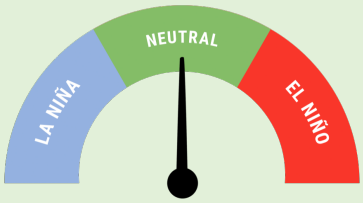
Island Climate Update

NIWA
Taihoro Nukurangi

ENSO Watch
September 2025

Recent



ENSO-Neutral

ENSO-neutral conditions remain in place in the tropical Pacific, but may start trending toward La Niña in the coming months.

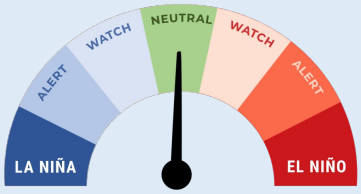
The Southern Oscillation Index (SOI) was on the La Niña side of the neutral range (+0.4) from June-August.

Tropical Pacific Ocean sea surface temperatures (SSTs) are in the ENSO-neutral range.

Forecast

55% chance for **ENSO-neutral** conditions to continue during **September-November 2025**

Chance for **ENSO-neutral** conditions to continue during **October-December** **50%**



ENSO-Neutral

ENSO situation summary

ENSO-neutral conditions remain in place, and there is a 55% chance that ENSO-neutral conditions will continue during September-November 2025, followed by a 50% chance that ENSO-neutral will remain in place during October-December. However, there is a 40% chance that La Niña will develop by the end of 2025.

As of 18 August 2025, the 30-day NINO3.4 Index (in the central equatorial Pacific) was -0.28˚C, in the neutral range. The 30-day relative Niño 3.4 Index (RONI) was -0.64˚C, reflective of the central equatorial Pacific being cooler than the average of the global tropics and on the La Niña side of neutral.

The Southern Oscillation Index (SOI) was on the La Niña side of the neutral range during June-August (+0.4), while the August value was 0.0 (in the neutral range).

Temperatures in the subsurface equatorial Pacific remain above average in the western part of the basin with cooler than average temperatures developing in the east.

Notably cooler than average temperatures are currently located in the eastern equatorial Pacific at depths of 50-100 metres. Should these cooler water temperatures in the east reach the surface in the coming months, it could push ENSO in a more La Niña direction.

Upper oceanic heat content continues to indicate ENSO-neutral conditions.

During September-November, model guidance favours an enhancement in convective forcing over the western Pacific and parts of Melanesia, co-located with the warmest sea surface temperatures. This may lead to enhanced rainfall for island groups such as Palau, western Federated States of Micronesia, and Papua New Guinea east to Fiji and Tonga.

However, drier than normal conditions are increasingly likely to occur for most island groups along and north of the equator, including much of the Marshall Islands, Nauru, Kiribati, Tuvalu, Tokelau, northern Cook Islands, and parts of French Polynesia (see pages 6-7 for more information).

Island Climate Update

Rainfall Watch

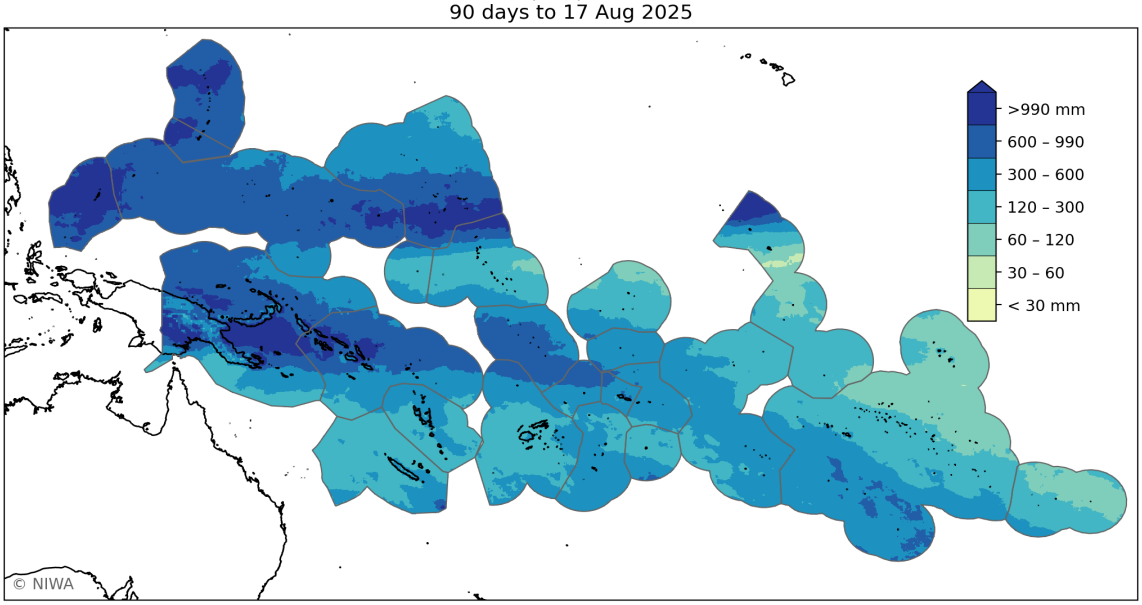
Regional situation summary (17 August 2025)

Rainfall summaries for the last month and three months are shown below.

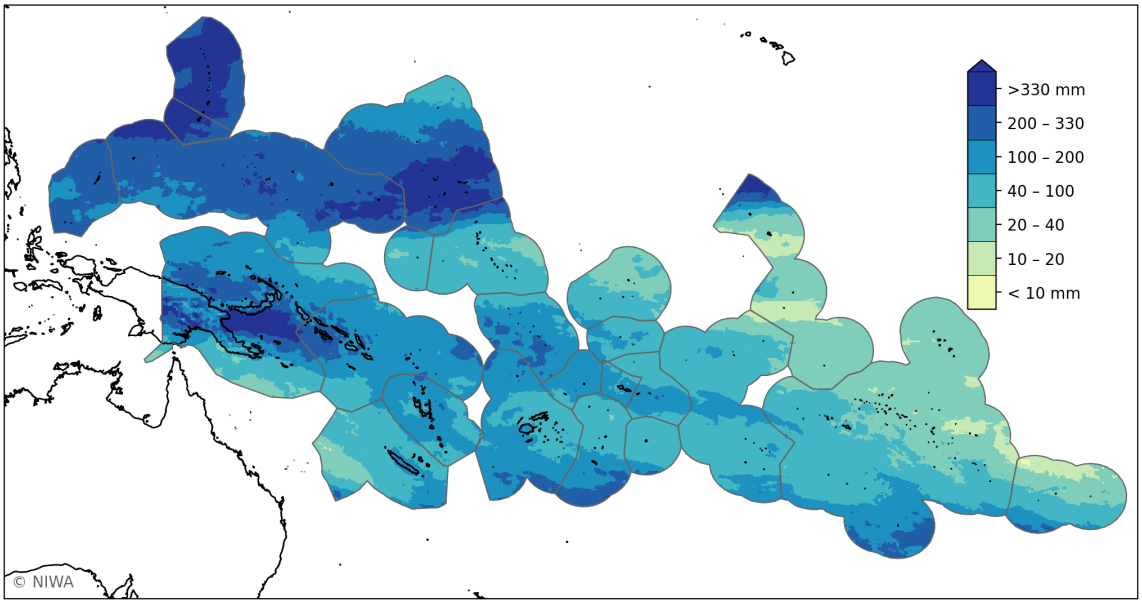
During the 90 days ending 17 August (top plot), over 990 mm of rain fell across Palau, northern portions of the Northern Marianas, eastern Federated States of Micronesia (FSM), southern Marshall Islands, and parts of Papua New Guinea (PNG) and the Solomon Islands. Less than 60 mm of rain was not observed in any island group.

During the 30 days ending 17 August (bottom plot), over 330 mm of rain fell across Guam, the Northern Mariana Islands, eastern FSM, southern Marshall Islands, and isolated parts of PNG. Less than 40 mm of rain fell in Kiribati (Phoenix and Line Islands), Tuamotu Archipelago, Marquesas, and Pitcairn Islands.

Cumulative rainfall (mm), source: MSWEP 2.8.0
90 days to 17 Aug 2025



Cumulative rainfall (mm), source: MSWEP 2.8.0
30 days to 17 Aug 2025



Island Climate Update

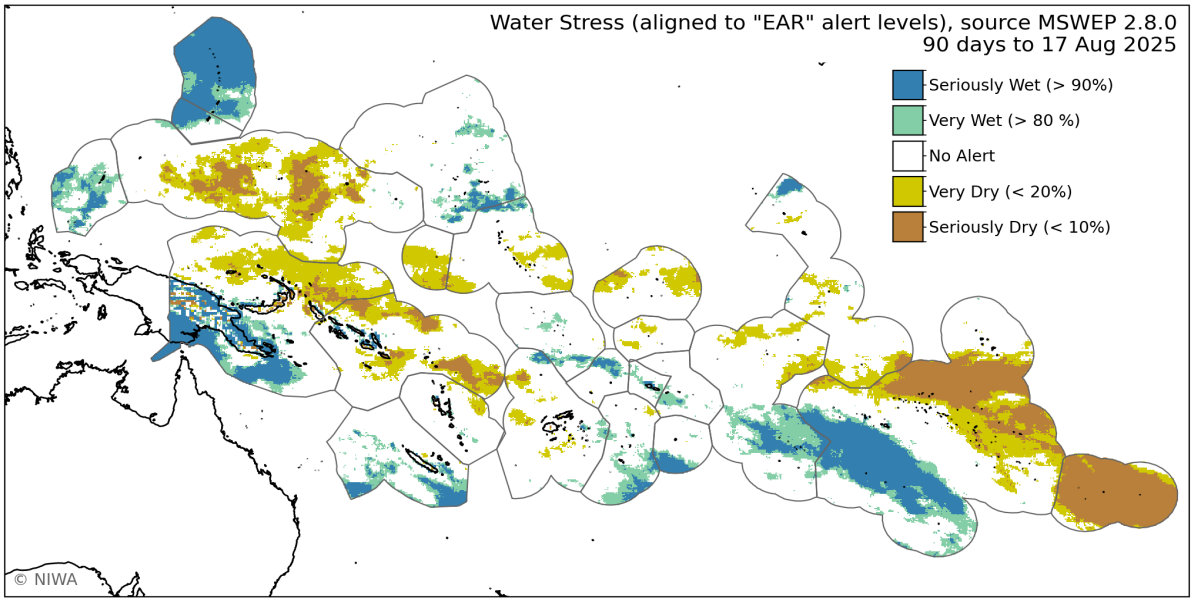
Water Stress Watch

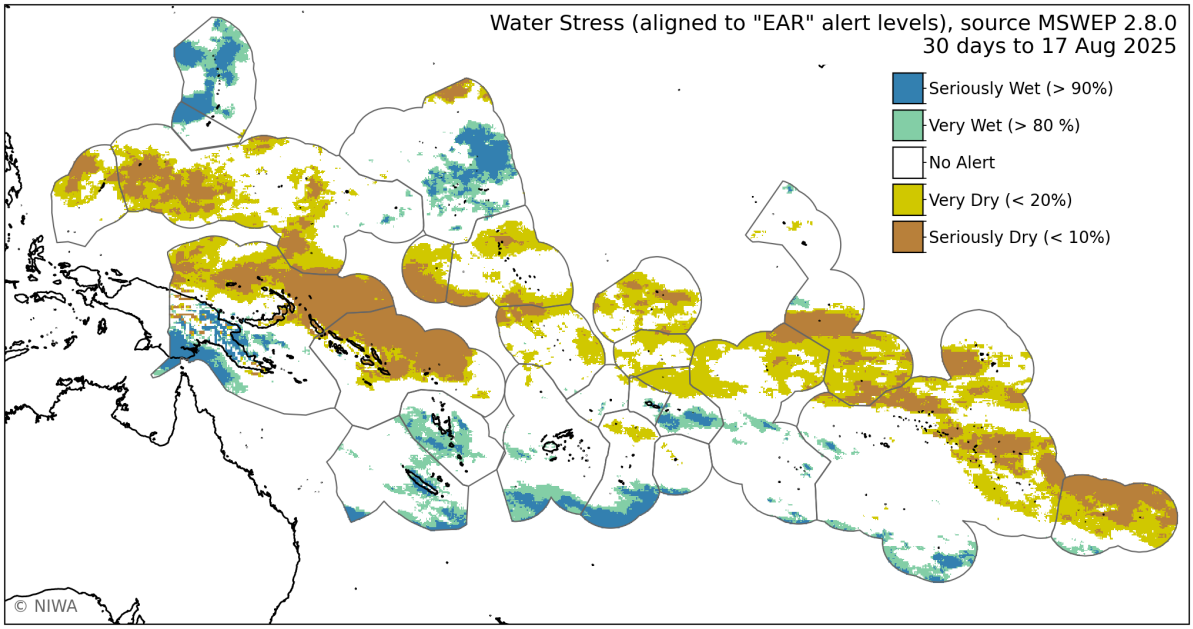
EAR regional situation summary (17 August 2025)

Cumulative rainfall categories aligned to the Early Action Rainfall (EAR) Watch over the last 90 and 30 days are shown in the plots below.

During the 90 days ending 17 August (top plot), seriously dry or very dry conditions affected parts of FSM, northern PNG, southern and eastern Solomon Islands, Nauru, isolated parts of Kiribati and Fiji, parts of the Tuamotu Archipelago, and Pitcairn Islands.

During the 30 days ending 17 August (bottom plot), seriously dry or very dry conditions affected parts of Palau and FSM, northern PNG, the Solomon Islands, Nauru, Kiribati (parts of the Gilbert, Phoenix, and central and southern Line Islands), isolated parts of Tuvalu, Tokelau, northern American Samoa, and northern Tonga, northern Cook Islands, the Tuamotu Archipelago, parts of the Marquesas, and Pitcairn Islands.





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Water Stress Watch

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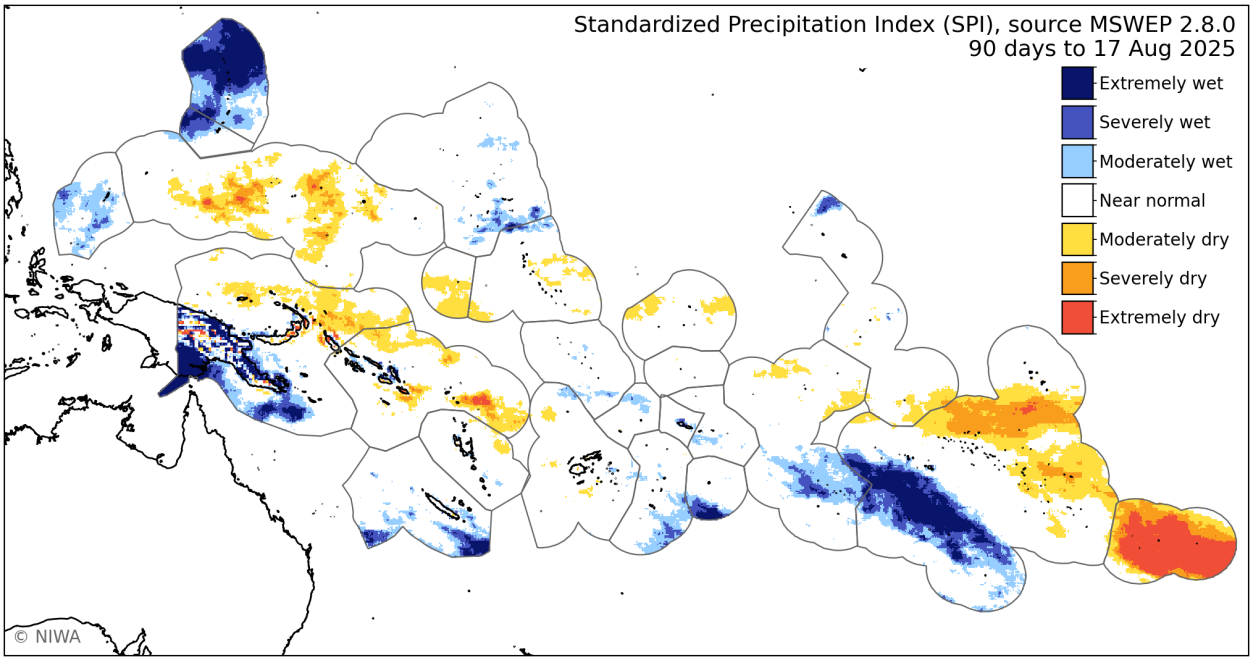
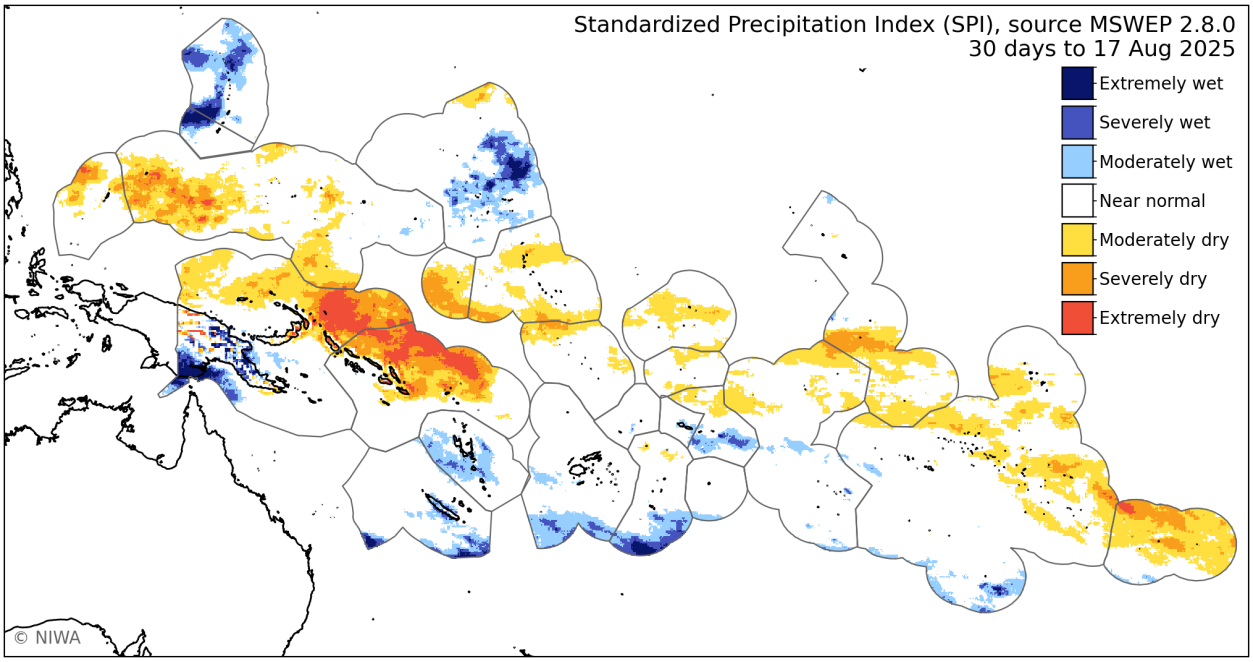
SPI Regional situation summary (17 August 2025)

The Standardized Precipitation Index (SPI) categories for cumulative rainfall over the last 90 and 30 days are shown in the plots below.

During the 90 days ending 17 August (top plot), extremely dry or severely dry conditions occurred in parts of central FSM, northern PNG, parts of the Tuamotu Archipelago, and Pitcairn Islands.

During the 30 days ending 17 August (bottom plot), extremely dry or severely dry conditions occurred in western FSM, northern PNG, parts of the Solomon Islands, Kiribati (central Line Islands), and parts of the Pitcairn Islands.





Island Climate Update

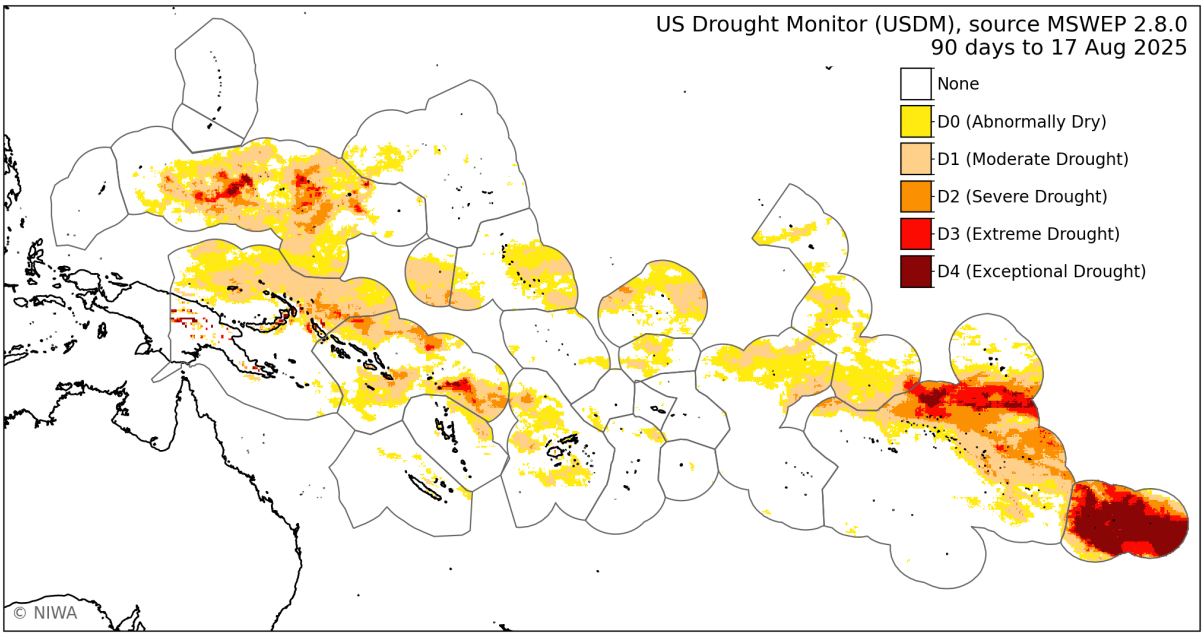
Water Stress Watch

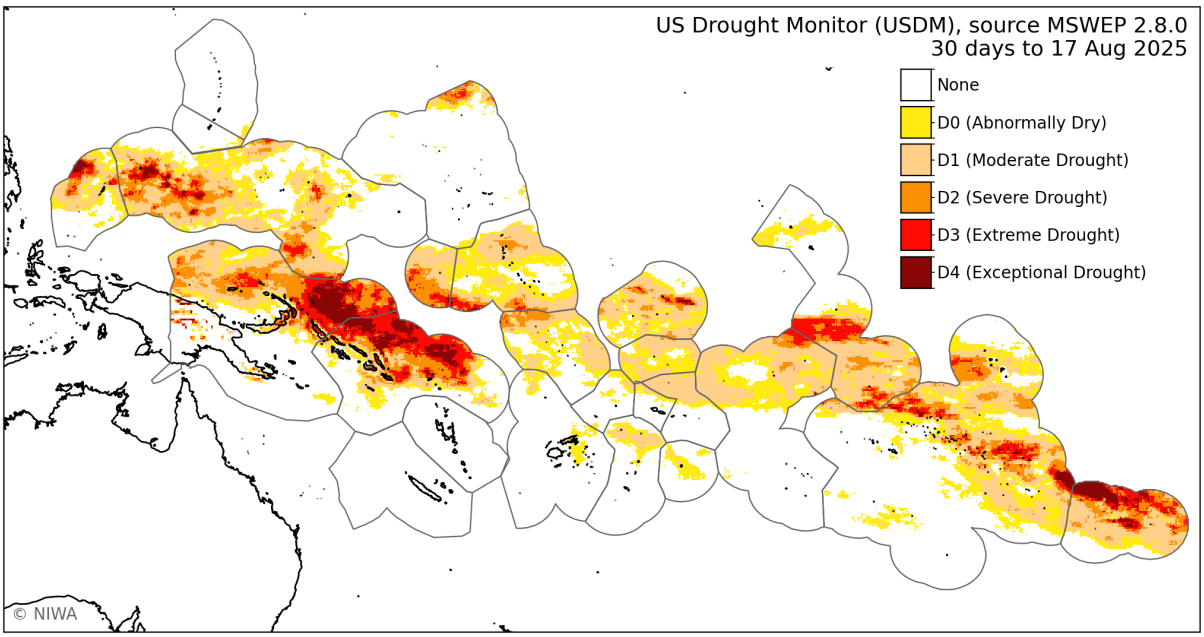
USDM Regional situation summary (17 August 2025)

The US Drought Monitor Index (USDM) categories for cumulative rainfall over the last 90 and 30 days are shown in the plots below.

During the 90 days ending 17 August (top plot), extreme or exceptional drought occurred in parts of FSM, northern PNG, and eastern Solomon Islands, parts of the northern Tuamotu Archipelago, and the Pitcairn Islands.

During the 30 days ending 17 August (bottom plot), extreme or exceptional drought occurred in western FSM, northern PNG, the Solomon Islands, parts of Kiribati (Phoenix Islands and central and southern Line Islands), parts of the Tuamotu Archipelago, and the Pitcairn Islands.





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Water Stress Outlook

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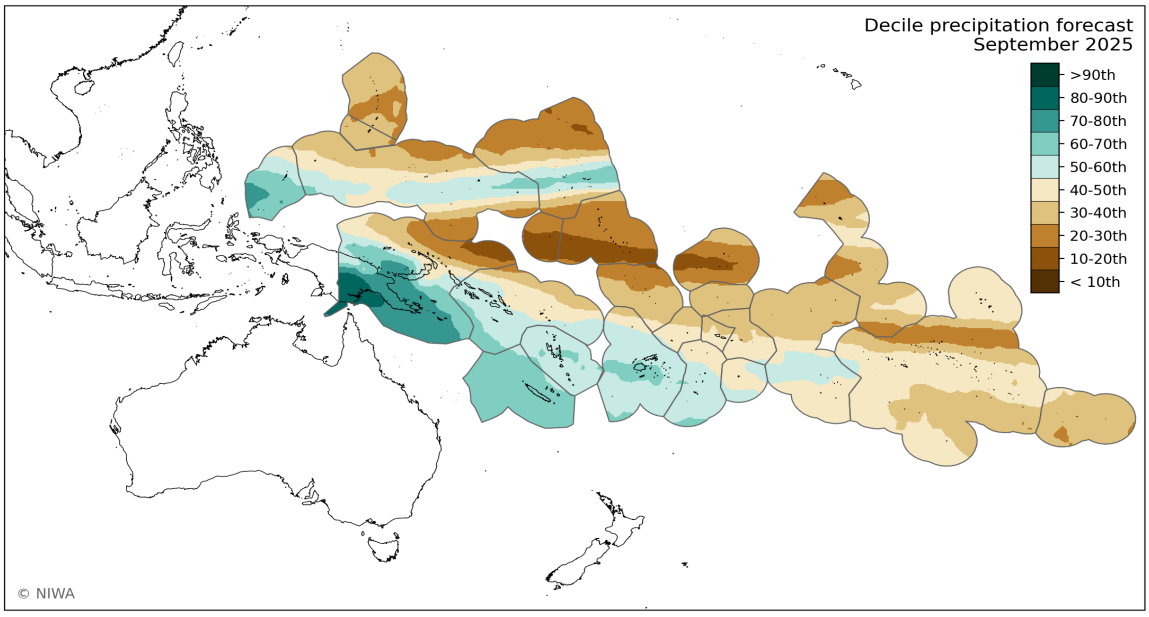
Sep 2025 forecast & probabilities of rainfall < 25th percentile

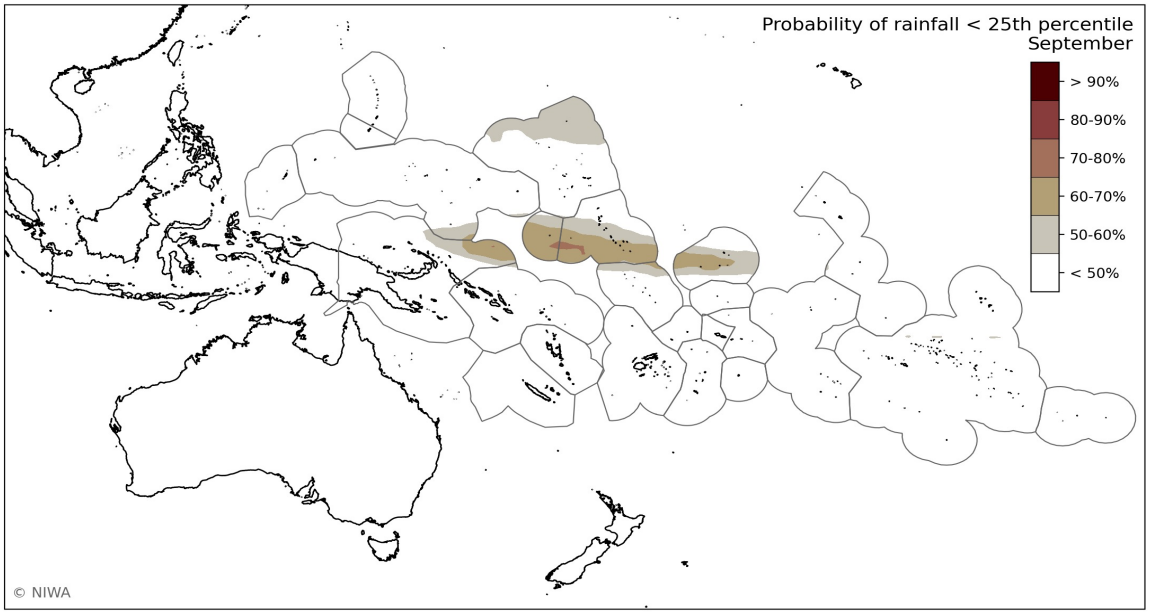
During September, significantly below normal rainfall is favoured in Guam, the Northern Marianas, northern and southern FSM, northern Marshall Islands, far northern PNG, Nauru, Kiribati (Gilbert, Phoenix, and Line Islands), Tuvalu, Tokelau, northern American Samoa, northern Cook Islands, Austral Islands, parts of the Tuamotu Archipelago, and Pitcairn Islands.

Significantly above normal rainfall is favoured in parts of Palau, central Marshall Islands, much of PNG, New Caledonia, and parts of Fiji.

All other island groups are expected to see near normal rainfall amounts during September.

For September, the highest chances for very dry conditions are located in far northern Marshall Islands, Nauru, and Kiribati (southern Gilbert Islands and Phoenix Islands).





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Water Stress Outlook

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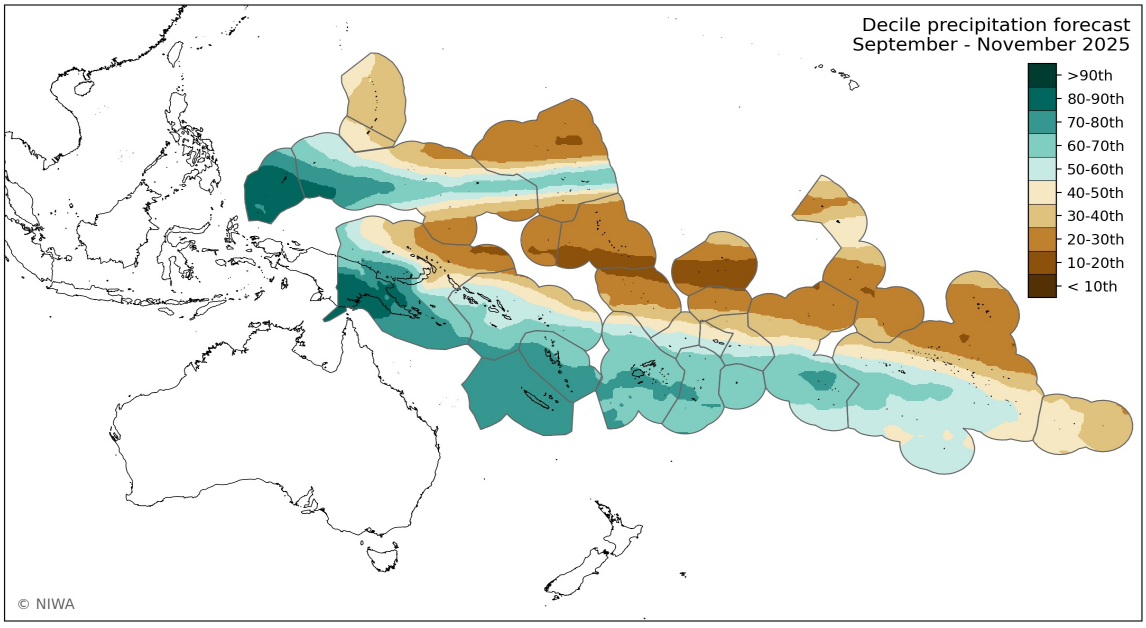
Sep-Nov 2025 forecast & probabilities of rainfall < 25th percentile

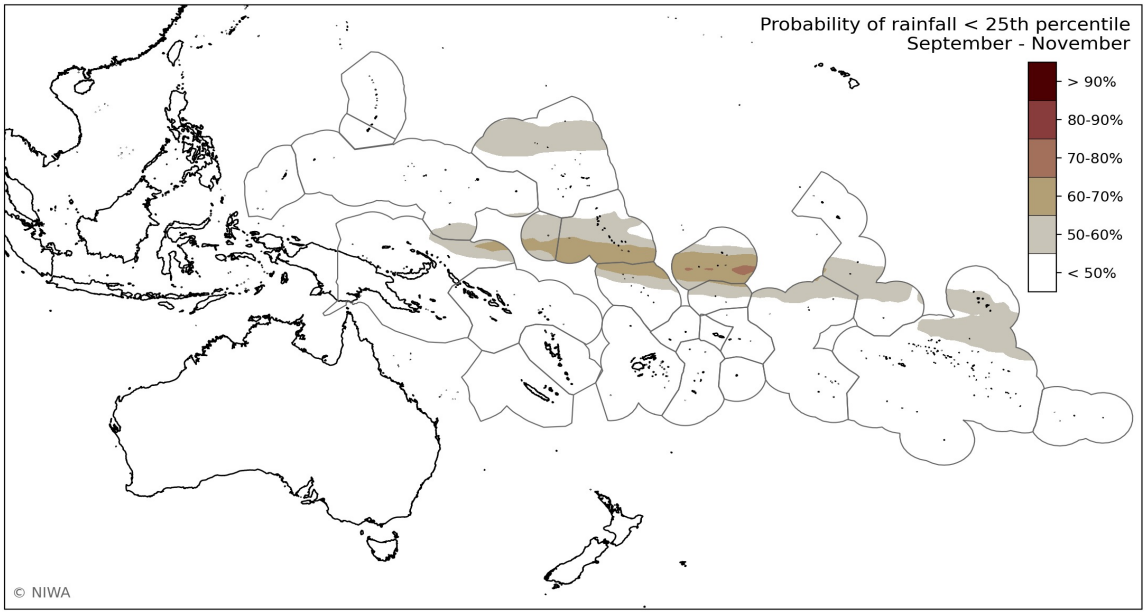
During September-November, significantly below normal rainfall is favoured in Guam, Northern Marianas, southern FSM, northern and southern Marshall Islands, far northern PNG, Nauru, Kiribati (Gilbert, Phoenix, and Line Islands), Tuvalu, Tokelau, northern American Samoa, northern Cook Islands, northern Tuamotu Archipelago, Marquesas, and parts of the Pitcairn Islands.

Significantly above normal rainfall is favoured in Palau, western and central FSM, central Marshall Islands, much of PNG, New Caledonia, Vanuatu, Fiji, Tonga, Niue, and southern Cook Islands.

All other island groups are expected to see near normal rainfall amounts during September-November.

For September-November, the highest chances for very dry conditions are located in northern Marshall Islands, Nauru, Kiribati (Gilbert, Phoenix, and central Line Islands), Marquesas, and an isolated part of the northern Tuamotu Archipelago.





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About

Understanding the Island Climate Update bulletin

The ICU utilises rainfall data from the Multi-Source Weighted-Ensemble Precipitation (MSWEP) and a multi-model ensemble forecast utilising 550+ members derived from nine global climate models available from the Copernicus Data Store.

Bulletin page	Description
Rainfall watch	Rainfall plots are derived from MSWEP data. Regional rainfall accumulation is shown for the last 30 days (1 month) and 90 days (3 months).
Water stress watch	Plots are derived from MSWEP data. Different Pacific Island Meteorological Services use different approaches to defining drought and water stress. Current regional water stress classifications are shown for the Early Action Rainfall (Page 3), Standard Precipitation Index (Page 4), and US Drought Monitoring (Page 5) alert levels for the last 90 and 30 days of accumulated rainfall.
Water stress outlook	Outlook water stress classifications are based on both the satellite rainfall data and a multi-model ensemble forecast derived from nine global climate models for the next month and three months. The top plots on each page show the rainfall decile band for the next 1 and 3 months for which the cumulative probability derived from the multi-model ensemble forecasts reaches 50%. The bottom plots bring together conditions over the past 3 months and forecast conditions over the next month: • Current water stress conditions potentially easing: Past 3 month accumulation less than 25th percentile. 1 month / seasonal accumulation forecast greater than 25th percentile. • Areas moving in to water stress: Past 3 month accumulation between the 40th and 25th percentile. 1 month / seasonal accumulation forecast less than 25th percentile. • Current water stress conditions persisting: Past 3 month accumulation less than 25th percentile. 1 month / seasonal accumulation forecast less than 25th percentile. The final page shows the probability that forecast rainfall over the next 1 or 3 months is within the lowest 25% of cumulative rainfall over the same period (a measure of the confidence in a low rainfall forecast).
Online Resources	**Additional regional and country-level resources are available online**: • Daily updated plots for 30, 60, 90, 180 and 365 day: accumulative rainfall, number of dry days, number of days since last rainfall > 1 mm, EAR, SPI and USDM indices. • A range of probabilistic one to five monthly and seasonal forecast plots updated around the 11th of each month. • Click here for the imagery and here for the underlying data [observations, forecast].

WMO

NIWA is the Network co-lead for the WMO RA V Regional Climate Centre Node on Long Range Forecast and consortium member for nodes on Climate Monitoring, Operational Data Services, and Training.

Development and production of the ICU is supported by NIWA Strategic Science Investment Funding under contract PRAS2401.

The Island Climate Update bulletin and associated video and products are prepared as soon as possible at the start of each month. Delays in data availability occasionally arise. While every effort is made to verify the data, NIWA does not guarantee the accuracy and reliability of the analysis and forecast information presented and accepts no liability for any losses incurred through the use of this bulletin and its contents.

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