Agenda Item: 16

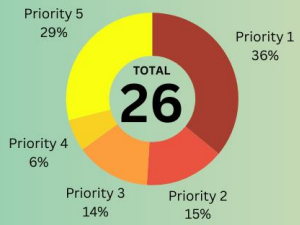
Country and Territory Presentations

16.1 American Samoa

American Samoa National Weather Service

Summary

American Samoa (AS) is a United States (US) Territory in the South Pacific. Operating 24/7, WSO Pago Pago falls under the US National Weather Service (NWS) - a part of the US Federal Government. The US NWS Office, located near the Tafuna International airport on Tutuila Island, delivers weather watches, warnings, and advisories. US NWS's mission is to provide weather, water, and climate data, forecasts, warnings, and impact-based decision support services for the protection of life and property and enhancement of the national economy. This is achieved through our vision of focusing on a Weather-Ready Nation, in which society is prepared for, and responds to, weather, water, and climate-dependent events. Additionally, WSO Pago Pago is equipped to issue tsunami warnings for local events, such as the 2009 tsunami and the 2022 Hunga-Tonga volcanic eruption.



PIMS ACTIVITIES

Met Legislations

- As a territory of the US, the US Congress passed the Weather Act and Forecasting Innovation Act of 2017.

Staffing Overview

- 1 meteorologist-in-charge, 5, meteorologists, 3 meteorological technicians, 1 electronics technician, and 1 administrative assistant.
- Challenge: staffing shortages - struggling to motivate Samoan students to pursue meteorology.
- The Samoan language is crucial for offering impact-based decision services support to important stakeholders and the community.

Communications Overview

- ASTCA, the local communications company, offers high-speed internet service through fiber optics.

Training Initiatives for Capacity Building

- Training plans are tailored to each staff member's expertise and accessed via an internal training portal.
- Encompass accessible resources, and technical skills and expertise.
- Residential sessions are held at the Training Center in Kansas City and other locations.
- Specialised guests conduct in-house customised training sessions.
- Regional training sessions are accessible, but participation relies on local funding availability.

Extreme Climate Threats

- Tropical cyclones.
- Heavy rainfall.
- Droughts.
- Earthquakes.
- Tsunamis.
- Heat waves.
- Coastal flooding.

Met Input to National Strategic Plan

- Input is primarily provided through the NWS Pacific Region Headquarters and through any opportunity presented by the National Headquarters to provide input.

Infrastructure Overview Gaps & Urgent Needs

- WSO Pago Pago operates 24/7 at the US NWS headquartered near the Tafuna International airport on Tutuila Island.
- NWS installs, operates, and maintains various electronic, electro-mechanical, data acquisition, and communication equipment or computer systems, including field equipment.

Finance & Investment Overview

- All project funding and facility improvements are provided by the US Government.

Climate Services Summary

- Gathers surface and upper-level observations, oversees the Cooperative Observer Program network, and offers public daily climate data.
- Data obtained from observation networks is sent to the National Center for Environmental Information, and distributed as certified data.
- The Climate Prediction Center (CPC) monitors climate.
- Tropical Cyclone Outlooks are released prior to the start of hurricane seasons.

NHMS Key Achievements

- Installation of two new generators.
- First heat advisory product.
- Completed maritime hazard maps for Pago Pago Harbour, and Aunu'u and Auasi Small Harbours.
- Assisted USGS in deploying and installing four seismometers and raspberry shakers.
- Completion of Tropical Cyclone curriculum refresher training for all staff.
- Completion of IDSS Boot Camp training by all operational staff.

Presence of Strategic Plan for NHMS

- The current plan: National Weather Service Strategic Plan (2023-2033).

Projects: Completed, Current & Planned

- NWS's projects are prioritised, planned, and implemented in relation to the National Weather Service Strategic Plan (2023-2033).

Marine Weather Overview & Products

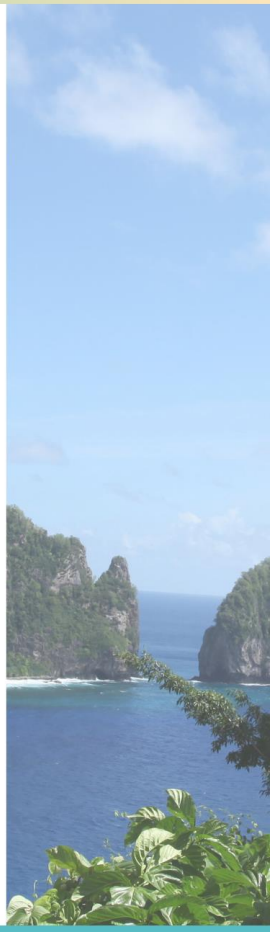
- Coastal waters forecast: Synopsis, 5 days forecast includes winds, seas, significant weather.
- Marine weather information:
  - Watches: Storm Watch, Gale Watch, Tropical Storm Watch, Hurricane Watch.
  - Warnings: Storm Warning, Gale Warning, Tropical Storm Warning, Hurricane Warning.
  - Advisories: Small Craft Advisory.
- All other areas within the EEZ are covered by the Honolulu Forecast Office High Seas Forecast.

In-Country Sector Engagement

- Federal government: Pacific Tsunami Warning Center, CPC, US Geological Survey, Coast Guard, Federal Emergency Management Agency, and NOAA line offices.
- AS government: Office of the Governor, Departments of Public Safety, Public Works, Education, and Commerce, Port, Power, and Telecommunications Authorities, and the LBJ Medical Center.
- Local government: The Office of Samoan Affairs, comprised of village chiefs and mayors.
- Non-government: the American Samoa Red Cross, different church denominations, and other nonprofit organisations.

Priorities & Gaps

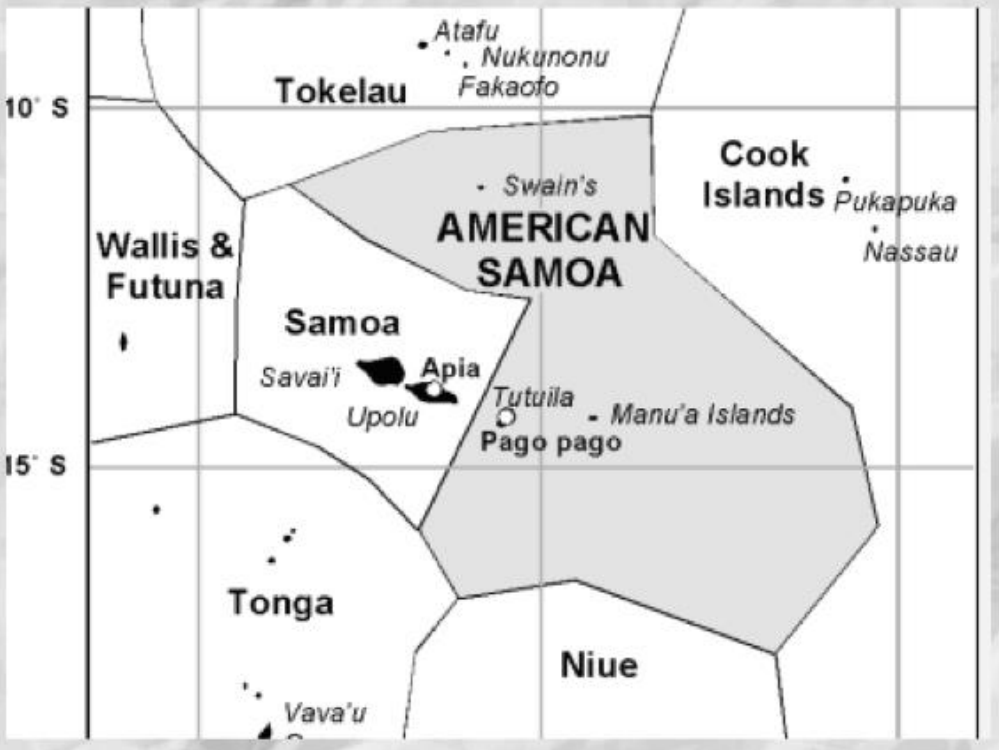
- The main priorities fall in line with the priorities of the US National Weather Service and the goals outlined in the Strategic Plan 2023-2033.
- Successfully implement the AI LILT Machine Learning project, translating all products from English to Samoan, to ensure NWS's products reach the communities.
- Boost regional collaboration through active participation in regional discussions and reinstating meetings between the Two Samoa Meteorological Offices.



PACIFIC METEOROLOGICAL COUNCIL

Meteorologist-In-Charge:
Elinor Lutu-McMoore

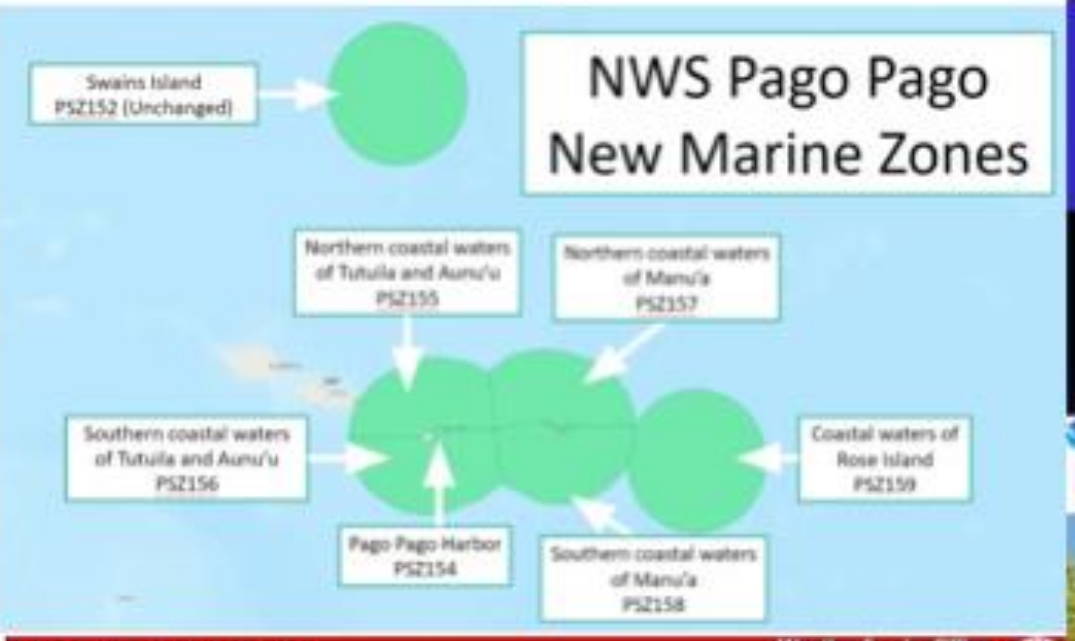
elinor.lutu-mcmoore@noaa.gov



AMERICAN SAMOA

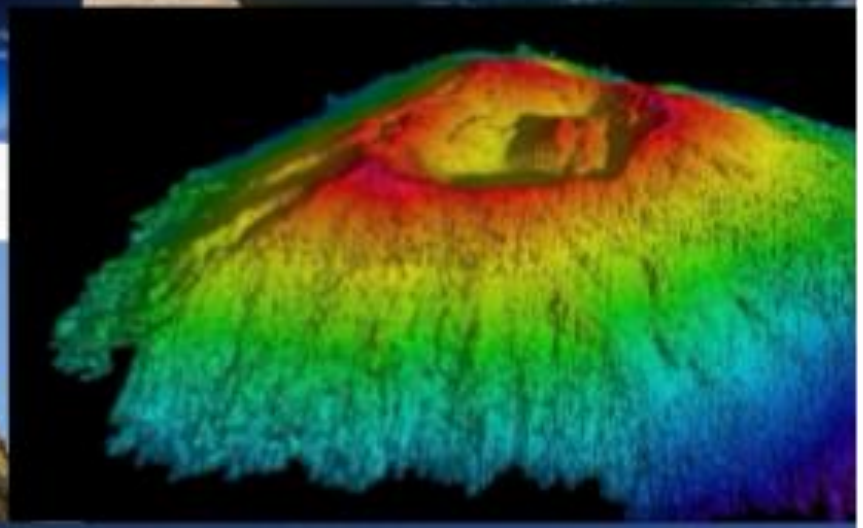
Mission:

"To provide weather, water, and climate data, forecasts, warnings, and impact-based decision support services for the protection of life and property and enhancement of the national economy."

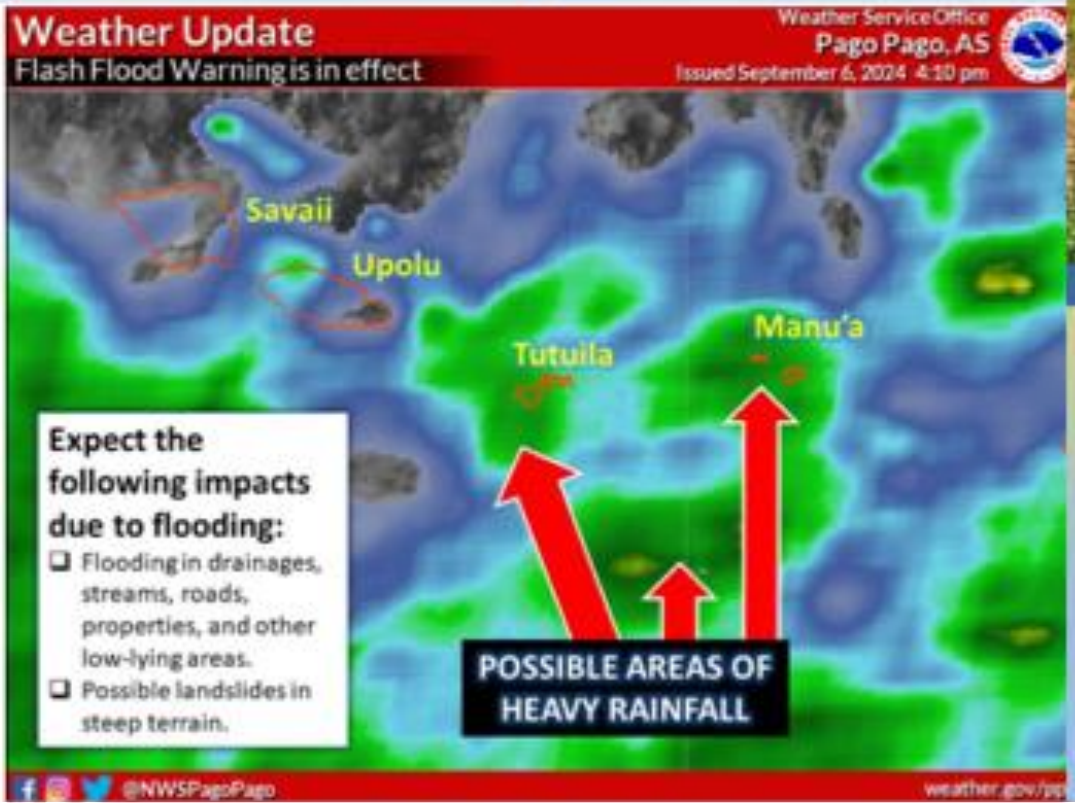

NWS Pago Pago
New Marine Zones
Swains Island
PSZ152 (Unchanged)
Northern coastal waters of Tutuila and Aunu'u
PSZ155
Northern coastal waters of Manu'a
PSZ157
Southern coastal waters of Tutuila and Aunu'u
PSZ156
Coastal waters of Rose Island
PSZ159
Pago Pago Harbor
PSZ154
Southern coastal waters of Manu'a
PSZ158


LILT
NWS Product Translations

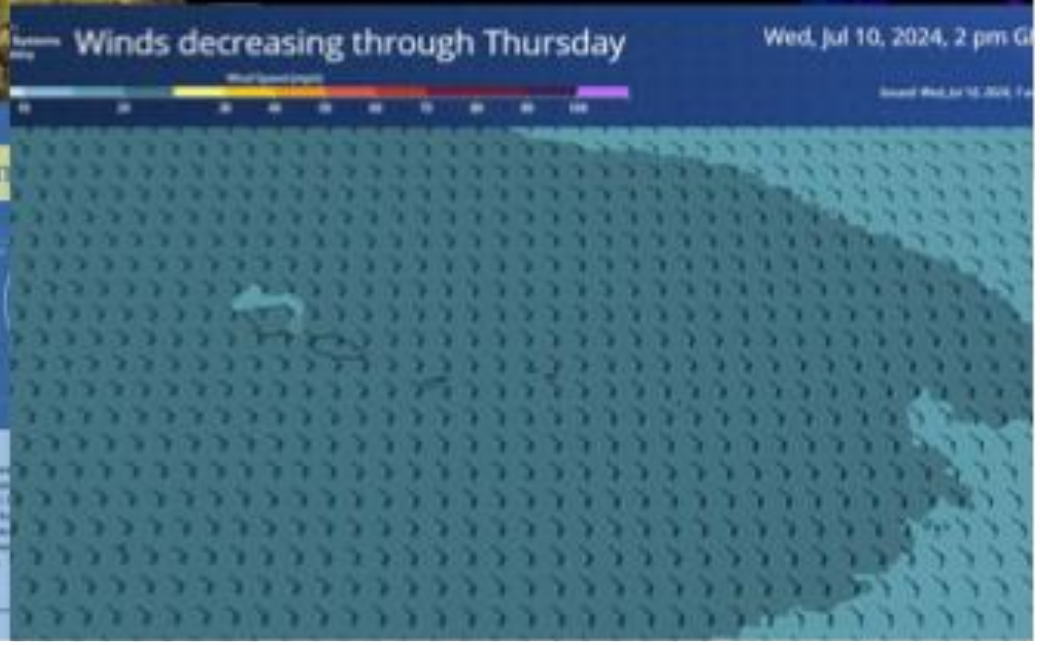

NAUTILUS LIVE
OCEAN EXPLORATION TRUST




USGS


Weather Update
Flash Flood Warning is in effect
Weather Service Office
Pago Pago, AS
Issued September 6, 2024 4:10 pm
Savaii
Upolu
Tutuila
Manu'a
Expect the following impacts due to flooding:
Flooding in drainages, streams, roads, properties, and other low-lying areas.
Possible landslides in steep terrain.
POSSIBLE AREAS OF HEAVY RAINFALL
@NWSPagoPago
weather.gov/pp


Mauga Mō a Amerika Samoa
Volcanoes of Am
Upu Amata
Introduction

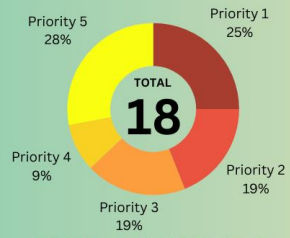

Winds decreasing through Thursday
Wed, Jul 10, 2024, 2 pm

16.2 Cook Islands

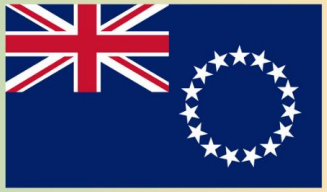
Cook Islands Meteorological Service

Summary

Under the Ministry of Transport, Cook Islands Meteorological Service (CIMS) is the lead meteorological agency in the Cook Islands, mandated to provide reliable meteorological, aviation, and marine services under the Meteorological Service Act 1995-96. With a gender diverse team of 15 staff (9 male and 6 female), and a reduction of the average staff age from 40 to 18, CIMS is proud of its progression over the last 12 months. CIMS endeavours to employ another three staff with future development, and is committed to enhance aviation, and climate and ocean services, as well as severe weather monitoring, and impacts on populated Islands. Climate services have been on the rise over the last two years, extending opportunities towards staff to train under appropriate climate services in Australia and New Zealand. This has enhanced CIMS's capabilities to produce reliable climate products and services to local, national, and international stakeholders.



PIMS ACTIVITIES



Met Legislations

- CIMS's primary mandate resides within the Meteorological Service Act 1995-96.

Staffing Overview

- CIMS has a total of 15 staff (9 male and 6 female).
- CIMS has an HR development plan with the Ministry of Transport to identify internal and external training for encouraging more staff and higher qualifications.

Communications Overview

- Primary communication modes for data from remote systems are DCP and satellite.
- DCP is used through Vodafone IP with back-up services provided by the government.
- GOES 16 satellite products are used for weather and tropical cyclone forecasting.
- Additional products are received from Chinese and Japanese satellites.
- Seasonal forecasts - delivered via email, Facebook, CIMS website, TV, and newspapers.

Training Initiatives for Capacity Building

- Marine
- NCOF
- YSSP Workshop
- Climate Workshop
- Oceans Workshop
- BIP-MT Training
- Satellite Workshop
- Basic Observers
- QMS
- Media

Extreme Climate Threats

- ENSO phases.
- Expected number of cyclones in summer.
- Drought and wet periods.
- Onset of dengue fever.
- Increasing strong wind frequencies.
- Increasing high seas with possible coastal inundation and flooding.

Met Input to National Strategic Plan

- As mandated by the Meteorological Service Act 1995-96, CIMS is the official channel for all weather-related warnings for the Cook Islands.
- This means that CIMS can contact all relevant agencies that are instrumental in implementing and operationalising CIMS's and their own work.

Infrastructure Overview Gaps & Urgent Needs

- Office refurbishments with computer upgrades and instrument installations planned in late-2024.
- Includes a solar panel farm installation to provide electricity for the office.
- Plans are set for a radar installation on the west side of Rarotonga for aviation and cyclone monitoring, but maintenance needs staff training.
- AWSs installed on 13 of 15 islands.
- Aviation and marine observation are priority areas for development.

Finance & Investment Overview

- CIMS receives support from government funding, as well as other external projects and international donors.

Climate Services Summary

- SCOPIC; CLIKP; EAR Watch; METPI for seasonal forecasting, focusing on rainfall and temperature.
- CIMS sights real-time information which is automatically ingested into a Climate Database Management System to produce climate and weather products.

NHMS Key Achievements

- Audit training
- Management and leadership
- Upper air training
- Maintenance
- Instrumentation
- AWS
- Aviation training
- Climate training
- Tide-gauge training
- Satellite training
- EAR Watch training
- Marine training
- Trigger workshop

Presence of Strategic Plan for NHMS

- *The Ministry of Transport has a strategic plan in place, with CIMS falling under the classification of climate change.*

Projects: Completed, Current & Planned

- Project 1 - Green Climate Fund - USD$8 million.
- Project 2 - Comprehensive Test Ban Treaty (CTBT) USD$5,000.
- Project 3 - Aviation Cost Recovery - USD$19,000.
- Some future project collaborations and proposals include tide gauges for tide charts , ship reports, climate products, Pacific Weather Ready, and TV Weather.

Marine Weather Overview & Products

- Very little marine products provided.
- Tide charts and lunar months are distributed to farmers and fishermen to assist with decision-making for farming and fishing.
- Northerly wind advisories are issued when wind speeds reach 15 knots or greater.
- CIMS is currently engaging with port authorities to develop working relationships for marine communities.

In-Country Sector Engagement

- Agriculture - rainfall.
- Health - rainfall and temperature.
- Water division - EAR Watch.
- Outer islands - EAR Watch.
- Marine resources - marine bulletins.

Priorities & Gaps

- Need for tertiary-level qualified staff to enhance quality of climate, ocean, and aviation products and services.
- Need for developing climate, ocean, PWS and aviation products and services.
- Need for community engagement support programs to increase CIMS's accessibility.
- Need for collaborating with external agencies to fund ongoing infrastructure development.
- Need for external funding assistance for in-country activities such as community outreach.

PACIFIC METEOROLOGICAL COUNCIL

Director: Maara Vaiimene

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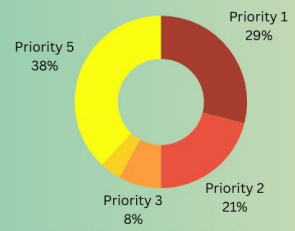
16.3 Federated States of Micronesia

Federated States of Micronesia Weather Service

Summary

The Federated States of Micronesia's (FSM) National Weather Service (NWS) is FSM's primary meteorological service responsible for delivering reliable and accurate weather, climate, and oceans data to the FSM government, stakeholders, and members of the FSM community. Supported through NOAA, and represented in the government's National Disaster Response Plan and pending National Strategic Plan for Weather, Water, and Climate Services, NWS continues to ensure that timely, necessary, and standardised products are delivered appropriately, and are easily accessible to all its stakeholders. The NWS endeavours to support growth and capacity development within its office.



PIMS ACTIVITIES

Met Legislations

- The Compact of Free Association (COFA) - expresses US's financial commitment to FSM.
- Amended on the 17th of December 2003, and enacted as a US Public Law 108-88, followed by permanent financial assistance through to 2023.
- Title Two, Article II: Program Assistance, Section 221 - the US shall provide certain services and related programs without compensation to the FSM, including FSM WSOs.

Staffing Overview

The office has a total of 19 staff:

- 10 undergraduates.
- 1 MET graduate.
- 5 electronics technicians.
- 3 facility technicians.

Communications Overview

- Oceanographic and hydro-meteorological data from remote stations are communicated via HF radio, Chatty Beetle, and the Internet (Facebook, Messenger, and WhatsApp).
- The Himawari satellite is the most widely used and accessed for NSW's services.
- All products are produced by the Weather Forecast Office (WFO) in Guam.
- Products delivered to the public mainly rely on the Micronesian Coastal and Island Forecasts.

Training Initiatives for Capacity Building

- Palau Early Action Rainfall Watch NMS Training Workshop.
- Introduction to Climatology Workshop COSPPac.
- Common Alerting Protocol (CAP) Training.
- Ongoing Pacific Desk Training at Weather Forecast Office (WFO), Guam.
- Various WMO training opportunities.

Extreme Climate Threats

- Heavy rainfall.
- Drought.
- Tropical cyclones.

Met Input to National Strategic Plan

- The FSM government approved the FSM National Disaster Response Plan (NDRP) 2016 in April 2017 and established a National Disaster Committee (NDC).
- The NWS is a member of the NDC.
- The NWS is currently supporting the review and endorsement of the National Strategic Plan for Weather, Water, and Climate Services.

Infrastructure Overview Gaps & Urgent Needs

- The NWS has three working Upper Air Stations in Pohnpei, Yap, and Chuuk alongside its three offices.
- Has no AWSs at the moment.

Finance & Investment Overview

- Receives funding from the US Government through NOAA.
- The three offices in Pohnpei, Yap, and Chuuk are fully funded under a five-year contract awarded to the FSM government.

Climate Services Summary

- The NWS currently provides climate forecasting for temperature and rainfall, but seeks to cover wind, solar radiation, and clouds in the future.
- Monthly and seasonal rainfall outlooks, temperature outlooks, tropical cyclone, coral bleaching, sea level, tide data, drought monitoring, and ENSO updates are key products produced.
- Climate and ocean bulletins are issued monthly.

NHMS Key Achievements

- Climate and Ocean training and forecasting (OCOF, EAR Watch).
- Common Alerting Protocol (CAP) Training.
- Upgrading Upper Air observations from TRS to MROS.

Presence of Strategic Plan for NHMS

- The National Strategic Plan for Weather, Water, and Climate Services - pending review and endorsement.
- Aims to ensure that FSM NWS is placed into FSM national government's organisational structure.
- Will enhance partnerships with stakeholders, increase human capacity, performance management, and operational efficiency, and increase observational networks.

Projects: Completed, Current & Planned

- COSPPac is a current project supporting the NWS through activities such as Early Action Rainfall (EAR) Watch, and Ocean and Climate Outlook Forums (OCOF).

Marine Weather Overview & Products

- Current marine products include coastal waters forecasts, high surf advisories, and small craft advisories.
- Wind wave and swell heights are available through the Micronesian Coastal Forecasts.
- If further consultation is required, end users will either call or walk in to gain more in-depth information.

In-Country Sector Engagement

- The NWS issues monthly climate and ocean bulletins to all sectors including the Department of Environment Climate Change and Emergency Management (DECEM), the Disaster Coordinating Office (DCO), Energy, EPA, Health, Agriculture, Women's Council, Fisheries, and Tourism.

Priorities & Gaps

- The NWS seeks improved communication systems, as currently, a big challenge for the service involves communicating to remote areas and maintaining active stakeholder engagements.

PACIFIC METEOROLOGICAL COUNCIL

Director: Johannes Berdon

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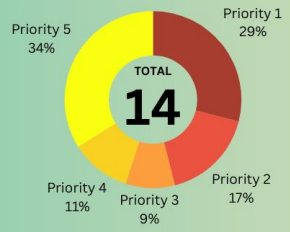
16.4 Fiji

Fiji Meteorological Service

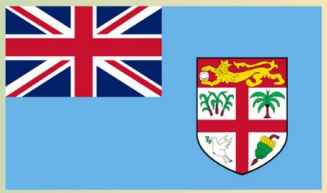
Summary

The Fiji Meteorological and Hydrological Service (FMHS) operates under the Ministry of Public Works, Meteorological Service, and Transport. As part of a large and diverse ministry that includes the Department of Works, Department of Energy, Government Shipping, and Transport, FMHS collaborates with key statutory bodies such as Energy Fiji Limited (EFL), Fiji Roads Authority, Water Authority of Fiji, Maritime Safety Authority of Fiji, and Land Transport Authority.

Our mandate within the Meteorology Portfolio is to deliver timely and reliable weather, hydrologic, and climate information to the public, enhancing preparedness and resilience before disasters strike. FMHS has received certification from the Civil Aviation Authority of Fiji to provide Aviation Meteorological Services for air navigation, and our Climate Service is ISO 9001:2015 certified. We are also on a progressive journey towards certification in Marine Services and the Public Weather Service by 2027.



PIMS ACTIVITIES



Met Legislations

- The Fiji Meteorological and Hydrological Act was enacted by the Fiji Parliament in July 2024.

Staffing Overview

- As of 2024, the FMHS has a staffing total of 123 positions, 14 of which are vacant.
- The three output divisions (Forecasting Centre, Hydrology Division and Climate Services Division) provide services and outputs to a diversity of end- users in government, private sector, NGOs, and the community.

Communications Overview

- FMHS uses global NWP model output (GFS, ECMWF), providing text-based forecasts from it.
- FMHS is now operationally using the downscaled model for the Fiji region.
- For general forecasts, FMHS communicates directly to radio, TV, and newspapers and sends out public bulletins five times per day.
- Social media is also used (Facebook and Twitter).
- FMS mobile app - yet to be launched - will also deliver general forecasts.

Training Initiatives for Capacity Building

Includes but is not limited to:

- Meteorology and atmospheric science.
- Climate and disaster risk reduction.
- Technical training on instruments.
- Marine and coastal meteorology.
- Higher education and long-term programs.
- Other specialised training, workshops, and conferences (CAP, COP, SID4).

Extreme Climate Threats

- Heavy rainfall, tropical cyclones, diseases, coastal flooding, heat waves, drought.
- Early Action Rainfall (EAR) Watch bulletin issued on a monthly basis. Contains information on rainfall for the previous 3, 6 and 12 months.
- This is disseminated to our disaster managers in various organisations, including NDMO.
- FMHS works with Ministry of Health on an early warning system for outbreak of dengue, typhoid, leptospirosis, etc.

Met Input to National Strategic Plan

- 5 and 20 year national development plan incorporates the objective of net-zero global GHG emissions by 2050 for Fiji.
- It is already embedded in the Ministries Corporate Operational Plan (COP), on annual targets for the department, in terms of operations.

Infrastructure Overview Gaps & Urgent Needs

- Weather observation network consists of 33 manual and 28 automatic weather stations.
- One upper-air observation at the Nadi radar site.
- Two Doppler radars, one C-band dual pole radar.
- Hydrological observation network consists of 67 telemetered stations.
- Number of stations sending data for global and regional use is low with poor delivery and quality.
- Uncoordinated donor agency programs make it difficult for a harmonised observation network.

Finance & Investment Overview

- Funding for the FMHS derives from government support and regional projects.

Operating expenditure for 2024 includes:

- Staff, travel, and communication.
- Purchase of goods and services.
- Maintenance and operations.

Capital expenditure for 2024 includes:

- Construction and capital purchases.

Climate Services Summary

- Current WMO Climate Service: Class 3.
- Forecasts rainfall and temperature, with the aim to forecast waves and winds in the future.
- Have an updated climate science publication.
- Tools used to provide seasonal forecast - CLIKP, ACCESS-S, SCOPIC, and PICASO.
- Models used to provide seasonal forecast on a monthly basis: ECMWF, APCC, KMA, UKMO, WMO consensus, NCEP.

NHMS Key Achievements

- Storm surge training and forecasting.
- Coastal inundation forecast.
- High-resolution wave forecast.
- Impact-based forecasting and training.
- Modelling training.
- Verification training.
- Tropical cyclone forecasting training.
- The establishment of the Fiji Meteorological and Hydrological Act.

Presence of Strategic Plan for NHMS

- FMHS is now reviewing its Strategic Development Plan (SDP) 2021- 2024.
- The Strategic plan aligns with the Ministry of Public Works, Meteorological Service and Transport.
- It also aligns with the PIMS for 2017-2026 and it also aligns with the 5 year and 20 year National Development Plan.

Projects: Completed, Current & Planned

- Planned - Labasar Radar upgrade to dual polarisation.
- Completed - Nausori Radar Upgraded in 2024.
- Completed - AWOS Network installed in 2019: set at Nadi International Airport only and with thresholds for the safety of airlines and aviation industry requirements.
- Planned - Upper Air Programme - Currently only Nadi is able to conduct weather balloon flights.

Marine Weather Overview & Products

- Marine products: Marine Weather Bulletin for Fiji, South West Pacific Marina Weather Bulletin, WOPS (for gale warning), storm surge warnings, and swell warnings.
- Ocean/marine forecasts are provided but there is little ocean observational equipment in Fiji.
- So forecasts are based on global models and provide basic forecasts of ocean roughness.
- SPC has been engaging with Fiji Met in this space.

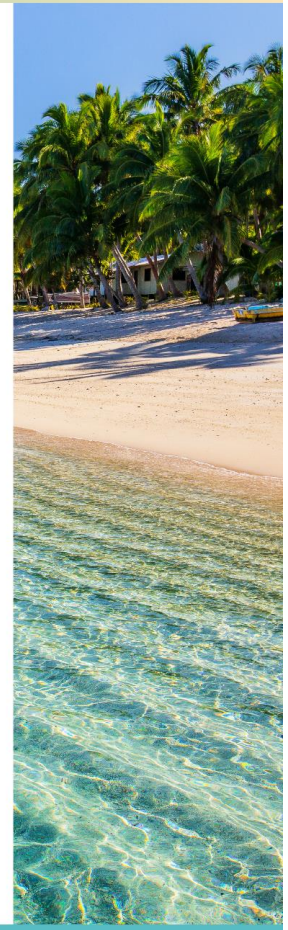
In-Country Sector Engagement

Includes but not limited to:

- EFL.
- Fiji Sugar Cooperation/ Sugar Research Institute of Fiji (FSC/SRIF).
- Fiji Airports Ltd.
- EFL/FSC/SRIF are issued tailor made products while the rest are issued with Early Action Rainfall (EAR) Watch, Climate Outlook and Ocean Outlook.

Priorities & Gaps

- More forecasters with WMO class 1 qualification.
- More scholarships to send graduates to relevant institutions.
- High Performance Computer (HPC) nodes and more storage.
- Upgraded laptops for forecasters.
- Establishing automatic graphical product generation and data integration.
- Developing tailor-made products for different sectors and organisations.



PACIFIC METEOROLOGICAL COUNCIL

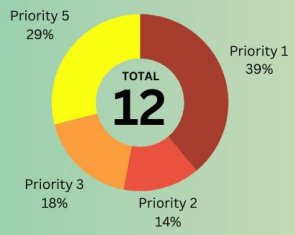
Director: Misaeli Funaki misaeli.funaki@met.gov.fj

16.5 Kiribati

Kiribati Meteorological Service

Summary

Kiribati Meteorological Service (KMS) is a division under the Office of the President (Office of Te Beretitenti) comprising 36 staff, including support personnel, all aligned with a common vision: "To build a resilient nation by supporting decisions that protect and save lives, safeguard property, enhance livelihoods, and accelerate the socioeconomic development and green recovery of Kiribati and all I-Kiribati." The mission statement underscores the commitment to offer timely. actionable. accessible, and user-oriented weather, climate, and ocean services to all I-Kiribati, visitors, and stakeholders. Key achievements of the KMS include the enactment of Kiribati's inaugural Meteorological Act (Meteorological Act 2021) and the expansion of the Automatic Weather Station network, among others. These accomplishments stand as testament to the collective commitment to advancing weather. climate and ocean services in Kiribati.



PIMS ACTIVITIES

Met Legislations

- Kiribati has the Meteorological Act 2021.
- An establishment of a regulation under the Act is required.

Staffing Overview

- Human resource development is an integral component of KMS and the broader government strategy.
- KMS comprises qualified leading technical staff with meteorology and bachelor qualifications.
- KMS managed to create new positions - an Oceanographer, an Outreach Officer, and a Senior Forecaster.
- More forecasters positions are required.

Communications Overview

- Mode of communication for transmitting data from remote stations - telephone and internet.
- Mode of transmitting data to the Global Data Network - email or phone (for no internet).
- Starlink currently improving connection at 2 main offices (Tarawa and Kiritimati).
- A dedicated Outreach Officer assists with making services accessible to all communities.

Training Initiatives for Capacity Building

- Require advanced Master-level training for senior officials.
- More training is required for administrative staff.
- Full BIP-MT training is required for meteorological staff.
- Almost all staff have attended short term trainings and workshops in the region and in country.
- All staff attended in-country refresher and basic meteorological training in country.
- BIP-M (Meteorologist training) to 3 forecasters.

Extreme Climate Threats

- Extreme drought.
- Coastal inundation and flooding.
- No robust Early Warning System (EWS) in place for extreme events.
- Assists in drought analysis and extreme drought monitoring.
- Basic information provided to support extreme spring tides events and coastal inundation due to tides .
- Wind, rainfall and, coastal inundation are prioritised for an EWS.

Met Input to National Strategic Plan

- One of five the Key Priority Areas (KPAs) under the Kiribati Development Plan 2020-23 is KPA 4 - Protecting our Environment and Strengthening Resilience Resilience in which Office of Te Beretitenti is the leading Ministry.
- The Kiribati Cision for 20 Years (KV20) also prioritises advancement of Meteorological Services and equipment under Pillar 2 on National Security.

Infrastructure Overview Gaps & Urgent Needs

- Number of automatic weather stations increased to eight AWSs and two AWOSs.
- Main office has been extended to support new positions including a meeting room.
- Need - a new, big main office to support staffing increases and well-equipped to support weather forecasting and observation services, and ICT.
- More support is required for ICT (database, quality control on weather observations) and communications.

Finance & Investment Overview

- Significant annual increase in budget in 2024 due to a salary increase for all government employees in Kiribati.
- Despite this, the budget remains insufficient to adequately cover all of the KMS's necessary activities.
- Most developments and major activities within KMS are project-based, but more support is still required to initiate prolonged planned activities including traditional knowledge, improving ocean monitoring, office transport (Kiritimati stations), and some other major developments.

Climate Services Summary

- Tools/models used to provide seasonal forecasts: SCOPIC, ACESS-S.
- Forecasts rainfall and air temperature, with hopes to eventually forecast rainfall intensity/duration and coastal inundation.
- Seasonal forecasts communicated via email and Facebook.
- No climate science publication.

NHMS Key Achievements

Include but are not limited to:

- Creation of new positions (Senior Forecaster, Outreach Officer, Oceanographer).
- Upgrading all station mercury thermometers to digital thermometers.
- Development of the Meteorological Act 2021.
- Development of the KMS strategic Plan and Framework for Climate Services 2021-2025.
- Already started with an audit/certification on Aviation Meteorological Services - Part 174.

Presence of Strategic Plan for NHMS

- Kiribati has a Strategic Plan and Framework for Weather, Climate and Ocean Services 2021 to 2025.
- Most of KMS's activities under its Strategic Plan and Framework on Weather, Climate and Ocean services are also reflected in the Office of Te Beretitenti Ministerial Operational Plan (MSP) for the first four years (2024-2027)
- There are also KMS activities reflected in the Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Reduction.

Projects: Completed, Current & Planned

- Ongoing: Global Upper Air Network (GUAN), COSPPac, ClimSA 3.5, Australia Kiribati Aviation Program, support to KMS positions, Support for USGS seismic stations, SOFF phase 2 (investment phase), CREWS2 new projects.
- Completed: Disaster Resilience for Pacific (RESPAC), first NCOF, coastal inundation project, meteorological bill, water security project, LDCF food security project, SOFF phase 1, KMS conference system.
- Planned: establishing an EWS and weather forecast office, elevating telecommunications coverage, extend tide gauge networks.

Marine Weather Overview & Products

- Existing services.
- Marine forecast from Fiji.
- Monthly Ocean Climate Outlook.
- Tide calendars (Tarawa, Kanton, and Kiritimati) with an extreme spring tide information note for Tarawa only.
- Three tide gauges (1 COSPPac, 2 UH).
- More tide gauges required.
- There is a need to support Weather Observation and reporting by vessels within the Kiribati waters.

In-Country Sector Engagement

- The Annual National Climate Outlook Forum - commenced in 2022 and comprises all mayors and island representatives.
- Water - EAR Watch.
- Fisheries - Ocean outlook.
- NDMO - All outlooks (climate, ocean, EAR).

Priorities & Gaps

- BIP-MT and BIP-M training.
- New office with proper equipment to support an increase in the number of staff and services.
- Developing a suitable EWS based on KMS and meteorology, and linked to the NDMO and other sectors.
- Improving ocean monitoring and coastal inundation modelling to support all islands.
- Data digitisation.
- Upgrading all weather stations and upper air stations.

PACIFIC METEOROLOGICAL COUNCIL

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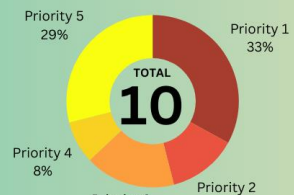
16.6 Republic of the Marshall Islands

Republic of Marshall Islands Meteorological Service

Summary

The United States (US) and the Republic of the Marshall Islands (RMI) signed the Compact of Free Association (COFA) on June 25, 1983, which established the NOAA National Weather Service (NWS) to offer weather services and associated programs throughout the Republic in line with COFA. According to Sections 5 to 13 of Article VII, the US NOAA NWS provides weather services through WSO Majuro. Subsequently, at the operational level, the NWS Pacific Region Headquarters (NWSPRHI) and the Government of the RMI provide financial management and oversight assistance to WSO Majuro. Building on this foundation, in July 2022 with support from the WMO Climate Risk and Early Warning Systems (CREWS) Pacific SIDS Project, the WSO Majuro developed its National Strategic Plan for Weather, Water and Climate Services (NSPWWCS) to achieve its vision and mission to provide quality and reliable weather, water, climate and ocean services in next 10 years.



PIMS ACTIVITIES

Met Legislations

- The CIS-Pac5 GCF program, "Enhancing Climate Information and Knowledge Services", has recruited a consulting team to assist WSO Majuro in drafting its National Meteorological Legislation Act.
- A draft was shared with key national stakeholders in May 2024.
- The draft Act is now awaiting COFA III to be finalised and signed.

Staffing Overview

- WSO Majuro consists of 1 Meteorologist-In-Charge (MIC), 1 Staff Meteorologist (vacant), 1 Supervisory Weather Service Specialist, 5 Weather Service Specialist (WSS), 1 Supervisory Electronic Program Specialist (EPS), 1 Facilities Technician (vacant), and 1 Tradesman (vacant)
- Through the CIS-Pac5 Project, WSO Majuro has also incorporated 1. National Climate Expert, 2. National Ocean Expert, 3. ICT/Technical Officer, 4. Traditional Knowledge Officer, 5. National Framework for Climate Services Consultant, and 6. Early Warning Systems Consultant.

Communications Overview

- Oceanographic and hydro-meteorological data communicated via Chatty Beetle, HF radio communication, cellular communications, and air/sea mail.
- Data is transmitted to the Global Data Network via FAA Aeronautical Information System Replacement, the web, email, and satellite phone.
- In the event of communication outages, transmissions may get relayed to other Micronesian WSOs, such as the WSO Pago Pago or WFO Guam via landlines, Chatty Beetle, or HF radio communication.

Training Initiatives for Capacity Building

- Climate, Oceans and ACCESS-S training.
- Young Scientist Support Program (YSSP) 2023 and 2024.
- CIS-Pac5 Beginner Climate and Oceans Training Workshop Melbourne, Australia.
- Sub-Regional Training Workshop through the ROK-PI CLIPS Project 2.
- Joint Training Workshop for the Republic of Korea- Pacific Islands Climate Prediction Services Phase 2 Project.

Extreme Weather, Ocean & Climate Threats

- Cyclones.
- Drought.
- Flash flooding.
- Tsunamis.
- Heavy rainfall.
- Storm surges and swells.
- Warning procedures involve using watches, warnings, and advisories from the U.S. Joint Typhoon Warning Center (JTWC), NOAA Pacific Tsunami Warning Center (PTWC) and the U.S. NWS Weather Forecast Offices (WFO) in Guam and Honolulu.

Met Input to National Strategic Plan

- National Strategic Plan for Weather, Water and Climate Services (NSPWWCS).
- Developed July 2022 to help WSO Majuro achieve its vision and mission to provide quality and reliable weather, water, climate and ocean services in next 10 years.

Infrastructure Overview Gaps & Urgent Needs

- Four manned Second Order Synopsis Stations (SOSS).
- One climate station in five different locations.
- WSO Majuro replaced an aging emergency generator and fuel storage tank.
- The observatory building and upper-air inflation building are being repainted.

Finance & Investment Overview

- WSO Majuro receives support from NOAA through COFA, as well as from other external partners, donors, and projects like the CIS-Pac5 Project.

Climate Services Summary

- Performs upper air and surface observations, including the hourly METARs, six-hourly synoptic, and twenty-four-hour climate reports.
- A local cooperative climate network of stations receives daily climate reports from SOSSs and climate stations.
- Tools used for seasonal forecasts - SCOPIC, CliDE, CliDEsc, WxCoder, CLIKP, PEAC, PICASO, and ACCESS-S.
- Forecasts rainfall, surface temperatures, SLR, SST, coral bleaching, and ENSO phases.

NHMS Key Achievements

- Installed 3 AWS (Utrik, Mili, Majuro) and designated these as GBON Climate Stations.
- 1st National Climate and Oceans Outlook Forum.
- Tsunami Ready Program progressed and now nearly completed.
- Traditional knowledge conference.
- Developed strategic and implementation plan.
- Addition of experts and consultants to the team.

Presence of Strategic Plan for NHMS

- The RMI National Strategic Plan 2020-2030 includes under its "Environment Climate Change and Resiliency Pillar" a policy objective to "meet obligations to relevant national, regional and international treaties, agreements and frameworks".
- National Strategic Plan for Weather, Water and Climate Services (NSPWWCS).
- In Feb 2024 the WSO Majuro built upon the Goals, Objectives and Strategies of the NSPWWCS by adding an NSPWWCS Implementation Plan (IP) with detailed sub-activities.

Projects: Completed, Current & Planned

- Completed: Enhancing Climate Information and Knowledge Services for Resilience Project (CGF-UNEP).
- Completed: Enhancing disaster and climate resilience in the Republic of the Marshall Islands through disaster preparedness and infrastructure Project (Japan-UNDP).
- At least eight other various projects are planned for future implementation.

Marine Weather Overview & Products

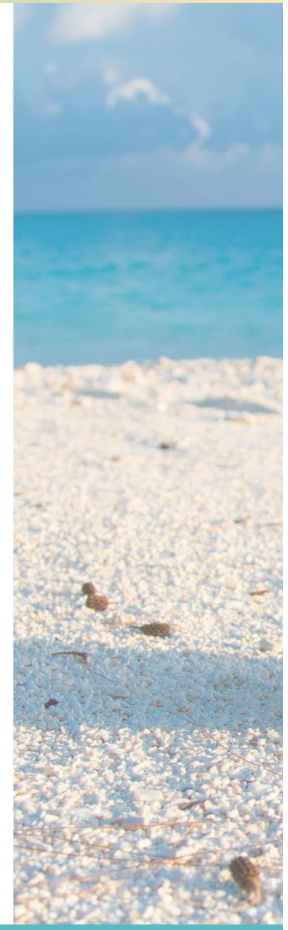
- WSO Majuro has a network of surf observation giving twice-daily reports on surf information from five selected coastal areas within the country.
- It provides near-real time wave heights, characteristics, velocities and current observation.
- It provides near-real time sea-level height and sea surface temperatures from the Seaframe tide gauge at Majuro Atoll lagoon.
- WSO Majuro also provides tidal information, wave run-up forecasts for Majuro and Kwajalein Atolls, coastal flooding watches, warnings and statements, and high surf advisories, watches, warnings and statements.

In-Country Sector Engagement

- National Disaster Management Office (NDMO)
  - WASH Cluster.
  - Food Cluster.
  - Mayor association and outer island communities.
- Ministry of Natural Resource and Commerce (NRC)
  - Agricultures Division.
  - Fisheries Division.
- Also: Ministry Public Safety, Ministry of Health, Marshall Islands Red Cross Society, Ministry of Transportations, IOM, and Red cross.

Priorities & Gaps

- Need more office space to accommodate the five additional staff being funded for the next five years by the GCF project.
- Daily forecast only covers a 40-mile radius around the WSO station. Need to be able to provide daily forecasts to the other communities in the outer islands.
- Ingest available data from NIWA's new AWS into appropriate data networks.



PACIFIC METEOROLOGICAL COUNCIL

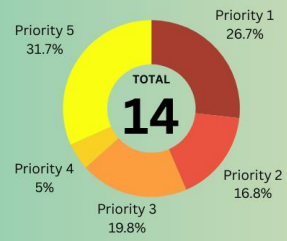
Lead Meteorologist: Reginald White **reginald.white@noaa.gov**

16.7 Nauru

Nauru Meteorological Service

Summary

Nauru NMHS was established on the 11th of May 2015, and has grown from one officer in 2015, to 14 officers in 2024, operating 24/7 services, and sending METAR and SPECI data to Nauru Control Tower, Fiji MET, BoM, and Port Moresby. Nauru NMHS prepares and sends 12-hour weather forecasts, as well as monthly climate outlook reports, that include temperature and rainfall data. Additionally, it sends monthly EAR bulletins to stakeholders. In December 2018, Nauru NMHS installed new meteorology equipment from NIWA, New Zealand, donated under the FINPAC project and facilitated by SPREP. The meteorology equipment in 2024 remains well-maintained and continues to be actively-used. In June 2020, Nauru NMHS received equipment for AWSs funded by UNDP. However, the equipment is yet to be installed due to a lack of available technical staff.



PIMS ACTIVITIES

Met Legislations

- Nauru Meteorology and Hydrology Act 2024 passed 15th of August 2024.
- It renewed and repealed the NHMS Act 1906.

Staffing Overview

- 14 current staff.

Communications Overview

- Temperature sensor.
- Barometer.
- Wind sensor.
- Manual rain-gauge.

Training Initiatives for Capacity Building

- BIP-MT training for observation staff (ICAO requirement).
- CLIDE Training.
- Forecaster training.
- Climate training.
- IT training.
- Ocean forecasting training.
- QMS training.

Extreme Climate Threats

- Tropical cyclone depression (trigger high swells, strong winds, and road flooding).
- Tsunamis.
- Drought (shortage of water, dead crops).
- Low pressure systems.

Met Input to National Strategic Plan

- The current strategic plan is in progress.
- So, current meteorology and climatology mandates are covered under the new Act.

Infrastructure Overview Gaps & Urgent Needs

- NMHS building - although there are plans for a new NMHS centre pending more SOFF funding.
- AWS equipment from UNDP - but not yet installed due to lack of technical expertise.
- NMHS website page.

Finance & Investment Overview

- SOFF funding secured.
- Lacks financial support for the eight observation staff to undertake, BIP-MT training, an ICAO requirement.

Climate Services Summary

- Provide monthly climate outlook reports.
- Seconds monthly EAR bulletins to stakeholders.
- Provides and communicates temperature and rainfall data.

NHMS Key Achievements

- Engaging with stakeholders to send monthly EAR bulletins.
- Establishment of the Nauru Meteorology and Hydrology Act 2024.
- JICA/FMS training.
- Republic of Korea-Pacific Islands Climate Prediction Services projects.
- RA V Tropical Cyclone Committee.
- Ocean and climate training.

Presence of Strategic Plan for NHMS

- None at present, but one in progress.
- All strategic planning is currently mandated by the new 2024 Act.

Projects: Completed, Current & Planned

- Planned and in progress under the SOFF project: NMHS building and AWS.
- Planned: More capacity building, increasing staff qualifications.

Marine Weather Overview & Products

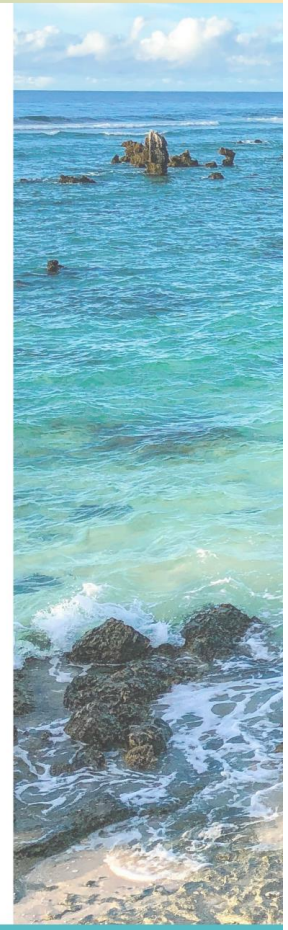
- Windy.com module.
- Tide-gauge.
- MET connect.

In-Country Sector Engagement

- Agriculture.
- Fisheries.
- Transport.
- Utilities.
- CIE (Climate Industry Environment).
- Health Department.
- Aviation.
- Nauru Government.

Priorities & Gaps

- All employees and employment to meet standards.
- Fully install the AWS.
- Fully-developed NMHS website.
- More capacity building.
- Developing the NMHS centre.
- Improved internet connection.
- Additional CLIDE training.



PACIFIC METEOROLOGICAL COUNCIL

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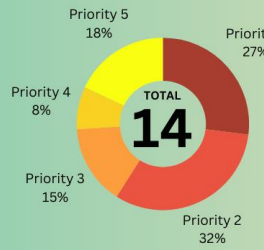
16.8 Niue

Niue Meteorological Service

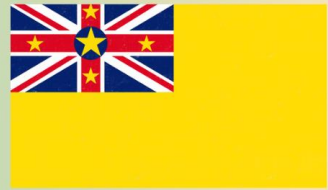
Summary

Niue Meteorological Service (NMS) is one of three departments within the Ministry of Natural Resources, and is responsible for issuing warnings to the people of Niue for all high-impact weather and climate events such as cyclones and drought. Its purpose is to provide timely and reliable weather, climate and climate change information for the safety of life and property. Weather and climate services are fundamental for the sustainability of the environment, infrastructure and socio-economic development of Niue. Users such as mariners, farmers, road developers, builders, airlines, and tourists depend on weather forecasts and warnings for better planning and decision-making.

- Our Vision: "A prime driver of weather and climate services."
- Our Mission: "To provide credible and timely weather and climate services for all stakeholders."



PIMS ACTIVITIES



Met Legislations

- Meteorological Services Act 2013 - covers:
  - Department functions.
  - Issuing weather bulletins and warnings.
  - Powers to protect assets, operations, and remove obstructions.
  - Rules and operating procedures.
  - Appointment of authorised officers.
  - Powers of officers.

Staffing Overview

- NMS currently has 7 staff.
- Four of the staff are seconded to the UNEP CIS Pac-5 Project for Niue.
- There is a need to recruit new staff.
- One MET Trainee is currently overseas pursuing tertiary studies in the field of meteorology.

Communications Overview

- Mode of data communication - 4g network (primary) and satellite (secondary).
- Data transmitted via email to Wellington to upload to the Global Data Network.
- Rely on the internet for satellite products.
- SATAID data accessed via public websites e.g., NOAA and JMA.
- Lightning data is used to support forecasts.

Training Initiatives for Capacity Building

NMS has participated in 15 training programmes since 2019, including but not limited to:

- Meteorological and climate services training.
- Equipment training.
- Regional workshops on climate resilience.
- Marine services and oceans training.
- Observations training.
- Meteorology technical training.

Extreme Climate Threats

- Tropical cyclones.
- Drought.
- Heavy rainfall.
- Coral bleaching.
- Sea level rise.
- Early warning systems consist of issuing warnings information via email, Facebook, Radio, and TV Niue.

Met Input to National Strategic Plan

- NMS directly supports the Environment and Climate Change pillar in the Niue National Strategic Plan 2016-2026.
- The provision of weather and climate information also links to the pillars on enhancing Economic Development, Governance, Infrastructure, Social Services, Tāoga Niue and Private Sector.

Infrastructure Overview Gaps & Urgent Needs

- One observation office and one AWS located at the airport.
- In 2023, two extra AWS were installed, one on the eastern side in Liku Village and the other on the northern side in Vaipapahi in the village of Hikutavake.
- No upper air observations programs.
- NMS's local technician maintains the AWS in conjunction with technicians in NIWA and NZ MetService.

Finance & Investment Overview

- NMS receives support from the Niue Government, as well as external projects such as UNEP CIS Pac-5.
- Partners and linkages - Climate and Oceans Support Program for the Pacific (COSSPac 3), Weather Ready Program, WMO, SPREP, and SPC.

Climate Services Summary

- Shares CSIRO climate projections.
- Forecasts temperature and rainfall, and seeks to forecast sea surface temperatures and daylight hours.
- Communicates forecasts via email, radio, Facebook, village council Facebook chat group, and television.

NHMS Key Achievements

- Improved weather services through projections, outlooks, and warnings.
- Disaster risk reduction community awareness.
- National Weather, Climate, and Oceans Framework 2023.
- Integrated observing and communication systems, including the installation of two AWSs and an AWOS.
- Regional Project Development UNEP CIS Pac5.
- COSSPac support to the re-established tide gauge Hut and unveil of mural.

Presence of Strategic Plan for NHMS

- Niue National Strategic Plan 2016-2026.
- The NMS has its own Corporate Plan 2020-2025.
- National Weather, Climate, and Oceans Framework 2023.

Projects: Completed, Current & Planned

- UNEP CIS Pac-5 - Enhancing Climate Information and Knowledge Services for resilience in 5 island countries of the Pacific Ocean.
- Climate and Oceans Support Program for the Pacific (COSSPac 3), Weather Ready Program, WMO, SPREP, and SPC.

Marine Weather Overview & Products

Daily provision of Marine Weather Bulletins to all stakeholders:

- Marine weather forecasts.
- Winds.
- Sea state.
- Swells.
- Tidal information.
- Sea surface temperatures.
- Coral bleaching status.

In-Country Sector Engagement

- Government, private sector, and communities - weather forecasts/warnings/Climate Outlooks.
- Niue Disaster Management Office (NDMO) - severe weather and tropical cyclone warnings.
- Department of Agriculture, Forestry, and Fisheries (DAFF) - Agrometeorology and Oceans
- Ministry of Infrastructure and Road Development - rainfall events and severe weather.
- Climate traditional knowledge with communities - Niue Girls and Boys Brigade (Yam monitoring for tropical cyclones and ENSO) and Ekalesia Niue Women (Pia Niue Project).

Priorities & Gaps

- AWS, AWOS and wave buoys maintenance.
- Upgrade IT equipment.
- Upgrade the NMS Building - climate proofing.
- Increase human resources.
- Ongoing support for new staff training.
- Long-term priority - become fully-operational 24 hours.
- Simplifying climate terminologies and integrating climate and traditional knowledge indicators into public products and services.

PACIFIC METEOROLOGICAL COUNCIL

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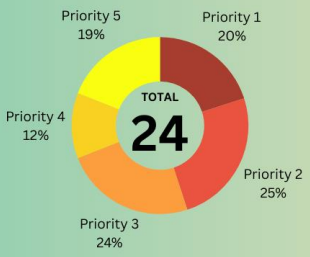
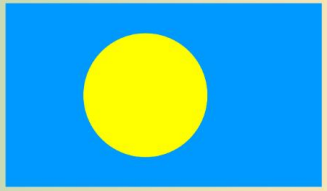
16.9 Palau

Palau Weather Service Office

Summary

The Republic of Palau is a Western Pacific island nation with a total land area of 171 miles and a population of approximately 21,000. Palau's climate is tropical, with varying annual rainfall between 120-160 inches, and consistent humidity between 77-84 percent. Temperatures persist within 10°F of a low 80°F mean. Northeast trade winds prevail from December to March, and the Southwest Monsoon from June to October. On the edge of the Typhoon Belt, significant tropical cyclones are rare (Mike, Bopha, and Haiyan being the only recorded cyclones to hit), but tropical disturbances frequently develop near Palau every year. The National Weather Service (NWS) has protected and supported lives and properties for over a century, providing timely and reliable weather, water, climate, and environment information. NWS provides the necessary and authoritative information for planning, preparing, mitigating, and responding to natural hazards. NWS's services include forecasts and observations, warnings, impact-based decision support services, and education. It aims for a country that is prepared for, and responsive to, weather, water and climate events. NWS works with many stakeholders at local, regional, and national levels to help educate communities on staying safe and ensuring weather services, such as warnings, reachall communities.





PIMS ACTIVITIES

Met Legislations

- National Disaster Risk Management Framework.

Staffing Overview

- 2 meteorologists (MIC & Staff MET).
- 3 technicians/ITs.
- 1 supervisory weather service specialist (SWSS).
- 5 weather service specialists (WSS).
- 1 facility technician.
- 1 administrative assistant.

Communications Overview

- Landlines.
- Facsimile.
- Internet (email and Facebook page).
- Satellite phones and mobile cellular phones.
- HF radio and VHF radio.
- Chatty Beetle.
- WSO website (pending) through the CREWS/TK project.

Training Initiatives for Capacity Building

- Pacific Desk Training (Weather Forecasting in the Tropic).
- Climate and Ocean Services including Portals: NOAA & BOM.
- Incident Command System (ICS) Courses.
- Impact-Based Decision System (IDSS) Training.
- Annual Cybersecurity Awareness Course: NOAA.
- Annual Security Rules of Behaviour: NOAA.

Extreme Climate Threats

- Tropical cyclones.
- Droughts.
- Landslides/mudslides.
- Flooding.
- Salt water inundation/intrusion to crops.
- Storm surges.

Met Input to National Strategic Plan

- NWS National Strategic Plan, an annex to the National Disaster Risk Management Framework (NDRMF).
- Tsunami Support Plan.
- Tropical Cyclone Action Plan.

Finance & Investment Overview

- NWS Palau is supported and funded by NOAA NWS Pacific Region Headquarters.

Climate Services Summary

- Climate bulletin.
- Daily forecast.
- Weekly weather bulletin.
- Monthly rainfall and air temperature bulletin.
- Early Action Rainfall (EAR) Watch.

NHMS Key Achievements

- Installation of new equipment with training for AWSs, AWOS, waverider buoys and radar.
- Ocean and mobile app.

Projects: Completed, Current & Planned

- 4 AWSs (UNDP fund) and an additional 4 (GCF UNEP Fund).
- 2 wave-rider buoys (UNDP Fund) and an additional wave rider (GCF UNEP Fund).
- Weather Ready Nation and Tsunami Ready (both underway).
- AWOS.
- X-band radar.
- Weather mobile app.
- Weather Ready Pacific.

Marine Weather Overview & Products

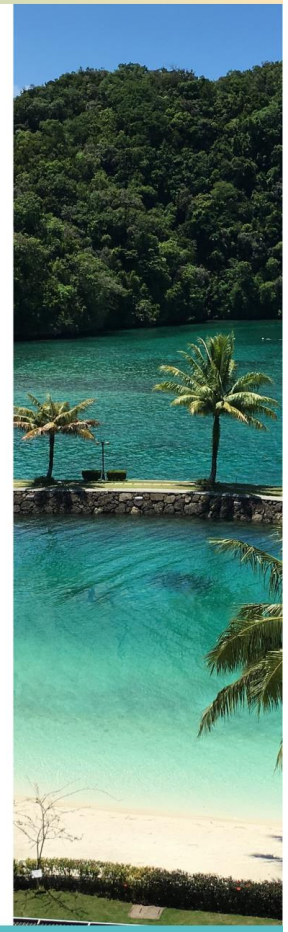
- Ocean bulletin.
- Coastal forecast via WFO Guam.
- Fisheries bulletin.
- Daily Surf Observation (WSO and NEMO).

In-Country Sector Engagement

- National Climate Outlook Forum (NCOF).
- National Climate Sector Action and Communication Plan (NCSACP).
- Sector Specific Climate Program (SSCP).
- 12 Rain Gauges with CCTV (NEMO).
- 21 Emergency Sirens (NEMO).
- Marine Safety Information Network (Bureau of Marine Transportation).

Priorities & Gaps

- TK database.
- WSO website.



PACIFIC METEOROLOGICAL COUNCIL

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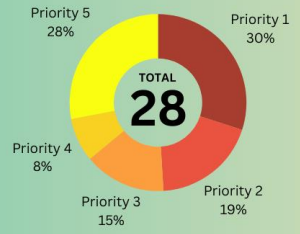
16.10 Papua New Guinea

Papua New Guinea National Weather Service

Summary

Papa New Guinea National Weather Service (PNG NWS) made significant improvements in human capacity building activities amidst declining meteorological service infrastructure during 2022-2023/24. In all there were more than 28 activities pertaining to the 11 Pacific key outcomes. Amongst the major milestones, was the continued certification of NWS Part 174 AMSOC, in-house development of an Integrated Data & Information Management System (DIMS), the establishment of a partnership under the Private Public Partnership (PPP) with Digicel PNG, MOAs with WaterAid and Hong Kong Observatory on the SIGMET Tool, and the establishment of a Watch Office. Going forward, further activities are planned and scheduled for completion during 2024-2026.



PIMS ACTIVITIES

Met Legislations

- Civil Aviation Act 2000 (amended 2010) does not cater for the full services offered by PNG NWS.
- After PMC-6 and PMMM3, the Minister for Transport and Civil Aviation called for the establishment of PNG NWS as a standalone entity.
- This initiated a legislative review and reform under the Department of Transport.

Staffing Overview

- 36 cadets were recruited in 2018, and four graduates have been sent to PAGASA for the WMO BIP-M course.
- Others have attended various training workshops and programmes.
- Restructure will be done under the current Department - NWS legislative review.

Communications Overview

- Upgraded internet bandwidth to 20 mbps.
- Negotiations with DATA Co for additional 30 mbps (total 50 mbps) to meet WMO DCPC requirements.
- Public awareness and campaigns are a challenge.

Training Initiatives for Capacity Building

- The government department prioritises meteorology training (WMO BIP-M and BIP-MT) for any overseas training bids.
- Negotiating with the Australian Department of Foreign Affairs and Trade (DFAT), under the NWS-BOM Twinning to prioritise training for the next generation of meteorologists.
- Tropical cyclone forecasting training.
- QMS-ISO training and certification.

Extreme Climate Threats

- PNG has a whole spectrum of climate-related hazards:
  - Floods, tropical cyclones, landslides, severe thunderstorms, droughts, frosts, soil erosion, storm surges, coastal inundations, bushfires, etc.
- Impacts: Seasonal health diseases, food security, mass migration, and social issues.

Met Input to National Strategic Plan

- Updated the National Weather Service's Strategic Plan 2024-28.
- Currently updating MTDP III to Align with MTDP IV.
- Working with key technical agencies and government central agencies to align PNG NWS and its plan with the multi-hazard early warning system for the country.
- Multi-hazard assessment maps for the 22 provinces.

Infrastructure Overview Gaps & Urgent Needs

- High-speed computing system for data assimilation and numerical weather prediction.
- Human resources equipped with appropriate training and skills.
- Current buildings have not been updated from when it was first built during colonisation, and requires renovations and modernisation.
- Calibration facility for NWS.
- Tropical cyclone centre upgrade.

Finance & Investment Overview

- Various donors and development partners contributed towards capacity-building activities for PNG NWS during 2022-23/24 and are expected to continue providing support, including:
  - WMO-CREWS
  - WATERAID PNG-WATERAID
  - DFAT NWS-BOM Twinning
  - CADIP 2 - ADB

Climate Services Summary

- Monthly Climate Outlooks for stakeholders.
- Three, six, and twelve month seasonal outlooks.
- Upgrade of SCOPIC and training - SPREP.
- NCOF/PICOF – SPREP/RIMES.
- Drought Triggering Methodology for Anticipatory Action – FAO.
- Climate Smart Agriculture Project - NARI and ANU, Customisation of Amamas Tool for users and training - RIMES and FAO.
- Oceans Science and Climate training - COSPPac, SPREP, and BOM.

NHMS Key Achievements

- Improvement of drought monitoring system.
- Upgrade of the SCOPIC model for rainfall and drought monitoring
- Implementation of the Flash Flood Guidance System (FFGS).
- Strengthening of ICT with NWS.
- In house development of the integrated Data Management and Information System (DIMS)/ integrated forecasting system.

Presence of Strategic Plan for NHMS

- Review and update of the PNG NWS Strategic Plan 2024-2028 completed.
- WMO SOFF project documentation completed.
- State HydoSOS plan completed.
- Alignment of PNGNWS Strategic Plan with MTDP III and MTDP IV.
- Alignment of PNGNWS Strategic Plan with MTTP II and MTTP III.

Projects: Completed, Current & Planned

- Completion of PNG NWS DIMS.
- Operationalisation of NMHEWC.
- Provision of various training opportunities by COSPPac, SPREP, RIMES, and DFAT.
- Meteorology training course BIP-M and BIP-MT.
- Hydrometeorology, oceanography, and tropical cyclone training courses.
- Satellite interpretation training courses.
- CADIP 2 Infrastructure development.

Marine Weather Overview & Products

- Coastal and ocean weather forecasts.
- Strong wind warnings.
- Tropical cyclone warnings.
- Currents and tide information services.
- Coastal inundations.
- Tsunami warnings.
- Periodic waves.

In-Country Sector Engagement

- Coastal and ocean weather forecasts.
- Strong wind warnings.
- Tropical cyclone warnings.
- Current and tide information services.
- Warnings disseminated through stakeholders, NDC for weather forecasts, climate outlooks and warnings including radio and print media.
- Government and private sector engagements.

Priorities & Gaps

- Adequate networks to monitor meteorological parameters.
- A robust communication system for data transmission, dissemination, and sharing of forecasts and information.
- Specialised training for the delivery of climate change services under different scenarios, especially the rapidly warming climate scenario.
- Specialised forecasting skills to detect and predict severe weather and climate phenomena.

PACIFIC METEOROLOGICAL COUNCIL

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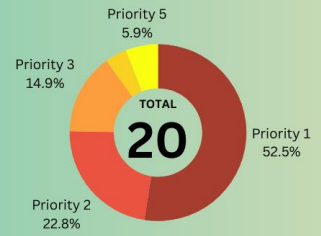
16.11 Samoa

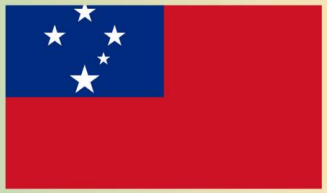
Samoa Meteorology Division

Summary

Samoa Meteorology Division (SMD) is the official source of meteorological, climatological, geoscience, and ozone information for the Independent State of Samoa. SMD sits within the Ministry of Natural Resources and Environment (MNRE).

SMD continues to progress in the implementation of its development agenda to ensure effective services are delivered for weather, geoscience, and ozone for the safety of lives and the protection of peoples' properties. Services are also rendered to world communities to reduce risk, manage disasters, and combat climate change. All these threaten our livelihood and existence as a Small Island Developing State (SIDS).





PIMS ACTIVITIES

Met Legislations

- Meteorology, Geoscience and Ozone Services Act 2021, reviewed every five years.

Staffing Overview

- 32 staff.
- Nine forecasters, and eight meteorological observers and technicians.
- Only two forecasters have been formally trained at institutions with BIP-M credentials.
- Three forecasters are in Australia studying the meteorology course.
- All other forecasters have participated in the introductory forecasting course through the Pacific Training Desk in Hawaii (NOAA).

Communications Overview

- Data transmission from remote stations - microwave link, mobile network.
- Data transmission to the Global Data Network - internet and satellite.
- Himawari satellite is the primary geostationary satellite used for products.
- SATAID information available.

Training Initiatives for Capacity Building

SMD has participated in several training programmes including but not limited to:

- Lead and internal auditor training.
- 3rd Session of the SERCOM and the Gender Conference.
- Sea Level Training and the Sector-Based Climate Services and Coordination Workshop.
- Thematic Workshop on Strategy of Stage i of the KIP and Integration with the HPMP Stage ii.
- FMS/JICA Third Country Training on Marine Meteorology .

Extreme Climate Threats

- Heavy rainfall, coastal flooding, drought, ENSO cycles, tropical cyclones, diseases.
- Early warning systems - Early Action Rainfall (EAR) Watch, Seasonal Climate Outlook (SCO), and Climate Summary.
- The Drought Policy is in its final stage of development and will be instrumental in guiding drought monitoring efforts.

Met Input to National Strategic Plan

- A Met Strategic Plan is in the development process.
- The National Environment Sector Plan (NESP) and MNRE Management Plan are both in place.

Infrastructure Overview Gaps & Urgent Needs

- Two main climate stations (longer-term synoptic stations): Faleolo International Airport and Apia.
- Six other manual climate stations and 30 manual rain gauges.
- 28 AWSs - reflect infrastructure for both meteorology and water resources/hydrology.

Finance & Investment Overview

- SMD receives funding support from the Samoan Government, as well as external projects and donors.
- Projects include: COSPPac, GCF, ClimSA, SOFF, Ocean Acidification Project and CREWS 2.0.

Climate Services Summary

- Seasonal forecasting tools - SCOPIC, ACCESS, CLIKP and PICASO.
- Seasonal forecasting models - ACCESS S, CLIKP and PICASO.
- Forecasted phenomena - El Nino Southern Oscillation (ENSO), SPCZ, oceans.
- Seasonal forecasts communicated via email, social media, and the website.
- Moving to use radio for rural communities.

NHMS Key Achievements

- A Multi-Hazard Early Warning System (MHEWS) policy approved in 2021.

Presence of Strategic Plan for NHMS

- A Met Strategic Plan is currently in the process of being developed.

Projects: Completed, Current & Planned

- COSPPac
- GCF
- ClimSA
- Pacific Resilience Program (PRP).
- Ocean Acidification Project.
- Ozone Project.
- SOFF.
- CREWS.
- CREWS 2.0 (IBFWS).

Marine Weather Overview & Products

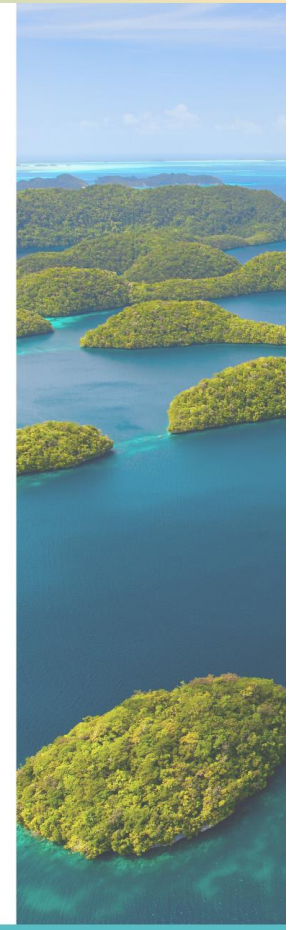
- Marine advisories and warnings due to winds and waves.

In-Country Sector Engagement

- DMO (EAR Watch, SCO, Ocean Outlook).
- MOH (EAR Watch, SCO, Ocean Outlook, HCLEWS).
- EPC (EAR Watch, SCO, Ocean Outlook, AWSOM).
- SWA (EAR Watch, SCO).
- SFESA (EAR Watch, SCO, Ocean Outlook).
- Red Cross (EAR Watch, SCO, Ocean Outlook).
- MWTI (Rainfall, temperature, etc).
- MAF (EAR Watch, SCO, Ocean Outlook, Agromet).

Priorities & Gaps

- Retaining staff with a competitive salary.
- Doing aviation forecasting.
- Improved capacity/training in flood modelling.
- Funding to hire technicians to service AWSs.
- Ocean equipment for marine forecasting.
- A Doppler radar and relevant capacity and skills building for maintenance.
- Specific Met IT officers.
- Improved internet services
- Upgrade of forecast/warning communications, focussing on SMS, social media and apps.



PACIFIC METEOROLOGICAL COUNCIL

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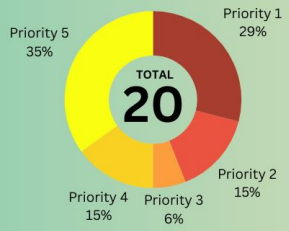
16.12 Solomon Islands

Solomon Islands Meteorological Service

Summary

The Solomon Islands Meteorological Service (SIMS) is the only mandated government institution that provides meteorological, climate, ocean, and climate change science advisories to the Solomon Islands Government and the wider community of the Solomon Islands. From 2019 to 2024, the SIMS has ensured that the necessary public, aviation, and marine weather services are produced and disseminated in a timely manner by forecasters to decision-makers and the public at large. The ongoing emphasis on capacity building aims to develop human resources and enhance the SIMS's services overall. The SIMS maintains its support and collaboration with the Pacific Meteorological Council (PMC) and other partners for its overall development.



PIMS ACTIVITIES

Met Legislations

- Solomon Islands Meteorological Act 1985.
- Allows the SIMS to function and operate as the main government body providing meteorological advisories to the national government and the wider community.
- The associated meteorological policy, the 'Policy for the Provisions of weather, climate and ocean services in the Solomon Islands', launched on 7th August 2023.
- The Act is currently under review through the WMO CREWS Project.

Staffing Overview

- MECDM has in place a Human Resources Development Plan (HRD).
- Service staff:
  - Administration forecast/research - 2.
  - Observation - 29.
  - Climate - 5.
  - Forecaster - 13.

Communications Overview

- Oceanographic and hydro-meteorological data transmitted from AWSs via DCP satellite, email, Chatty Beetle, and posting.
- At times, SIMS uses satellite images as supportive information for forecasts, advisories, or warnings - using the Goes-West satellite.
- SIMS has access to lightning data and uses it in its services.

Training Initiatives for Capacity Building

- Impact-based forecasting and common alerting protocol workshop.
- BIP-Met technician training.
- CAASI Part 174 Certification.
- Early Warning for All National Workshop (EW4All).
- COSPPac media equipment support and communications training.
- Tsunami Ready Recognition Program.
- NOAA PREPARE Early Warning Project.

Extreme Climate Threats

- Tropical cyclones.
- Coastal inundation.
- Tsunamis.
- SIMS has early warning systems in place - tropical cyclone outlook, early action rainfall watch, and ENSO update.

Met Input to National Strategic Plan

- The 'National Strategy for Meteorological Services and Framework for Weather, Climate, and Ocean Services 2023-2028'.
- The Strategy clearly outlines the strategic goals and objectives for SIMS to strengthen and streamline its capacity and systems for weather, climate, and ocean services for improved decision-making at the sectoral level.
- It sets the directions for SIMS over five years.

Infrastructure Overview Gaps & Urgent Needs

- National Weather Forecasting Centre.
- Henderson Airport AWOS Upgrade.
- FAO Sape and Adeliua Farm.
- Six AWSs.
- One Upper Air Station - but currently not working.
- Five AutoHydro.
- 12 AutoRain.

Finance & Investment Overview

- SIMS receives government support, as well as support from external partners, donors, and projects.

Climate Services Summary

- Tools used for seasonal forecasting - SCOPIC, PICASO, and ACCESS-S.
- Forecasts on rainfall, temperature, wind, and ENSO status.
- Forecasts communicated via email, the SIMS website, social media (official Facebook page), and local broadcasting radio stations (e.g., SIBC).

NHMS Key Achievements

- Development of the National Strategy for Meteorological Services and Framework for Weather, Climate, and Ocean Services 2023-2028 and policy.
- CAASI Part 174 Certification.
- SIMS and SIMA MoU.
- Establishment of the National Weather Forecasting Centre.
- Installed an improved observation system.
- Henderson Airport AWOS upgrade.

Presence of Strategic Plan for NHMS

- SIMS developed and launched its National Strategy for Meteorological Services and Framework for Weather, Climate, and Ocean Services (2023-2028) (NS-FWCOS) and its policy document in 2023.
- SIMS has an annual work plan updated annually.
- SIMS also has the 'Ministry of Environment, Climate Change, Disaster Management and Meteorology Cooperate (MECDM) Plan 2022-2024' - updated every 4 years.

Projects: Completed, Current & Planned

Current projects supporting the SIMS:

- UNDP/DFAT – IDRM.
- CREWS.
- COSPPac.
- AHP.
- FAO.
- DFAT Aviation Infrastructure.

Marine Weather Overview & Products

- SIMS provides marine forecasts, swell advisories, strong wind warnings, and other meteorological advisories to the Solomon Islands Maritime Administration (SIMSA).
- SIMSA then conveys appropriate advisories to navigators and shipping companies.

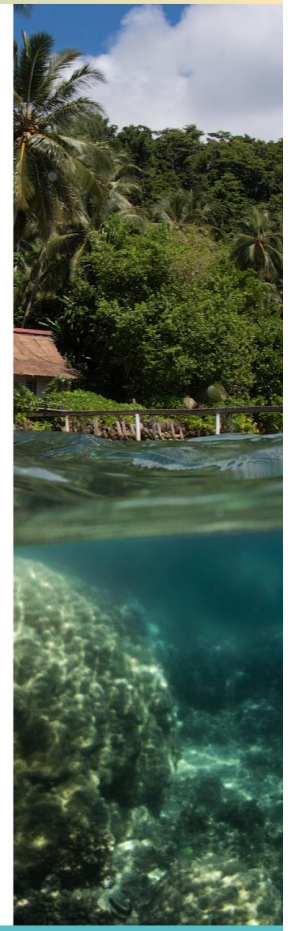
In-Country Sector Engagement

SIMS engages with various sectors on a relatively frequent basis:

- *Agriculture.*
- *NGOs.*
- *Health.*
- *Transport and infrastructure.*
- *Fisheries.*
- *Tourism.*
- *Education.*
- *Water.*

Priorities & Gaps

- Weather, hydrology, ocean observations - training, calibration and maintenance of meteorological equipment, automatic message (Obs) dissemination system, and upper air observation.
- Climate services - application to different sectors and linking climate to climate change services.
- Forecasting services - training, high-resolution NWP products, and a forecasting system.
- Early warning for all - institutional arrangements and support to hazard agencies.
- Capacity - developing sub-seasonal prediction system for rainfall.



PACIFIC METEOROLOGICAL COUNCIL

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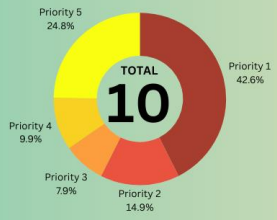
16.13 Tokelau

Tokelau Meteorological Service

Summary

Tokelau Meteorological Service (TMS) sits within the Environment Division from the Department of Economic Development Natural Resources and Environment (EDNRE). Its aim is to deliver effective and relevant climate information to the people of Tokelau. Although a still developing service, the establishment of the Tokelau Meteorological Service, National Strategic Plan & Framework for Weather, Water, Climate, and Ocean Service 2022-2026, prioritised by the Division to be approved this year and set into action demonstrates a significant step towards improving TMS's climate and weather services and forecasting. TMS fully supports Tokelau's TNSP Goal 6 "Strengthening environment and climate resilience" and prioritises collaboration between communities, government, and regional and international organisations to ensure it operates at full capacity, providing necessary climate information, and ensuring community resilience in the faxe of meteorological hazards and climate change.



PIMS ACTIVITIES

Met Legislations

- There is currently no MET legislation for Tokelau.

Staffing Overview

- There are currently 3 members of staff at the service in charge of:
  - Daily weather forecasts.
  - Weekly weather forecasts.
  - Observing and recording daily weather patterns.
  - Issuing tropical cyclone warnings.
  - Issuing EAR watch.

Communications Overview

- Teletok: 7.05Mbps download, 1.89Mbps upload.
- Starlink: 25-220 Mbps download.

Training Initiatives for Capacity Building

- Climate/Ocean Tools Training Custom Product for Agriculture and Fisheries and Hybrid Pacific Island Climate Outlook Forum.
- PITD Cohort 1.
- Systematic Observing Financing Facility (SOFF).
- Pacific Anticipatory Action Regional Meeting.
- EW4ALL, Weather Ready, and ClimSA.
- Climate Risks Early Warning System Steering Committee.

Extreme Climate Threats

- Droughts.
- Cyclones.
- Tsunamis.
- Water borne diseases.
- Water quality.
- Climate variability.

Met Input to National Strategic Plan

- TMS, meteorology, and climatology are featured in the Tokelau National Strategic Plan 2021-2026.
- Tokelau Meteorological Service, National Strategic Plan & Framework for Weather, Water, Climate and Ocean Service 2022-2026 was developed this year and is aimed to be approved and set up by the end of 2024.

Infrastructure Overview Gaps & Urgent Needs

- 3 AWSs and 3 rain gauges.
- Nukunonu's AWS is in full operation, but Atafu and Fakaofo AWSs need full program installation.
- Rain gauges are being checked for whether battery or wiring connectivity changes are required.

Finance & Investment Overview

- TMS receives some funding from the government.

Climate Services Summary

- TMS provides satellite phone communications for extreme climate events.
- Regular forecasting of seasonal climate variables.

NHMS Key Achievements

- Translation of daily forecasts and EAR Watch.
- Weekly forecasts.
- Tropical cyclone outlooks.
- More capacity building for Met officers.
- Tokelau Meteorological Service, National Strategic Plan & Framework for Weather, Water, Climate and Ocean Service 2022-2026.

Presence of Strategic Plan for NHMS

- Tokelau Meteorological Service, National Strategic Plan & Framework for Weather, Water, Climate and Ocean Service 2022-2026.
- The strategic plans focussed on achieving Tokelau's national goals, which are the SDGs.

Projects: Completed, Current & Planned

- Capacity building of Met officers in forecasting, outlooks, and warnings.
- Finalising the AWS installations in Atafu and Fakaofo and training Met officers in this capacity.
- Establishing a weather/climate database system.
- Becoming a member of NCOF.
- Current/planned: establishing a FM radio, however, cannot proceed due to lack of funding.

Marine Weather Overview & Products

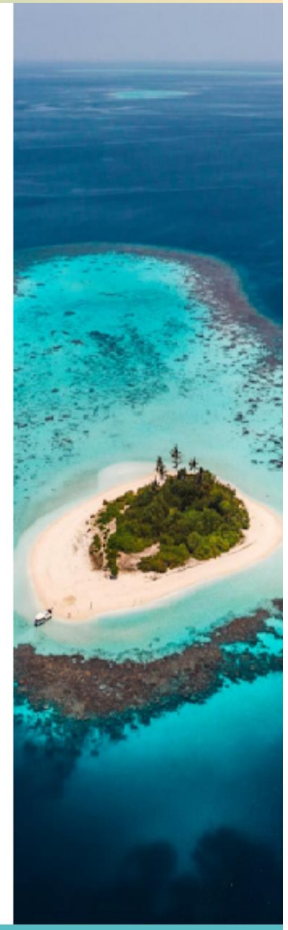
- Marine status and tides information provided.
- Daily forecasts services are provided via email and weekly forecasts, but are based off very basic information, and so, comprise of very limited information for communities.

In-Country Sector Engagement

- TMS operates under the Environment Department which works closely with other departments within the EDNRE.
- Engages with the water sector and MiCORE (regarding natural disasters and warnings).

Priorities & Gaps

- Capacity is very limited - extremely reliant on donors to build capacity which tends to be in discrete projects rather than long-term capacity.
- The three current Met Officers have no formal Met qualifications.
- A better remuneration strategy to increase the chances of retaining well-trained staff.
- Technical expertise on both setting up of tools, maintenance and trainings of local Met officers.
- Getting funding to establish a FM radio - an ongoing project with WMO that was put on hold.



PACIFIC METEOROLOGICAL COUNCIL

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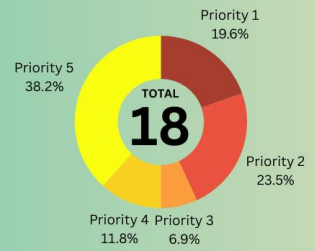
16.14 Tonga

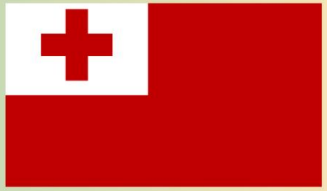
Tonga Meteorological Service

Summary

The Tonga Meteorological Service (TMS) is a Department of the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change, and Communications (MEIDECC). The TMS mandate is defined by the Meteorology Act of 2017. TMS is comprised of seven programs: Leadership, Quality Management, Weather and Ocean, Climate, Environment Monitoring and Data Management, ICT and Technical Support, Customer Support and Capacity Development, and Marine Radio. This poster outlines the status of TMS as of September 2024.



PIMS ACTIVITIES



Met Legislations

- Meteorology Act 2017.
- The Act is currently being reviewed, due to finish in November 2024.
- WMO CREWS funding has been assisting the process.

Staffing Overview

- TMS has responsibility for planning and development of its own human resources.
- TMS consists of 31 staff:
  - 24 male
  - 7 female
  - 10 professional (degree) qualifications.
  - 21 technical (in-house or specialised training) qualifications.

Communications Overview

- Ocean and hydro-meteorological data transmitted via GSM Mobile network transfer or satellite for AWSs, and HF Radio or Chatty Beetle for staffed stations.
- Geostationary satellite data obtained from Himawari and GOES.
- Forecasts are delivered to the public via the website, Facebook, email, and the radio.
- VHF and HF radios are still operational and used within the TMS.

Training Initiatives for Capacity Building

Since 2019, TMS has participated in over 30 training programmes, including but not limited to:

- AWS technical and maintenance training.
- Traditional knowledge use in public services.
- Strategic plan development.
- Tropical cyclone and climate resilience training.
- Impact-based forecast training and consultancy.
- Tsunami early warning systems and tsunami ready training programmes.

Extreme Weather, Ocean & Climate Threats

- Cyclones.
- Drought.
- Flash flooding.
- Tsunamis.
- Heavy rainfall.
- Storm surges and swells.
- All meteorological and ocean related events in the Meteorological Act 2017.

Met Input to National Strategic Plan

- The Tonga Strategic Development Framework II 2015-2025.
- Tonga Multi-Hazard Early Warning Systems Policy
- It emphasises resilient socio-economic development contributions of TMS to severe weather and climate change impacts for Tonga.

Infrastructure Overview Gaps & Urgent Needs

- 2020 - MHEWS Centre in Ha'apai (World Bank IDA).
- 2021 - MHEWS Centre in Vava'u (World Bank IDA).
- Early 2025 - MET/NEMO building.
- 21 AWSs and 6 tide gauges.
- No upper air stations, and no lightning detection equipment in operation.

Finance & Investment Overview

- TMS is supported mainly by the Tongan Government.
- It receives additional support from regional projects such as the World Bank Resilience Programme (PREP), the Mobile Application for Early Warning and Response (MACRES) project, and the Review of the TMS Act and Establishment of Regulations project.

Climate Services Summary

- Seasonal forecasts are provided using SCOPIC, PICASO, POAMA, CLIKP, ACCESS-S, PEAC.
- Seasonal forecasts are communicated via the website, Facebook, email, radio, and telephone.
- Variables forecasted currently: rainfall, temperature, sea level height, and SST.
- Priority variables to forecast: wind, humidity, radiation, and air pressure.

NHMS Key Achievements

- Development of a National Multi-Hazard Early Warning Policy and Establishment of National MHEWS working group.
- Tofua Community Early Warning Project.
- Launching of Weather Radar for Tonga.
- Launching of mobile application for community response for Tonga.
- Successful installation of Pangai, Nomuka and 'Eua Tide Gauges.
- Traditional knowledge project which covered 23 Island communities.

Presence of Strategic Plan for NHMS

- The Tonga Meteorological Service Strategic Development Framework 2023 - 2027
- Sets five mid to long-term strategic goals:
  - 1. To provide an enabling work environment.
  - 2. To better monitor weather and climate.
  - 3. To improve resilience to extreme events.
  - 4. To strengthen TMS's capacity to meet objectives.
  - 5. To enhance public products and services.

Projects: Completed, Current & Planned

- PREP Component 1 Strengthening Response to Hydromet Hazards.
- MACRES Project (WMO funded).
- Review of the TMS Act (CREWS funded).
- Planned:
  - Community and sector early warning systems.
  - Climate change adaptation and disaster risk reduction.
  - Smart island initiatives.
  - Partnership initiatives.

Marine Weather Overview & Products

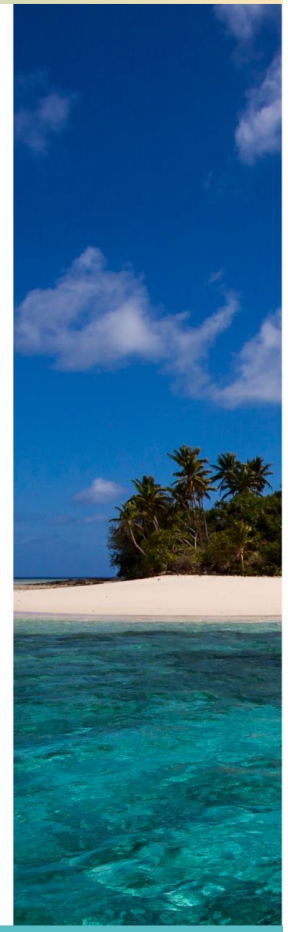
- Provides marine services within territorial waters.
- Interactions with most maritime users are via HF and VHF.
- Issues coastal marine weather bulletins, and broadcasts on the Maritime Radio Service.
- Port forecasts are not provided, but are a future priority for implementation.

In-Country Sector Engagement

- Climate outlook - all stakeholders.
- Ocean outlook - all stakeholders.
- National Working group on MHEWS.
- Agro-MET working group.
- Disaster Risk Management Cluster Systems.
- National Emergency Management Committee.
- District and Town Officers.
- Education Sector.

Priorities & Gaps

- Complete climate competency assessments and training for staff.
- Create sector specific products including impact-based forecasting.
- More staff training in data management, customer service, twinning, and climatology.
- Update the weather and climate of Tonga text and climatological tables.
- Include ENSO cycles in early warning systems.



PACIFIC METEOROLOGICAL COUNCIL

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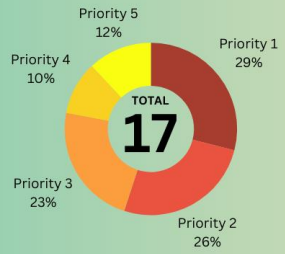
16.15 Tuvalu

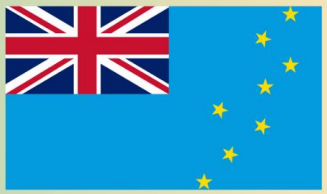
Tuvalu Meteorological Service

Summary

The Tuvalu Meteorological Service (TMS) is the principal Meteorological observatory responsible for providing weather services to the islands of Tuvalu. The TMS is an agency of the Government of Tuvalu, and the main observational office is in the capital, Funafuti. It operates three outstations across the outer islands of Nanumea, Nui, and Niulakita, and operates monitors, including four synoptic stations, five rainfall stations, one upper air research program, one tide gauge with a tsunami warning system, one Global Navigation Satellite System (GNSS) station, and one seismic station (USGS). The TMS publishes weather forecasts, warnings as to tropical cyclones (RSMC Nadi advisories and warnings), weather charts, and weather satellite images on its website. Weather forecasts and storm warnings are also broadcast by the Tuvalu Media Corporation, which operates the only Radio Station in Tuvalu.



PIMS ACTIVITIES



Met Legislations

- Tuvalu Meteorological Services Act 2021.
- Does not include disaster management, as it is a separate mandate held by the Disaster Department under the Disaster Act.

Staffing Overview

- 34 current staff (Director included).
- 20 males and 14 females.
- 3 Masters Degree.
- 8 Bachelor Degrees.
- 12 Diplomas.
- 35 Certificates.

Communications Overview

- All remote stations installed with High-Frequency Radio, Chatty Beetle Systems, and Wi-Fi to transmit data.
- Transmits data to the Global Data Network via internet.
- Uses the Himawari Satellite to receive data for weather information and early warning communication systems.
- Uses NOAA, BoM and JMA satellite products for weather forecasting.

Training Initiatives for Capacity Building

- Participated in 20 different training programs.
- EAR Watch training.
- Climate science, oceans, statistics, Excel, communications, weather observation and calibration, drought, tide, tropical cyclone, and coastal inundation training.
- AWS training.
- CLIDE training.
- JICA weather and marine forecasting training.
- PICASO training.
- COSSPac regional training.

Extreme Climate Threats

- Permanent inundation and wave-driven flooding.
- Coastal erosion.
- Severe weather.
- Tropical cyclones.
- Tidal and storm surges.
- Droughts.
- Coral bleaching.
- Climate change impacts.

Met Input to National Strategic Plan

TMS has significant input into the following plans:

- Meteorological Service Strategic and Implementation Plan 2020-2024.
- National Strategy for Sustainable Development 2021-2030 (Te KETE) - reflects meteorology and climate.
- Ministry Corporate Plan 2020-2023.
- Tuvalu National Disaster Risk Management Arrangements (NDRMA) Plan (endorsed 2012).

Infrastructure Overview Gaps & Urgent Needs

- New Met Office Complex completed July 2024.
- Main observational office is on Funafuti.
- Five new outstations in Nanumaga, Vaitupu, Nukulaelae, Nuitau, and Nukufetau.
- Operates/monitors four synoptic stations, four rainfall stations, two AWSs, one upper air research program, one tide gauge, one GNSS, and one seismic station (USGS).
- More development plans under the CIEWS project 2022-2026 (GCF/UNEP).

Finance & Investment Overview

- Funding is provided from the government, as well as external donors including Funafuti Global Upper Air Network (GUAN), World Weather Watch (WWW), and projects such as COSSPac.

Climate Services Summary

- Delivers monthly climate summaries and outlooks, AgroMet outlooks, and drought outlooks.
- Recorded climate data are stored in a climate data management system CliDE (Climate Data for the Environment), with an inbuilt quality control process.
- Local data collection means that the TMS can monitor and report on Funafuti's climate at a local scale.

NHMS Key Achievements

- Can deliver a variety of services, including daily forecasts, monthly outlooks, severe weather warnings, and disaster outlooks/warnings.
- TMS's strategic plan and legislation endorsed in 2021.
- Tide calendars for six islands.
- Tide App and Tide Gauge Real-Time Display online launch.
- New Coastal Inundation Forecasting System.
- Completion of new office complex for TMS.

Presence of Strategic Plan for NHMS

- Key strategic plan for TMS: Meteorological Service Strategic and Implementation Plan 2020-2024.
- Includes meteorology, climatology, and disaster management.
- All aligns with the National Strategy for Sustainable Development Plan (Te KETE), the PIMS and UN SDGs.

Projects: Completed, Current & Planned

- Improve weather and early warning communication systems on outer islands.
- Install an AWS on all islands.
- Install compass and ENSO signs on all islands.
- Deploy environmental and wave buoys.
- Establish formal marine reporting arrangements with shipping operators.
- Digitise all hard copy data.
- Install a siren alarm system and weather radar on Funafuti.

Marine Weather Overview & Products

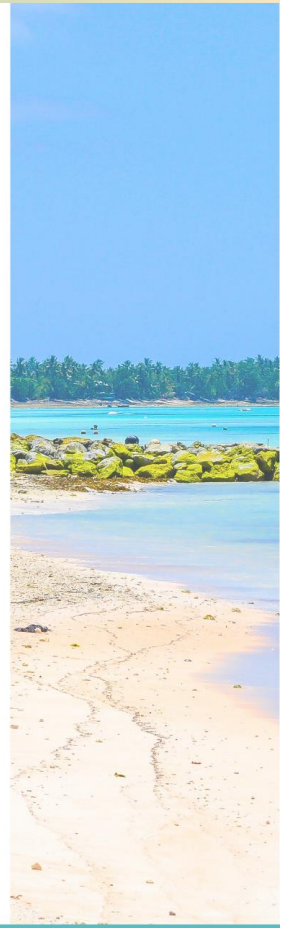
- Sea states are provided as part of the public weather forecasts.
- Marine bulletin are provided upon request.
- Engages closely with the Marine and Port services for communications with the public.
- Marine warnings and advisories include swell warnings, storm surges, king tides and sea states.
- Provides coastal inundation forecasts.
- RSMC Nadi provides high seas advisories.

In-Country Sector Engagement

- Ministry of Public Works, Infrastructure, Development and Water.
- Other government agencies.
- NGOs/CSOs.
- Communities.
- Regional stakeholders.
- Global institutions.
- Multilateral and bilateral partners.

Priorities & Gaps

- Improving service quality and delivery, including early warnings, advisories, and forecasts.
- More in-country scientific research for climate change adaptation and mitigation.
- Capacity building to maintain high standards of observation instruments, equipment, and data backup systems.
- Adding modern infrastructure and well-trained human resources to gather, process, archive, and communicate data and products.
- Developing a cost-recovery plan.



PACIFIC METEOROLOGICAL COUNCIL

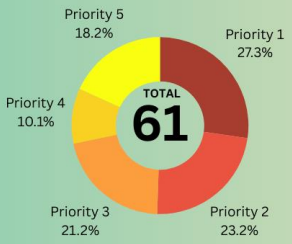
Director: Tauala Katea **tkatea@gov.tv**

16.16 Vanuatu

Vanuatu Meteorological Service

Summary

The Vanuatu Meteorology and Geohazards Department (VMGD) is one of the five Departments operating under the Ministry of Climate Change and Adaptation (MoCC) established in 2014. The department oversees vital tasks such as weather and geohazards monitoring as well as carving out meteorological and geological hazards assessments. It provides timely information and warnings to safeguard the nation's communities and environment from potential risks and disasters. The current organisational structure is intricately linked through legislative ties established by the VMGD Act 25 of 2016. This act formally designates the department as a key component of the ministry, outlining its responsibilities functions and cooperation with the other four departments in the MoCC.



PIMS ACTIVITIES

Met Legislations

- VMGD was then established by the VMGD Act 25 of 2016 to accommodate the increasing demand for weather and climate information.
- The order of regulation 80 of 2017 outlines the department's roles and responsibilities.
- The Act consolidates the Meteorology Department Act, Geohazards Department Act, Climate Change Department Act, and National Advisory Board into a unified legislative framework.
- All Acts require a thorough review to address demand and growth of respective departments.

Staffing Overview

- The MoCC has its own dedicated human resource strategy, guiding human resource development across all departments, including VMGD.
- The department has 119 staff in several divisions including Administration, Weather Forecasting, Climate Services, Weather Observation, Geo-hazards, ICT/Engineering and Project management.

Communications Overview

- Himawari 9 satellite data obtained from publicly available websites and utilised for meteorology products.
- Upper air station will be commissioned Sep-Oct before being used.
- Lightning instrument installed at airport and lightning data accessed via public forecasting websites and used in forecasting.
- Forecasts provided via email, website, Facebook, radio, television, SMS, and zoom.

Training Initiatives for Capacity Building

- ClimateWatch intensive training.
- Vanuatu Climate Futures Portal Intensive Training.
- CliDE refresher training.
- OSCAR intensive training.
- Regional/Sub-regional ROK PI CliPS training.
- Tropical cyclone portal Training.
- Ocean observation training.
- PMO (Port-Meteorology Officer VOS training.
- National IBFWS training.

Extreme Climate Threats

- Volcanic eruptions.
- Earthquakes.
- Tsunamis.
- Cyclones.
- Storms.
- Other severe weather events.
- Early warning system is in place for climate extreme events - ENSO Early Warning System, Drought Monitoring Early Warning System, Coral Bleaching Alerts.

Met Input to National Strategic Plan

- The VMGD operates with its own strategic plan - the National Strategy and Frameworks for Weather, Climate, Hydrometeorology, and Ocean Services (NSFWCHOS) 2024-2029.
- It also aligns with the Ministry's corporate plan, and subsequently formulates an annual plan based on these strategic guidelines.

Infrastructure Overview Gaps & Urgent Needs

- 7 weather stations.
- 16 AWSs (VanKIRAP).
- 8 new ocean buoys in all provinces (VanKIRAP).
- New river monitoring gauge and spare parts installed in the Sarakata river catchment in Luganville, Santo, Sanma Province (VanKIRAP).
- 4 new groundwater monitoring sensors installed within the Sarakata river catchment in Luganville, Santo, Sanma Province (VanKIRAP).
- New warning centre under construction (UNDP VCAP2).
- Installation of 4 AWOSs with the assistance of BoM (supplied by Weather Ready Pacific).

Finance & Investment Overview

- Primarily supported by the Government, but is also supported by external projects and donors.
- Extra financial support is required to fund for impact-based forecast assessments, essential data collection and analysis, model development, communication, validation, and continuous improvement.
- Sufficient funding will enable VMGD contribute to the Post-Disaster Needs Assessment and Recovery Framework (PDNA/RF).

Climate Services Summary

- Tools used for seasonal forecasting - SCOPIC, CLIKP, Access-s2 Model, Traditional knowledge indicators.
- Rainfall, air temperature, sea surface temperatures, coral bleaching, tides, moon phases and chlorophyll forecasted with the aim to also forecast ocean acidification and marine heatwaves.
- Seasonal forecasts communicated via email, zoom, Facebook, television, radio, and SMS.

NHMS Key Achievements

- Ground-breaking ceremony of the C-Band Weather Radar in July 2024. Shipment and Installation of the radar will be ready by mid-2025. The Radar is funded through the GCF-SPREP/VanKIRAP project.
- July 2024 - VMGD resurrected the weather balloon. Though not yet launched as waiting for commissioning from the hydrogen suppler, it is scheduled to be operational from Sep-Oct 2024.

Presence of Strategic Plan for NHMS

- The Corporate Plan for 2022-2026 effectively integrates the Strategic Plan and the People's Plan for 2022-2030, emphasising the department's key priorities for the next five years.
- These priorities are the foundation for the department's annual activity work plans.
- Moreover, the VMGD's activities and priorities are in perfect harmony with the Environmental pillar of the People's Plan.

Projects: Completed, Current & Planned

Ongoing:

- Climate Information Services for Resilient Development Planning in Vanuatu (VanKIRAP) - GCF funded through SPREP.
- Regional Disaster Resilience for Pacific SIDS - RESPAC/UNDP.
- Enhancing the Capacity of Issuing Earthquake, Tsunami and Storm Surge Information (VANREDI) - JICA.
- Joint Ocean Observatory Automatic Tidal Gauge and Station - China-Vanuatu bilateral agreement.
- Adaptation to Climate Change in the Coastal Zone of Vanuatu - various GEF trust funds under UNDP.

Marine Weather Overview & Products

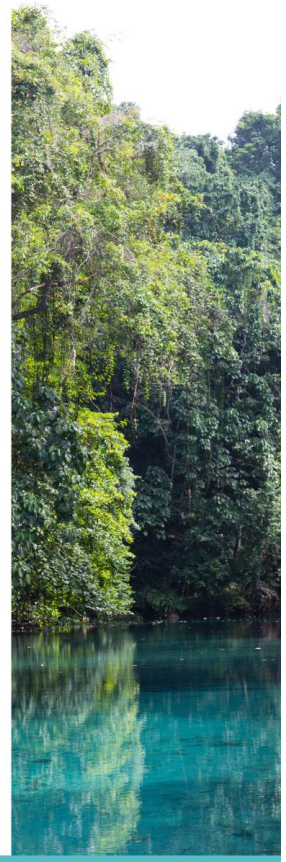
- 4-day marine forecast bulletin.
- Marine warning.
- 3-day severe weather outlook (marine, heavy rainfall, strong inland winds).
- Products provided via radio, website and email (subscription only).
- Marine forecasts cover all waters – separated into four different areas.
- Good collaborations with the marine regulator, e.g., all boats provided updated before leaving ports.
- Upcoming goal - swell warning bulletin.

In-Country Sector Engagement

- Agriculture – Agromet Bulletin.
- Fisheries – Fisheries Climate Outlook, Vanuatu Ocean Outlook.
- Tourism – Tourism Climate Outlook.
- Infrastructure – Vanuatu Climate Update, EAR Watch.
- Water Sector – Vanuatu Climate Update, EAR Watch.
- Energy Sector – Climate Energy Reports.
- Health – Climate Health Reports, Vanuatu Climate Update, EAR Watch.

Priorities & Gaps

- Identify appropriate flood forecasting systems to improve services.
- Capacity-building training for staff.
- All weather forecasters to be certified with a relevant meteorological certification.
- Strengthening of legal framework to better manage VMGD data, assets, and resources for effective services.
- Capacity building for the technical team to maintain the incoming weather radar and weather forecasters who will be using, processing, analysing, and communicating the data.



PACIFIC METEOROLOGICAL COUNCIL

Director (Acting): Fred Jockley

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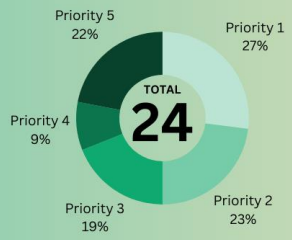
16.17 Australia

Australian Bureau of Meteorology

Summary

The Australian Bureau of Meteorology (the Bureau) is engaged in the Pacific Island Countries and Territories (PICTs) through:

- Aid-funded activities supported in partnership by the Australian Department of Foreign Affairs and Trade and the New Zealand Ministry of Foreign Affairs and Trade;
- Aid-funded activities supported by other donor mechanisms, including GCF, WMO, UNEP;
- Information on the Australian contribution, through the Bureau, of guidance products from the Bureau's National Operations Centre (NOC) and the Darwin Regional Specialised Meteorological Centre (RSMC);
- The Bureau's role in hosting the WMO Regional Instrument Centre (RIC); and
- Training activities carried out by the Bureau of Meteorology Training Centre.



PIMS PROJECTS

Aid Funded Activities

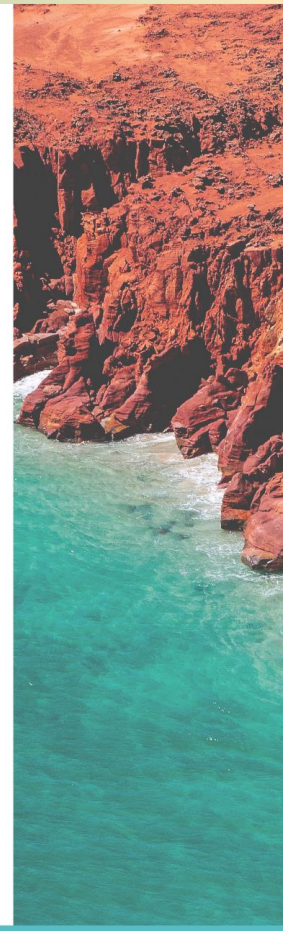
- **Climate and Oceans Support Program in the Pacific: 2012-2027** - component of Australia's contribution to minimising the impacts of climate variability and change in the Pacific and to meeting the Australian Government's climate change aid objectives.
- **PNG-AUS meteorological twinning arrangement: 2023-2026** - focuses on strengthening the weather and climate technical capability of Papua New Guinea's National Weather Service to enhance the regularity and efficiency of weather forecasts and warnings.
- **International development support for Pacific aviation: 2023-2027** - coordinating and facilitating the installation and maintenance of meteorological infrastructure and capacity-building for staff in several Indo-Pacific National Meteorological and Hydrological Services (NMHSs) to address the need for more aviation sector specific observation, weather forecasts, and warnings for Pacific Island nations and enable informed decision making on weather.

Additional Activities:

- Systematic Observations Financing Facility (SOFF) peer advisory services for Kiribati, Samoa, Fiji, Solomon Islands, Nauru and Papua New Guinea: 2023.
- Enhancing Climate Information and Knowledge Services for Resilience (UNEP CIS-Pac5).
- Vanuatu Climate Information Services Resilient Development Program (Van-KIRAP).
- National Capacity Building in Pacific Small Island Developing States (CREWS Pacific SIDS 2.0): 2021-2024.

Weather Ready Pacific (WRP)

- The Bureau champions the WRP Programme, including through the provision of technical advice and guidance to the Department of Foreign Affairs and Trade and the Pacific Meteorological Council through SPREP and the WRP Programme Management Unit. This advice and guidance is, in part, to guide and plan Australia's investment in WRP.
- The Bureau is currently training 3 meteorologists from Samoa at the Bureau of Meteorology Training Centre (BMTC), as the first steps in implementing the WRP initiative.



Education and Training Activities

Onsite and online training at the Bureau of Meteorology Training Centre:

- **The Graduate Diploma in Meteorology** - an accredited tertiary education program tailored for participants with a foundational science degree encompassing 2nd year maths/physics, equipping them with the requisite knowledge and skills to assume a Meteorological Forecaster role within a NHMS offered by the Bureau of Meteorology Training Centre (BMTC).
- **Basic Instruction Package: Meteorological Technician (BIP-MT) Training** - a three-month course tailored to enhance the capacity of agencies operating observation programs with both manual and automatic observations. In 2024, the BMTC provided training to 6 students from Tuvalu, Cook Islands, and Niue through the GCF UNEP CIS-Pac5 Programme.
- **Tropical Cyclone Training** - operates as an unfunded BaU activity to bolster forecasting capacities in the Asia-Pacific. It emphasises capacity building, and chiefly benefits forecasters, providing them with enhanced skills to accurately forecast and communicate tropical cyclones and their associated hazards to end users.

Support Under WMO World Weather Watch Framework

- **Guidance products** - consist of a mixture of NWP and manual products provided to the Pacific. NWP products are disseminated via the Severe Weather Forecast Programme – South Pacific (SWFP-SP) and Registered User web pages, and manual products and some NWP products are sent directly.
- **Melbourne WMO Regional Instrument Centre and Regional Radiation Centre** - measurement and instrumentation laboratories that fulfil the WMO roles of a Regional Instrument Centre (RIC) and Regional Radiation Centre (RRC). Maintains international traceable reference standards in Temperature, Humidity, Pressure, Solar and Terrestrial Radiation, Rainfall (through Mass) and Electrical and provides technical advice, inter-comparisons and calibrations to RA V, utilised by New Zealand, Fiji and Indonesia.
- **Sea-level monitoring** - The Bureau's Melbourne Office operates a state-of-the-art calibration laboratory for sea-level monitoring, calibrating sea level sensors, water temperature and levelling instrumentation for 13 Pacific nations.

PACIFIC METEOROLOGICAL COUNCIL

Director & CEO: Dr. Andrew Johnson

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16.18 New Zealand

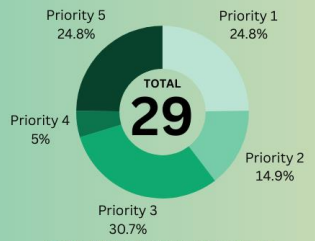
Aotearoa New Zealand

Summary

This poster outlines activities ongoing or conducted since the sixth Pacific Meteorological Council contributing to the National Priority Actions of the Pacific Islands Meteorological Strategy (PIMS) being funded, supported or conducted by the following:

- Activities funded by the New Zealand Ministry of Foreign Affairs and Trade (MFAT) as part of the aid programme.
- Activities being supported by the Meteorological Service of New Zealand Ltd (MetService).
- Activities being supported by the National Institute of Water and Atmospheric Research Ltd (NIWA).
- Activities supported by the Civil Aviation Authority of New Zealand (CAA NZ).

New Zealand's support to Pacific Island Meteorology and Hydrology Services continues to cover all 5 priority action areas of the PIMS, supporting both national and regional priority actions and contributing to all eleven key outcome areas.



PIMS PROJECTS

Priority 1: Improved Weather Services

Improved meteorological services for air navigation

- Installation/upgrades of telemetered AWOS/AWS in-country to service local weather needs in Palau, Marshall Islands, Niue, Cook Islands, and Tuvalu (2022-ongoing).
- Provision/Installation of new telemetered AWS and rainfall monitoring stations in Vanuatu, Fiji, Tonga, Samoa, Kiribati, and the Solomon Islands (2020-ongoing).
- Development of weather station display in CliDESc Portal in all Pacific countries (2022-ongoing).
- Development of a volcanic observatory notice to aviation (VONA) creation and delivery tool in all Pacific countries with active/potentially active volcanoes (2024) - funded by NZ MOT.
- Organising a SIGMET exercise series to aid Papua New Guinea in deficiency resolution (2024-25).
- Development of new climate outlook variables – air temperature, humidity, sea surface temperatures, and risk for compound extremes for the region (2024-ongoing).

Improved marine weather services and establishment of ocean services

- **"New Zealand Pacific Partnership on Ocean Acidification"** - building the resilience of ecosystems and communities to ocean acidification in the Pacific region across 10 Pacific Island nations (ongoing).
- Wave forecast system for Tonga's EEZ for inter-island shipping and other marine users (ongoing).
- Strengthening inter-island wave and sea surface temperature monitoring in Samoa/Tonga (ongoing).
- Installing new telemetered sea-level monitoring stations in Tonga (2023-24).
- Provision of local language monthly tide and sea level fluctuation tables in Kosrae, Federated States of Micronesia (ongoing).
- Implementing highly unusual sea surface temperature outlooks for the region (2024-ongoing).

Improved public weather services

- Operating the **Wellington Regional Specialised Meteorological Centre**, part of NZ's contribution to the WMO Integrated Processing and Prediction System (WIPPS), which maintains a weather watch over the southwest Pacific and publishes routine daily weather analysis products, and other severe weather forecasting services.
- Island Climate Update - outreach through social media, monthly videos, and newsletters (1999-ongoing), and package for meteorology capability development in Tuvalu (2024).
- Supporting Pacific countries with regional climate information to deliver national climate outlooks to national and regional stakeholders (2015-ongoing).
- Supporting Pacific countries to enhance their own severe weather forecasting programmes through training and operational guidance (2009-ongoing).

Priority 4: Integrated observing and communications systems

Integrated observing and communication systems

- Installation of 300+ AWS, rain, hydrology, groundwater and sea-level monitoring equipment all telemetered in near-real time and integrated with CliDE or Tideda databases for several PICTS (2008-ongoing).
- Provision of specialised technical resources in-country for periodic maintenance of GCOS Upper Air Network (GUAN) station equipment at Funafuti and Tarawa, Tuvalu and Kiribati (since 2013).
- Undertaking of WMO Systematic Observation Financing Facility (SOFF) Readiness Phase visits for Tuvalu, Tonga, and Vanuatu (2023-ongoing).

Priority 2: Disaster Risk Reduction

Strengthened NHMS capacity to implement Multi-Hazard Early Warning Systems (MHEWS) for tropical cyclones, coastal inundation, and tsunamis

- Improving risk-based decision-making through multi-hazard risk mapping and modelling in Samoa, Vanuatu, Tonga, Cook Islands, Republic of the Marshall Islands and Tuvalu (2021-24).
- Multi-hazard Impacts Forecasting in Samoa and Tonga (2021-23).
- Support for water resource management in Tuvalu's outer islands (2021-23).
- Nadi River flood warning system in Fiji (2022-23).
- Vaisigano Flood Warning System in Samoa (2019-ongoing).
- Weather, coastal, river and tsunami multi-hazard risk assessment in Luganville, Vanuatu (2023-ongoing).
- On demand high resolution cyclone weather forecasts for TC's Gita, Judy, and Kevin in Fiji, Samoa, Tonga, and Vanuatu (2021-23).
- Modelling Nature-based Solutions for Tsunami and Storm surge mitigation in Samoa and Tonga (2024).
- Hydrological Flood Capacity Assessments in Fiji, Kiribati, Samoa, Solomon Islands, Tonga, and Vanuatu (2024).
- Improving Vanuatu's flood related climate resilient development (2023-24).

Priority 5: Coordinated support for NMHS and PMC

NMHS institutional strengthening and capacity development

- Ongoing climate and hydrological technical support in the region.
- Ongoing regional competency-based training for climate services.
- Ongoing NZ-based competency-based training for hydrology and climate technicians in several Pacific countries.
- Ongoing on the job training for AWS, rain gauge and hydrology station site selection, installation, calibration, telemetry, and maintenance for meteorology and hydrology staff in Fiji, Samoa, and Vanuatu.
- Ongoing distance learning in field hydrology for the region.
- Ongoing, national workshops on CliDEsc user and administrator training in the Solomon Islands and Fiji.
- Ongoing development of online training for CliDEsc users and administrators, as well as other climate monitoring tools and dashboards for the region.
- WMO online training on the Transition to Automated Ground-based Measurements for Regional Association V (RA V, SW Pacific) Members, on the transition from manual to automated measurements and related network aspects.

Priority 3: Improved climate and hydrological services

Improved climate information and prediction services through the implementation of the Pacific Roadmap for Strengthened Climate Services

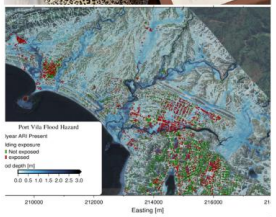
- Continued provision of climate and hydrological monitoring equipment.
- Replacement of destroyed AWS station, and provision of new sea-level/tsunami monitoring stations after the 2022 volcanic eruption in Tonga (2022-24).
- Continued support to improve the capture, storage, analysis and communication of climate and ocean data to Pacific Meteorological Services.
- Continued development of sector-specific climate services (2020-ongoing).
- CliDEsc/CliDEsc Portal System development and implementation for the Framework for Climate Services/Pacific Roadmap for Strengthened Climate Services and customisation of climate products and services (ongoing).
- Improving understanding of groundwater resources in Fiji's Yaqgara catchment (2022-24).
- Developing multi-model ensemble forecasts for delivering the monthly island climate update and coordinating the annual Tropical Cyclone Outlook for Pacific countries.

Strengthen collaboration between meteorological and hydrological services to better manage water resources and reduce water-related hazard impacts

- Developing a training programme to enhance Fiji Meteorological Service's river flow rating capability (2021-22).
- Developing intensity-duration-frequency rainfall tables for Samoa (2021-22).
- Developing new approaches for collecting flash flood flow data in Fiji (2022-23).
- Hydrological equipment spares and technician training, and meteorological technican and forecasting training for Samoa in NZ (2021-23).
- WMO online hydrological training course for Pacific countries (2020-ongoing).
- Hydrological field and office training in Vanuatu and Fiji (2019-24).
- Safe hydrological gauging during high-flow flooding WMO pilot innovation project in Fiji and Samoa (2023).
- Hydrological Information User-Provider services scoping and development in Fiji, Samoa, Kiribati, Solomon Islands, Tonga, and Vanuatu (2024).
- WMO RA-V Hydrological Working Group (2023).
- Regional Steering Committee for the project Managing Water Scarcity through Strengthened Water Resources Management (2023-24).
- Reviewing feasibility for the integration of hydrometric data into the BoM CliDE database for all RA-V Pacific Countries (2024).

PMC is an efficient and effective body

- Vice-Chair of the WMO RA-V Pacific Regional Climate Centre (RCC) Network.
- Chair of the WMO Expert Team on Transition to Modern Measurement (ET-TMM).
- SC-MINT representative on the WMO Commission for Observation, Infrastructure, and Information Systems (INFCOM) Capacity Development Panel, contributing to supporting opportunities created by SOFF and other initiatives such as Early Warnings for All (EW4ALL) and Global Greenhouse Watch.



PACIFIC METEOROLOGICAL COUNCIL

Permanent Representative of New Zealand with WMO: Stephen Hunt

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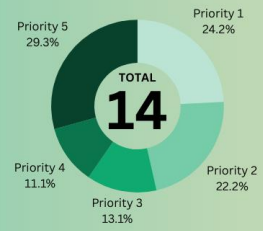
16.19 United Kingdom

Met Office (United Kingdom)

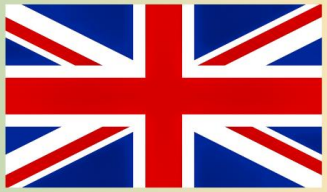
Summary

The Met Office (UK) is engaged in partnerships with the National Meteorological and Hydrological Services (NMHSs) in the Pacific Island Countries and Territories (PICTs) to support capacity development and the delivery of the Pacific Island Meteorological Strategy (PIMS) through:

- Support via the WISER Asia-Pacific Programme funded by the UK Government Foreign, Commonwealth and Development Office (FCDO);
- Support via the UK's contribution to the WMO Voluntary Cooperation Programme (VCP) funded by the UK Government through the Met Office Public Weather Service Programme; and
- The Met Office's role conducting peer support for the Systematic Observations Financing Facility (SOFF).



PIMS PROJECTS



WISER Asia-Pacific Programme

- Aims to 'improve quality, access, and use of Weather and Climate Information Services to strengthen the resilience of vulnerable people', running between 2023 and 2031.
- Takes a regional approach to support development of weather and climate services in the Pacific.
- Focuses on supporting existing regional frameworks and mechanisms for disaster management and climate resilience such as the PIMS and the Pacific Climate Science and Services Roadmap (PCCSSR), with an emphasis on supporting and contributing to the Pacific Weather Ready Decadal Programme of Investment.
- Support during 2024 – in partnership with SPREP, PCCC, and others – has included/includes:

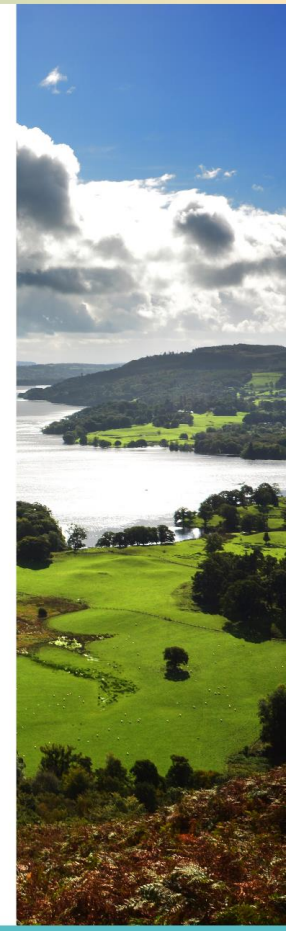
In partnership with SPREP:

- Support to the review and update of the PIMS.
- Support to Pacific Met Directors meeting in Fiji, April 2024.
- Preparation of a plan for the development of an 'integrated forecast platform' for the Pacific region.
- Supporting the startup of Weather Ready Pacific.
- Support to WMO designation of Regional Climate Centre (RCC) for the Pacific

Pacific Climate Change Science to Services Roadmap (PCCSSR):

- Support for the development of a terms of reference and part funding for a project consultant to revise PCCSSR and develop an implementation plan.
- Support for the development and deployment of stakeholder survey.
- Stakeholder engagement.
- Preparation and delivery of stakeholders consultation workshop with 14 NMHS and other relevant stakeholders.

Discussions are ongoing in 2024 to review the details of the next stage of WISER A-P grant support, and associated activities.



PACIFIC METEOROLOGICAL COUNCIL

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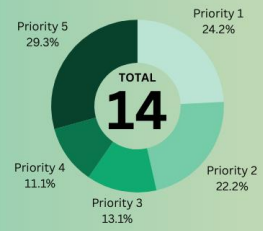
Met Office (United Kingdom)

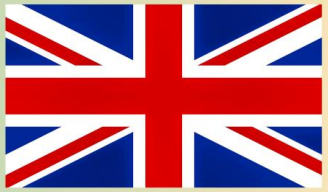
Summary

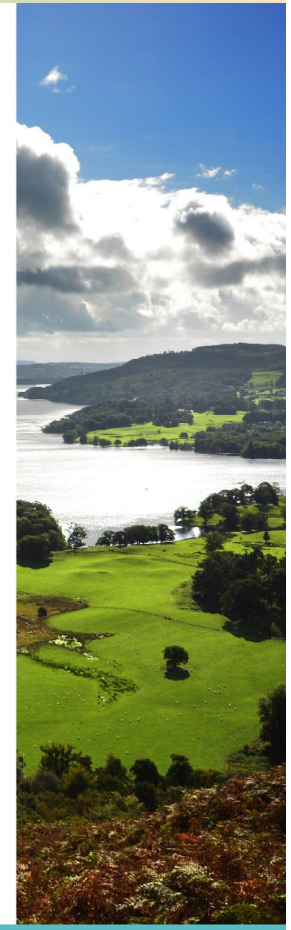
The Met Office (UK) is engaged in partnerships with the National Meteorological and Hydrological Services (NMHSs) in the Pacific Island Countries and Territories (PICTs) to support capacity development and the delivery of the Pacific Island Meteorological Strategy (PIMS) through:

- Support via the WISER Asia-Pacific Programme funded by the UK Government Foreign, Commonwealth and Development Office (FCDO);
- Support via the UK's contribution to the WMO Voluntary Cooperation Programme (VCP) funded by the UK Government through the Met Office Public Weather Service Programme; and
- The Met Office's role conducting peer support for the Systematic Observations Financing Facility (SOFF).



PIMS PROJECTS





Contribution to the WMO Voluntary Cooperation Programme (VCP)

Support includes:

- Ongoing support for upper air observations in partnership with Tuvalu, Kiribati, and with support from SPREP and MetService under the 'Pacific Fund' MOU.
- Ongoing support to Pacific NMHSs under the WMO Severe Weather Forecast Project (SWFP), particularly regarding the provision of forecast model information.
- Support for MSc. fellowships at Reading University in cooperation with WMO. The 2023/24 intake includes a fellow from Fiji Meteorological Service.
- Support for media communications. In 2024, the Met Office has been working with Tonga Meteorological Service to install a media studio and provide training on weather graphics and presentations.
- Support through additional activities, such as annual online management training.

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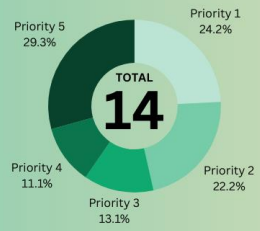
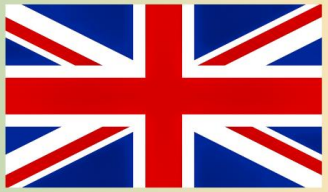
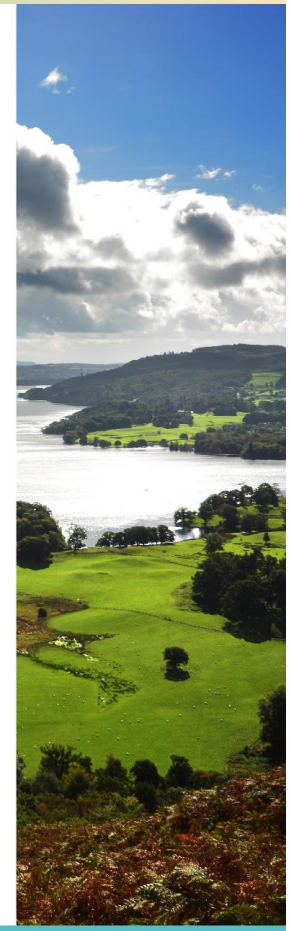


PIMS PROJECTS



Systematic Observations Financing Facility (SOFF) - Peer Support

- The Met Office is currently undertaking the role of SOFF 'Peer Advisor' for Republic of Marshall Islands, Federated States of Micronesia, and Republic of Palau to collaborate in the design and implementation of surface and upper air observations contributing to the WMO Global Basic Observation Network (GBON).
- The Met Office also continues to liaise with the Australian Bureau of Meteorology, New Zealand Meteorological Service, and Peer Advisors for Tuvalu and Kiribati, to ensure existing support from the Met Office (Pacific Fund) is complementary to SOFF investment.



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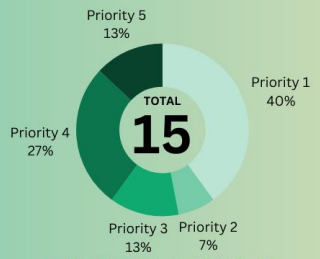
16.20 United States of America

National Oceanic and Administration (NOAA) National Weather Service (NWS), United States of America

Summary

This poster outlines activities ongoing or conducted contributing to the National Priority Actions of the Pacific Islands Meteorological Strategy (PIMS) being funded, supported or conducted by the NOAA, NWS, in the United States of America (U.S.).
Vision - A Weather-Ready Nation: Society is prepared for and responds to weather, water, and climate dependent events.
Mission - Provide weather, water and climate data, forecasts, warnings, and impact-based decision support services for the protection of life and property and enhancement of the national economy.



PIMS PROJECTS

Priority 1: Improved Weather Services

- **Updated aviationweather.gov website** - improves the website's consistency, supportability, mobile friendliness, performance, and ease of use. The information on the upgraded website is similar to the current website, but the navigation and presentation is adaptable to permit use on mobile devices. This is beneficial for all PMC countries. (Completed Oct 2023).
- **Next Generation WAFS Implementation Plan Phase 2** - increase in temporal and spatial resolution of the World Area Forecast System (WAFS) produced by the World Area Forecast Centers (WAFC) for all PMC countries. (Completed Jan 2024).
- **Service change to allow use of PROB30 in the first 9 hours of the TAFs** - the NWS since 2002 has not allowed the term PROB30 in the first nine hours of the TAF. This restriction will end on or about September 30, 2024 to align the U.S. TAF product with the International Civil Aviation Organization's (ICAO's) Annex 3, Meteorological Service for International Air Navigation. This will improve consistency of the TAF with the probability of precipitation forecasts in other NWS products. (Completed Dec 2023).
- **Aviation Tropical Cyclone Advisory (TCA) to add a 6-hour forecast** - effective on or about May 15, 2024, the Central Pacific Hurricane Center (CPHC) will add a 6-hour forecast of tropical cyclone (TC) position and intensity to the Aviation Tropical Cyclone Advisory (TCA). To meet aviation warning provider needs for information for TC SIGMETs (SIGnificant METeorological information), CPHC will provide TC forecast information valid at times 03, 06, 09, 15, 21, and 27 hours relative to the advisory issuance for the Pacific Countries covered under MWO Honolulu Area of Responsibility. (Completed May 2024).
- **Marine gridded forecasts for Micronesia (Republic of Palau, Federated States of Micronesia, Republic of the Marshall Islands)** - NOAA/NWS Weather Forecast Office (WFO) Guam producing experimental public and marine grids for east and west Micronesia. (Ongoing)
- **NOAA's newest high-performance computer (HPC) system: Rhea** - to strengthen NOAA's exploration and application of artificial intelligence and machine learning (AI/ML) capabilities, which will ultimately improve weather, ocean and climate forecasting, ecosystem modelling and the use of satellite Earth observations to understand climate changes for the benefit of all PMC countries. (end-2024).

Priority 2: Disaster Risk Reduction

- **International Tsunami Ready Designation** - the NOAA/NWS International Tsunami Information Center will work with Kiribati, Samoa, Solomon Islands, Vanuatu, the Republic of Palau, and the Federated States of Micronesia to help them achieve Tsunami Ready certification. (2023-2027).

Priority 4: Integrated observing and communications systems

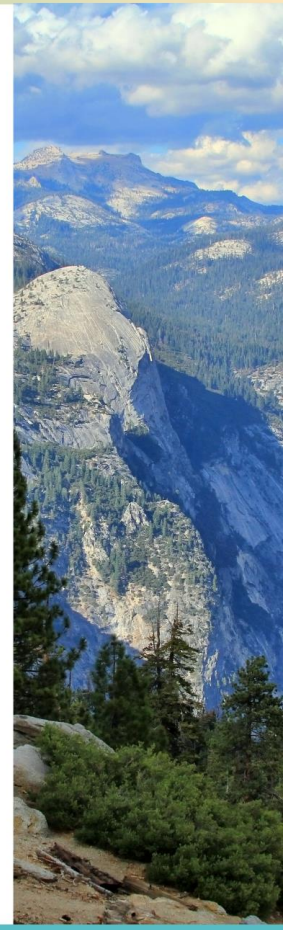
- **Modernisation of the U.S. Integrated Ocean Observation System** - PACIOOS received USD $5 million to support coastal resilience, with a focus on enhanced engagement and education, capacity sharing and the co-design of data visualisation and decision-making tools — using wave, water and other ocean conditions — with Indigenous and other underserved coastal communities within the U.S. Pacific Islands. (2024-2028).
- **NOAA DART Buoy upgrades** - the Department of Commerce and NOAA announced USD $30 million to modernise and replace the equipment on the Deep-ocean Assessment and Reporting of Tsunamis (DART) Ocean Observing System for all PMC countries. (2025-2028).
- **NOAA-21 polar-orbiting satellite** - the newest satellite in the Joint Polar Satellite System (JPSS) constellation, NOAA-21 became operational in August 2023. NOAA-21 joins NOAA-20 and Suomi NPP in orbit. NOAA-21 is flying half an orbit, or 50 minutes, ahead of NOAA-20, with Suomi NPP between them. Each orbits the Earth from the North to the South Pole 14 times a day, providing complete global data coverage twice daily. This is of benefit to all Pacific countries. (August 2023).
- **Expansion of Sea-Level Monitoring Stations in the Pacific Region** - expanding the number of sea-level monitoring installations and developing mechanisms to empower PMC countries to install and maintain their sea-level monitoring networks. (2023-2028).

Priority 3: Improved climate and hydrological services

- **Automating Production of Customised National Climate Monitoring Reporting** - established for all Pacific Islands, planning for the reporting is currently underway with training to commence in 2025. (2025-2026).
- **National Weather Service launches new website for water prediction and products** - NOAA's National Weather Service launched a new website called the National Water Prediction Service. This new hub for water data, products and services combines local and regional forecasts with water data and new national level capabilities, such as flood inundation maps and the National Water Model. (Completed Mar 2024).

Priority 5: Coordinated support for NMHS and PMC

- **Improve Capacity Development of Early Warning Systems for Pacific National Meteorological and Hydrological Services (NMHS)** - NOAA is conducting a series of training workshops with pilot countries. The project engages multiple stakeholders in the region and works with those stakeholders to integrate climate early warning forecasts to sector specific needs such as agriculture, tourism, transportation, etc. (2023-2027).
- **Enhancing NOAA's Pacific International Training Desk** - requests from countries have increased substantially, along with the cost to run the PITD and fund students to attend the courses annually. The PITD will continue to train up to 11-12 students each year to improve the capacity of PMC countries to produce actionable and accurate products and delivery of decision support services aimed at improving early warning systems in the region. (2023-2028).



PACIFIC METEOROLOGICAL COUNCIL

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