Eighth Meeting of the Pacific Meteorological Council (PMC-8)

Weather Ready for a Secured and Sustainable Pacific

10, 11, 14 September 2026 | Nuku'alofa, Tonga

Agenda Item 19.2: Pacific Regional Observation Network Strategy

Purpose:

1. To present the Pacific Regional Observation (PRO) Network Strategy to the Pacific Meteorological Council for consideration and endorsement.
2. To seek guidance from the Council on regional coordination, implementation priorities, and sustained support for a resilient, interoperable and fit-for-purpose Pacific observing network.
3. To invite the Council to note the proposed tiered station approach and support further refinement of the regional station baseline through national confirmation and metadata improvement processes.

Objectives:

1. Confirm a coherent regional direction for strengthening Pacific meteorological and hydrological observation networks under the Weather Ready Pacific Programme.
2. Support a three-tiered observing network model covering Reference, Operational and Supplementary stations to guide investment, maintenance and regional support. The country stations/assets listed in Annex A of the Strategy form the priority listing for financial support under the Sustainable Maintenance Facility that is being developed by the Weather Ready Pacific Programme.
3. Improve interoperability, metadata quality, data exchange and sustained operational performance across national, regional and global systems such as WIGOS and CliDE, and their associated subcomponents such as GBON and RBON, and tools such as OSCAR/Surface, WDQMS.
4. Promote lifecycle sustainability through coordinated procurement, maintenance, calibration, workforce development, spares management, resilience planning and long-term financing.

Background:

Pacific Island Countries and Territories face high exposure to severe weather, ocean and hydrological hazards, and rely on resilient observing networks to support warnings, forecasting, climate services, numerical weather prediction and regional data exchange. The Strategy provides a common regional approach to prioritising stations, improving metadata and interoperability, and sustaining infrastructure through lifecycle planning, maintenance, calibration, workforce support and long-term financing.

National Meteorological and Hydrological Services continue to manage ageing or fragmented infrastructure, limited specialist staff, remote logistics, communications constraints and unpredictable maintenance budgets. These challenges make coordinated regional prioritisation essential if investments are to deliver sustained operational performance rather than short-term installations.

The strategy proposes a practical three-tier network model comprising Reference, Operational and Supplementary stations. This model supports alignment with the Weather Ready Pacific Programme and WMO including WIGOS and the Unified Data Policy, while allowing national priorities and future integration of hydrology, marine, aviation, geohazards and ICT components.

The Strategy recognises that installing equipment is only one part of the solution; sustained performance depends on metadata stewardship, quality management, calibration, maintenance, resilience, workforce capability and lifecycle financing.

It has 13 strategic priorities;

1. Standardise where possible, observing technology for inter-operability and regional support. This may include the establishment of preferred supplier panels for observation equipment and instruments, maintenance and training.
2. Coordinate an OSCAR/Surface metadata improvement sprint across the region, supported by the WMO Regional Office and WRP partners, to resolve station identifiers, names, locations, operational status and instrument metadata.
3. Establish clear metadata stewardship roles for PRO network stations (who updates OSCAR and when).
4. Confirm which project/programme stations (e.g., CIS-Pac5, ClimSA) have formal expectations for international exchange and ensure registration and exchange pathways align with those expectations.
5. Identify reference or operational stations at risk of failure due to obsoletion; minor parts, power, or comms issues and prioritise rapid stabilisation actions.
6. Expand the regional strategy scope to integrate aviation, hydrology, rainfall-only networks, geological hazards, and marine observing into a single “system-of systems” Pacific observing plan.
7. Strengthen regional approaches to calibration and field verification (including regional kits and shared training).
8. Implement routine monitoring and reporting using WDQMS (availability/timeliness/quality indicators) and agree a process for acting on persistent issues.
9. Develop and fund practical resilience upgrades for cyclone-prone and remote stations (including redundant communications and cyclone-rated installations).
10. Embed decarbonisation and greening in station upgrades by prioritising renewable and hybrid power systems, low-power equipment, remote diagnostics to reduce travel, green procurement criteria, and responsible battery and e-waste management.
11. Clarify and implement post-project sustainability plans for stations installed under short-term initiatives.

12. Formalise and support a regional lifecycle support model for critical backbone stations, including supply chain arrangements, spares pooling, shared maintenance mechanisms, and the safe removal and disposal of hazardous items such as expired batteries.
13. Refresh the regional backbone definition periodically through WRP governance to reflect evolving requirements, technology and climate risk.

Recommendations:

The Meeting is invited to:

i. **Endorse** the Pacific Regional Observations Network Strategy as the regional framework for strengthening and sustaining Pacific observing networks under Weather Ready Pacific.
ii. **Note** the three-tier network model of Reference, Operational and Supplementary stations to guide regional prioritisation, investment and support.
iii. **Request** NMHSs, with support from SPREP, WMO RA-V and partners, to confirm national station lists and update associated metadata in relevant systems.
iv. **Encourage** partners to align observing network investments with the Strategy, including agreed standards for interoperability, maintenance, calibration, resilience and lifecycle sustainability.