

Regional Statement on the Climate of 2018/19 and Climate and Tropical Cyclone Outlook for the Pacific Islands for 2019/20

Key Messages:

Climate, Ocean and Tropical Cyclone Outlooks October to December 2019

- ENSO neutral conditions are forecast to persist.
- Near normal tropical cyclone activity is expected for most islands.
- There is an indication that rainfall may be below normal in the Coral Sea region. Some areas east of the International Dateline may experience above normal rainfall.
- The highest coral bleaching threat is forecast to extend from Nauru to the Phoenix Group in Kiribati.
- In parts of the tropical Northwest Pacific and Southwest Pacific (north of Fiji), sea levels are forecast to remain above normal during the next three to six months; subsiding to near normal elsewhere.

Climate in late 2018 and early-mid 2019

- Sea surface temperatures were warmer than average in the central and eastern equatorial Pacific during early 2019 before cooling in the east.
- In early 2019, drought conditions prevailed across much of the tropical North Pacific.
- Near normal tropical cyclone activity occurred in the Southwest Pacific during the 2018-19 season. In September 2018, Liua became the basin's earliest tropical cyclone on record. In the North Pacific, Typhoons Wutip and Hagibis were of note for their strength.
- Much of the South Pacific had coral bleaching alerts during late 2018 and 2019.
- Sea level in late 2018 and early 2019 was higher than normal along the equator and across most of the South Pacific. During mid 2019, western and southern regions experienced a trend toward normal.

Review of 2018-19 climate:

In early 2019, sea surface temperatures were warmer than normal in the central and western equatorial Pacific, near weak El Niño thresholds. ENSO neutral conditions developed in mid 2019.

Across the South Pacific, rainfall patterns were quite variable. Late in 2018 and early in 2019, rainfall was above normal in the vicinity of the International Dateline. In mid 2019, rainfall patterns were mixed, consistent with ENSO neutral conditions.

In early 2019, drought conditions prevailed across much of the tropical North Pacific. Rainfall from June through August was quite variable.

Eight tropical cyclones formed in the September to April 2018-19 Southwest Pacific tropical cyclone season, including the early season Tropical Cyclone Liua. This is broadly consistent with cyclone outlooks that were issued for the 2018-19 season. The long-term average number of cyclones for the Southwest Pacific is nine (east of the tip of Cape York in northern Australia).

The 2019 typhoon season in the western Pacific featured 17 named storms through the first week of October. Wutip and Hagibis were noted for their strength, Wutip causing significant economic losses in Guam and Micronesia and Hagibis leading to at least 86 confirmed fatalities in Japan.

Sea level in late 2018 and early 2019 was higher than normal along the equator and most of the South Pacific (10-20 cm). This pattern continued up until March 2019 for most South Pacific countries except for those close to the Coral Sea, which began to experience normal or below normal conditions. During mid 2019, the central and eastern Pacific continued to have higher than normal sea levels, however the west and some of the southern regions experienced a trend toward normal, typical of ENSO neutral.

Consistent with the warmer than normal sea surface temperatures in the western and central tropical Pacific, much of the South Pacific had coral bleaching alerts during late 2018 and 2019, indicating low-level thermal stress and the possibility of coral bleaching.

Climate and Agriculture:

Data suggests that climate change and natural disasters is having an impact on agriculture and food security. Across the Pacific, average agricultural annual growth rate has declined since 1990, which has led to declining contributions to the gross domestic product. In a warming world, areas of crop suitability are changing. Various products exist, such as the Global Information and Early Warning System on Food and Agriculture ([GIEWS](#)) developed by the Food and Agricultural Organization of the United Nations, that monitor the condition of major foodcrops across the globe. Threshold analysis across Pacific Island nations, considering things like average temperature and rainfall, may be helpful in understanding trends in crop suitability (e.g. kava, coffee, cocoa).

ENSO and October-December 2019 Outlook:

ENSO neutral conditions are forecast to persist through the end of 2019. Neutral remains the most likely outcome into early 2020.

However it is worth noting that when the ENSO status is neutral, the predictive ability of the dynamical model guidance is lower than it is during stronger El Niño or La Niña events.

An area of warmer than average sea surface temperatures in the west central Pacific could persist and continue to influence rainfall patterns and tropical cyclone development during the upcoming season. Air temperatures are forecast to be above normal for most of the western Pacific.

Based on the most recent guidance available, below normal rainfall is forecast for October-December 2019 for the region extending south-eastward from Papua New Guinea into the Coral Sea, including New Caledonia and southern Vanuatu. Above normal rainfall could occur from the Solomon Islands south-eastward, including northern Vanuatu. In American Samoa, normal or above normal seasonal rainfall is forecast. Across the remainder of the region, rainfall is forecast to be near normal for the time of year.

Through December 2019, seasonal rainfall is forecast to be near normal for Kosrae in the FSM and Majuro in the Republic of the Marshall Islands (RMI); normal to above normal for Pohnpei in the Federated States of Micronesia (FSM), Kwajalein in the RMI, Guam, and Saipan in the Commonwealth of the Northern Mariana Islands (CNMI); normal to below normal for Yap and Chuuk in the FSM; and below normal for Koror in Palau.

Elevated levels of heat stress will exist across a wide band extending northeast to southwest across the Pacific, with the highest bleaching threat extending from Nauru to the Phoenix Group in Kiribati. The RMI and FSM are expected to remain at a Bleaching Watch throughout this period. Coral mortality is possible in some areas.

In parts of the tropical northwestern Pacific (especially near the RMI) and southwestern Pacific (north of Fiji), sea levels will remain above normal during the next three to six months (5-15 cm). Dynamical forecast models suggest steady or slightly rising sea levels in the northwestern Pacific (continued above normal around Majuro and Pohnpei) and in the southwestern Pacific (above normal around Funafuti and Pago Pago; near normal around Suva and Rarotonga). For some countries east of the Coral Sea, normal or below normal sea levels are forecast (-3 to -6 cm).

Typhoon and Tropical Cyclone Outlooks:

Tropical cyclone (TC) activity in the western North Pacific is expected to increase through November and possibly into December.

In the Southwest Pacific, regional-scale tropical cyclone outlooks for the upcoming November 2019 to April 2020 season favour a near normal season for most islands. The long term average for the basin is nine tropical cyclones east of the tip of Cape York in northern Australia.

Tropical cyclones have a significant impact in the tropical Pacific. In the Southwest Pacific, Vanuatu and New Caledonia typically experience the greatest activity, with an average of two or three named cyclones passing close to land each year.

If conditions change over the coming months then the tropical cyclone outlook will be updated. All communities should remain vigilant and follow forecast information provided by their National Meteorological and Hydrological Service (NMHSs).

Coordination between National Meteorological Services and National Ministries of Agriculture:

Relationships between NMHSs and the agricultural sector vary across the region. In most countries, the agricultural sector has access to weather forecasts, seasonal climate outlooks, extreme event warnings and in some cases, rainfall and temperature data. Generally, this information is accessed via general products and services provided by NMHS including websites, emailed monthly bulletins, social and traditional media, and in-person briefings.

However, information is generally not tailored specifically to the decision-making needs of agricultural services. Establishing mechanisms and products to increase regular and systematic information exchange between NMHS and the agricultural sector is a priority. Examples include: establishment of MoUs, tailored outlooks and bulletins that include sector-specific impact information, joint business plans, technical working groups, and simplification and translation of information contained in bulletins.

Recommendations from PICOF-5:

Regional forums such as the PICOF are important for sharing information, best practices, and lessons learnt. This should continue and be linked to the functions of the Pacific Islands Regional Climate Centre (RCC, <https://www.pacificmet.net/rcc>).

Close working relationships between Pacific NMHSs and the agriculture sector are critical to effective warning of climate hazards leading to early preparedness. All countries throughout the region should continue to strengthen these relationships, as well as with other sectors through such mechanisms as one-on-one discussions, cluster group meetings, and national climate outlook forums.

In addition to the production of national seasonal climate outlooks which are well communicated to sectors, there is a need for simplified products and messaging especially for rural and remote communities. Sectoral impacts are most often related to drier or wetter than normal conditions. NMHSs should continue to develop climate products tailored for national sectors, relevant to their needs, and incorporating where possible traditional knowledge elements.

Climate and Tropical Cyclone outlooks for the whole Pacific region should continue to be well communicated to all NMHSs in the region prior to general release, to ensure consistent responses are provided to local media enquiries.

Further Information:

For more country-specific information please contact your NMHS.

This statement was produced at the fifth Pacific Islands Climate Outlook Forum (PICOF) held at the Institut de Recherche pour le Développement (IRD), Noumea, New Caledonia from 17-18 October 2019. The forum had a specific focus on the climate of September 2018 to September 2019, and the regional climate, and tropical cyclone outlook for 2019/20. Representatives at the forum were from regional and global organisations, NMHSs, Red Cross, the agriculture sector, and universities.

PICOF-5 was attended by members from Australia, Cook Islands, Federated State of Micronesia, Fiji, French Polynesia, Kiribati, Marshall Islands, New Caledonia, Nauru, New Zealand, Niue, Papua New Guinea, Samoa, Solomon Islands, South Korea, Tuvalu, United States of America, and Vanuatu.

Pacific Regional Environment Programme (SPREP), Pacific Community (SPC), International Federation of Red Cross and Red Crescent Societies (IFRC), Australian Bureau of Meteorology (BoM), United States National Oceanic and Atmospheric Administration (NOAA), Météo-France and New Zealand National Institute of Water and Atmospheric Research (NIWA) and Asia-Pacific Economic Corporation (APEC) Climate Center (APCC), and Pohang University of Science and Technology (POSTECH), provided technical support. Funding was provided by Republic of Korea-Pacific Island Climate Prediction Services Phase 2 (implemented by SPREP and POSTECH), the World Meteorological Organisation (WMO), Food and Agriculture Organisation (FAO) and the United Nations Development Programme (UNDP). Further support for the Forum is provided by the COSPPac project, Van-KIRAP project and members of the PICS Panel. In kind support was received from Institut de recherche pour le développement (IRD) and government of New Caledonia.

This statement is consistent with the Nuku'alofa Ministerial Declaration for Sustainable Weather and Climate Services for the Resilient Pacific, which recognises the importance of Meteorological and Hydrological Services in support of relevant national needs, including protection of life and property, sustainable development and safeguarding the environment. The same noted that weather and climate services are not an option but are a responsibility and a basic human right.



Map of the Pacific Islands region including those countries and territories involved in the preparation of the statement.