"Science to Services for a Resilient Pacific"

Fifth Meeting of the Pacific Meteorological Council (PMC-5)
Working Papers

7-9 August 2019
Apia
Samoa

Agenda Item 15.1: Progress on the Pacific Islands Marine and Ocean Services (Report from the Pacific Islands Marine and Ocean Services (PIMOS) Panel

Purpose:

1. To highlight progress of the Pacific Islands Marine and Ocean Services (PIMOS) Panel against the workplan as outlined in the Pacific Islands Meteorological Strategy (PIMS).

2. To underscore the importance of continued collaboration across the Council of Regional Organisations in the Pacific (CROP) Agencies and other partners to maximise opportunities to increase the marine meteorology and oceanography capacity of National Meteorological and Hydrological Services (NMHSs).

Background:

1. The Pacific Island Marine and Ocean Services Panel (PIMOS Panel) was established by the Third Meeting of the Pacific Meteorological Council (PMC-3) in Nuku'alofa, Tonga in 2015 to serve in the capacity of an advisory committee to the Pacific Meteorological Council (PMC) on marine and ocean services matters in the Pacific region.

2. The purpose of the PIMOS Panel is to provide technical advice to the PMC on matters related to marine and ocean services, with an emphasis on oceanography and marine meteorology, to strengthen coastal multi-hazard early warning systems (Coastal MHEWS), national preparedness and maritime safety support mechanisms at the national and regional level, as prescribed in the Pacific Islands Meteorological Strategy and other international and regional frameworks such as the Sendai Framework for Disaster Risk Reduction 2015-2030 and the S.A.M.O.A. Pathway. See Annex 1 for the PIMOS Panel Terms of Reference.

Update:

1. The PIMOS Panel met four times: two teleconference meetings (7/5/2019 and 18/7/2019) and two face-to-face meetings, one held in the margins of the Climate and Oceans Support Program in the Pacific (COSPPac) Steering Committee Meeting in Nuku'alofa, Tonga (7/5/2018) and one held directly prior to the PMC-5 (5/8/2019).

2. The PIMOS Panel re-elected Niue as chair and the Pacific Community (SPC) as vice-chair on 5 August 2019.

3. Significant progress has been made in the region in improving observation and forecasting systems to include downscaled wave forecasts, installation of real-time marine and ocean observations, and improvement of marine weather services. Since 2017, downscaled wave forecasts and inundation forecast have been developed for Funafuti, Tuvalu (KfW) and the Coral Coast, Fiji (CIFDP). Downscaled wave forecasts and inundation forecasts are currently in development for Tarawa, Kiribati and Majuro, RMI through CREWS, PACIOOS, JICA and PREP II projects. A high-resolution wave model is being developed for Tonga (CRSP-ADB, NIWA). There has been progress on the development of the *high-resolution future risk of storm surge and storm wave considering climate change scenarios* in Samoa, Fiji, and Vanuatu (RESTEC, Ministry of Environment, Japan). A new wave buoy has been deployed in Fiji (CIFDP) and two more will be deployed in Tuvalu and Kiribati before the end of 2019 (CREWS). COSPPac has installed two new state-of-the-art sea level monitoring stations in Tuvalu and Tonga, to replace the old stations. SPC has undertaken benchmarking surveys to establish a reference datum for JICA tide gauges in Lenakel, VU and Vatia Wharf, FJ. Niue installed a suite of temporary wave buoys and tide gauges were installed in Tonga under the ADB project, including two new real-time tide gauges in Vava'u and Niuatopeutapeu.

4. Establishment of Ocean Services and engagement of ocean stakeholders has advanced with support from the Climate and Oceans Support Program in the Pacific (COSPPac) and making use of the Pacific Ocean Portal as a key ocean services resource (http://oceanportal.spc.int). Six NMHSs are providing ocean information products in the form of monthly outlooks and king tide alerts (Kiribati, Tuvalu, Samoa, Tonga, Vanuatu, and Fiji). Solomon Islands and RMI have products currently in development. Ocean Science to Service training and stakeholder engagement has been conducted in 9 countries, and workshops are being planned for the remaining PICs over the next two years, while fielding requests for 2nd level workshops in a number of countries. In Vanuatu, through Van-KIRAP (GCF), engagement of fisheries, tourism and infrastructure stakeholders has been strong, with clear priorities mapped and initial training and engagement already underway. Follow up consultations with maritime stakeholders on tailored marine forecast products were conducted in Tuvalu (Nov 2018) and Tonga (March 2019) using internal resources.

5. Since 2017, with collaboration between SPC, BoM, and University of Hawaii, tide predictions have been developed and calendars prepared for 4 new locations (Neiafu, Tonga; Vaitupu, Tuvalu; Kiritimati, Kiribati; Canton, Kiribati). An additional calendar is planned in 2020 for Ebeye, RMI funded by COSPPac. A regional tide app is also in development.

6. Not as much tangible progress has been made toward establishment of QMS for marine weather services and obligations under the Convention of Safety of Life at Sea (SOLAS), but awareness has been raised and NMHSs are increasingly engaging and prioritising the engagement of marine weather and ocean services stakeholders. From 2015 to date, national engagement with maritime stakeholders has been conducted in 9 countries[1] through COSPPac. From 2016 to date, 9 Pacific Island members of IMO have undergone an initial International Maritime Organisation Member States Audit Scheme (IMSAS). Palau and RMI are on schedule to be audited later this year and in 2020. The results of these audits are not public, but should be discussed and reviewed by national maritime committees, including NMHSs.

[1] Solomon Islands (2015), Cook Islands (2016), RMI (2017), Tuvalu (2017), Tonga (2017), Samoa (2018), Niue (2018), Vanuatu (2019), and Fiji (2019)

7. With regard to capacity development, PIMOS welcomed a major milestone when Solomon Islands became the region's first NMHS to hire an oceanographer earlier in 2019.[2] More recently, in June 2019 PNG Weather Service has also brought two oceanographers on board. USP offered an ocean remote sensing course attended by two NMHS staff (Solomon Islands) in January 2019. USP also offers an undergraduate course in physical oceanography, and the USP post-graduate course in Climate Change includes training on the Pacific Ocean Portal. Progress has been slow on the development of post-graduate offerings in oceanography. However, some Pacific NMHSs have pursued additional qualifications through IODE Ocean Teacher Global Academy Training on Ocean Observations (Tonga). SPC hosted attachments for 5 NHMS reps focused on the Pacific Ocean Portal and development of ocean products under COSPPac (Kiribati, Vanuatu, Tuvalu, Solomon Islands, and Cook Islands participating). The International Tsunami Information Center (ITIC) has offered two tsunami training courses on Standard Operating Procedures (SOPs) and tsunami science in Hawaii (2018-19). In addition, ITIC and the Pacific Tsunami Warning Center (PTWC) have conducted and will conduct in-country training for Fiji, Tonga, and PNG in 2019. Oc. A clear pathway for improved marine meteorology and oceanographic competencies is still in development and discussion.

8. Notable progress has been made in the region in marine meteorology and oceanographic research. SPC and USP are currently co-supervising one NMHS PhD candidate (Tonga) and two Masters theses (Solomon Islands, Fiji) focused on physical oceanography, modelling, and tropical cyclone inundation. Two NMHS officers submitted abstracts to OceanObs'19 community white papers and one was published as part of a synthesis paper (Vanuatu). A white paper on *Lessons from the Pacific Ocean Portal* has been published in Frontiers in Marine Science Journal, July 2019. In addition, COSPPac is supporting 9 Pacific NMHS representatives to attend and present science posters at the decadal OceanObs'19 Conference in Hawaii in September 2019. SPC is also contributing to a leading global expert group researching best practices in Understanding Flooding on Reef-Fronted Island Countries (UFORIC) and to the development of a journal paper focused on first-of-its-kind probabilistic cyclone inundation hazard assessment. This methodology will be further developed by Tonga's PhD candidate.

Recommendations:

The Meeting is invited to:

- **Appreciate** the collaboration and coordination of regional and international partners to progress the work of the PIMOS Panel toward strengthening marine and ocean services in the Pacific Islands;

- **Recognise and request** continued financial support for PIMOS Panel provided by SPC, SPREP, Australia, WMO, JICA, NOAA, the government of Korea, and other donors;

- **Recommend** the PIMOS Panel continue its work as outlined in the ongoing priority actions listed above and to regularly review its membership and ToR in consultation with the PMC and others;

- **Reaffirm** the role of the PIMOS Panel to undertake these activities in collaboration with other regional and international partners, including the Data Buoy Cooperation Panel, OceanObs'19, the WMO-IOC Joint Commission on Oceanography and Marine Meteorology (JCOMM), the Pacific Islands Global Ocean Observing System (PI-GOOS), the Pacific Community Centre for Ocean Science (PCCOS), and opportunities presented by the UN Decade of Ocean Science for Sustainable Development;

[2] https://www.spc.int/updates/blog/2019/03/solomon-islands-recruits-its-first-oceanographer

 Invite NMHSs to reaffirm the work of the PIMOS Panel and to encourage appropriate marine and ocean services projects/ programmes in the region to support PIMOS Panel priority activities in the workplan.

Attachments

- PIMOS Panel Terms of Reference, revised 5/8/2019.
- PIMOS Panel Workplan, revised 6/8/2019.

Links

- Solomon Islands Recruits its first Oceanographer. https://www.spc.int/updates/blog/2019/03/solomon-islands-recruits-its-first-oceanographer
- The Pacific Ocean Portal. http://oceanportal.spc.int

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