islands region, and report to PMC before the end 2015.
33. Note the ongoing efforts to establish partnerships and coordination mechanisms to enhance the production, delivery and use of climate services at global, regional and national levels under the GFCS Framework.
34. Note the substantial efforts made in the Pacific by WMO and regional partners with financing from Environment Canada towards:
 - the process of establishing a RCC Network for the Pacific region;
 - holding the first physical RCOF in the Pacific region with a special focus on water managers;
 - initiating and guiding the process on NCOFs and other User Interface Platforms;
 - ongoing capacity development and training efforts provided to NMHSs staff;
35. Urge the PMC members, SPREP, development partners and donors to support and guide the GFCS implementation, the PICS Panel and other related climate services activities initiated in the Pacific region, in order to ensure the sustained and continuous development of climate services in the SIDS.

Session 7: Marine Weather Services and Ocean issues

7.1: Tropical Pacific Observing System 2020

36. Note the importance of the TAO/TRITON moored buoy array for ENSO forecasting and tropical climatology.

37. Note the difficulty in sustaining the TAO/TRITON moored buoy array had recently been reduced to less than 40% of its operational capacity is frequently subject to vandalism which impacts its ability to perform vital observations and request PMC members to convey the importance of this system to their local government and communities and encourage them to join other organizations such as UNGA, WMO, IOC, RMFS in protecting these essential systems.
38. Request SPREP and the Pacific Meteorological Desk Partnership (PMDP) to provide updates on Tropical Pacific Observing System (TPOS) 2020 Project which reviews ocean observing requirements and will recommend a plan to modernize the tropical pacific observing system and represent PMC interests.
39. NMHS to Support and engage with TPOS 2020 where practical.
40. Encourage PMC and partners to promote and seek support for marine research.

7.2: Argo Program

41. Note the importance of the contribution of the Argo Program to regional climatology and forecasting.
42. PMC members to discuss ocean observations with their Member State delegations to the SPREP Annual Meeting and consider endorsing an updated Argo float deployment agreement.

7.3: Marine weather services in the Pacific Region

43. Appreciate the support from the JCOMM Data Buoy Cooperation Panel in hosting their first capacity building workshop in Palau.
44. Note the importance of marine weather services for safety and livelihoods; and prioritise it where feasible;
45. Note with appreciation the contributions of PacIOOS and COSPPac to ocean observing and data product development in the region.
46. Note that PI-GOOS is seeking increased participation and request nomination to serve as a point of contact on marine issues.
47. Note the resolutions and recommendations of the Cg-17 which address marine meteorology and ocean.
48. Approve the establishment of a Pacific Islands Marine and Ocean Services (PIMOS) Panel. Note that Palau, Solomon Islands, Vanuatu, Samoa, Fiji, Tonga, Niue, United States, New Zealand, IOC, SPC, USP and SPREP have volunteered to form the PIMOS Panel, with SPREP as the chair
49. The PMC Chair calls for volunteers and invites organisations to work with SPREP PMDP to develop a Terms of Reference and a costed work plan for new PMC PIMOS Panel.
50. Request the WMO to consider supporting the panel in their new program for SIDS, RA V and Joint Commission on Oceanography Marine Meteorology (JCOMM), and SPREP to approach other relevant partners.
51. Request PIMOS to report progress back to PMC-4 and the Annual SPREP Meeting.

Session 8: Multi Hazard Early Warning System

8.1: National Multi-Hazard Early Warning Systems (MHEWS)

52. Promote impact based forecasting and risk based warnings to better communicate threats related to meteorological, hydrological, and marine hazards, noting the importance of timely delivery of alerts for the successful operation of MHEWSs and Multi-Hazard information Systems (MHIS).

8.2 National Flood Early Warning System

53. Note concern in the lack of progress made on recommendations of PMC-2 on hydrological services and the call on PMC members with assistance from SPREP, SPC and WMO RA V working group on hydrological services to urgently address these recommendations.
54. Noting Fiji's recent successful transfer of mandate for flood forecasting to Fiji Meteorological Services which has improved service delivery, and encourage NMHSs to adopt similar best practices to reduce the considerable risks faced by flooding.
55. Request SPREP to closely monitor progress on recommendations regarding hydrological services and report to PMC and draw on SPC and other partners to lend expertise as needed.

8.3 Coastal Inundation and Hazards

56. Note that coastal hazards are a priority in the region and that technical support is required to build resilience and sustainable development.
57. Recognise the contribution that SPC and partners have made in developing tools to support NMHSs in the development of coastal inundation early warning systems and encourage their wide dissemination.
58. Request that PIMOS incorporate coastal hazard forecasting and early warning systems into its Terms of Reference.
59. Encourage WMO and SPC to seek further support for the region-wide implementation of real-time forecasting systems of coastal inundation hazards as for example the Coastal Inundation Forecast Demonstration Project (CIFDP).

8.4 Progress on Tsunami Warning and Mitigation, status on implementation of New Tsunami products in South West Pacific

60. Note the 50th anniversary of the Pacific Tsunami Warning System (PTWS) and the leading role taken by PICTs and welcome the election of Samoa as the chair of the PTWS and Tonga as chair of the South Pacific Tsunami working group.
61. Appreciate the enhanced tsunami guidance products from NOAA's Pacific Tsunami Warning Center and note that the mandate to provide local warnings is a sovereign responsibility of each state.
62. Noting that tsunamis are high-impact events, and that those originating in the region are localized rapid onset events, Standard Operating Procedures (SOPs) and awareness programs should be designed with this in mind, with guidance and support from IOC, NOAA and development partners.

63. Requests PIMOS Panel to include Tsunami EWS in its TOR; and in the future collaborate with IOC PTWS for further improvement of PTWC enhanced products and their uptake by PICTs.
64. Requests members to keep up to date listings of Tsunami National Contacts (TNCs), Tsunami Warning Focal Points (TWFP) and contacts for National Tsunami Warning Centre (NTWC) to ensure delivery of Tsunami advisory products.

Session 9: Public Weather Services

9.1 FINPAC Support to Public Weather Services and Communication to Communities

65. Note the progress made by the FINPAC project in support of the development of NMHSs including the implementation of SmartMet to strengthen the Public Weather Services of Tonga, Samoa, Solomon Islands, Fiji and Papua New Guinea.
66. Note the request for the implementation of SmartMet from Vanuatu and Kiribati.
67. Encourage NMHSs to build relationships with community based organizations and national media as partners to deliver weather and climate information to communities.
68. Encourage partners to work closely with the NMHSs to engage with communities to better understand weather and climate information.

9.2 Severe Weather Forecast and Disaster Risk Reduction Demonstration Project

69. Appreciate WMO, NZ Meteorological Service, US NOAA and participating partners for supporting the Severe Weather Forecast and Disaster Risk Reduction Demonstration Project (SWFDP) to strengthen NMHSs in their capacity to forecast severe weather and waves.
70. Request SPREP to work with WMO and relevant partners to continue the SWFDP.

Session 10: Communication

10.1 Radio Internet (RANET)

71. Request SPREP to explore the establishment of a fund for Pacific emergency meteorological communications.
72. Request SPREP and the PMDP to explore opportunities with mobile phone service providers for additional distribution pathways for emergency communications messages.
73. Note the International Pacific Training Desk is surveying Pacific SIDS NMHSs to determine the type of communications systems training that is deemed a priority and request PMC members to provide a timely response.

10.2 WMO Information System

74. Recommend PMC and SPREP to work with non-WMO PMC members providing update and information on WMO activities in the development of key programs that may benefit the PICTs.
75. Request PMC-Chair to raise with RA V Management Group a proposal for inclusion of additional experts from PICT to the RA V Working Group on Infrastructure, specifically to its Task Teams on WIGOS and WIS.

Session 11: Education, Training and Research

11.1 Education, Training and Research in the Pacific

76. Request the Pacific Island Education Training and Research Panel (PIETR) to revise its TOR and update membership. Current members are Fiji, Cook Islands, Marshal Islands, Federated States of Micronesia, Solomon Islands, USP, and PMDP.
77. Request the PIETR Panel to explore the possibility of establishing of a WMO Regional Training Centre for the Pacific Islands; including consult with WMO about the criteria for becoming a recognized RTC
78. Request the PIETR Panel to explore the development of a capacity development strategy for the Pacific within the context of the Pacific Islands Meteorological Strategy (2012-2021).
79. Request USP to review curriculum development and course mapping in regards to weather, climate, hydrological and ocean services in the Pacific Islands, including a full tropical meteorology course.
80. Encourage the development of Pacific Islands research capacity and recognise the importance of academic and regional organization research partnerships.
81. Note the establishment of the Pacific Island University Research Network in supporting research capacity development.

11.2 Pacific International Training Desk and other US NOAA training Programs

82. Ask SPREP and NMHSs to provide guidance and recommendation for specialised topics for in-country and follow-up training.
83. Request that NMHSs to nominate participants to attend future cohorts, particularly countries who have not previously submitted candidates.
84. Request that NMHSs assist in updating the Pacific International Training Desk database for communication systems used by NMHSs.
85. Request for University of Hawaii to work closely with the PIETR Panel to enable greater coordination and information sharing on courses including clarification on how they relate to the WMO standard classifications for meteorologists.

11.3 SPREP Media Outreach

86. Note the progress by SPREP through the FINPAC, PACMAS and its partners to develop the capacity of the media in the region for better reporting weather and climate hazards
87. Acknowledge the support of PACMAS and its partners in engaging journalists in weather and climate reporting
88. Support the continuation of activities under the SPREP Media Outreach Programme
89. Note the proposal to have a Media and Meteorology Roundtable Meeting in 2016 and encourage PMC and partners to support this initiative
90. Task PIETR Panel of PMC to consider training on Weather and Climate, Disaster Risk Reduction and Disaster Risk Management, Tsunamis and other topics related to weather, climate and oceans for the media, noting that some islands do not have televised forecasts but rely instead on radio.
91. Urge SPREP and partners to support the attendance of PMC members in the UNFCCC COP 21 Meeting in December, including participation in side events and other pre-COP trainings for participants.
92. Note WMO is conducting training for TV presenters through the Capacity Development component including the production of a series of videos.

11.4 Reinforcing Meteorological Training Function of FMS

93. Note that the Project for Reinforcing Meteorological Training Function of FMS has been launched to make Fiji Meteorological Service more instrumental in capacity development activities in the region.
94. Encourage PICTs and partners such as Australia, New Zealand, SPREP, USP, SPC and WMO to coordinate and collaborate with FMS and JICA.

Session 12: Aviation Weather Services

12.1 Quality Management System and Competency Standards

95. Note the importance of achieving full compliance with the WMO and ICAO Quality Management and Competency Standards in the provision of aeronautical meteorological services
96. Support the establishment of a PMC Aviation Panel to support issues raised in the meeting on QMS, cost recovery and other issues
97. Note that Palau, Samoa, Solomon Islands, Vanuatu, Fiji, Cook Islands, Tonga, Niue, US, WMO, USP volunteered to establish the Aviation Panel, with Tonga serving as the chair.
98. Note the upcoming WMO Regional RA V forum in Fiji as an opportunity to discuss and advance tasks provided to the newly established Aviation Panel.
99. Request NMHSs to assign high priority to quality management and competency standards and request SPREP, WMO, ICAO and partners to continue and intensify their assistance to the PICTs
100. Request NMHSs to establish bi-lateral twinning agreements targeting QMS and competency assessment implementation
101. Request NMHSs and SPREP to include appropriate work packages in on-going and future projects to ensure funding for sustainable implementation of the ICAO and WMO requirements
102. Endorse a regional target of resolving existing deficiencies related to the compliance with the WMO and ICAO quality management and competency standards
103. Encourage the attendance of the PMC members to ICAO Meetings, with assistance from WMO.
104. Request Australia to continue technical backstopping to NMHS on QMS
105. Request WMO, SPREP and the PMDP to draft Term of Reference and provide Financial Support to assist with Samoa's efforts to complete QMS.

12.2 Cost Recovery for Aviation Weather Services

106. Establish a regional task team or focal point to address cost recovery in a transparent and equitable manner, to liaise with relevant WMO and ICAO groups to establish an appropriate business model that allow all countries participating in service provision to benefit from the air navigation services charges attributed to MET services
107. Establish a pilot project on cost recovery with one or more countries to test possible solutions and business model as a component of larger scale regional project
108. Request that the PMC send a formal request to the WMO and ICAO Secretariats, the CAEm ET on Governance, and the ICAO MET Panel – Meteorological Cost Recovery Guidance and Governance Team raising Pacific cost recovery issues that need special attention
109. Endorse a regional target or dateline for development of specific guidance and proposed business model for cost recovery in the region.

12.3 Safe Skies for Aviation over the Pacific

- 110. SPREP and PMDP to establish a regional roadmap for phased improvements of the meteorological service to aviation that will serve as a basis for relevant projects supported by WMO and other partner organizations
- 111. Encourage NMHSs to establish priorities for technology improvement and modernization in relation to aviation weather services
- 112. The PMC is asked to designate a regional coordinator or a team to work with WMO and ICAO in developing a project proposal that addresses priority technology issues
- 113. The PMC is requested to endorse a regional target or dateline for development of a project proposal for the improvement of meteorological service to aviation in the PICT region
- 114. The PMC is requested to endorse a regional collaborative approach with strong focus on airport observations and reports quality and improved communications for near-real time data exchange.

13: Monitoring and Observations Systems

13.1 WMO Integrated Observing System (WIGOS) for Region V

- 115. Request the PMC identify and confirm WIGOS priorities for Pacific
- 116. Request that PICTs take an active part in the RA V WG on Infrastructure work related to WIGOS
- 117. Endorse the establishment of a Regional WIGOS Centre to ensure that operating stations are delivering observations and informed properly on failure to deliver and quality issues
- 118. Request that PMC and SPREP work to align national priorities with regional WIGOS priority actions and to include them in projects.

14: The Update and Review of the Pacific Islands Meteorological Strategy (PIMS) 2012-2021

- 119. Note the report on the summary of progress of implementing the PIMS in the PICT NMHSs
- 120. Endorse in principle the Terms of Reference for the review of the PIMS as well as the methodology used
- 121. Agree to establish a team consisting of Tonga, Palau, USA, Cook Islands, Samoa to support the Secretariat in the process of the midterm review of the PIMS
- 122. Encourage partners to support the review process

15: Strengthening the Pacific Meteorological Council and the Pacific Meteorological Desk Partnership

15.1 Governance of the PMC

- 123. Request that the team tasked with assisting the Secretariat in the review of the PIMS also assist the Secretariat in ensuring the meteorology, climate, and oceans are emphasized in the new SPREP Strategic Plan in regards to meteorology, climate and oceans

15.2 Pacific Meteorological Desk Partnership (PMDP)

- 124. Note the Work Plan and Budget and the planned schedule of work for the next 2 years
- 125. Encourage members and partners to provide updates to the schedule of activities when it is circulated at the end of each month

- 126. Encourage partners to advocate for and support the PI-GCOS Officer and the Meteorology and Climate Advisers positions in the PMDP
- 127. Encourage the PMDP to provide ongoing guidance and timely advice to PMC members
- 128. Request PMC to support SPREP and partners' efforts to secure funds for activities
- 129. Request SPREP and partners to increase efforts to secure funds including support for future Ministerial meetings

16: Resources Mobilization

16.1 Regional Technical Support Mechanism (RTSM)

- 130. Encourage members to use and promote the RTSM and the Rapid Response Fund noting current available funding of USD\$149,689 and proposed 2nd tranche of approximately USD\$300,000
- 131. Request that PMC members register as RTSM experts
- 132. Utilise RRF before its end date of June 2016, noting Technical Assistance requests are accepted and considered throughout the year.
- 133. Note that the PMC may assist a country in submitting an application to the RTSM, and requests must come from a country, not on behalf of the country or a group -

16.2 Green Climate Fund & Adaptation Fund

- 134. Note the accreditation of SPREP as a Regional Implementing Entity for the Adaptation Fund and Green Climate Fund and welcome PMC members to work with the Secretariat
- 135. Encourage members to submit proposals for the two funds for inclusion in the project pipeline.

16.3 WMO Resource Mobilization and Partnership

- 136. Commend WMO for their continued comprehensive support to the Pacific region
- 137. Note UNDP's development of two concepts; one, South-South Cooperation on Integrated Climate and Disaster Resilient Development between Pacific and Caribbean SIDS and two, Disaster Resilience, Response and Recovery for Pacific SIDS.

17: Disaster Risk Reduction and Climate Change in the Pacific

17.1 The Strategy for *Climate and Disaster Resilient Development (SRDP) in the Pacific*

- 138. Note the development of the draft SRDP and request from members for implementation of the SRDP when approved

17.2 The IPCC and the UNFCCC-COP21 in Paris, France

- 139. PMC, SPREP and partners to consider publishing work for IPCC peer review and encourage members to contribute as an author or reviewer to AR6
- 140. Those in a position to do so are also invited to provide additional resources to support SPREP and regional organizations support to members for participation in the COP and IPCC meetings, noting that support is available for one delegate per country to attend IPCC meetings.

17.3 Third United Nations World Conference on Disaster Risk Reduction (WCDRR)

- 141. Note the similarity between the Sendai Framework and the SRDP have similar goals and are consistent with the proposed Sustainable Development Goals.
- 142. Note the Sendai Framework and the need for collaboration within national agencies and partners to implement the Framework

18: Guidance to the 1st Pacific Ministers Meeting on Meteorology

18.3 Review and Finalize the Nuku'alofa Declaration

- 143. Declaration endorsed by the PMC

19: Venue of the 4th Meeting of the Pacific Meteorological Council

- 144. Solomon Islands to host PMC-4.
- 145. Request that the Secretariat review meeting duration to allow for adequate discussion.