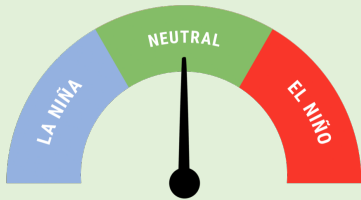


Island Climate Update



ENSO Watch
July 2024

Recent



ENSO neutral

ENSO neutral conditions are expected to continue through at least August, but La Niña may develop in the following months.

The Southern Oscillation Index (SOI) was 0.0 from April-June, in the neutral range.

Tropical Pacific Ocean sea surface temperatures (SSTs) reflected ENSO neutral conditions in June.

65% chance for **ENSO neutral** conditions to continue during **July-September 2024**

Chance for **La Niña** conditions developing during **October-December 2024**

55%



La Niña Watch

Forecast

ENSO situation summary

ENSO neutral conditions are expected to continue over the next 2-3 months, but La Niña is favoured to develop during October-December.

Because of above normal trade wind speeds, an increasing Southern Oscillation Index, a shift in convective patterns, and an expectation for these conditions to continue, a La Niña Watch has been raised.

The 30-day Niño 1+2 Index anomaly was -0.79°C , within the La Niña range.

The 30-day NINO3.4 Index anomaly (in the central equatorial Pacific) as of 21 June was $+0.10^{\circ}\text{C}$, in the neutral range. However, a cooling trend is continuing in the eastern and central Pacific.

The Southern Oscillation Index (SOI) was in the neutral range during April-June (0.0), but the June value was -0.7 (in the El Niño range).

During mid-June, the subsurface equatorial Pacific continued to be 4°C to 6°C cooler than average just below the surface in the east of the basin.

Meanwhile, above average temperatures persisted in the central and western parts of the basin. This signature is reflective of an oceanic transition toward a possible La Niña in a few months.

The South Pacific Convergence Zone was slightly south of its climatological normal position during June.

During late June and early July, a pulse of the Madden-Julian Oscillation may propagate across the Pacific. This may lead to a period of heavy rainfall with the potential for flooding, especially south of the equator in island groups such as the Solomon Islands, Tuvalu, Tokelau, parts of Fiji, Vanuatu, Wallis & Futuna, Samoa, and American Samoa (based on the decile precipitation forecast for July located on page 6).

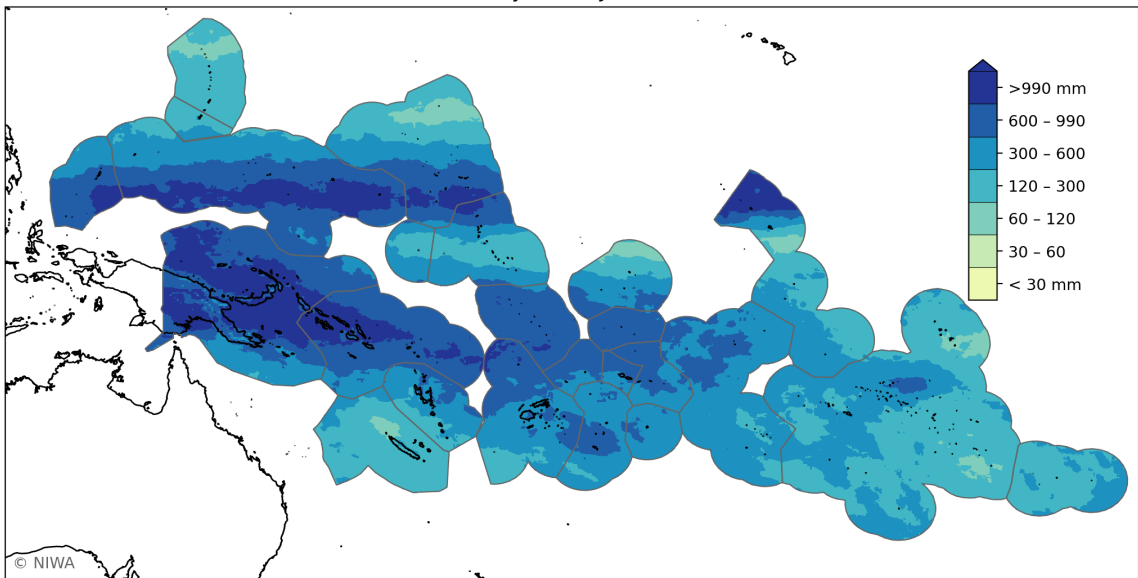
Regional situation summary (18 June 2024)

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

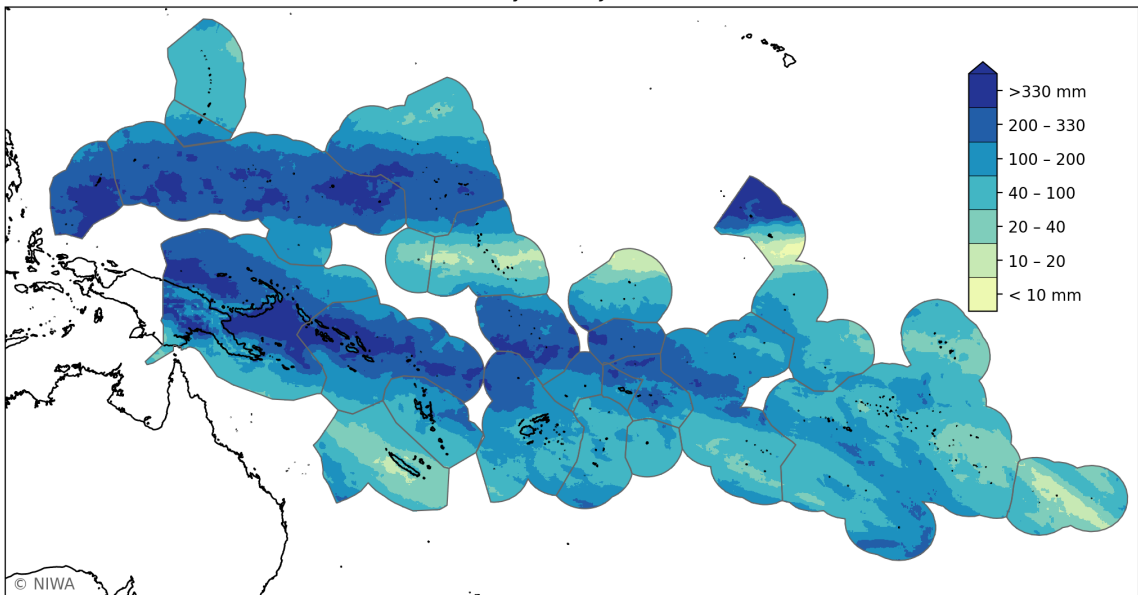
During the 90 days ending 18 June (top plot), over 990 mm of rain fell across parts of the southern Federated States of Micronesia (FSM), southern Marshall Islands, parts of Papua New Guinea (PNG), the Solomon Islands, and Kiribati (northern Line Islands). Less than 60 mm of rain was not observed in any island groups during the same 90-day period.

During the 30 days ending 18 June (bottom plot), over 330 mm of rain fell across parts of Palau, FSM, western Marshall Islands, PNG, Solomon Islands, northern Line Islands, and southern Tuvalu. Less than 40 mm of rain fell in the northern Marshall Islands, Nauru, Kiribati (Gilbert Islands, northern Phoenix Islands, and central Line Islands), New Caledonia, southern Cook Islands, parts of the Tuamotu Archipelago, Marquesas, and Pitcairn Islands.

Cumulative rainfall (mm), source: MSWEP 2.8.0
90 days to 18 Jun 2024



Cumulative rainfall (mm), source: MSWEP 2.8.0
30 days to 18 Jun 2024

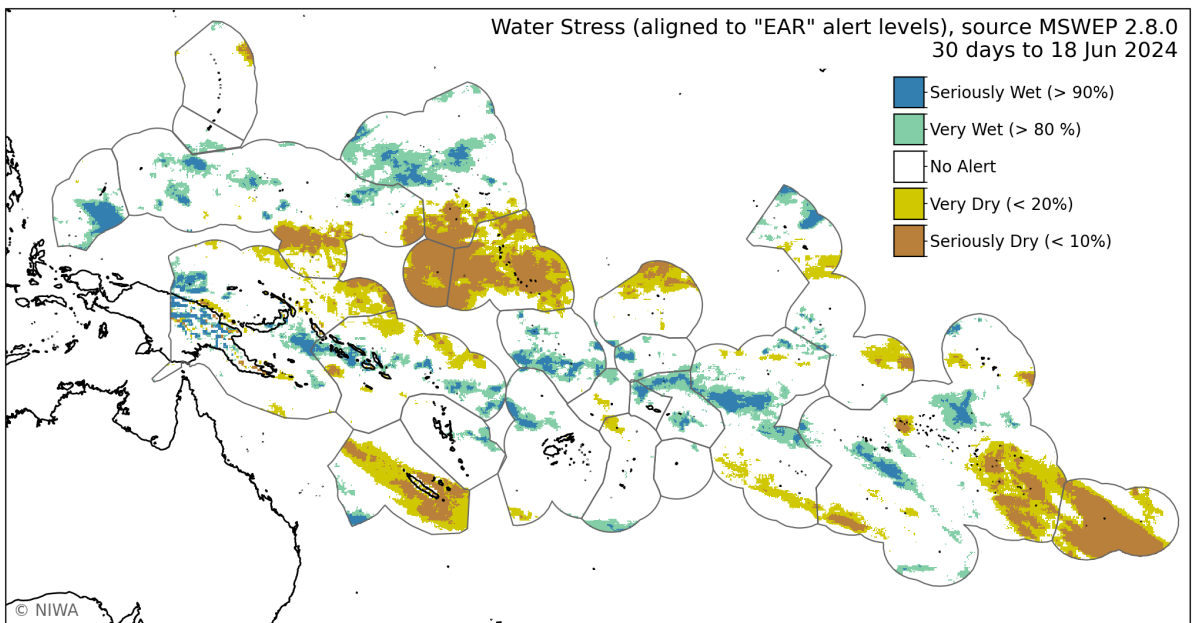
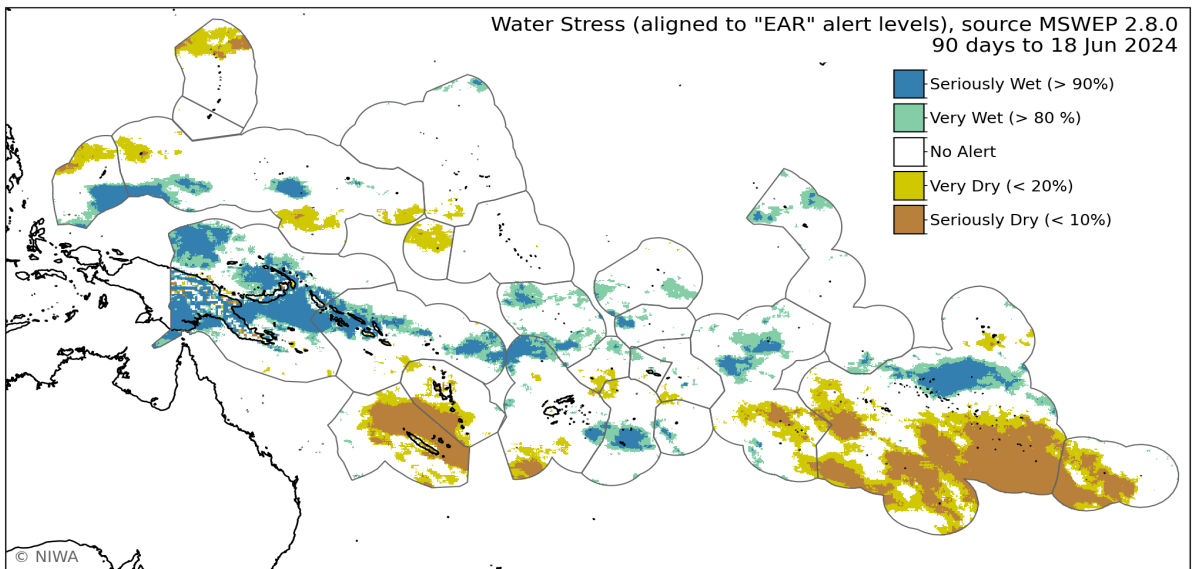


EAR regional situation summary (18 June 2024)

Cumulative rainfall thresholds 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 18 June (top plot), seriously dry or very dry conditions affected parts of the Northern Marianas, parts of FSM, southern Marshall Islands, Nauru, small parts of PNG and the Solomon Islands, New Caledonia, Vanuatu, Wallis & Futuna, northern Tonga, Samoa, southern Cook Islands, Austral Islands, Society Islands, eastern Tuamotu Archipelago, Marquesas, and Pitcairn Islands.

During the 30 days ending 18 June (bottom plot), seriously dry or very dry conditions affected parts of southern FSM, southern Marshall Islands, Nauru, Gilbert Islands and northern Phoenix Islands, parts of PNG and the Solomon Islands, New Caledonia, Wallis & Futuna, northern Tonga, southern Cook Islands, Austral Islands, eastern Tuamotu Archipelago, parts of the Marquesas, and Pitcairn Islands.

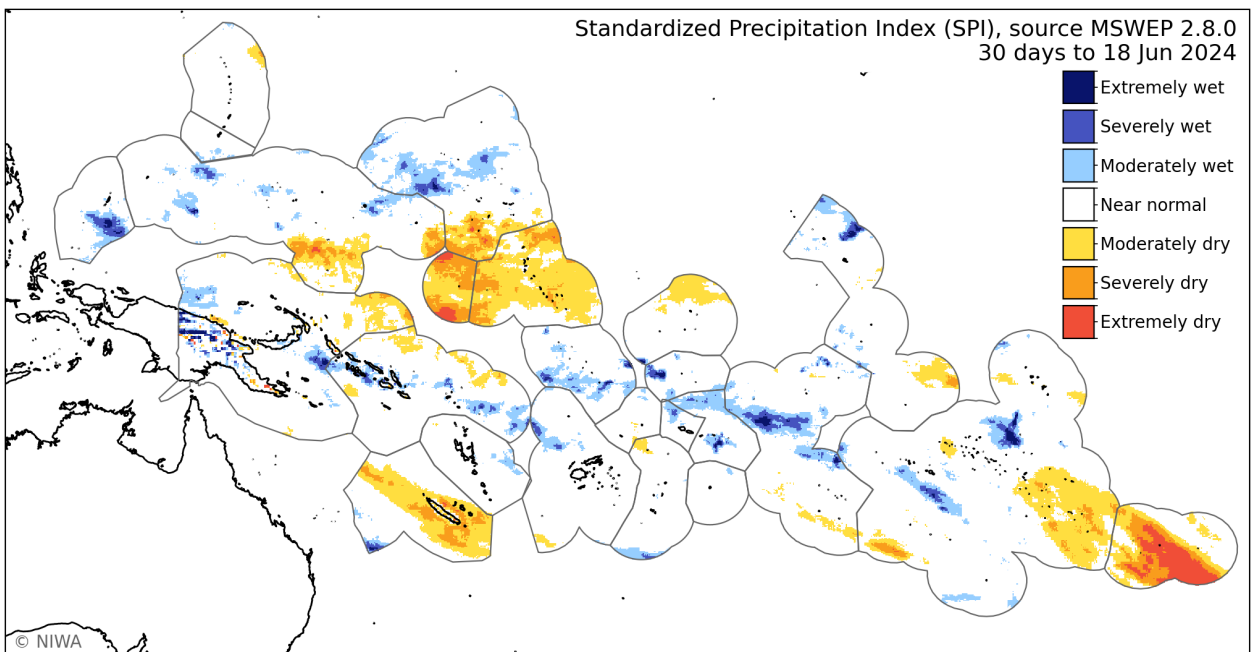
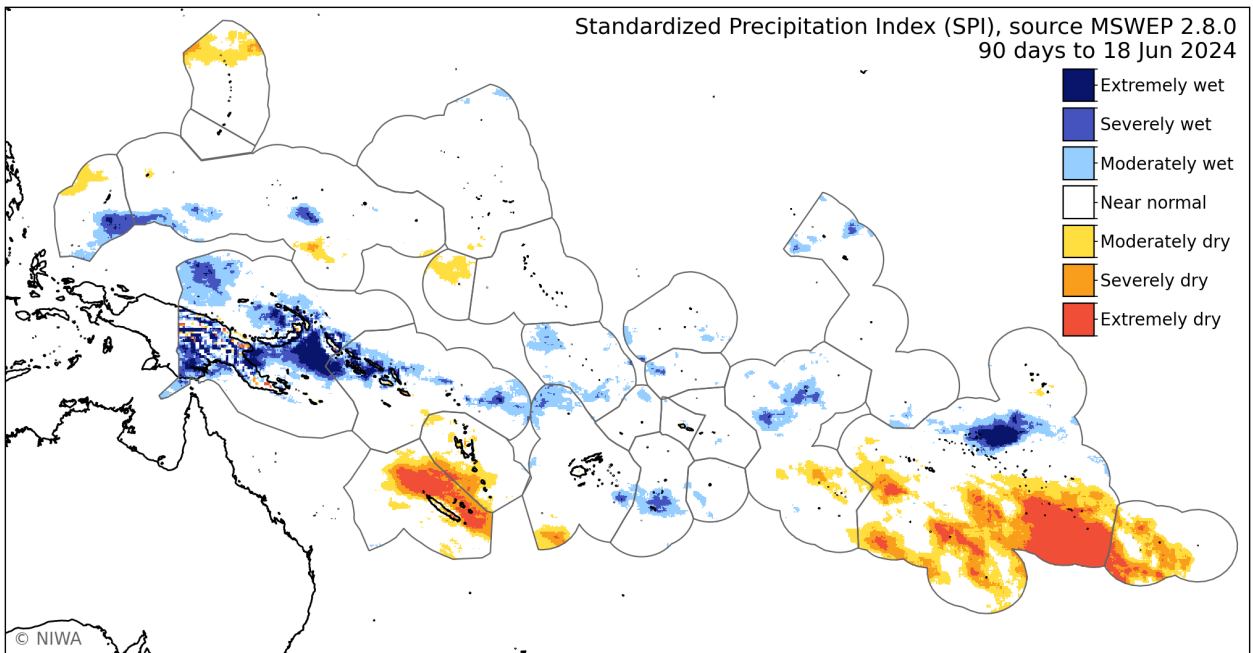


SPI Regional situation summary (18 June 2024)

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

During the 90 days ending 18 June (top plot), extremely dry or severely dry conditions occurred in small parts of PNG, New Caledonia, Vanuatu, southern Cook Islands, Austral Islands, eastern Tuamotu Archipelago, and Pitcairn Islands.

During the 30 days ending 18 June (bottom plot), extremely dry or severely dry conditions occurred in parts of southern FSM, southern Marshall Islands, Nauru, Gilbert Islands, parts of PNG, New Caledonia, eastern Tuamotu Archipelago, and Pitcairn Islands.

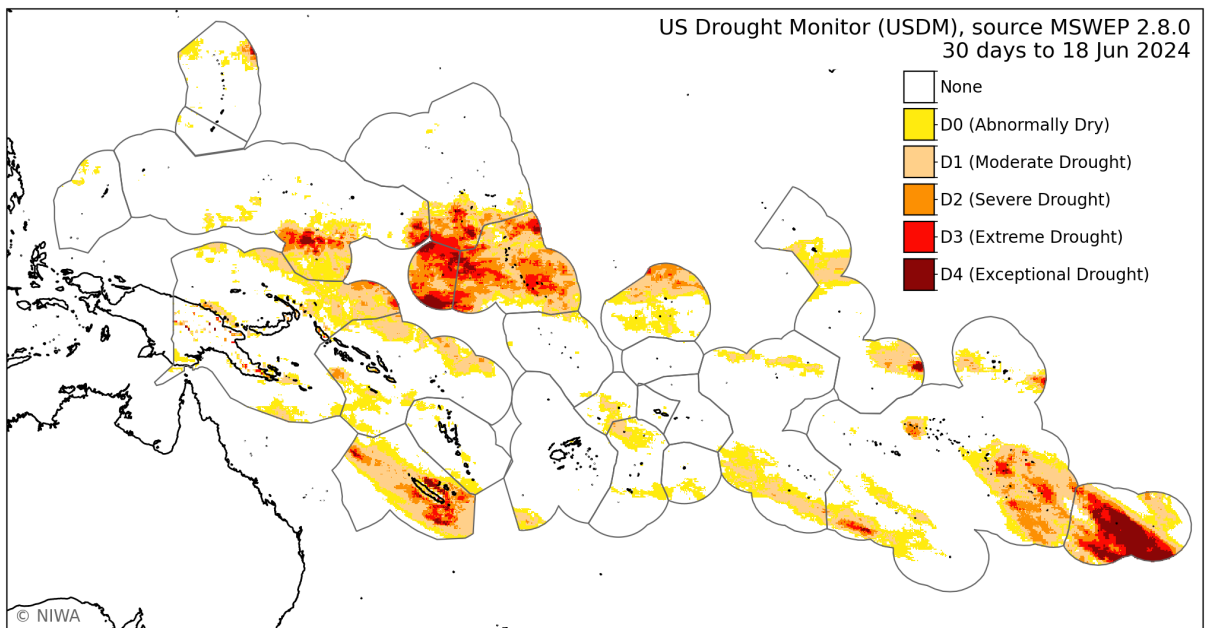
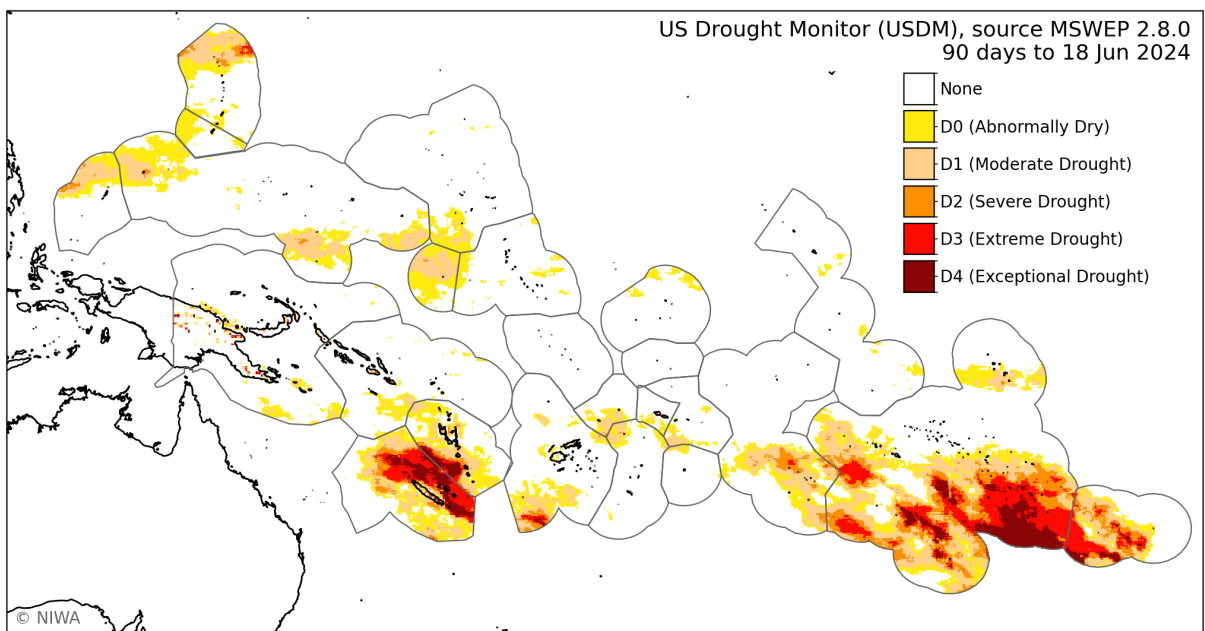


USDM Regional situation summary (18 June 2024)

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

During the 90 days ending 18 June (top plot), extreme or exceptional drought occurred in small parts of PNG and the Solomon Islands, New Caledonia, Vanuatu, southern Cook Islands, Austral Islands, eastern Tuamotu Archipelago, and Pitcairn Islands.

During the 30 days ending 18 June (bottom plot), extreme or exceptional drought occurred in parts of southern FSM, southern Marshall Islands, Nauru, Gilbert Islands, small parts of PNG and the Solomon Islands, New Caledonia, eastern Tuamotu Archipelago, and Pitcairn Islands.



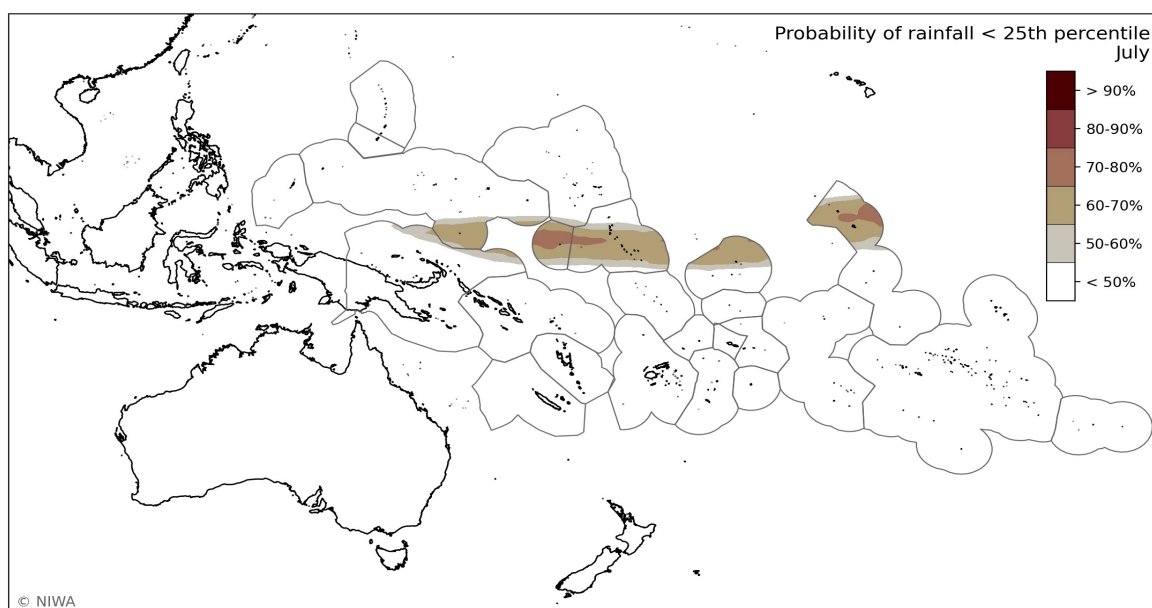
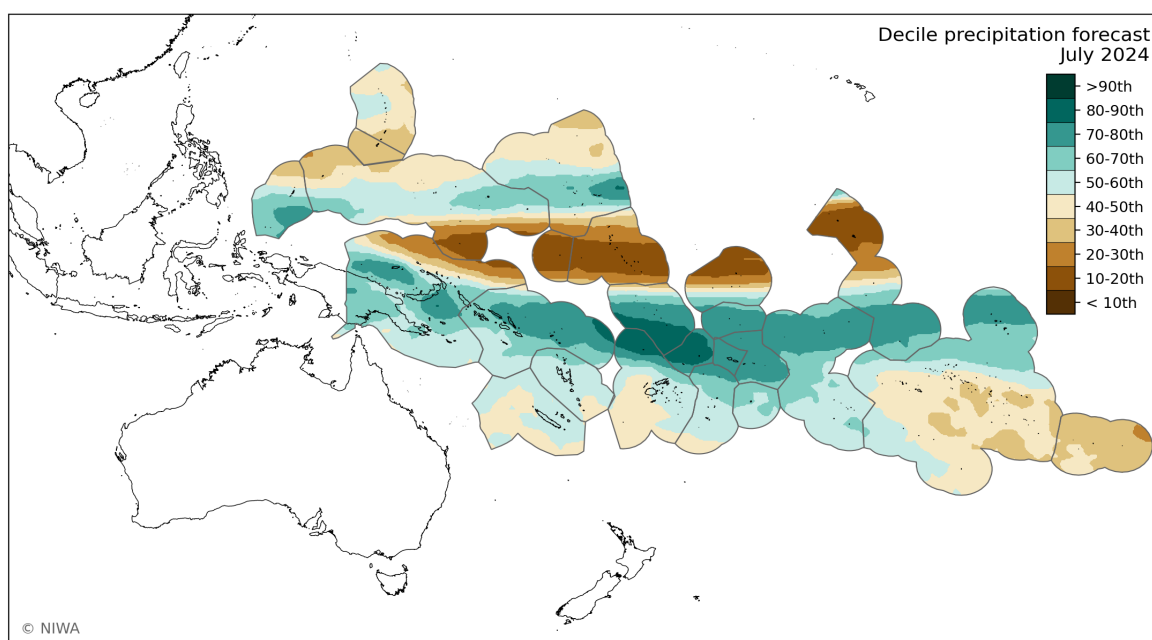
July 2024 forecast & probabilities of rainfall < 25th percentile

During July, significantly below normal rainfall is favoured in Guam, parts of the Northern Marianas, parts of FSM and the Marshall Islands, Nauru, Kiribati (Gilbert Islands, Phoenix Islands, and northern Line Islands), eastern Tuamotu archipelago, and Pitcairn Islands.

Significantly above normal rainfall is favoured in southern Palau, parts of FSM and the Marshall Islands, PNG, Solomon Islands, Tuvalu, Tokelau, northern Fiji, Wallis & Futuna, Samoa, American Samoa, northern Tonga, Niue, northern Cook Islands, and Marquesas.

All other island groups are expected to see rainfall amounts closer to normal during July.

For July, the highest chances for very dry conditions are located across southern FSM, Nauru, and Kiribati (Gilbert Islands, northern Phoenix Islands, and northern Line Islands).



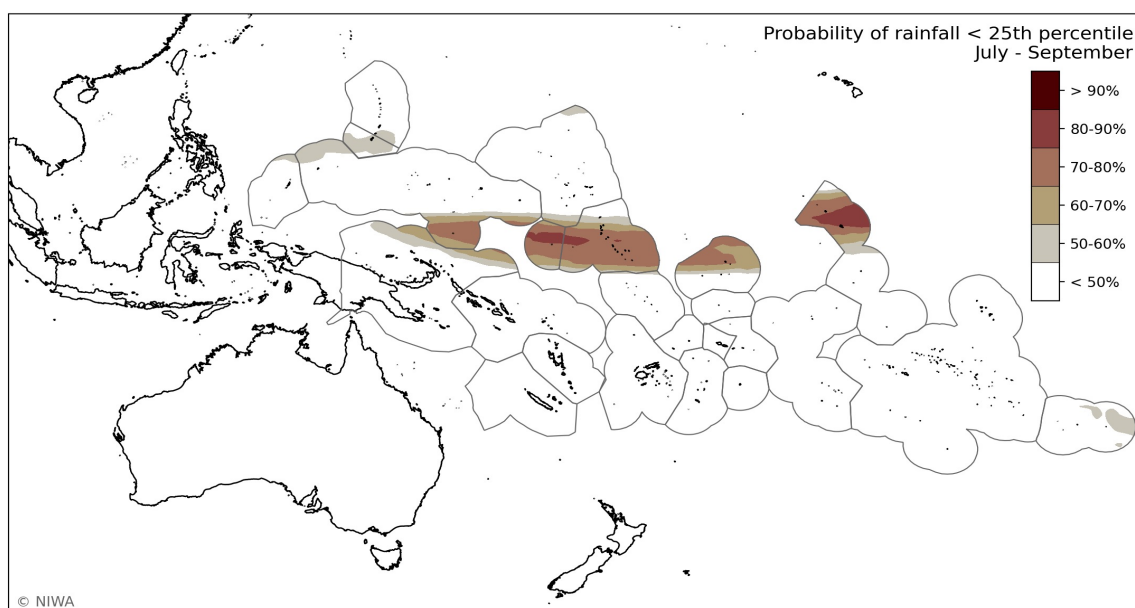
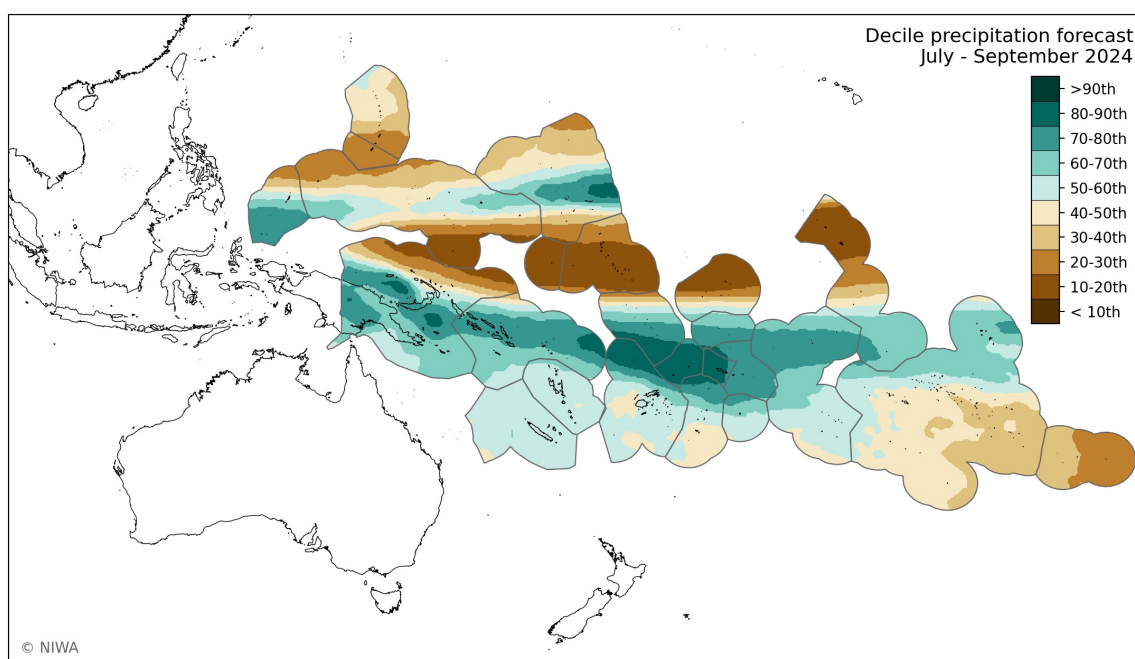
Jul-Sep 2024 forecast & probabilities of rainfall < 25th percentile

During July-September, significantly below normal rainfall is favoured in Guam, Northern Marianas, parts of FSM and the Marshall Islands, northern PNG, Nauru, Kiribati, eastern Tuamotu Archipelago, and Pitcairn Islands.

Significantly above normal rainfall is favoured in southern Palau, parts of FSM and the Marshall Islands, PNG, Solomon Islands, Tuvalu, Tokelau, northern Fiji, Wallis & Futuna, Samoa, American Samoa, northern Tonga, Niue, northern Cook Islands, and Marquesas.

All other island groups are expected to see rainfall amounts closer to normal during July-September.

For July-September, the highest chances for very dry conditions are located across Guam, southern FSM, Nauru, and Kiribati.






Island Climate Update



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	<p>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.</p> <p>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%.</p> <p>The bottom plots bring together conditions over the past 3 months and forecast conditions over the next month:</p> <ul style="list-style-type: none"> • 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. <p>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).</p>
	<p>Additional regional and country-level resources are available online:</p> <ul style="list-style-type: none"> • 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].



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.

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Contact

 islandclimateupdate@comms.niwa.co.nz

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