

# Island Climate Update



**ENSO Watch**  
May 2024

Recent



El Niño is expected to ease to ENSO neutral by the end of May.

The Southern Oscillation Index (SOI) was -0.4 from February-April, in the neutral range.

Tropical Pacific Ocean sea surface temperatures (SSTs) were reflective of a transition out of El Niño toward ENSO neutral in April.

**85%** chance for **ENSO neutral** conditions to develop by **June 2024**

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

**60%**



Forecast

## ENSO situation summary

El Niño continued to weaken during April, and ENSO neutral conditions are favoured to develop by June 2024.

The monthly NINO3.4 Index anomaly (in the central equatorial Pacific) at the end of April was +0.82°C, remaining just above the El Niño threshold of +0.7°C.

The Southern Oscillation Index (SOI) was in the neutral range during April (-0.2) and February-April (-0.4).

Trade wind strength was above normal near the equator in the eastern and western Pacific, but near normal in the central part of the basin. This was associated with additional cooling of the surface ocean water across the equatorial Pacific.

Periods of enhanced trade winds throughout May which should contribute to additional cooling near the equator.

At the end of April, the subsurface equatorial Pacific was 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 part of the basin. This signature was reflective of an oceanic transition out of El Niño toward a possible La Niña in a few months.

During April, convective forcing favoured the western Indian Ocean and Africa. In the Pacific, anomalous rising motion in the central tropical Pacific was the result of an early-month pulse of the Madden-Julian Oscillation (MJO). Sinking air was dominant over the eastern tropical Pacific, consistent with cooling seas there.

The South Pacific Convergence Zone was near its climatological normal position during April.

As the ocean-atmosphere system transitions to ENSO neutral, higher frequency variability (e.g., from the MJO) is likely to be more dominant, which may encourage more variable weather patterns in the months ahead.

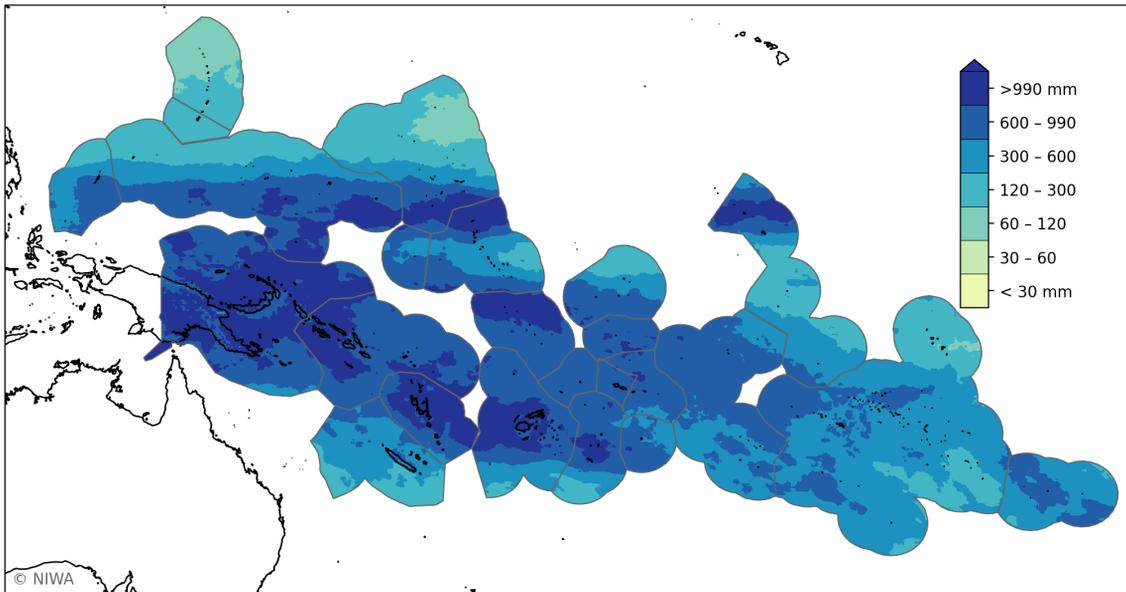
### Regional situation summary (1 May 2024)

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

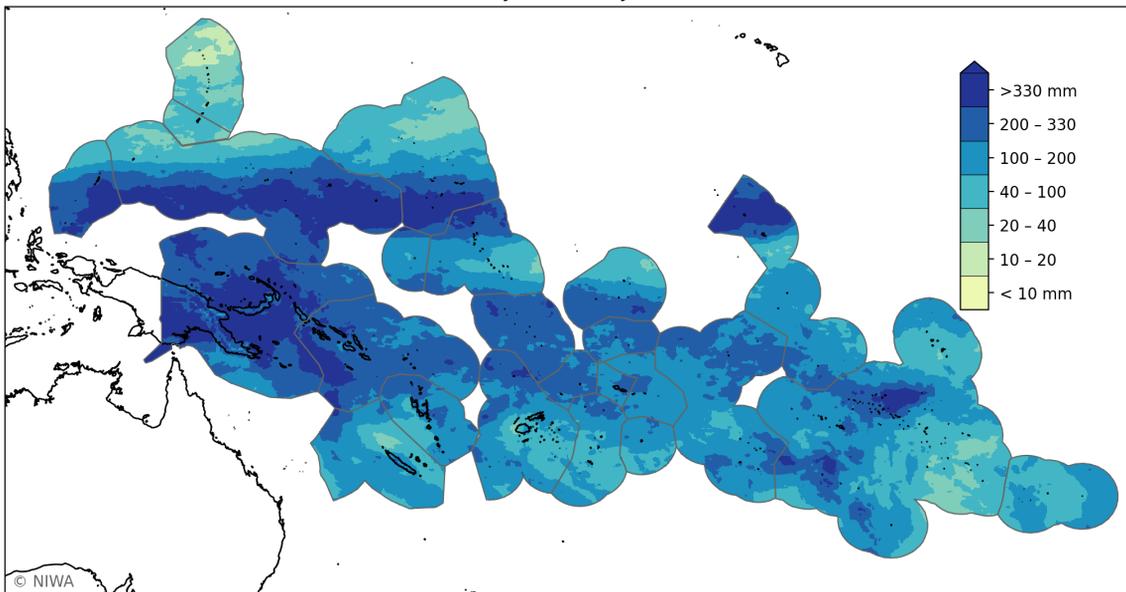
During February-April (top plot), over 990 mm of rain fell across parts of the southern Federated States of Micronesia (FSM), southern Marshall Islands, Papua New Guinea (PNG), the Solomon Islands, Vanuatu, Kiribati (northern Gilbert Islands and northern Line Islands), northern Tuvalu, Fiji, and Tonga. Less than 60 mm of rain was not observed in any island groups during February-April.

During April (bottom plot), over 330 mm of rain fell across parts of Palau, FSM, southern Marshall Islands, PNG, western Solomon Islands, Kiribati (northern Gilbert Islands and northern Line Islands), and northern Tuamotu Archipelago. Less than 40 mm of rain fell in the Northern Marianas, northern FSM, northern Marshall Islands, parts of New Caledonia, Fiji, and eastern Tuamotu Archipelago.

Cumulative rainfall (mm), source: MSWEP 2.8.0  
90 days to 01 May 2024



Cumulative rainfall (mm), source: MSWEP 2.8.0  
30 days to 01 May 2024

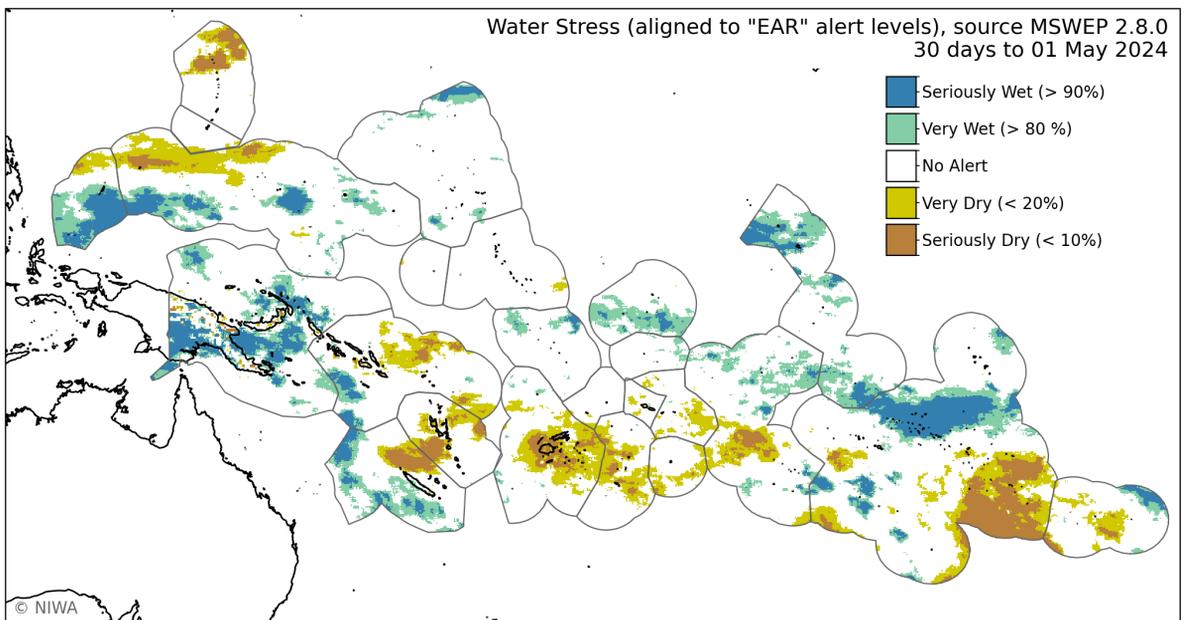
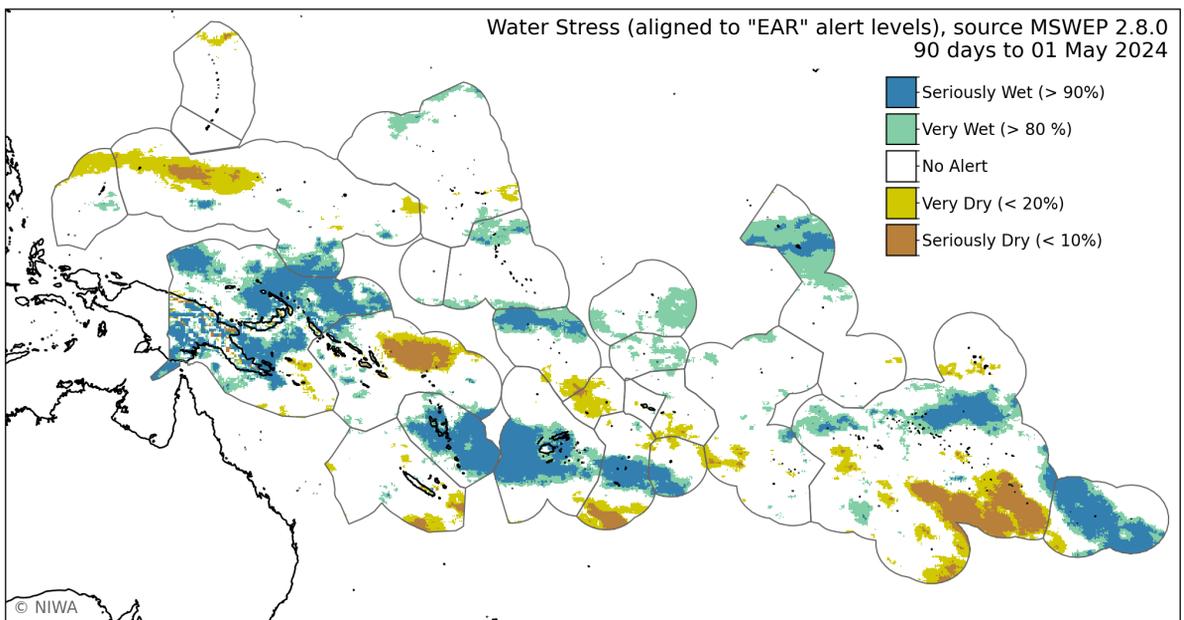


### EAR regional situation summary (1 May 2024)

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 February-April (top plot), seriously dry or very dry conditions affected parts of FSM, southern Marshall Islands, small parts of PNG, Solomon Islands, New Caledonia, southern Tuvalu, Wallis & Futuna, Samoa, American Samoa, southern Cook Islands, Austral Islands, eastern Tuamotu Archipelago, and Marquesas.

During April (bottom plot), seriously dry or very dry conditions affected parts of the Northern Marianas, FSM, parts of PNG, Solomon Islands, Vanuatu, Fiji, Tonga, southern Cook Islands, Society Islands, eastern Tuamotu Archipelago, and Pitcairn Islands.

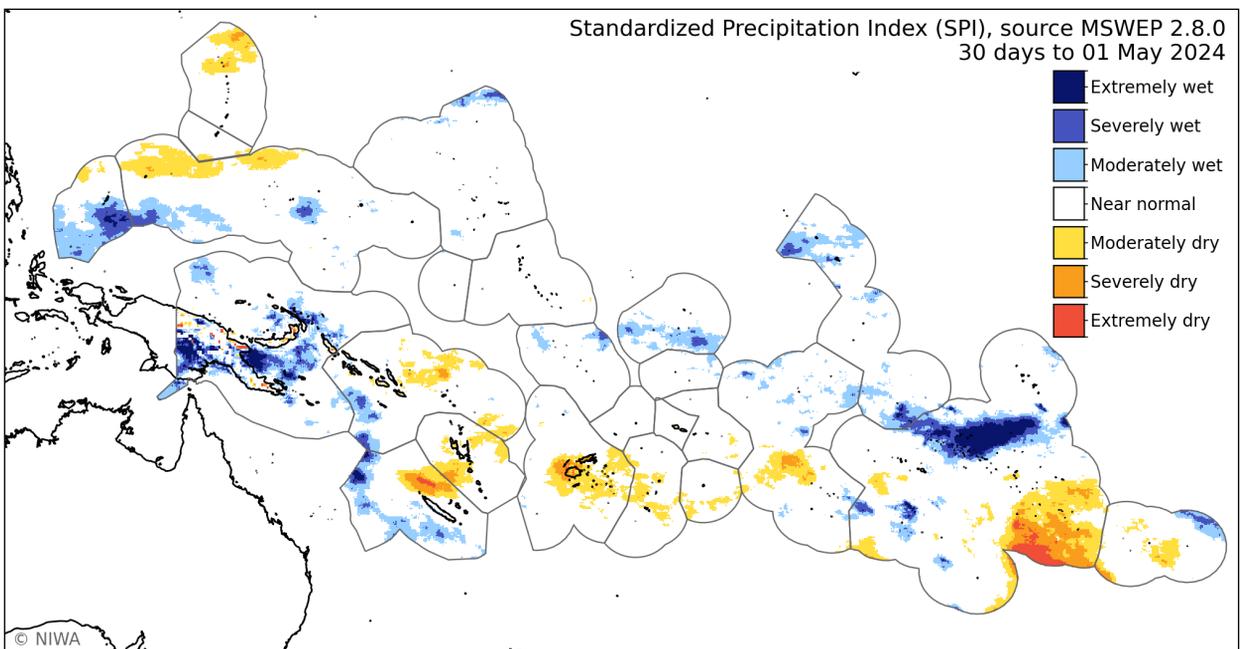
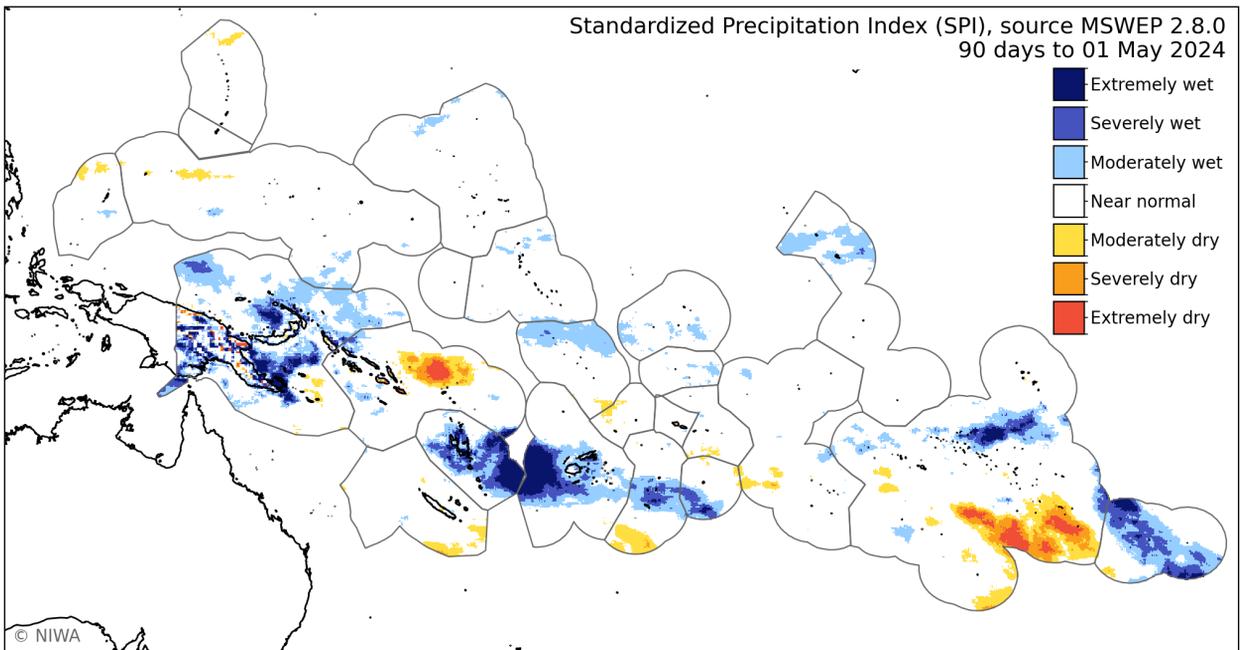


### SPI Regional situation summary (1 May 2024)

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

During February-April (top plot), extremely dry or severely dry conditions occurred in parts of PNG, Solomon Islands, and eastern Tuamotu Archipelago.

During April (bottom plot), extremely dry or severely dry conditions occurred in parts of the Northern Marianas, PNG, Solomon Islands, Vanuatu, Fiji, southern Cook Islands, and eastern Tuamotu Archipelago.

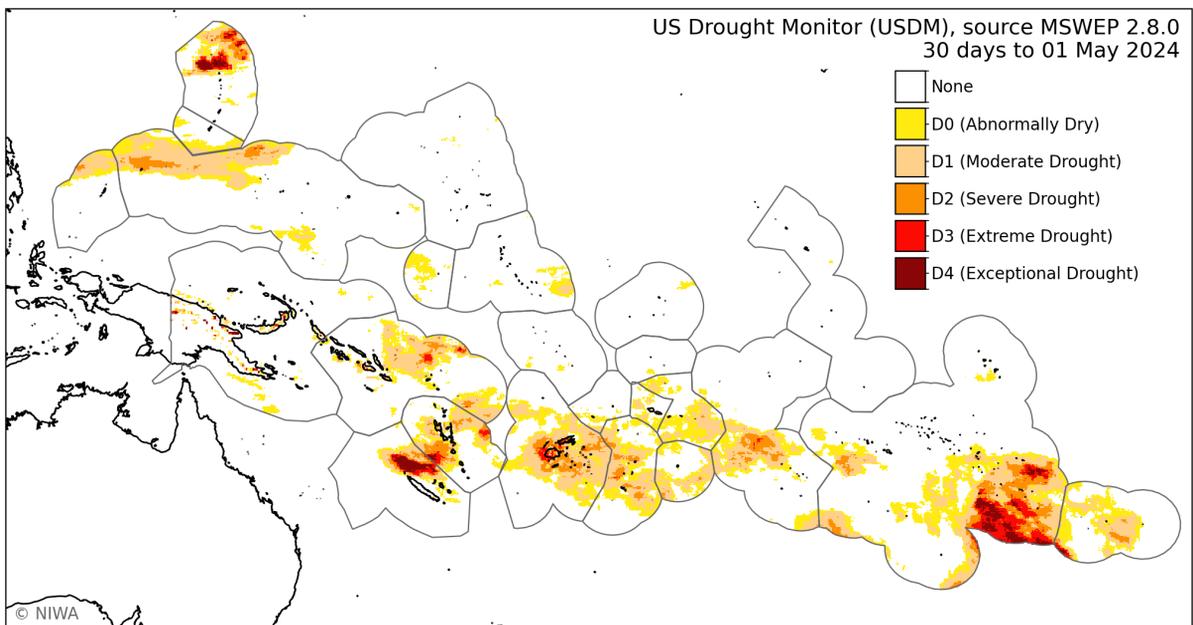
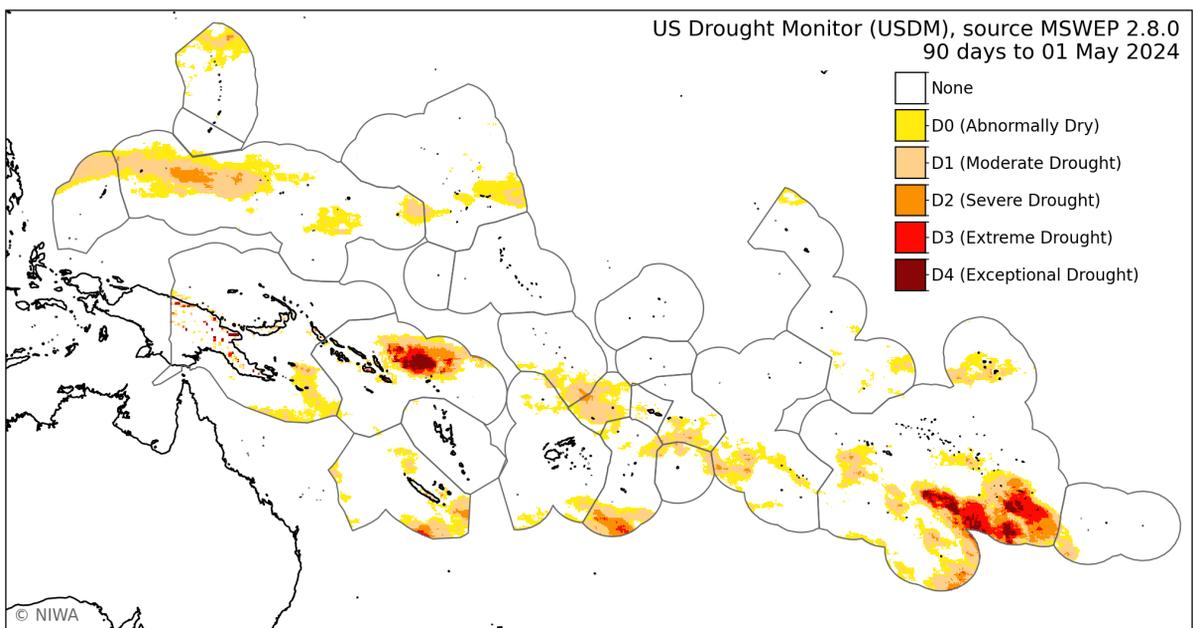


### USDM Regional situation summary (1 May 2024)

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

During February-April (top plot), extreme or exceptional drought occurred in parts of PNG, Solomon Islands, and eastern Tuamotu Archipelago.

During April (bottom plot), extreme or exceptional drought occurred in parts of the Northern Marianas, PNG, Solomon Islands, Vanuatu, Fiji, Tonga, and eastern Tuamotu Archipelago.



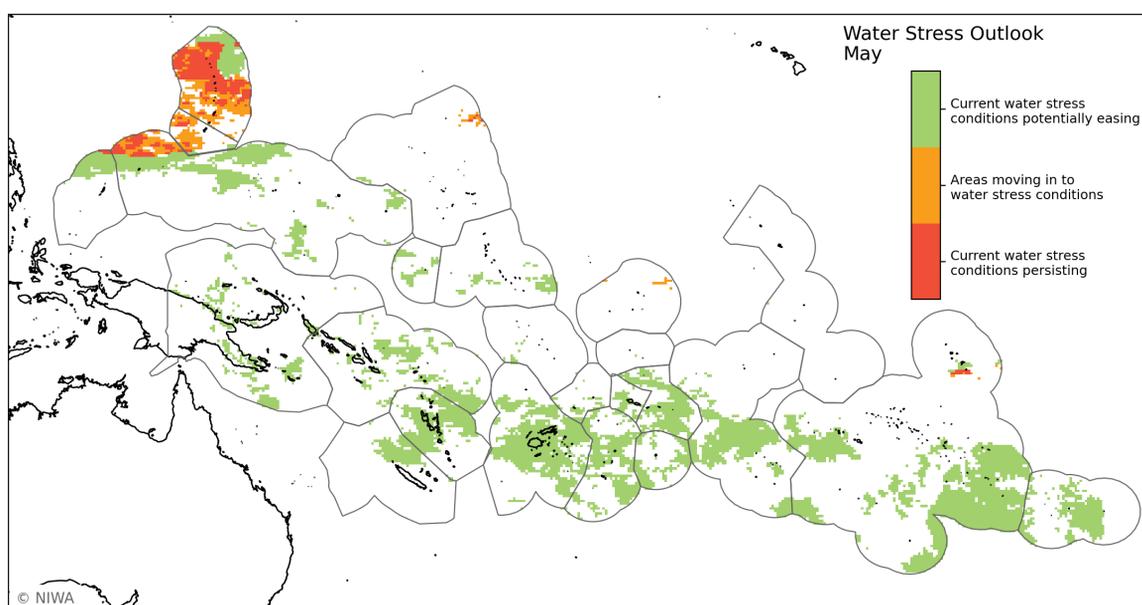
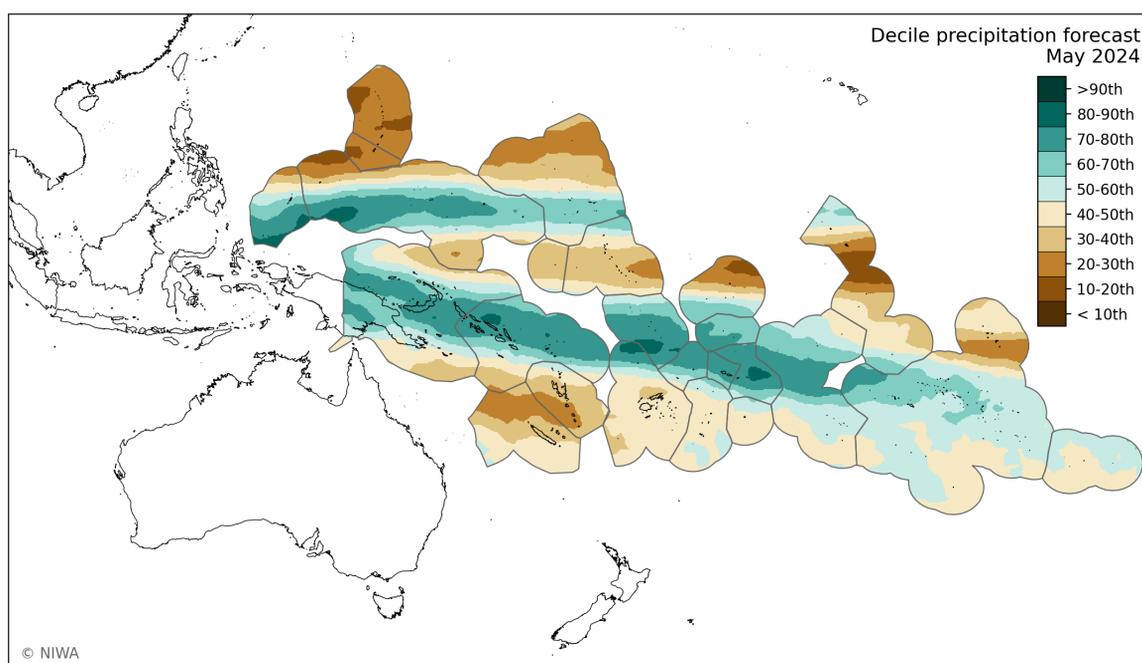
### May 2024 forecast summary

During May, significantly below normal rainfall is favoured in Guam, Northern Marianas, northern Marshall Islands, far southern FSM, New Caledonia, Vanuatu, northern Fiji, Gilbert Islands, northern Phoenix Islands, central Line Islands, and Marquesas.

Significantly above normal rainfall is favoured in southern Palau, parts of FSM, southern Marshall Islands, PNG, Solomon Islands, Tuvalu, Samoa, American Samoa, northern Cook Islands, Society Islands, and Tuamotu Archipelago.

All other island groups are expected to see rainfall amounts closer to normal in May.

Water stress conditions may persist or develop in Guam, Northern Marianas, and part of the Marquesas.



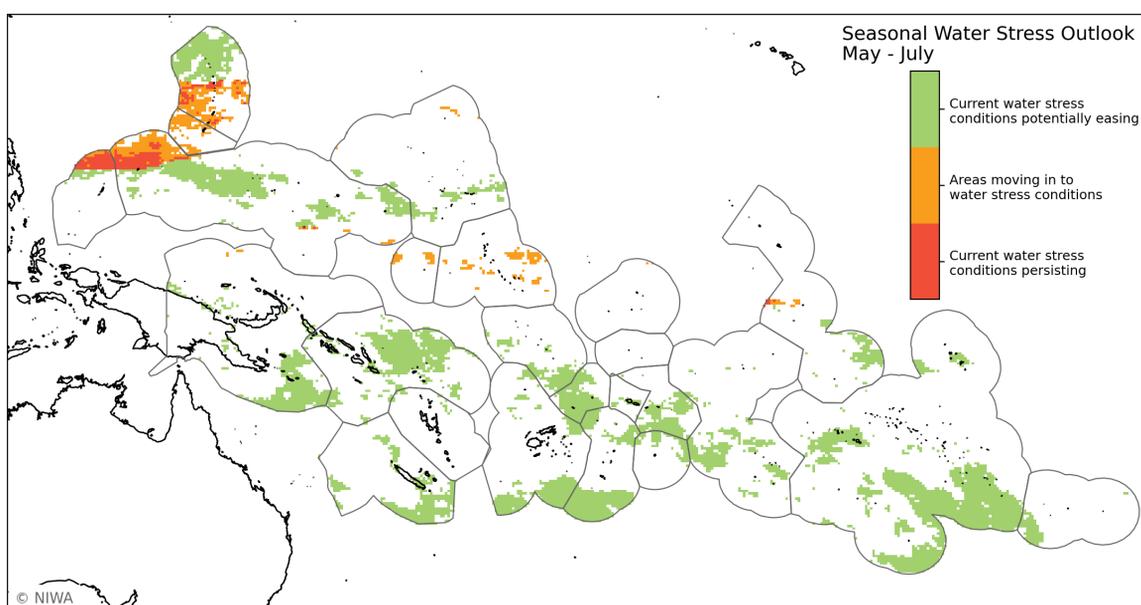
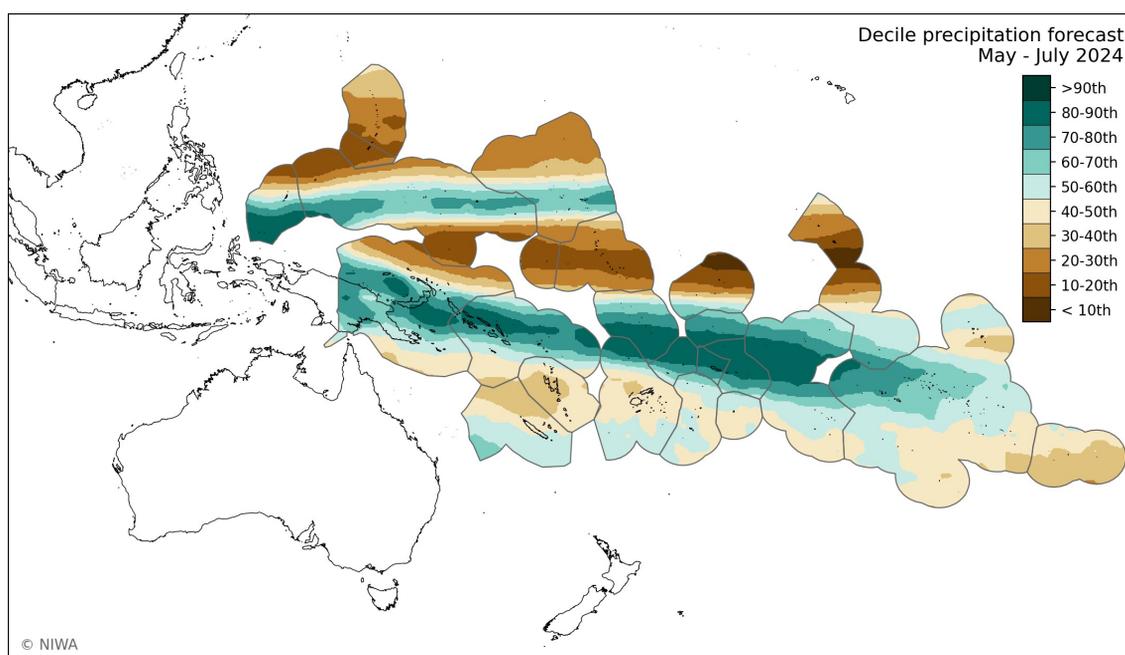
### May-July 2024 forecast summary

During May-July, significantly below normal rainfall is favoured in Guam, Northern Marianas, parts of FSM, northern Marshall Islands, Nauru, Vanuatu, northern Fiji, Kiribati, southern Marquesas, and Pitcairn Islands.

Significantly above normal rainfall is favoured in southern Palau, PNG, Solomon Islands, Tuvalu, Tokelau, far northern Fiji, Wallis & Futuna, Samoa, American Samoa, northern Cook Islands, Society Islands, and western Tuamotu Archipelago.

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

Water stress conditions may persist or develop in parts of northwestern FSM, Guam, Northern Marianas, and Gilbert Islands.

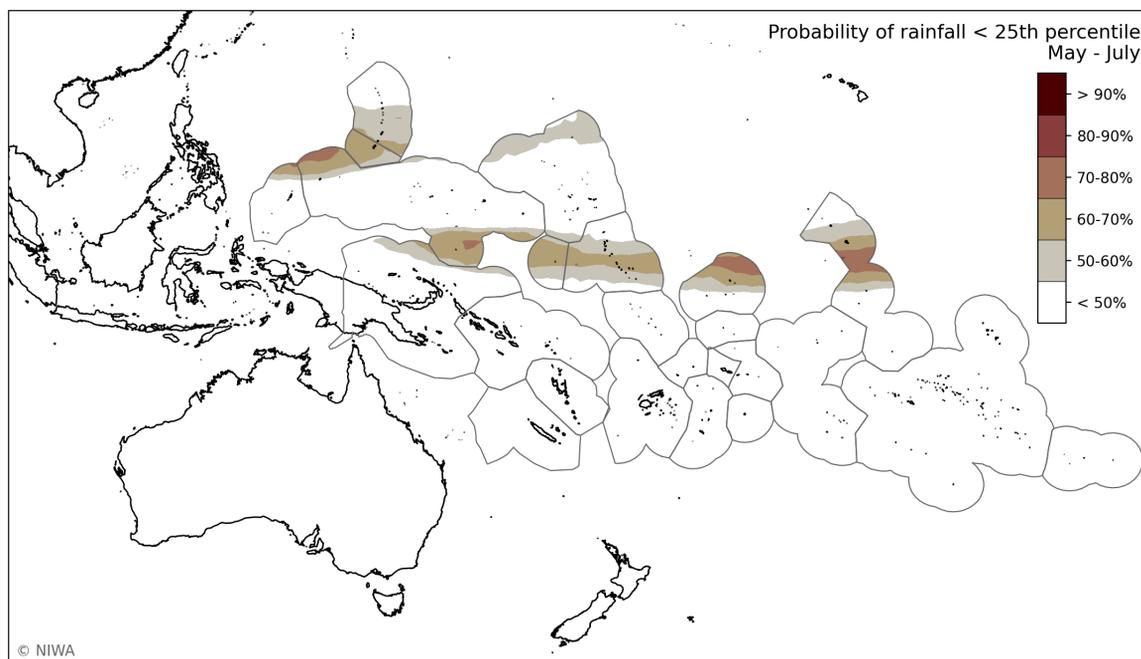
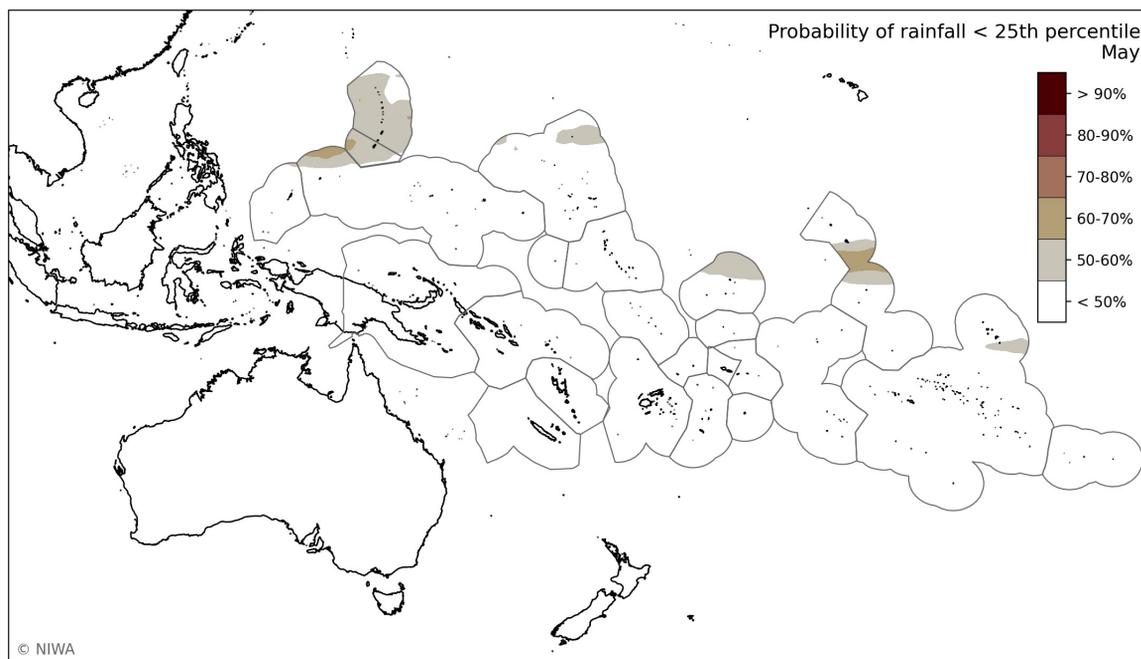


### Probabilities of rainfall < 25<sup>th</sup> percentile

The probability (likelihood) of very dry conditions with cumulative rainfall being less than the 25<sup>th</sup> percentile for May (top plot) and for the season May-July (bottom plot) are shown.

For May, the highest chances for very dry conditions are across parts of Guam, Northern Marianas, northern Marshall Islands, the Phoenix and Line Islands, and southern Marquesas.

For May-July, the highest chances for very dry conditions are across Guam, Northern Marianas, far southern FSM, northern Marshall Islands, 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"> <li>• Current water stress conditions potentially easing: Past 3 month accumulation less than 25<sup>th</sup> percentile. 1 month / seasonal accumulation forecast greater than 25<sup>th</sup> percentile.</li> <li>• Areas moving in to water stress: Past 3 month accumulation between the 40<sup>th</sup> and 25<sup>th</sup> percentile. 1 month / seasonal accumulation forecast less than 25<sup>th</sup> percentile.</li> <li>• Current water stress conditions persisting: Past 3 month accumulation less than 25<sup>th</sup> percentile. 1 month / seasonal accumulation forecast less than 25<sup>th</sup> percentile.</li> </ul> <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>Online Resources</p>	<p><b>Additional regional and country-level resources are available online:</b></p> <ul style="list-style-type: none"> <li>• Daily updated plots for 30, 60, 90, 180 and 365 day: accumulative rainfall, number of dry days, number of days since last rainfall &gt; 1 mm, EAR, SPI and USDM indices.</li> <li>• A range of probabilistic one to five monthly and seasonal forecast plots updated around the 11<sup>th</sup> of each month.</li> <li>• Click <a href="#">here for the imagery</a> and here for the underlying data [<a href="#">observations</a>, <a href="#">forecast</a>].</li> </ul>



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.

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