Pacific Islands Meteorological Strategy 2017–2026

Sustaining Weather, Climate, Water and Ocean Services in Pacific Island Countries and Territories

SPREP
Secretariat of the Pacific Regional Environment Programme

PACIFIC ISLANDS METEOROLOGICAL STATEGY 2017–2026

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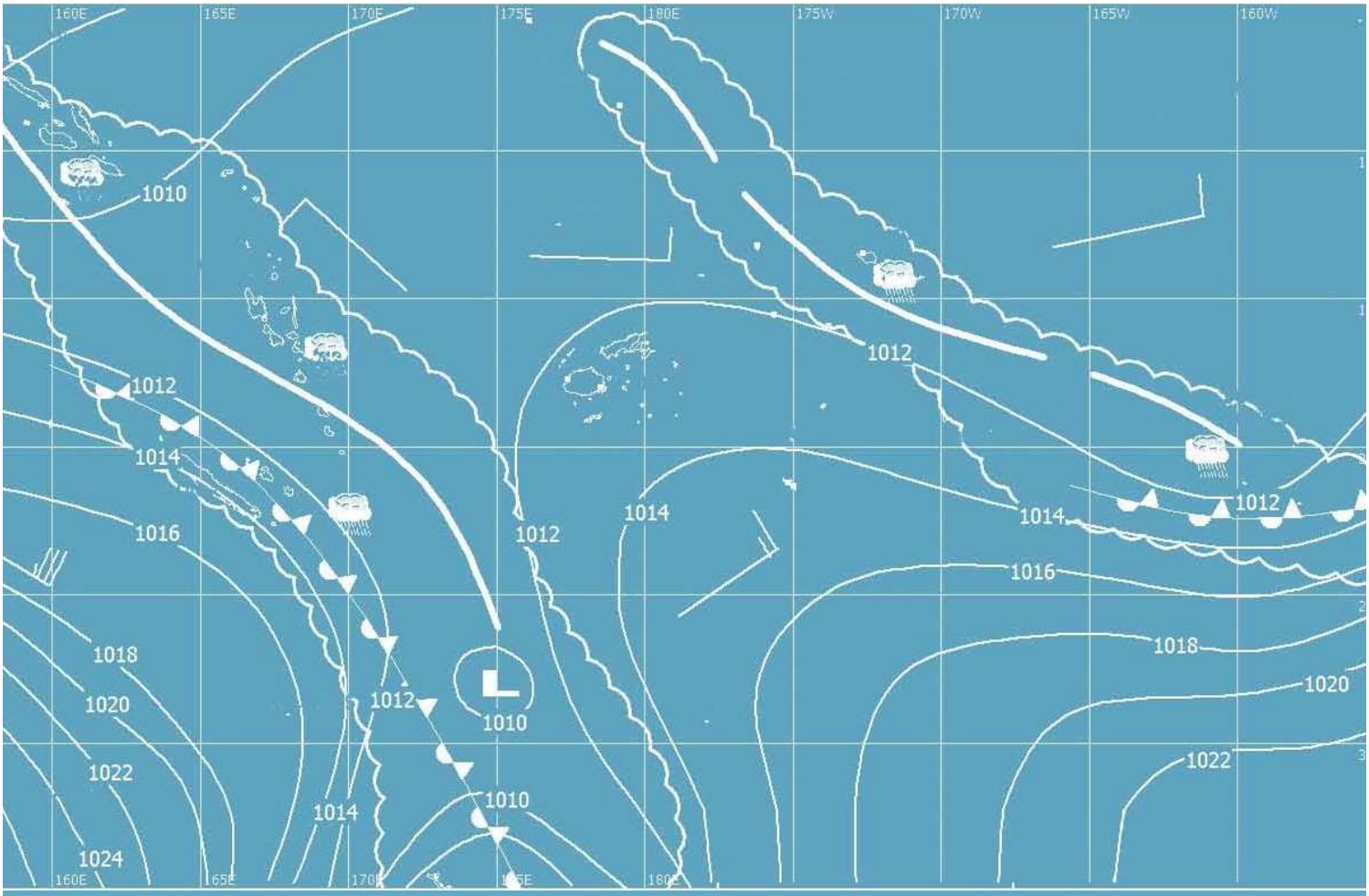
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Statement from the PMC Chairman

This is the second iteration of the Pacific Islands Meteorological Strategy (PIMS) and provides a strategy for the ten years from 2017 to 2026. It represents the continued strategic effort on the part of the Directors of National Meteorological and Hydrological Services (NMHSs) of all Pacific Island Countries and Territories (PICTs), to ensure that the services that we provide are sustained and assured of the best quality possible. Tropical cyclones and typhoons, drought and flash floods, storm surges and coastal inundation, earthquakes, volcanoes and tsunami are some of the extreme events that concern our services. The past decade has seen some unprecedented natural disasters, bringing loss of life and livelihoods of Pacific people. At the same time, good preparation, well-designed early warning systems and effective responses have mitigated the impact of many extreme events. Our NMHSs play a vital role in providing time critical and relevant data and information services to our governments, communities and international partners. Our role in helping our governments and communities to understand and prepare for the impacts of climate changes is also critical.

The growth and sustenance of NMHSs must be a priority for our respective governments in the Pacific. We have made great progress in the capacity and achievements of our services, thanks in part to the assistance and support from our counterpart agencies in Australia, Canada, Finland, France, Japan, Korea, New Zealand, United Kingdom and the United States of America. This updated Strategy provides guidance on NMHSs' priorities now and into the future.

I thank Mr Reginald White, Director of the NMHS of the Republic of the Marshall Islands and the first Chair of the Pacific Meteorological Council (PMC), for his work to set up and lead this Strategy. I also thank Mr 'Ofa Fa'anunu, Director of Tonga Meteorology and Coastal Radio Services Department as the second Chair of the PMC, providing leadership for the implementation and mid-term review of the Strategy, and ensuring that we make strides in achieving the goals we have set for ourselves as the PMC. This Strategy not only reflects the best way forward but highlights the key areas of focus for development and support and we welcome as many partners as possible at the national and regional level to work together on achieving it. I am confident that this Strategy and the commitment of support from SPREP through the Pacific Meteorological Desk Partnership (PMD) will provide us with a sound roadmap for the next ten years.

The Strategy will be reassessed at the biennial PMC meetings and will be independently reviewed again in five years. I am sure we will see even more progress during these years and that each of our countries will achieve a well-functioning professional NMHS able to provide the best service to its people. I am sure too that my fellow Directors who will follow in turn as Chairs will be as committed as I am to the vision and objectives of this Strategy.

Our continued thanks go to our partners who have aided our development over the past few decades and who continue to provide enthusiastic support to the region. Our thanks to SPREP and WMO also for the continued secretariat services to the region and without whom the development and implementation of this Strategy would not be possible. To my fellow Council members, here lies our pathway and challenge for the next decade: together as partners we can achieve the objectives of this Strategy and more!

David Hiba Hiriasia
Director
Solomon Islands Meteorological Service

Foreword

The Pacific Islands Meteorological Strategy (PIMS) 2017–2026 presents the priorities of Pacific Island Countries' and Territories' (PICTs) National Meteorological and Hydrological Services (NMHSs) for the next ten years. Much has been achieved in the first five years and I am confident progress will be maintained during the next ten.

The continued support of the development partners of the Pacific Meteorological Council (PMC) is crucial for the timely and successful implementation of this PIMS. They include technical partners: the World Meteorological Organization (WMO), the Australian Bureau of Meteorology (BOM), the Australia Commonwealth Scientific and Industrial Research Organization (CSIRO), Environment and Climate Change Canada, European Center for Medium-range Weather Forecasting (ECMWF), the Meteorological Service of New Zealand (NZMet), the National Institute of Water and Atmospheric Research (NIWA) of New Zealand, Metéo France, Japan Meteorological Agency (JMA), Korea Meteorological Agency (KMA), Asia-Pacific Climate Center (APCC), the Finnish Meteorological Institute (FMI), the United Kingdom Meteorological Office and the United States of America National Oceanic and Atmospheric Administration (NOAA); bilateral and multilateral partners such as the Adaptation Fund (AF); Australia, Canada, Denmark, Finland, France, Germany, Japan, Korea, New Zealand, UK, USA, Asian Development Bank (ADB), Global Environment Facility (GEF), Green Climate Fund (GCF), World Bank (WB), CROP agencies; and UN agencies. Other developed countries and their NMHSs are invited to join the PMC and the Secretariat of the Pacific Regional Environment Programme (SPREP) to provide support for NMHSs as mapped out in this Strategy.

This Strategy is for PICTs' governments and NMHSs, donors and partners. It is a guide to priorities for strengthening weather, climate, water and ocean services for all stakeholders through timely provision of information on climate change and warnings for extreme events.

The Pacific Meteorological Council (PMC) is a specialised subsidiary body of the SPREP Officials Meeting and meets biennially. It was established in Majuro, Republic of the Marshall Islands in 2011, to facilitate and coordinate the scientific and technical program and activities of the NMHSs. The PMC provides policy advice to the SPREP Officials Meeting on the needs and priorities of SPREP member countries and territories in relation to meteorology (weather, climate, water and ocean) and related fields, supported by five specialist panels.

I would like to acknowledge the fine leadership of the first PMC Chair, from the Republic of Marshall Islands, Mr. Reginald White. I thank Mr. 'Ofa Fa'anunu for his contribution as second Chair and I am confident the PMC will flourish under the new leadership of Mr. Lloyd Tahani from the Solomon Islands.

We call on PICTs' NMHSs and PMC partners in addition to members of the Council of Regional Organisations in the Pacific (CROP) to support the implementation of the PIMS 2017–2026, not only to strengthen NMHSs' capacity but to ensure that weather, climate, water and ocean information reaches the 'last person' and the most vulnerable people and communities in urban and rural areas and in remote outer islands in a timely and effective manner.

Kosi Latu
Director General
SPREP

Executive Summary

National Meteorological and Hydrological Services (NMHSs) underpin economic growth and sustainable development in the Pacific Islands region. The weather, climate, water and ocean services provided by NMHSs are essential to the safety and well-being of Pacific people and communities including women, children, boys and girls, youth, people with disabilities and most vulnerable groups[1]. They support key economic and livelihood areas including agriculture, aviation, shipping, forestry, fishing, water resource management, energy, transportation and tourism.

In addition, these services are crucial to enhancing resilience to and reducing vulnerability of Pacific people to natural hazards and the effects of climate variability and climate change.

The Pacific Meteorological Council (PMC) adopted the Pacific Islands Meteorological Strategy (PIMS) 2012–2021 to ensure that NMHSs have the capacity to fulfil their responsibilities over the decade. The revised PIMS 2017–2026 draws upon the advice of NMHSs, their clients and their partners to update its objectives, recognising that national, regional and international contexts have changed, and that much has been achieved since 2012. Its vision is:

National Meteorological and Hydrological Services (NMHSs) of the Pacific Island Countries and Territories (PICTs) provide relevant weather, climate, water and ocean services to their people to make informed decisions for their safety, socio-economic well-being, prosperity and sustainable livelihoods.

This Strategy identifies five priority areas for action:

- **Improved weather services**, in particular aviation, marine and public weather services, and establishment of ocean weather services to support the safety and efficiency of sectors.
- **Disaster risk reduction**, including implementing the Framework for Resilient Development in the Pacific 2017–2030 and contributing to the Sendai Framework for Disaster Reduction 2015–2030 to protect life and property of Pacific people as well as NMHSs contribution to climate change internationally, regionally and nationally.
- **Improved climate and hydrological services**, including implementing the Pacific Roadmap for Strengthened Climate Services (PRSCS) and strengthened collaboration between hydrological and meteorological services.
- **Integrated observing and communication systems** to support processing and preparation of weather, climate, water and ocean information and services including warnings.
- **Coordinated support for NMHSs, PMC and the Pacific Meteorological Desk Partnership (PMDP)** to ensure NMHSs have resources to undertake their legislated requirements and service their stakeholders**.**

[1] Any collective or group of people that has the propensity or predisposition to be adversely affected, such as a household, community or country, and their situation, that influences their capacity to anticipate, cope with, resist, and recover from an adverse pressure (Source: FRDP 2016)

The Strategy sets out priority areas in a matrix of Pacific Key Outcomes (PKOs) and activities that can be undertaken at both the national and regional levels.

The priorities and actions are supported by a set of institutional partnerships that bring together PICTs and development partners to support weather, climate, water and ocean services in the Pacific Islands region.

PACIFIC ISLANDS METEOROLOGICAL STATEGY 2017–2026

THE PACIFIC ISLANDS
METEROLOGICAL STRATEGY
2017–2026

Part 1 - Strategic context and direction

1. Purpose

The purpose of this Pacific Islands Meteorological Strategy 2017–2026 (PIMS) is to set out the strategic context and direction for strengthening National Meteorological and Hydrological Services (NMHSs[1]) in the Pacific Islands region.

The PIMS provides a guiding framework to support and coordinate the development of national and regional hydro-meteorological (weather, climate, water and ocean) services. It seeks to promote development through building capacity within NMHSs, and ensuring support is coordinated and delivered effectively in partnership with Pacific governments, international agencies, regional organisations, donors and technical partners.

The revised PIMS 2017–2026 builds upon the PIMS 2012–2021 and considers the changes in opportunities and challenges over the past five years.

Part 1 sets out the overall strategic direction and the global and regional context. It describes relevant institutional and governance arrangements, including the roles of the Secretariat of the Pacific Regional Environment Programme (SPREP), the World Meteorological Organization (WMO), the Pacific Meteorological Council (PMC) and the Pacific Meteorological Desk Partnership (PMDP).

Part 2 sets out the Pacific Key Outcomes (PKOs) and high-level actions, giving an overview of NMHSs' priorities.

Part 3 sets out the PKOs, high-level actions and sub-actions adopted by the PMC[2], noting responsibility for driving achievement of regional actions where this has been agreed.

Part 4 maps the PKOs to international and regional frameworks.

[1] National Meteorological and Hydrological Services (NMHSs) throughout this document refers to the Pacific Islands Countries' and Territories' NMHSs. All Pacific SPREP member countries have an NMS. Many countries operate a separate National Hydrological Service (NHS), usually in a natural resource or water supply ministry. NMHS in PIMS is used to refer to National Meteorological Services, in line with WMO practice.

[2] Pacific Meteorological Council (PMC) members are the Directors/Heads of the NMHSs of SPREP members and partners as approved by SPREP and the PMC meetings.

2. Background

2.1 Status of National Meteorological and Hydrological Services

All Pacific Island Countries and Territories (PICTs) have National Meteorological and Hydrological Services (NMHSs) or National Meteorological Services (NMSs) and National Hydrological Services (NHSs). During the past decade, there has been significant development and general improvement in their capacity and capabilities. NMHSs work closely together with developed country members of SPREP (Australia, France, New Zealand, United Kingdom and USA), other countries (including Japan, Korea, Finland, Germany, Canada, China, Italy and Denmark) and benefit from the global network of meteorological observations, information and services provided through the World Meteorological Organization (WMO) and others. Most NMHSs have achieved significant advances in the technical skills required to process, prepare and deliver weather and climate services to their governments, communities and other customers.

Technical skills for weather services include installation and maintenance of equipment, data observation, collection and management (including processing, storage, access and exchange of near real-time weather data), forecasting and providing warnings.

Technical skills for ocean services are currently limited to marine weather services including data observation and collection; forecasting and generating warnings. Over the duration of this strategy, it is anticipated that ocean services will be significantly developed.

Technical skills for climate services include installation and maintenance of equipment, data observation, collection and management, archiving, quality control and management of historical climate data, climate analyses and monitoring, and developing seasonal and inter-annual predictions and climate change projections (scenarios).

More remains to be done to enable NMHSs to meet their mandates and serve their nations effectively. Many NMHSs in the region operate with poor infrastructure, and staffing constraints limit their capability. Climate services are well developed in most PICTs, while the rest rely on external support to provide basic services. As well, many NMHSs are under-utilised as sources of information, understanding and expertise on climate change issues for their governments and communities.

2.2 Value of National Meteorological and Hydrological Services

The NMHSs bring together elements of science, operational services and relationships with both public and private sectors in a holistic way. Information products and services provided by NMHSs improve the quality of critical decisions made in sectors sensitive to the extremes of weather, climate, water and oceans. The services provided by NMHSs also help to improve protection of the natural environment, enable safe and efficient transportation, support positive health outcomes, and improve safety of life and property. These services are of enormous benefit for decision-makers including national and provincial governments, villages, district councils and communities, women, children, young boys and girls, people with disability and vulnerable groups, as well as addressing global, regional and national challenges.

VULNERABILITY AND RESILIENCE: Vulnerability results from characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.[3] Resilience is the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.[4] The Pacific is one of the most environmentally fragile regions on the planet, being prone to natural disasters and susceptible to the effects of climate variability and change. There is an intrinsic relationship between poverty and the vulnerability of communities to natural disasters and climate variability. Timely information on extreme weather events (through early warning systems and climate outlooks) can support resilience through reducing loss of life and property.

CLIMATE CHANGE: Climate variability, climate change and sea level rise can have significant impacts on food and fresh water security, human health and investment in infrastructure. Being in a region most affected by these events, the PICTs have a strong incentive to contribute climate data and information and to raise the expectation that NMHSs will provide services that help Pacific people to respond to the impacts of climate change.

FOOD SECURITY: Many PICTs' communities rely on subsistence agriculture and fishing as a means of livelihood. Subsistence farmers and fishers are very vulnerable to external shocks, including natural hazards such as severe weather events and the impacts of climate change. Their thin margins can mean one event plunges them into catastrophic losses. People living at a subsistence level are easily trapped in poverty because they cannot recover from such shocks as readily as those with greater economic resources. Sound

[3] There are many aspects of vulnerability, arising from various physical, social, economic, and environmental factors. Examples may include poor design and construction of buildings, inadequate protection of assets, lack of public information and awareness, limited official recognition of risks and preparedness measures, and disregard for wise environmental management. Vulnerability varies significantly within a community and over time. This definition identifies vulnerability as a characteristic of the element of interest (community, system or asset) which is independent of its exposure. However, in common use the word is often used more broadly to include the element's exposure (Source: UNISDR 2009).

[4] Resilience means the ability to "resile from" or "spring back from" a shock. The resilience of a community in respect to potential hazard events is determined by the degree to which the community has the necessary resources and is capable of organising itself both before and during times of need (Source: UNISDR 2009).

information on tropical cyclones, storm surges, extreme rainfall, floods and drought events can help reduce these impacts.

WATER SECURITY: Population growth, urbanisation, and agricultural use have increased demand for water throughout Pacific Island countries. Seasonal forecasts enable water managers to plan for shortages, and are particularly important for atoll countries relying on fresh water lenses vulnerable to saltwater intrusion from high tides and storm surges.

Long range rainfall forecasts help farmers to make informed decisions on crop types, planting times and harvesting, and communities to prepare for water scarcity. Timely predictions, for users with an understanding of the limits of forecasting, can reduce the risks that drought represents to health and livelihoods.

HUMAN HEALTH: Seasonal forecasting provides outlooks for climate-sensitive diseases linked to droughts and floods, dust in the atmosphere and sea temperatures. When these relationships are understood, the health care system can be prepared for water-borne and vector-borne disease outbreaks: stores can be ordered in time, communities alerted to remove standing water, and preparations made to protect old people and the very young from the stress of atypically high and low temperatures.

Timely warnings of extreme events can greatly reduce the impact of disasters. Warnings of slow-onset events such as high ocean temperatures allow for example authorities to warn their populations that ciguatera is likely to be prevalent in reef fish.

INVESTMENT IN INFRASTRUCTURE: NMHSs hold extensive historical data on the impacts of climate on their countries' landscapes, and they have access to geodetic data, technical advice and tailored analysis from their regional partners. They can advise planning authorities and communities on siting to reduce current and future risks to investment.

COMMUNITIES: Many people in the Pacific Islands region depend on their land for their livelihoods – for food production, employment, social status and power. Studies have shown that those with least resources are generally hardest hit by tropical cyclones, droughts, floods and other natural hazards. These events can severely disrupt communities and civil society generally.

Mitigating the risk associated with natural disasters and adaptation to climate change requires people to be aware of potential risks and changes in the climate and to understand the implications for their lives.

CIVIL SOCIETY ORGANISATIONS / NON-GOVERNMENT ORGANISATIONS: Relationships with civil society and NGOs will enable NMHSs to establish two-way flows of information with communities. NGOs can advise NMHSs on making information, particularly warnings, accessible and useful. NGOs can work with NMHSs to increase community awareness and understanding of the services available. NGOs/CSOs can also provide a channel through which impacts that people are experiencing on the ground in communities can be communicated to NMHSs and partners.

ECONOMIC DEVELOPMENT: Key economic sectors such as agriculture, forestry, fishing, water resources, energy, transportation and tourism depend on reliable weather, climate, water and ocean services to manage their activities effectively. They are also highly vulnerable to natural hazards and the impacts of climate change. High quality and reliable weather information, forecasts warnings, and seasonal to annual climate predictions are crucial for these sectors.

TRADE: The tourism sector is one of the largest and fastest growing global industries and a significant contributor to Pacific national and local economies. The tropical and sub-tropical Pacific climate is an important part of their attraction for tourists. Except in the cyclone season and during periods of low rainfall, conditions are generally favourable for tourists year-round. Long range forecasting of sea conditions for boating, fishing, diving and surfing have potential value for tourism authorities and operators. Forecasting high sea temperatures in coral reef zones enable communities to reduce other pressures on susceptible areas and mitigate coral bleaching episodes.

The weather and climate services NMHSs provide to aviation and maritime authorities are also essential to the maintenance of trade.

TRANSPORT: NMHSs play a well-recognised role in ensuring the safe and cost-effective operation of aviation and commercial shipping. Reliable weather services are important to coastal fishing and recreational boating, and to cruise ships. Their advice would benefit infrastructure planners taking local climate considerations and climate change impacts into account in making decisions on the siting of roads, bridges and port facilities.

2.3 Future focus

Global issues point to increasing demands being made on NMHSs over the next decade:

- Increasing population, changing expectations of communities and the push for economic development, free trade, sustainability and security will all place increasing demands on the NMHSs to provide effective weather and climate services.
- NMHSs recognise the need to integrate women, young boys and girls, youth, people living with disabilities and vulnerable groups into the mainstream of the provision of weather, climate, water and ocean services – including warnings, climate services and climate change information.
- The global focus on climate change, and the particular vulnerability of the PICTs, increases the importance of both sustaining long term climate observation and prediction of severe weather and climate events.
- Rapid changes in technology (e.g. the next generation of geostationary satellites, automatic weather stations, data processing and forecasting systems, databases, etc.) mean that continual investment is needed in installation and maintenance of infrastructure. Training is necessary for NMHSs to deliver data and services to meet national and community needs and international obligations.
- Weather, climate and other natural hazards cross international boundaries. NMHSs must comply with international obligations and standards to contribute to further enhancing global understanding of the earth's weather, climate and ocean systems.

- Use of social media is crucial for enhancing service delivery by NMHSs and promoting the essential work they do. From sending SMS weather and disaster notifications to outer islands to using channels such as Facebook and Twitter to provide real time information across the world, social media will allow NMHSs to connect with younger generations and to get inputs and feedback in real time.

This Strategy is designed to guide NMHSs and PICTs, the PMC, SPREP and other regional organisations, the World Meteorological Organization (WMO), donors and development partners on the type of priority activities to be implemented to meet the challenges set out here, and make the best possible contribution to the sustainable well-being of PICTs' communities.

3. Vision

The Pacific Meteorological Council (PMC) has adopted the following Vision Statement for this Strategy:

National Meteorological and Hydrological Services (NMHSs) of the Pacific Island Countries and Territories (PICTs) provide relevant weather, climate, water and ocean services to their people to make informed decisions for their safety, socio-economic well-being, prosperity and sustainable livelihoods.

4 Principles

The Principles set out below apply to the implementation of this Strategy, including the delivery of National and Regional Priority Actions.

i **Pacific focus within a global context:** the work of the National Meteorological and Hydrological Services (NMHSs) is primarily focused on effective delivery of weather, climate, water and ocean services for the benefit of Pacific peoples and communities. Their work is aligned with global frameworks and contributes to global understanding.

ii **Supporting empowerment of women, young boys and girls, people living with disabilities and vulnerable groups:** NMHSs are committed to increasing the engagement of women, young boys and girls, people living with disabilities and vulnerable groups in the development, communication and implementation of their services. They recognise the importance of women as sources of information, including traditional climate knowledge, and as users of information for the benefit of communities.

iii **Value for money:** NMHS services are essential to communities, villages, districts, nationally and regionally and are often delivered within limited resources. Where appropriate, services may be delivered by NMHSs with greater resources in support of those with less. In some cases, depending on available resources, it may be more efficient to deliver certain services and support at a regional level, subject to bilateral and multilateral agreements.

iv **Sharing information:** NMHSs are committed to sharing data in line with international obligations and national policies, in particular, the World Meteorological Organization (WMO) commitment to free and unrestricted exchange of meteorological and related data and products (WMO Resolutions 40 and 25).

v **Partnerships:** Partnerships among NMHSs, their governments and stakeholders, with public and private sectors, with non-government organisations / civil society organisations (NGOs/CSOs), with WMO and other UN agencies, with regional and sub-regional inter-governmental agencies, and with donors and technical partners are critical to the success of this Strategy. A coordinated approach enhances effectiveness in: increasing and using resources; targeting effort and managing potential overlap between agencies, organisations and development partners; and effective delivery of services to customers.

vi **Continuing Research:** Strong science underpins informed decision making. On-going research is needed to ensure that NMHSs improve their services and the advice they provide to their governments and communities.

vii **Stakeholder Engagement:** It is essential to engage continually with stakeholders and customers to ensure weather, climate, water and ocean products and services meet their decision-making needs and are tailored and accessible.

5. Objectives and Priorities

5.1 Objectives

The overall objective of this Strategy is to provide a strategic framework for building and strengthening the capacity of the NMHSs, either through direct national support or through coordinated, coherent, and sustained regional support.

With added resources and support NMHSs will be able to meet the growing demands from their governments and citizens for improved weather, climate, water and ocean services that:

- Contribute to the safety, security and wellbeing of their people and the environment.
- Contribute to achieving sustainable socio-economic development and
- Fulfil the Pacific Meteorological Council (PMC) member countries' commitments and obligations under relevant regional and international agreements and conventions.

Within this overall context, the specific objectives of this Strategy are to:

- Provide the guiding framework for national governments to support NMHSs through national efforts.
- Provide the guiding framework for addressing NMHSs' priorities through strengthened regional coordination.
- Guide NMHSs towards critical activities aimed at building or strengthening capacity and planning and implementing national projects.
- Guide donors and partners to focus on priority capacity building activities and transfer of technology identified by NMHSs and delivered either bilaterally or through regional approaches and
- Guide the PMC and Pacific Meteorological Desk Partnership (PMDP) with respect to sustaining priority actions at the regional level.

5.2 Priorities

This Strategy identifies five priority areas for action:

- **Improved weather services**, in particular aviation, marine and public weather services, and establishment of ocean weather services to support the safety and productivity of sectors.
- **Disaster risk reduction**, including implementing the Framework for Resilient Development in the Pacific 2017–2030 and contributing to the Sendai Framework for Disaster Reduction 2015–2030 to protect life and property of Pacific people as well as NMHSs contribution to climate change internationally, regionally and nationally.
- **Improved climate and hydrological services**, including implementing the Pacific

Roadmap for Strengthened Climate Services (PRSCS) and strengthened collaboration between hydrological and meteorological services.

- **Integrated observing and communication systems** to support data exchange and processing and the preparation of weather, climate, water and ocean information and services including warnings.
- **Coordinated support for NMHSs, PMC and the Pacific Meteorological Desk Partnership (PMDP)** to ensure NMHSs have resources and access to services to undertake their legislated requirements and service their stakeholders**.**

The actions associated with these priorities are set out in Parts 2 and 3 of this Strategy.

In line with the overall purpose and objective of this Strategy, the PMC has also assigned high priority to the cross-cutting themes of 'Capacity development' and 'Research'. This is expressed in the *Matrix of Pacific outcomes, high-level actions and sub-actions* (Part 3), where capacity development and research actions are embedded throughout the Pacific Key Outcomes.

6. Partnerships and Linkages

Partnerships are critical to the successful implementation of this Strategy. To be effective, the Strategy must be clearly linked with the work of other government departments and agencies, technical partners, civil society and NGOs, and the private sector, and work in concert with other global and regional frameworks. It will also be essential to partner with organisations that will help NMHSs keep pace with rapidly changing technology in the earth science industry.

The PMC acknowledges the importance of aligning actions under this Strategy with the WMO Strategic Plan and RA V Operating Plan (2016-2019), the Global Framework on Climate Services (GFCS), the Sendai Framework and other relevant regional and international initiatives. Figure 1 shows the linkages between PIMS and other key international and regional initiatives.

Figure 1: linkages of relevant global and regional Frameworks with PIMS

Figure 1 shows that although each of the related regional policies and strategies originated from separate global institutions, there are clear linkages at the regional level where the regional frameworks contribute to similar outcomes. The Strategy will help to highlight the strong role NMHSs must play in relation to all these regional frameworks. The principles integral to this Strategy will work to strengthen coordination among the key regional organisations that support the NMHSs and the PMC.

The outcomes in figure 1 are not exhaustive. They are examples of how the national responsibilities of NMHSs correspond with larger regional and international initiatives important to global issues of economic growth and sustainable development.

NMHSs' enactment of PIMS 2017–2026 contributes regionally to the Framework for Resilient Development in the Pacific, the WMO Strategic Plan and the RA V Operational Plan and the PMC Panels' Action Plans. The PIMS priority area of "Improved Climate Services" will be actioned through the implementation of the Pacific Roadmap for Strengthened Climate Services (PRSCS). PRSCS's principal objective is to prioritise key actions for implementing the GFCS in Pacific countries.

Internationally PIMS addresses several of the Sustainable Development Goals and helps Pacific governments to comply with their commitments under the Paris Agreement. The alignment of these international and regional plans against each PKO has been supplied (in Part 4 of PIMS) for the convenience of national representatives and to reduce the burden of national reporting against multiple plans.

5. Institutional Arrangements

A series of related institutions and structures support the implementation of this Strategy. Figure 2 shows the institutional arrangements.

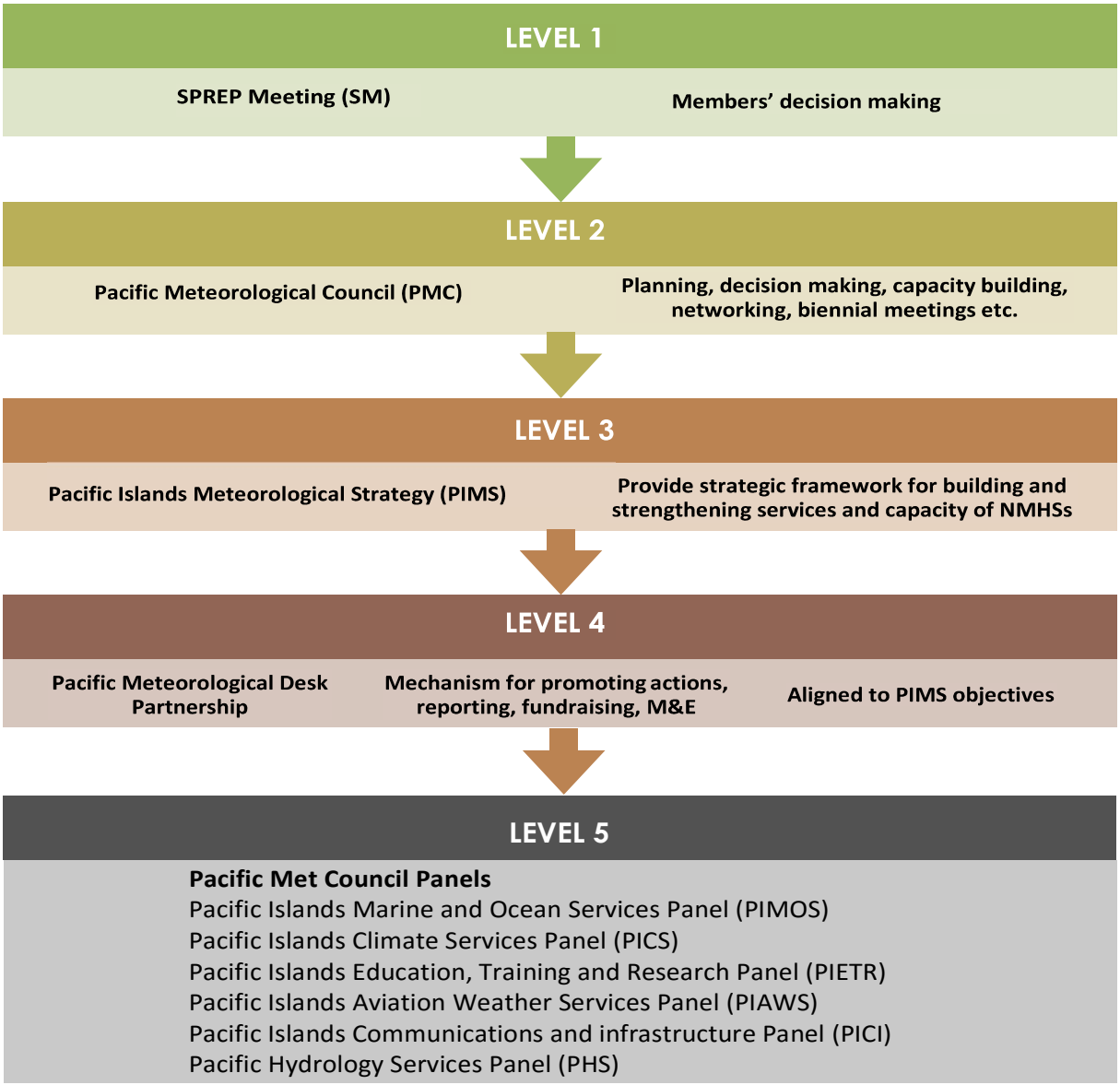


Figure 2: PIMS institutional arrangements

The Pacific Meteorological Council (PMC) is a specialised subsidiary body of SPREP, established in July 2011 to facilitate and coordinate the scientific and technical program and activities of Meteorological Services in the Pacific region. The PMC provides policy advice to the SPREP Meeting on the needs and priorities of its member countries and territories in relation to meteorology (weather, climate, ocean and water) and related fields.

The PMC's mandate and Terms of Reference (TOR) is determined by SPREP's member countries and territories at its Officials Meeting.

The PMC is supported by the Pacific Meteorological Desk Partnership (PMDP), which is based at and managed by SPREP. The PMDP serves as the Secretariat for the PMC and coordinates regional weather and climate services. The PMDP has two core components: the Apia-based Secretariat (SPREP and WMO Office for the South-West Pacific), and the development partners' component. The PMDP (through SPREP) informs the SPREP Officials Meeting on the operation of the PMC and on progress on the implementation of and achievement of the PIMS's PKOs.

The PMDP will continue to help the PMC and NMHSs to secure resources to implement this Strategy, address priorities and challenges, and report to the PMC. The PMC has a key role in this Strategy: it will take responsibility for ensuring coordination at the regional level and for advocating for the Strategy with development partners. The PMC will oversee initiatives taken to implement the Strategy at a regional level. It will ensure appropriate accountability for regional activities' funds, and promote activities that are aligned with the priorities and principles set out in this Strategy.

The PMC has established five panels to provide it with specialist advice as required. Each panel has an implementation plan aligned with the relevant PIMS PKO, which will have managed by its members.

The panels are as follows:

- Pacific Islands Marine and Ocean Services (PIMOS) Panel
- Pacific Islands Climate Services (PICS) Panel
- Pacific Islands Education, Training and Research (PIETR) Panel
- Pacific Islands Aviation Weather Services (PIAWS) Panel
- Pacific Islands Communications and Infrastructure (PICI) Panel.
- Pacific Hydrology Services (PHS) Panel

At the national level, NMHSs will work to achieve their own priorities and objectives in the context of National Meteorological Plans developed through their respective ministries or departments.

6. Monitoring and Evaluation

The PMC has primary responsibility for monitoring progress towards the outcomes set out in this Strategy. The PMC is supported by the PMDP Secretariat, which informs the PICTs and collaborating partners on progress towards achieving the objectives of this Strategy. The PMDP Secretariat will also report on the activities of the PMDP itself.

To enable the PMC to carry out its monitoring role, the PMDP Secretariat provides progress reports covering:

- A summary of the work and achievements of the PMDP during the previous six months: this report is to be circulated electronically to the PMC members.
- An annual summary of progress by regional partners in implementing the regional Priority Actions, to be presented at the biennial PMC meetings and to be circulated electronically in the non-meeting year to the PMC members.

The PMDP will coordinate with NHMSs so they can provide:

- A biennial report of progress towards achieving the Pacific Key Outcomes (PKOs) to be presented at the biennial PMC meetings.

The PMC Panels will be responsible for collating national and regional data in their respective areas of expertise and they will report on progress at the implementation plan level. They will ensure the PIMS 2017–2026 principles are followed, such as by ensuring data is disaggregated by gender and that collaborative relationships are being encouraged. Based on these reports and other information available to it, the PMC will provide feedback and guidance where necessary on implementation of the Strategy.

On behalf of PMC, the PMDP will provide an annual progress report to the SPREP meeting to give SPREP members an opportunity to provide feedback on progress towards implementing the outcomes and actions in this Strategy.

PKO 6 will be monitored through the Pacific Roadmap for Strengthened Climate Services and its corresponding implementation plan.

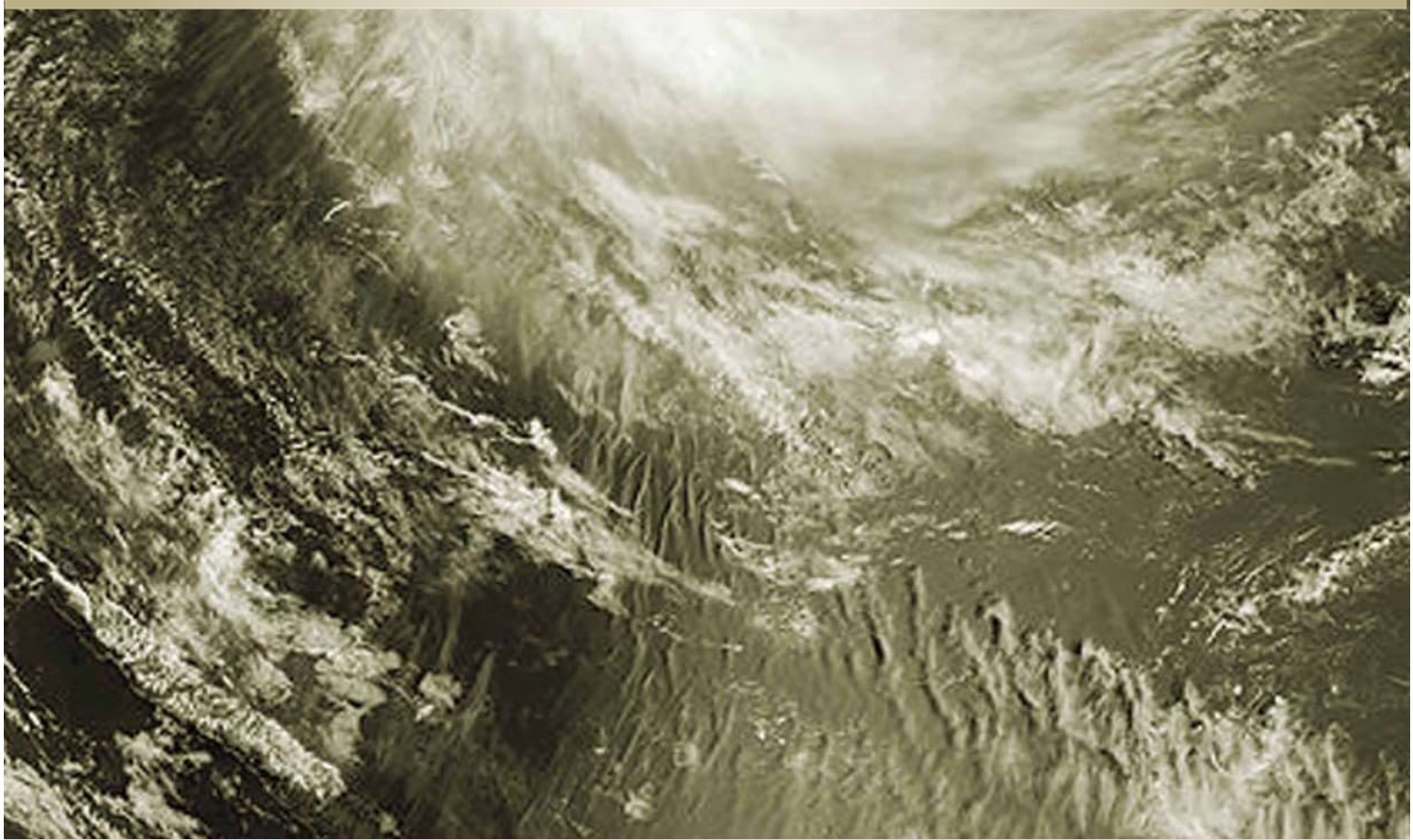
7. Independent Progress Review

The PMC may choose to conduct an independent progress review of the implementation of this Strategy in 2021 to ensure that it is effective and remains current and focused on the appropriate priority areas.

THE PACIFIC ISLANDS METEROLOGICAL STRATEGY

2017–2026

Part 2 – Pacific outcomes and high-level actions



PRIORITY 1: IMPROVED WEATHER SERVICES

PACIFIC KEY OUTCOME (PKO) 1:
Improved Aviation weather services

1. Observation and communication systems to support timely and accurate aviation services
2. Compliance with aviation QMS and ICAO requirements
3. Cost recovery implemented for aviation meteorological services
4. Fiji Meteorological Service provision of regional aviation services
5. Bi-lateral agreements for provision of regional aviation services.
6. Aviation services stakeholder engagement.
7. WMO Competency and capacity development for aviation weather services.

PACIFIC KEY OUTCOME (PKO) 2:
Improved marine weather services and establishment of ocean services

1. Observation, communication and forecasting systems to support timely and accurate marine weather and ocean services
2. Establish ocean services.
3. Establish QMS for marine weather services and SOLAS obligations.
4. Marine weather and ocean services stakeholder engagement.
5. WMO Competency and capacity development for marine weather and ocean services.
6. Marine meteorology and oceanographic research.

PACIFIC KEY OUTCOME (PKO) 3:
Improved public weather services

1. Communication and forecasting systems to support timely and accurate public weather services.
2. Improved utility and delivery of public weather services based on understanding of the specific requirements of users, including women, vulnerable groups and remote communities.
3. WMO competency and capacity development for public weather service forecasters and advisors.

PRIORITY 2: DISASTER RISK REDUCTION

PACIFIC KEY OUTCOME (PKO) 4:

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

1. NHMSs roles and responsibility under MHEWS.
2. Hazard detection, monitoring, data sharing and forecasting.
3. Risk assessment and mapping
4. Disseminating timely and authoritative warnings.
5. MHEWS education and awareness.
6. Competencies and capacity development for MHEWS.
7. MHEWS research and traditional knowledge.

PACIFIC KEY OUTCOME (PKO) 5:

NHMSs contribution to climate change activities

1. NMHSs engagement in national climate change plans, policies and forums.
2. NHMSs engagement in climate change research and scenario risk analyses.

PRIORITY 3: IMPROVED CLIMATE AND HYDROLOGICAL SERVICES

PACIFIC KEY OUTCOME (PKO) 6:

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

1. Implement Pacific Roadmap for Strengthened Climate Services (PRSCS) at the national and regional level.

PACIFIC KEY OUTCOME (PKO) 7:

Strengthen collaboration between meteorological and hydrological services to better manage water resources and reduce the impact of water related hazards

1. Identify and quantify the impacts of climate variability and climate change on water resources.

2. Identify and pursue joint opportunities for the improved collection, management and use of hydrometric and meteorological data to support priority data needs.

3. Identify and implement opportunities to strengthen the capacity of hydrological and meteorological services.

4. Improved hydrological infrastructure, communications and forecasting systems to support hydrological services.

5. Identify and pursue joint opportunities for the improved collection, management and use of hydrometric and meteorological data to support priority data needs.

PRIORITY 4: INTEGRATED OBSERVING AND COMMUNICATION SYSTEMS

PACIFIC KEY OUTCOME (PKO) 8:
Integrated observing and communication systems

1. Observing Systems including implementation of WMO Integrated Global Observing System (WIGOS).
2. Network Coverage (marine, terrestrial, space).
3. Observing system operation and maintenance.
4. Communications including implementation of WMO Information System (WIS).
5. Capacity development for observing and communications systems.

PRIORITY 5: COORDINATED SUPPORT FOR NMHSs and PMC

PACIFIC KEY OUTCOME (PKO) 9:
NMHSs institutional strengthening and capacity development

1. Public governance.
2. Communication.
3. Public financial management.
4. Project management.
5. Information technology.
6. Technical education, training and research.

PACIFIC KEY OUTCOME (PKO) 10:
Support to NHMSs is coordinated

1. Donor interaction with NHMSs and regional agencies.
2. Technical support agencies' interaction with NHMSs and regional agencies.

PACIFIC KEY OUTCOME (PKO) 11:
PMC is an efficient and effective body

1. Strategic partnerships and PMC participation.
2. Gender equality.
3. PMC funding support.
4. Safety of NMHS personnel.

THE PACIFIC ISLANDS METEROLOGICAL STRATEGY

2017–2026

Part 3 – Matrix of Pacific outcomes, high-level actions and sub-actions

PRIORITY 1: IMPROVED WEATHER SERVICES

PACIFIC KEY OUTCOME (PKO) 1:

Improved meteorological services for air navigation

National Priority Action	Regional Priority Action Regional Contributors - WMO, ICAO, PASO, PIAWS panel
Observation and communication systems to support timely and accurate aviation services	
1. Put in place and use appropriate equipment and communication systems including back-up systems for the provision of accurate METAR, TAF, Volcanic Ash Observations, Air-reps, and SPECI.	1. Utilise audit outcomes to identify and support capacity mapping and subsequent development of national aviation weather services.
2. Meteorological information from service providers (METAR, SPECI, reports) provided from the same set of instrumentation.	2. Provide guidance to countries on equipment requirements for METAR/SPECI versus threshold and other equipment.
3. Aviation observing equipment is calibrated, maintained and located correctly to support accurate aviation observations every six months for international aerodromes and annually for other aerodromes.	3. Support national development to correctly locate and maintain aviation observing equipment.
4. Met information from international aerodromes is disseminated via RODB and make available for domestic aerodromes.	4. Support national development to have back up communication systems to disseminate aviation observations.
Compliance with aviation QMS and ICAO requirements	
1. Conduct a gap analysis of aviation meteorological services against ICAO Annex 3 requirements.	1. Employ auditor to complete an Annex 3 audit including updating current registering differences to create a baseline and understand specific needs for each country.
2. Conduct a gap analysis of the quality management system against ISO 9001:2008/2015.	2. Employ QMS auditor to complete an audit of the quality management system against ISO 9001:2008/2015.
3. Develop and implement an ISO 9000 series quality management system (QMS)	3. Develop a regional plan to support capacity development and QMS for aviation services.
4. TAFs are verified for timeliness and accuracy.	4. Develop and support the regional implementation of a TAF verification system.
5. Improve coordination between Met Authority (i.e. CAA) and Met Service providers	5. Support access to the expertise of an aviation Meteorological Authority.
Cost recovery implemented for aviation meteorological services	

1. Create or amend meteorological legislation and policy to enable the provision of cost recovery services and align with ICAO-WMO requirements.	1. Assist national authorities to write/amend current meteorological (or other) legislation.
2. Develop and implement national policy on cost recovery for aviation meteorological services.	2. Contribute to regional guidance on cost recovery for aviation meteorological services.
Bi-lateral agreements for provision of regional aviation services	
1. Formalize bi-lateral agreements for the provision of aviation weather services, including: • Contingency measures in case of disruption to service • Funding mechanisms • Service level agreements	1. Coordinate and support development of formal bi-lateral agreements.
Aviation services stakeholder engagement	
1. Hold regular meetings to improve coordination and collaboration among the Met Service providers, Civil Aviation Authorities and other aviation stakeholders at national level.	1. Organise a regional forum for Directors of Met Service providers and CAAs, airline companies and operators, and other aviation stakeholders on provision of ICAO/WMO compliant aviation weather services.
WMO Competency and capacity development for aviation weather services	
1. Organise training of appropriate personnel to BIP-M and BIP-MT level of qualifications.	1. Utilising audit outcomes, organise regional training of Pacific Islands' aviation met service personnel on: • Basic weather observations for air navigation and preparation of METAR and SPECI reports. • Forecasting meteorological information for air navigation including TAF, SIGMET, etc.
2. Meet the AMO and AMF requirements in all existing and new aviation weather forecasters and observers.	2. Support aviation Met Service providers to ensure that all their existing and new weather aviation observers and forecasters meet WMO BIP-M and BIP-MT requirements.
3. Develop and implement competency assessment policy for aviation Met Service personnel.	3. Assist Members to implement competency assessment for AMO and AMF and co-ordinate support for on-going mentoring post certification.

PACIFIC KEY OUTCOME (PKO) 2:

Improved Marine weather services and establishment of ocean services

National Priority Action	Regional Priority Action Regional Contributors - WMO, ICAO, PASO, PIAWS panel
Observation, communication and forecasting systems to support timely and accurate marine weather and ocean services	
1. Have access to downscaled wave models, sea level and international met-ocean forecasts, data and products. 2. Install/ have access to real-time marine and ocean observations – in-situ and remote sensing including for lagoon areas.	1. Support the improvement of marine weather and ocean services through facilitating appropriate infrastructure, products and tools.
Establish ocean services	
1. Conduct stakeholder liaison to develop an ocean services plan. 2. Use tools currently available for servicing ocean stakeholders - i.e. Pacific Ocean Portal.	1. Support establishment of ocean services in NMHSs.
Establish QMS for marine weather services and SOLAS obligations	
1. Develop and apply NMHS QMS procedures for marine met-ocean services. 2. Review all services and standard operating procedures that affect mariners and align with WMO and the Global Maritime Distress and Safety System (SOLAS).	1. Coordinate the development of NMHS QMS for marine met-ocean services using JCOMM guidance. 2. Raise awareness of and improve understanding of obligations to provide marine safety information under SOLAS.
Marine weather and ocean services stakeholder engagement	
1. Develop marine weather and ocean service level agreements with marine agencies i.e. to support early warnings, shipping, search and rescue, inter-island boat operators etc. (Marine Safety Information)	1. Coordinate a regional marine weather and ocean services program to support linking NMHS with partners and users of these services. 2. Raise awareness of and improve understanding of obligations under UNCLOS and SOLAS agreements among NMHSs, governments and various stakeholders of the marine sectors.
WMO Competency and capacity development for marine weather and ocean services	
1. Improve capability of staff to undertake marine meteorology and oceanography programs, taking into account advice by WMO bodies such as JCOMM.	1. Coordinate regional capacity development in the fields of marine meteorology and oceanography.

2. Provide staff training towards marine meteorology certification.	2. Assist Members to implement competency assessment for marine meteorology and co-ordinate support for on-going mentoring post certification.
Marine meteorology and oceanographic research	
Undertake or contribute to studies related to priority sectors	Coordinate and support Marine Meteorology and oceanographic research, including Marine Scientific Research and Technology Transfer under the provision of UNCLOS

PACIFIC KEY OUTCOME (PKO) 3:

Improved Public weather services

National Priority Action	Regional Priority Action Regional Contributors - WMO, ICAO, PASO, PIAWS panel
Communication and forecasting systems to support timely and accurate public weather services	
1. Upgrade forecasting and verification software, in line with international advances	1. Coordinate support for improved public weather services by sharing information on new tools and technologies (e.g. integrated weather forecasting, visualization and downscaling).
Improved utility and delivery of public weather services based on understanding of the specific requirements of users, including women, vulnerable groups and remote communities.	
1. Engage with the full range of users of public weather services (including women, children, and vulnerable communities) 2. Tailor services and public education to user/community needs 3. Train NMHS staff in communication with media, communities and users 4. Develop effective public weather communication for radio, TV, SMS, social media etc.	1. Identify and develop ways to improve the presentation and usefulness of public weather services, including: • assessing current and future needs of the full range of users and the implications for NMHSs • develop public education and awareness activities • provide training in communication skills and media presentations • demonstrate different ways to deliver weather services to users including: radio, TV, SMS, social-media etc.
5. Promote opportunities to include weather and climate teaching topics into primary/secondary school level curricula.	2. Promote inclusion of weather and climate teaching topics into primary/secondary school level curricula across the region
6. Contribute weather information for cities to WWIS website http://worldweather.wmo.int	3. Promote the use of WWIS website http://worldweather.wmo.int
WMO Competency and capacity development for public weather service forecasters and advisors	
1. Use the WMO Competency Framework for public weather services forecasters and advisors in developing, maintaining and improving staff skills	1. Assist Members to implement competency assessment for public weather services and co-ordinate support for on-going mentoring post certification. 2. Organise regional training for the NMHSs on volcanic ash and eruptions.
2. Advocate for the need for scholarships for Meteorology studies at undergraduate and postgraduate level along with relevant technical training.	3. Work with donors to ensure scholarship allocation toward meteorology undergraduate and postgraduate courses, and relevant technical training.

3. Work with local universities to give NHMS staff access to courses that enhance basic mathematics and physics skills.	4. Assess opportunities for development of meteorology at undergraduate level at Pacific tertiary institutions (USP, FNU, etc.) and encourage cross institutional cooperation and use of remote communications and distance learning technologies to achieve common accreditation for meteorology related course work.

PRIORITY 2: DISASTER RISK REDUCTION

PACIFIC KEY OUTCOME (PKO) 4:

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

National Priority Action	Regional Priority Action Regional Contributors - WMO, ICAO, PASO, PIAWS panel
NHMS roles and responsibility and institutional arrangements under MHEWS	
1. Assess current status, needs and gaps and establish and/or strengthen MHEWS and ensure that it is integrated into government policies, decision-making processes and emergency management systems at both national and community levels	1. Assist NMHSs to establish and improve MHEWS, and enhance integration across government agencies and communities
2. Develop a formal agreement between relevant non-government stakeholders and national disaster management authority in supporting disaster preparedness and response.	2. Coordinate capacity assessments of national and regional MHEWS
	3. Help develop operating procedures and back-up systems for MHEWS
	4. Provide draft / model agreements and assist NMHSs to improve MHEWS, and integrate operating procedures across government agencies and communities
	5. Support the formation of bilateral agreements between relevant NMHSs and Fiji Meteorological Service
Hazard detection, monitoring, data sharing and forecasting	
1. Formalize agreements with NMHSs for the exchange of meteorological information and data	1. Strengthen regional multi-hazard early warning systems for sudden hazards
2. Risk analysis to determine the most appropriate actions	2. Share new science and technology to inform risk management and hazard/disaster preparedness
3. Install and/or upgrade and integrate technological processes, tools and techniques to improve capability of national MHEWS	
Risk assessment and mapping	

1. Conduct statistical and other analyses on relevant data to produce risk information on the magnitudes, spatial distribution and frequency of recurrence of hazardous events 2. Support NHMS to work with NDMOs, sectors and humanitarian organisations to identify danger levels for selected hazards and reliable forecast triggers that would enable targeted early preparedness actions to be taken by communities and humanitarian organisations, including enabling allocation of resources to support preparedness actions e.g. Forecast-based Action or Forecast-based Financing 3. Supply the results of such analyses to disaster risk management, land use planning, flood control, insurance and other relevant agencies 4. Identify high risk areas or "hot spots" vulnerable to disaster to inform the best allocation of resources	1. Support NMHSs to undertake national risk analyses
Disseminating timely and authoritative warnings	
1. Formalise service agreement between NDMO, NMSs and Telecommunication to ensure that free communications such as SMS are enabled 2. Ensure early warning language and messages are accessible to managers and decision makers, civil society and communities 3. Ensure effective warning messages that are: • clear, consistent and include risk information • designed with consideration for linking threat levels to emergency preparedness and response actions (e.g., using colours, flags, etc.) and understood by authorities and the population • issued from a single (or unified), recognised and authoritative source • contain impact information; user feedback	1. Coordinate with telecommunication regulatory authorities to develop policies/legislation to improve the dissemination of warnings for natural disasters 2. Strengthen or develop national joint programs between NMHSs and NDMOs on public awareness and education on MHEWS that is inclusive of women, girls, youth, children, disabled people, and vulnerable communities 3. Help develop best practice information on impacts and preparedness measures that are included in warning messages
MHEWS education and awareness	
1. Support relevant programs to promote community awareness and preparedness	

Competencies and capacity development for MHEWS	
1. Undertake competencies and training in forecasting for floods, tropical cyclones, coastal inundation (i.e. king tides, extreme waves, storm surges and tsunamis etc.)	1. Provide or support training for NMHS on forecasting of hazards
	2. Support engagement between NMHSs and civil protection authorities on understanding forecast limitations and impacts
MHEWS research and traditional knowledge	
1. Ensure the use of traditional, indigenous and local knowledge and practices to complement scientific knowledge in disaster risk reduction activities.	1. Support the use of traditional knowledge to complement scientific knowledge
2. Preserving traditional knowledge that strengthen and optimise response capacity	2. Promote investments in innovation and technology development in long-term, multi-hazard and solution-driven research in disaster risk management

PACIFIC KEY OUTCOME (PKO) 5:

NHMS contribution to climate change activities

National Priority Action	Regional Priority Action Regional Contributors - WMO, ICAO, PASO, PIAWS panel
NMHSs engage in national climate change plans, policies and forums	
1. Negotiate inclusion in national climate change forum	1. Assist NMHSs in demonstrating the value of their contribution to climate change activities
2. Contribute and analyse national climate and sectoral data for climate risk management and adaptation planning	2. Consider expanding PICOFs to include long-term climate change updates and planning implications.
3. Contribute to national understanding of climate change impacts and the application of climate change services.	3. More visible use of climate change information in decision making processes building partnerships making links
4. Raise national government awareness of NMHS expertise in climate change.	
5. Contribute to and participate in climate change and disaster risk reduction forums i.e. COP, FRDP, DRR platform etc.	4. Encourage and facilitate NMHS participation in climate change and disaster risk reduction forums.
	5. Support and mentor NMHSs attend IPCC meetings and reporting from the Pacific
	6. Regional training for NMHSs on Climate Change Negotiations
NHMS engagement in climate change research and scenario risk analyses	
1. Support studies linking traditional knowledge and science to improve communication of climate change information to communities.	
2. Contribute and participate in research on climate change scenarios and risk analyses	1. Identify research priorities based on national, regional, global frameworks and user requirements to build long-term research capacity in NMHSs
	2. Collation, higher level quality control and homogenisation of climate change datasets
	3. Updating Climate change monitoring indices and climate change projections in the Pacific Islands to build long-term research capacity in NMHSs
	4. Regional assessment of climate change and continuation to build long-term research capacity in NMHSs

3. Utilise existing and tested methodologies for supporting NMHSs publish in the formal literature to build long-term research capacity in NMHSs	
4. Participate in collaborative climate change science research to support sectoral climate vulnerability and risk assessments	5. Providing mentoring, methodology and data analysis at the national level to build long-term research capacity in NMHSs 6. Develop accredited certificate level training in climate change science and services for national government sectors

PRIORITY 3: IMPROVED CLIMATE AND HYDROLOGICAL SERVICES

PACIFIC KEY OUTCOME (PKO) 6:

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

National Priority Action	Regional Priority Action Regional Contributors - WMO, SPREP, BOM, NIWA, NOAA, APCC, JICA, Meteo-France, PICS Panel
Implement Pacific Roadmap for Strengthened Climate Services (PRSCS) at the national and regional level	
1. In line with PRSCS; • Develop and implement national strategies for improving delivery of climate services. • NMHS to service Pacific priority sectors • NMHSs to improve user interactions	1. In line with PRSCS, implement regional actions such as; • Support of the Pacific Islands Climate Outlook Forum (PICOF) • Implementation of a Pacific Regional Climate Centre (RCC) • Establishment of a Regional Training Centre (RTC) 2. In line with PRSCS, implement regional actions such as; • Support of national climate outlook forums (NCOF)

PACIFIC KEY OUTCOME (PKO) 7:

Strengthen collaboration between meteorological and hydrological services to better manage water resources and reduce the impact of water related hazards

National Priority Action	Regional Priority Action Regional Contributors - WMO, ICAO, PASO, PIAWS panel
Identify and quantify the impacts of climate variability and climate change on water resources	
1. NHMSs downscale regional climate models for national water resources use.	1. Increase and improve the practical application of climate models to water resource management needs. 2, Improve the collection and maintenance of long term hydrometric datasets in order to better understand the response of water resources to climate variability and climate change.
Identify and pursue joint opportunities for the improved collection, management and use of hydrometric and meteorological data to support priority data needs	
1. Build a national hydrological database similar to the climate database. 2. NMHSs pursue certification in hydrological QMS.	1. Identify and share approaches to hydrometric data successfully implemented at the national level, in order to support replication and up scaling. 2. Support the joint application of hydrometric and meteorological data to support water resource management decision making at the national and community levels.
Identify and implement opportunities to strengthen the capacity of hydrological and meteorological services.	
Utilise the WMO RA V hydrological training framework and request other donors to support further training for hydrological staff.	Support the design and delivery of joint training activities at the national and regional levels, targeting key hydrological and meteorological capacity needs.
Improved hydrological infrastructure, communications and forecasting systems to support hydrological services	
Ensure standardisation of hydrological and meteorological infrastructure and compatibility of communications for efficiencies and data exchange. Improve flood forecasting by investing in research and studies on hydrological modelling	Encourage standardisation of hydrological and meteorological infrastructure and communications

Flood and drought forecasting/prediction is developed in cooperation with Hydrological services for priority catchments and water sources.	
Ensure appropriate software is available to undertake flood forecasting and verification.	
Identify and pursue joint opportunities for the improved collection, management and use of hydrometric and meteorological data to support priority data needs	
Partnership between technical agencies and communities in the collection, management and use of hydrometric data i.e. Involving NHMSs in sector specific consultations, communities acting as unofficial observers etc.	

PRIORITY 4: INTEGRATED OBSERVING AND COMMUNICATION SYSTEMS

PACIFIC KEY OUTCOME (PKO) 8:

Integrated observing and communication systems

National Priority Action	Regional Priority Action Regional Contributors - WMO, ICAO, PASO, PIAWS panel
Observing Systems including implementation of WMO Integrated Global Observing System (WIGOS)	
1. Develop plan for implementation of WIGOS at the national level	1. Coordinate the evaluation of existing national and regional plans and activities aligned to WIGOS.
2. Establish systems to ensure data quality assurance (QMS training, QMS in observations and data management system)	2. Coordinate the development and implementation of a regional WIGOS plan.
	3. Promote Reference Stations in the Pacific to support data quality
Network Coverage (marine, terrestrial, space)	
1. Sustain and extend observations to achieve the required coverage and quality for all NHMS services	1. Coordinate assistance to maintain and extend coverage and quality of observation networks
2. Improve quality of data and increase density of spatial data coverage on main and outer islands by: • maintaining current stations • resurrecting quiet stations (RBSN and RBCN including GSN and GUAN) and non-functional observing stations • expanding the number of stations • establishing / increasing solar and wind observations.	2. Support the improvement of quality of data and increased density of spatial data coverage in the region
3. Utilise data from new generation geostationary meteorological satellites i.e. Himiwari8	3. Assist NMHS' to receive data from Himiwari8 etc.
4. Advocate for the further development of ocean observing systems and improve the availability of ocean data	4. Document national and regional satellite requirements and priorities using CBS/Space program guidelines 5. Explore expansion of the AMDAR programme to include regional, national, and budget air carriers to increase coverage of aircraft observations in the Pacific Islands region

	6. Coordinate the assessment of existing and future needs for expansion of atmospheric chemistry monitoring stations networks in the Pacific Islands region
Observing System Operation and Maintenance	
1. Ensure that observing stations comply with WMO standards (i.e. AWSs) 2. Provide profiles of national observing systems for evaluation against WIGOS standards 3. Assess the disaster resilience of national observing networks	1. Using the WIGOS Observing systems capability analysis and review tool (OSCAR), support the rolling requirements review process by stocktaking and evaluation of existing national and regional observation networks, including survey of existing synoptic stations and future priorities
Communications including implementation of WMO Information system (WIS)	
1. Promote the WMO Information System (WIS) concept to national stakeholders. Development and implement WIS implementation plans	1. Promote and coordinate a regional development and implementation plan for WIS
2. Develop a national data policy and a plan for data rescue (including archive hard copies) and preservation	2. Coordinate integration of WIS and WIGOS
3. Complete digitization of paper records of data in Pacific Islands using a data management system (e.g. CliDE)	3. Install data processing and forecasting systems which are compliant with WIS
4. Automate ingestion of AWS data into a data management system (e.g. CliDE)	4. Coordinate the development of a regional data policy to assist NMHS. Including a plan for data rescue and preservation
5. Coordinate with national communication administration on regulatory issues for meteorological related communications	5. Support and provide training in the management, maintenance and use of a data management system (e.g. CliDE) for NMHS
6. Ensure that observing stations compile and transmit meteorological data / messages according to existing WMO regulations	6. Support NMHS to access national data located in international archives
7. Ensure metadata is maintained, updated and provided to WMO	7. Develop a regional policy for exchange of climate data between the NMHSs and researchers or research institutions
8. Make data and information from Global Atmospheric Watch (GAW) stations available to Pacific Islands NMHSs	8. Support access to information, data and communication networks, including: • Develop a user plan in cooperation with relevant satellite operators to ensure smooth transition to the use of new and advanced satellite systems • Coordinate the development of a strategy to mitigate the termination of MT SAT direct broadcasting. • Coordinate communication between Pacific Islands NMHSs and RICs/RCCs

9. Make available observations of GHG, aerosol measurements, reactive gases (e.g. carbon monoxide, sulphur dioxide, nitrogen oxide and volatile organic compounds) and UV measurements to NMHS	9. Enhance GAW activity and organise GAW data to also contribute to GFCS
	10. Support GAW activities including technical exchange and cooperation on atmospheric composition observation
	11. Support training and capacity building activities related to atmospheric chemistry
	12. Coordinate the reporting on these atmospheric gases and agents
Capacity development for observing and communication systems	
1. Train NMHS staff to comply with competencies for engineering and technical support as required by international standards.	1. Provide/support training in WIS and other communication systems, including maintenance of communications and observing infrastructure (i.e. RANET/Chatty Beetle, AWSs, Tide Gauges)
	2. Facilitate the creation of a regional instrument calibration centre and a sustainable mechanism (including funding) for maintenance and calibration of observation networks around the Pacific
	3. Share lessons learnt and best practices in operation of observing equipment (i.e. AWSs)

PRIORITY 5: COORDINATED SUPPORT FOR NMHSs and PMC

PACIFIC KEY OUTCOME (PKO) 9:

NMHS institutional strengthening and capacity development

National Priority Action	Regional Priority Action Regional Contributors - WMO, SPREP, USP, PIETR Panel
Public Governance	
1. Develop or revise and update a meteorological act	1. Support the development of national meteorological acts for NHMSs
2. Develop and implement operational plans with appropriate legislative mandate or formal agreements	2. Support the development of agreements between NMHSs and their partners for provision or exchange of services
3. Develop NMHS Human Resource Development plans, including succession planning	
4. Undertake management and negotiation training	*3.* Source training for NMHS senior management on management and governance
5. Use PIMS and PRSCS in national planning and budgeting discussions	
Communication	
1. Apply best practice to the communication of NMHS information products	1. Share best practice on the communication of NMHS information products
2. Develop in-house media liaison/ communication expertise	2. Support NMHS in-house media liaison advisors
3. Regularly check with users and clients that the timing and content of information products is appropriate	
4. Develop capacity to present project and program outcomes accessibly for national and international decision makers	
Public financial management	
1. Undertake public financial management training	1. Source public financial management training for NMHSs senior management

2. Develop capacity of NMHS staff in financial management	2. Source financial management training for NMHS staff
3. Investigate cost-recovery options with national government	3. Source advice on cost-recovery methods
4. Ensure adequate funding to provide legislated/mandated activities	4. Support the provision of funding to NHMSs for mandated activities
Project management	
1. Develop the capacity of NMHSs in concept and proposal development, project management, monitoring and evaluation	1. Contribute to NMHSs' building of their project management capacity
2. Develop and implement national level project proposals and contribute to regional project design and implementation	2. Provide training on the development of project proposals for donor funding 3. Support the development and implementation of the Cost-Benefit Framework for Pacific Climate Services and incorporate outputs in regional evaluation reporting including Bi-ennial PIMS reports
3. Develop business cases and identify data resources to justify support from national government and regional and international donors	4. Develop case studies to support regional and national activity proposals from: • National governments • Technical partners • Donors • International funds (e.g. GEF)
Information Technology	
1. Source and develop IT expertise (contract or staff member)	1. Provide/support IT training for NHMS staff
2. Identify local and regional help desk sources for IT resources	2. Provide/support IT help desk functions 3. Develop integrated on-line tools and portals for disseminating climate change science and services, data, information and associated guidance materials 4. Develop the Pacific Climate Change Portal to incorporate on-line tools for building capacity in climate change services and for supporting the development of a Pacific climate change science and services 'community of practice' to facilitate engagement between scientists, NMHS and sectors

Technical education, training and research	
1. Encourage all staff to extend their technical skills and expertise	1. Compile a registry of all training opportunities available to the NMHSs in the region and their areas of focus
2. Formalize partnerships for training activities e.g. MOUs between NMHSs and training institutions	2. Establish a regional WMO training centre
3. Negotiate research agreements with scientists who request data and information that ensure authorship with local staff/scientists is shared.	3. Identify research priority areas and promote the application of science and technology to decision-making
4. Encourage staff to establish collaboration with regional and international academic institutions to further carry out research and to seek opportunities for fellowships/scholarship awards to carry out nationally-based research.	4. Increase the number of WMO fellowships for Pacific NMHS staff 5. Work with partners to convene a research writeshop for NMHSs to develop scientific research papers

PACIFIC KEY OUTCOME (PKO) 10:

Support to NMHSs is coordinated

National Priority Action	Regional Priority Action Regional Contributors - WMO, UNDP, GEF, BOM, NIWA, JICA, GCF, SPREP, SPC, NOAA, EU, CSIRO
Donor interaction with NHMSs and regional agencies	
1. Contribute national data to existing regional databases of active nationally and externally funded projects for NHMSs, to address development priorities and reduce duplication.	1. Contribute to existing databases of active regional and bilateral development programs and projects; use the database in the development of new regional projects.
2. Establish/maintain national level partnerships with donors, private sector and other relevant agencies.	2. Maintain and build partnerships with a range of agencies including international funding mechanisms such as the GEF, GCF or multilateral funds and their implementing agencies.
3. Ensure donors are aware of national priorities when designing and implementing projects.	3. Advocate for Pacific Islands NMHSs needs at high level donor coordination discussions.
4. Use PIMS and PRSCS to improve the effectiveness of bilateral assistance and to justify increased national and donor funding priority for weather, climate, hydrological and ocean services.	4. Promote coordination of development partners' and donor agencies' support for weather, climate and ocean services in the Pacific Islands region.
Technical support agencies' interaction with NHMSs and regional agencies	
1. Establish/maintain national level partnerships with technical support agencies, particularly in relation to climate change, disaster management, weather, climate and oceans.	1. Strengthen current partnerships and establish new partnerships with technical support agencies in the development and implementation of regional projects for weather, ocean and climate services.
2. Ensure technical projects include a budget for training, spares, on-going maintenance and calibration.	

PACIFIC KEY OUTCOME (PKO) 11:

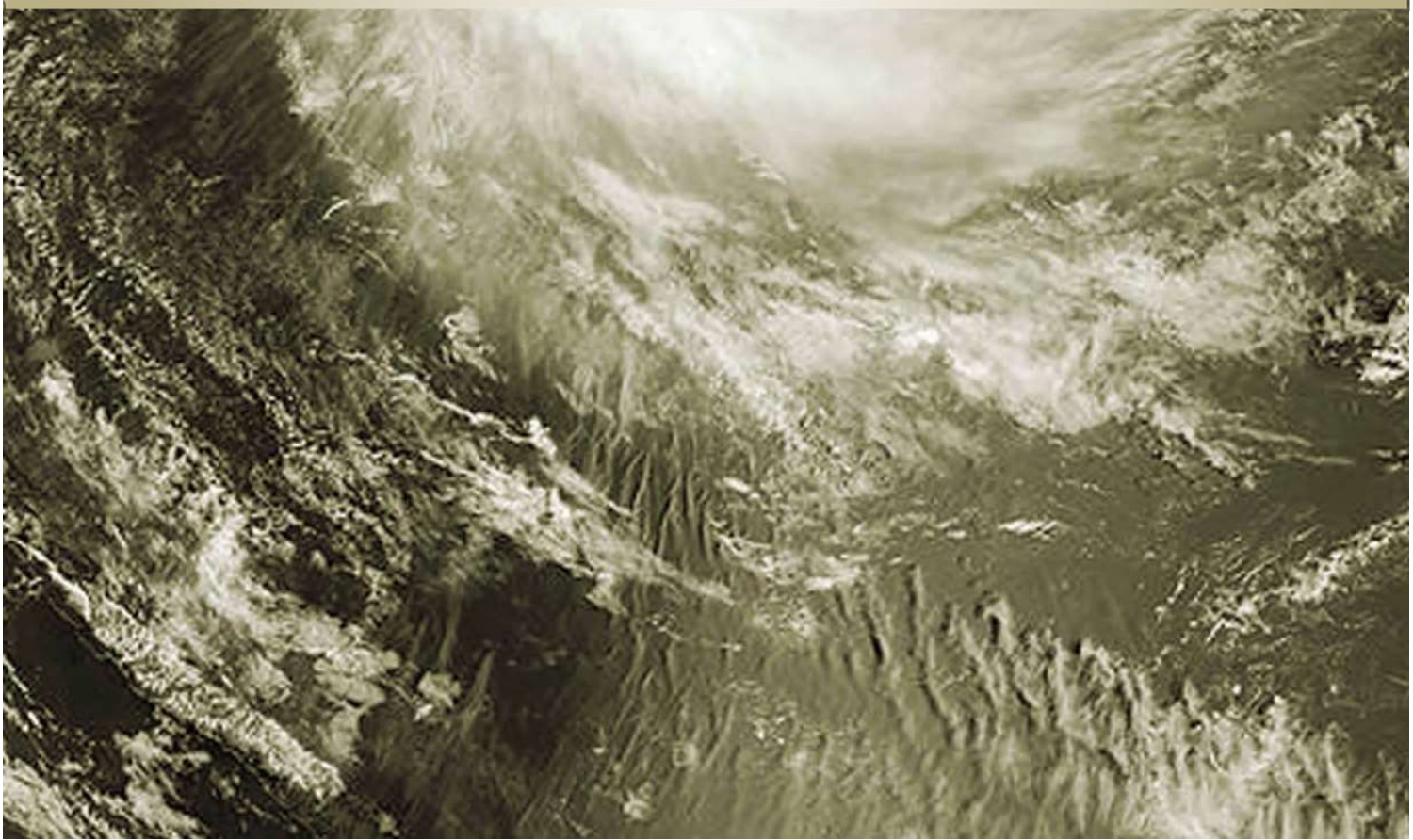
PMC is an efficient and effective body

National Priority Action	Regional Priority Action Regional Contributors - WMO, SPREP, USP, PIETR Panel
Strategic partnerships and PMC participation	
1. Participate actively in the PMC and: • Articulate national mandates and requirements • Provide appropriate information and support for the PMC • Provide strategic guidance to PMC panels and overview of panel action plans • Coordinate on areas of commonality such as regional disaster risks reduction and climate change	1. Organise and provide secretariat for the PMC meetings and support for PMC panels
2. Promote the work of RA V Working Groups, PMC and PMC panels at the national levels	2. Promote consistency between the PMC and projects and activities of WMO programmes and institutions
3. Directors/PRs participate in high level national / regional / international meetings and advocate effectively for Pacific Island's NMHSs and improved services in the region.	3. Coordinate NMHSs' participation and advocacy in relevant regional and international forums including: • SPREP/regional meetings • Thematic meetings on relevant issues such as climate change, tourism, agriculture etc.
Gender Equality	
1. Adopt/strengthen policies for the promotion of gender equality	1. Ensure equity of participation of Pacific NMHSs taking into full consideration gender principles
PMC funding support	
1. Seek long-term funding to support the work of PMC and PMC Panels	1. Support long-term funding for PMC and PMC Panels
Safety of NMHS personnel	
1. Ensure NMHS staff are working within national Occupational health and safety regulations	1. Support training of NMHS staff on occupational health and safety regulations

THE PACIFIC ISLANDS METEROLOGICAL STRATEGY

2017–2026

Part 4 – Mapping PIMS to international and regional frameworks



This section correlates the PIMS's PKOs with matching sections of the United Nations' Sustainable Development Goals, FRDP goals, the Sendai Framework and WMO's operating Plan. Pacific governments are required to report regularly against these agreements. This matrix enable NMHSs to contribute to their governments' reports by reporting progress against these goals, drawing on their knowledge of their own progress against the PKOs. These reports will then also serve as national reporting to the PMC every two years, without requiring additional work.

Framework	***Goal / Priority***	***Action***	***Relevant Sub-actions***	***IMPROVED WEATHER SERVICES***					
				PKO 1: Improved aviation weather services					
				1. Observation, communication and forecasting systems to support timely and accurate aviation services	***2. Compliance with aviation QMS***	***3. Cost recovery implemented for aviation meteorological services***	***4. Fiji Meteorological Service provision of regional aviation services***	***5. Aviation services stakeholder engagement***	***6. WMO Competency and capacity development for aviation weather services***
WMO Op Plan 2016-2019	RA V	1.1.1	**a,b,c,d**	a	a,b,d	a,c	a	a	
WMO Op Plan 2016-2019	RA V	6.3.2	**6.3.2**						6.3.2
PIAWS Action Plan		Priority Action	**1,2,3.4,5,6,7,8**		1,8	7	6	5	2,3,4
PIETR Action Plan		Priority Action	**1**						1
Framework	**Goal/Priority**	**Action**	***Relevant Sub-actions***	***PKO 2: Improved marine met-ocean services***					
				1. Observation and forecasting systems to support timely and accurate marine and ocean services	***2. Establish ocean services***	***2. Establish QMS for marine weather services and SOLAS obligations***	***3. Marine and ocean services stakeholder engagement***	***4. WMO Competency and capacity development for marine weather and ocean services***	***5. Marine meteorology and oceanographic research***
FRDP	2	National	**f,i**		f,i				
FRDP	2	Regional	**i**		i				
Sendai	3	National	**g**	g					
SDGs	9		**9.5**						9.5
SDGs	14		**14.2,14.3,14.4,14.7**	14.2,14.3,14.7	14.2,14.3,14.7				14.4
WMO Op Plan 2016-2019	RA V	1.1.2	**1.1.2a, 1.1.2b**	1.1.2a, 1.1.2b			1.1.2b		
PIMOS Action Plan		Priority Action	**2**			2			
Framework	**Goal/Priority**	**Action**	***Relevant Sub-actions***	***PKO 3: Improved public weather services***					
				1. Forecasting system to support timely and accurate public weather services	***2. Improved utility and delivery of public weather services***	***3. WMO Competency and capacity development for public weather service forecasters and advisors***			
SDGs	9		**9.5**						
WMO Op Plan 2016-2019	RA V	7.2.3	**7.23**		7.2.3	7.2.3			
WMO Op Plan 2016-2019	RA V	6.3.2	**6.3.2**			6.3.2			
PIETR Action Plan		Priority Action	**5**		5				

Framework	Goal/Priority	Action	Relevant Sub-actions	DISASTER RISK REDUCTION					
				PKO 4 : Strengthened NHMS capacity to implement Multi-Hazard Early Warning Systems (MHEWS) for tropical cyclones, coastal inundation and tsunamis					
				1. NHMS roles and responsibility under MHEWS	*2. Hazard detection, monitoring and forecasting;*	*3. Risk analyses*	*4. Disseminating timely and "authoritative" warnings*	*5. WMO Competencies and capacity development for MHEWS*	*6. MHEWS research and traditional knowledge*
FRDP	1	National	**h,j,o,q,s**		h,j,o	h	j		q,s
FRDP	1	Regional	**q**		q	q			
FRDP	2	National	**a**			a			
FRDP	3	National	**b,c,f,h,l,o.q**	h,q	c, h,q	b, o	c,l,q	f	h,o
FRDP	3	Regional	**b,i**	b,i	b				
Sendai	1	National	**a,b,c,e,l,k**		a	a,b,c,e	a	j	b,c,l,k
Sendai	1	Regional	**a,b,d,g,i**		a	a,b	a		a,d,g,i
Sendai	2	National	**j**					j	
Sendai	2	Regional	**f**		f	f			
Sendai	3	National	**g,p**		g	g	p		
Sendai	3	Regional	**a**	a					
Sendai	4	National	**b,f,l**		b	l	b	f	
SDGs	1		**1.5**			1.5	1.5		
SDGs	2		**2.4**				2.4		
SDGs	9		**9.5**						9.5
SDGs	11		**11.5**				11.5		
SDGs	13		**13.1**				13.1		
WMO Op Plan 2016-2019	RA V	2.2.1	**2.2.1a, 2.2.1b**		2.2.1a, 2.2.1b				
WMO Op Plan 2016-2019	RA V	6.3.2	**6.3.2**		6.3.2			6.3.2	
WMO Op Plan 2016-2019	RA V	2.1.1	**2.1.1**					2.1.1	
WMO Op Plan 2016-2019	RA V	6.1.2	**6.1.2**				6.1.2		
WMO Op Plan 2016-2019	RA V	6.3.1	**6.3.1a, 6.3.1b**					6.3.1a, 6.3.1b	
PIETR Action Plan		Priority Action	**3**					3	
PIMOS Action Plan		Priority Action	**2**		2		2		

Framework	Goal/Priority	Action	Relevant Sub-actions	PKO 5: NHMS Contribution to climate change activities	
				1. NMHSs engage in the development of national CC plans, policies and fora.	*2. NHMS engagement in climate change research and risk analyses.*
FRDP	1	National	**q**		q
FRDP	1	Regional	**q,r,s**	r	q,s
FRDP	3	National	**a**	a	
FRDP	3	Regional	**i**	i	
Sendai	1	National	**k**		k
Sendai	1	Regional	**b,g,i**	g	b,g,i

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Sendai	2	National	**g**	g	
Sendai	2	Regional	**c**	c	
Sendai	3	National	**g**		g
Sendai	3	Regional	**a**	a	
Sendai	4	National	**a**		a
Sendai	4	Regional	**b**	b	
SDGs	1		**1.5**		1.5
SDGs	9		**9.5**		9.5
SDGs	11		**11.b**	11.b	
SDGs	12		**12.8**	12.8	
SDGs	13		**13.1,13.2,13.3**	13.1,13.2,13.3	

Framework	*Goal/Priority*	*Action*	*Relevant Sub-actions*	***IMPROVED CLIMATE SERVICES***				
				PKO 6: Improved climate information and prediction services (including implementation of the Pacific climate services roadmap)				
				1. Pacific Roadmap for Strengthened Climate Services (PRSCS) Implementation	***2. Effective and efficient climate user interface platforms***	***3. Establishment of Regional Climate Centre***	***4. WMO Competency and capacity development for climate services provision***	***5. Climate research and traditional knowledge***
FRDP	1	National	**g,h,q,r**	h	g,q,r			r
FRDP	1	Regional	**Sub-action**					s
FRDP	2	National	**e**	e				
FRDP	2	Regional	**f**					f
Sendai	1	National	**a,i**	a				i
Sendai	4	National	**f**				f	
Sendai	4	Regional	**c**	c				
SDGs	1		**1.5**	1.5				
SDGs	2		**2.1, 2.3,2.4,2.a**	2.1, 2.3,2.4				2.a
SDGs	3		**3.3,3.d**	3.3,3.d				
SDGs	6		**6.4,6.5,6.a**	6.4,6.5,6.a				
SDGs	7		**7.2**	7.2				
SDGs	9		**9.5**					9.5
SDGs	14		**14.3,14.4,14.7**	14.3,14.4,14.7				
SDGs	17		**17.11**	17.11				
WMO Op Plan 2016-2019	RA V	1.2.1	**1.2.1**	1.2.1	1.2.1			
WMO Op Plan 2016-2019	RA V	1.2.2	**1.2.2**	1.2.2				
WMO Op Plan 2016-2019	RA V	3.2.1	**3.2.1**	3.2.1		3.2.1		
WMO Op Plan 2016-2019	RA V	5.4.1	**2.3.1,5.4.1**	2.3.1				5.4.1
WMO Op Plan 2016-2019	RA V	6.3.1	**6.3.1**				6.3.1	
WMO Op Plan 2016-2019	RA V	6.3.2	**6.3.2**				6.3.2	
WMO Op Plan 2016-2019	RA V	2.2.1	**2.2.1c**	2.2.1c				
PICS Action Plan		Priority Action	**1,2.3.4.5**	1,2,3		4	5	

PIETR Action Plan		Priority Action	**7**	7				
Framework	***Goal/Priority***	***Action***	***Relevant Sub-actions***	***INTEGRATED OBSERVING AND COMMUNICATION SYSTEMS***				
				PKO 7: Integrated observing and communication systems				
				1. WMO Integrated Global Observing System (WIGOS) implementation	***2. Network Coverage (marine, terrestrial, space)***	***3. Observing System Operation and Maintenance***	***4. Communications including WMO Information system (WIS) implementation***	***5. Capacity development for observing and communication systems***
FRDP	1	National	**l**			l	l	
FRDP	2	Regional	**j,k**		j,k			
FRDP	3	National	**c,j**				c,j	
FRDP	3	Regional	**b,c,e**		e	e	b,c e	
Sendai	1	National	**a,f**	f	a		a,f	
Sendai	1	Regional	**c**	c	c		c	
Sendai	2	Regional	**f**				f	
Sendai	3	National	**c,g**		g	c		
Sendai	4	National	**b,c**				b,c	
Sendai	4	Regional	**c**				c	
SDGs	2		**2.a**		2.a			
SDGs	7		**7.a,7.b**		7.a,7.b			
SDGs	9		**9.4**		9.4			
SDGs	17		**17.6**				17.6	
WMO Op Plan 2016-2019	RA V	4.4.1	**4.4.1**				4.4.1	
WMO Op Plan 2016-2019	RA V	4.4.2	**4.4.2**				4.4.2	
WMO Op Plan 2016-2019	RA V	5.3.2	**5.3.2a, 5.3.2b,**				5.3.2a, 5.3.2b	
WMO Op Plan 2016-2019	RA V	4.1.1	**4.1.1b, 4.1.1c**	4.1.1c			4.1.1b	
WMO Op Plan 2016-2019	RA V	4.1.2	**4.1.2a,4.1.2b,4.1.2c**		4.1.2a,4.1.2b,4.1.2c			
WMO Op Plan 2016-2019	RA V	4.2.1	**4.2.1a, 4.2.1b**	4.2.1b			4.2.1a, 4.2.1b	
WMO Op Plan 2016-2019	RA V	4.2.2	**4.2.2**				4.2.2	
WMO Op Plan 2016-2019	RA V	4.3.1	**4.3.1**	4.3.1				
WMO Op Plan 2016-2019	RA V	6.2.1	**6.2.1a, 6.2.1b**	6.2.1a, 6.2.1b				
PICI Action Plan		Priority Activity	**1,2,3**				1,2	3
PIETR Action Plan		Priority Action	**6,7,8**				7,8	6
Framework	***Goal/Priority***	***Action***	***Relevant Sub-actions***	***PMC and NHMS SUPPORT, INSTITUTIONAL STRENGTHENING AND CAPACITY DEVELOPMENT***				
				PKO 8: Support to NHMS' is coordinated				

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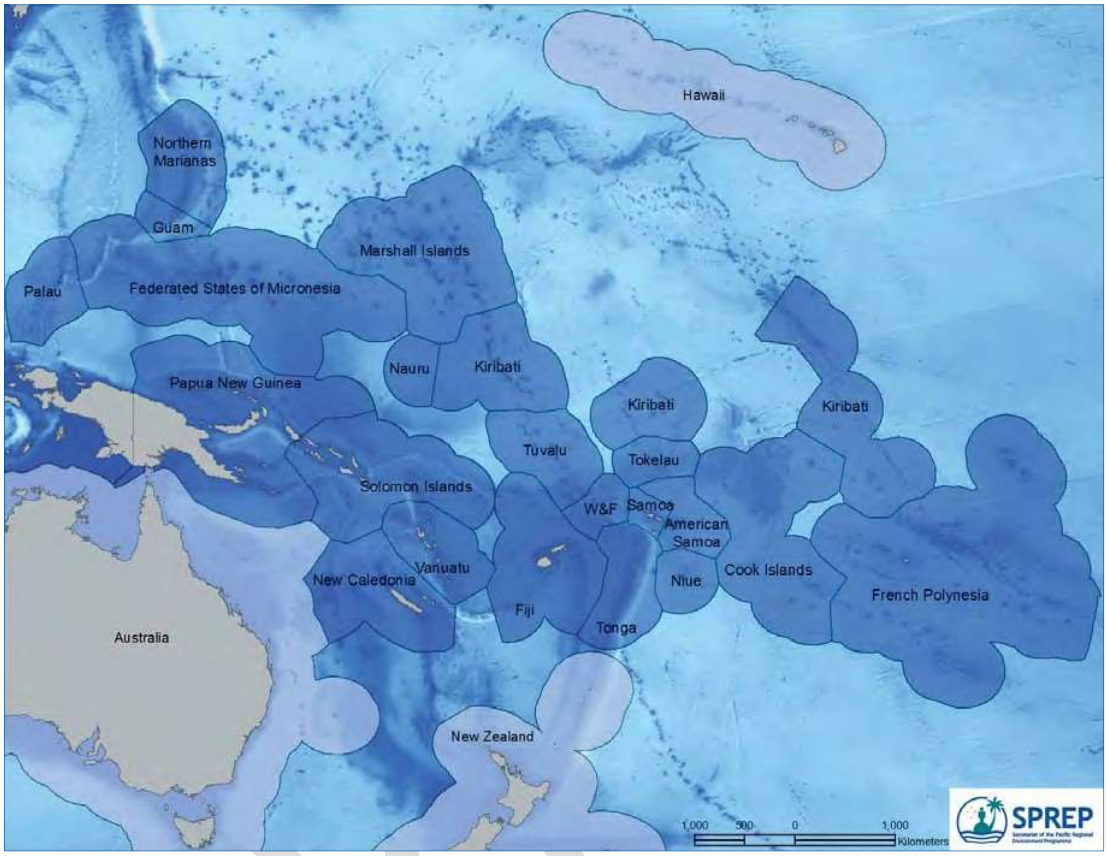
				1. Donor interaction with NHMSs and regional agencies	*2. Development partners' interaction with NHMSs and regional agencies*
SDGs	9		**9.a**	9.a	
SDGs	10		**10.b**	10.b	10.b
SDGs	13		**13.b**	13.b	13.b

Framework	**Goal/Priority**	**Action**	***Relevant Sub-actions***	***PKO 9 : NMHS Institutional Strengthening and Capacity Development***					
				1. Public governance	***2. Communication***	***3. Public financial management***	***4. Project management***	***5. Information Technology***	***6. Technical Education and training***
FRDP	1	National	**a,c,e**			a,c,e	a,c		
FRDP	1	Regional	**c,j,k,l**			c,j,k,l	j,k,l		c
FRDP	2	Regional	**b,c**			b,c			
FRDP	3	National	**a,c,g**	a		a,c,g			a
FRDP	3	Regional	**a,c,g**	a,c		g			
Sendai	1	National	**h**	h					
Sendai	1	Regional	**a**	a					
Sendai	3	National	**a**			a			
SDGs	4		**4.b**						4.b
SDGs	13		**13.a**			13.a	13.a		
PIETR Action Plan		Priority Action	**2,4**	4					2

Framework	**Goal/Priority**	**Action**	***Relevant Sub-actions***	***PKO 10 : PMC is an efficient and effective body***		
				1. PMC participation and strategic partnerships	***2. Gender Equality***	***3. PMC funding support***
FRDP	1	National	**f**		f	
FRDP	1	Regional	**c,f,p,r**	r	f	c
FRDP	2	Regional	**d**		d	
FRDP	3	Regional	**d**		d	
Sendai	2	National	**g**	g		
Sendai	2	Regional	**a,b**	a,b		
Sendai	3	Regional	**c**	c		
Sendai	4	Regional	**a,e,g**	a,e,g		
SDGs	5		**5.1,5.2,5.4,5.5,5.c**		5.1,5.2,5.4,5.5,5.c	
SDGs	17		**17.6**	17.6		
WMO Op Plan 2016-2019	RA V	1.1.2	**1.1.2**	1.1.2		
WMO Op Plan 2016-2019	RA V	3.2.1	**3.2.1**	3.2.1		

THE PACIFIC ISLANDS REGION



This map is indicative only of agreed and potential maritime jurisdictional limits within the Pacific region. It does not imply the expression of an opinion by SPREP on the legality of any boundary shown.

SPREP Members comprise 21 Pacific island countries and territories, and four developed countries* with direct interests in the region:

American Samoa, Australia*, Cook Islands, Federated States of Micronesia, Fiji, France*, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand*, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, United States of America*, Vanuatu, Wallis and Futuna.

The Pacific Regional Environment Programme (SPREP) is the primary intergovernmental environmental organisation working in the Pacific. SPREP has 25 Members with direct interests in the region. SPREP works to promote cooperation in the Pacific region and provide assistance in order to protect and improve its environment and to ensure sustainable development for present and future generations.

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PMC PARTNERS ACKNOWLEDGED

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