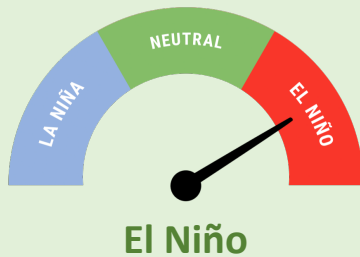


# Island Climate Update



**ENSO Watch**  
February 2024

Recent



El Niño was active during January and will very likely continue over the next three months.

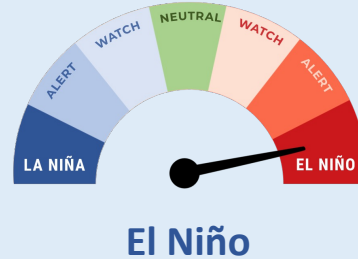
The Southern Oscillation Index (SOI) was -0.4 from November-January, in the neutral range.

Tropical Pacific Ocean sea surface temperatures (SSTs) were within the range of a strong El Niño during January.

**100%** chance for **El Niño** conditions to continue through **April 2024**

Chance for **neutral** conditions developing during **May-July 2024**

**65%**



Forecast

## ENSO situation summary

El Niño continued during January and has around a 100% chance of persisting through April.

The monthly NINO3.4 Index anomaly (in the central equatorial Pacific) at the end of January was +1.79°C, within the range of a strong El Niño (classified when the NINO3.4 Index is greater than +1.5°C). Although the current El Niño event is past its peak oceanic intensity, atmospheric patterns will likely continue to show El Niño-like tendencies in the months ahead.

The Southern Oscillation Index (SOI) was in the neutral range during January (+0.3) and during November-January (-0.4). This suggests that El Niño's reflection in the atmosphere has been atypical, particularly considering the oceanic intensity.

Trade wind strength was near normal or above normal during January which resulted in a weakening of the oceanic El Niño. However, a major reversal is taking place, with a westerly wind event occurring near the equator and off the equator in the South Pacific.

This will likely give the ocean-atmosphere system an El Niño-like 'jolt', slowing El Niño's decay. This feature's influence will then ease during March, likely causing El Niño to weaken further.

The subsurface equatorial Pacific is cooler than average across much of the basin below 100 metres depth and the west Pacific is 0.5°C to 1.5°C below average near and west of the International Date Line. The east remains warmer than average, with the basin now showing more of a traditional El Niño-like signature, despite the El Niño event now being in its decay stage.

A marine heatwave is active between New Caledonia and Fiji, extending eastward to Samoa and the northern Cook Islands. The SPCZ is forecast to be very active during February and will likely contribute to several tropical cyclones, such as Nat and Osai, which both formed in the eastern part of the basin near the northern Cook Islands early in the month. The risk for tropical cyclone activity is often higher in the eastern portion of the basin during El Niño. All islands should remain vigilant, as tropical cyclone season continues through April.

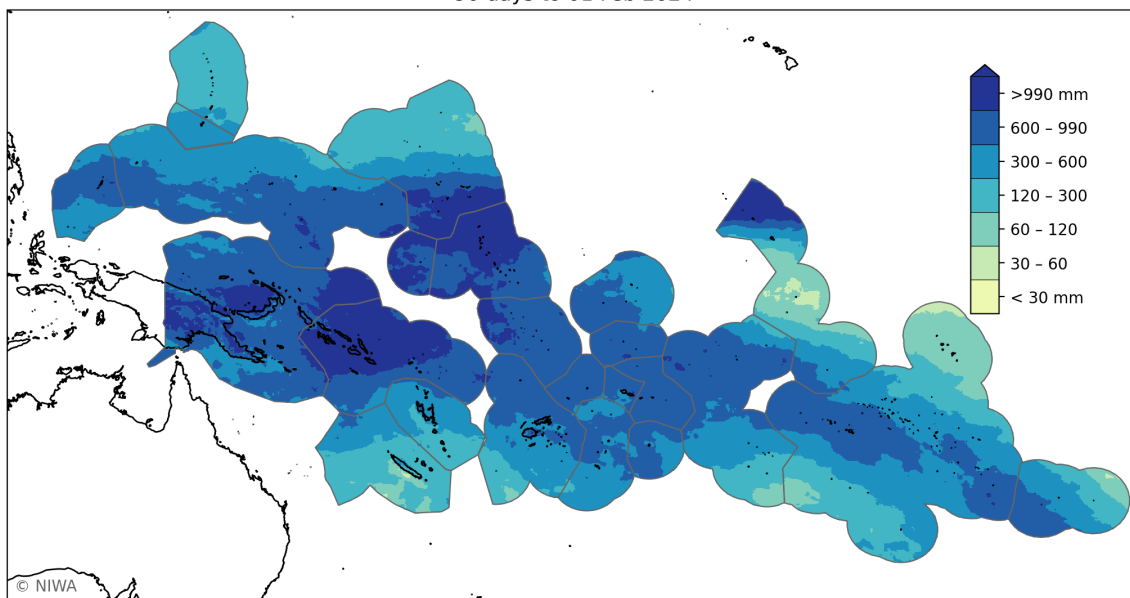
### Regional situation summary (1 February 2024)

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

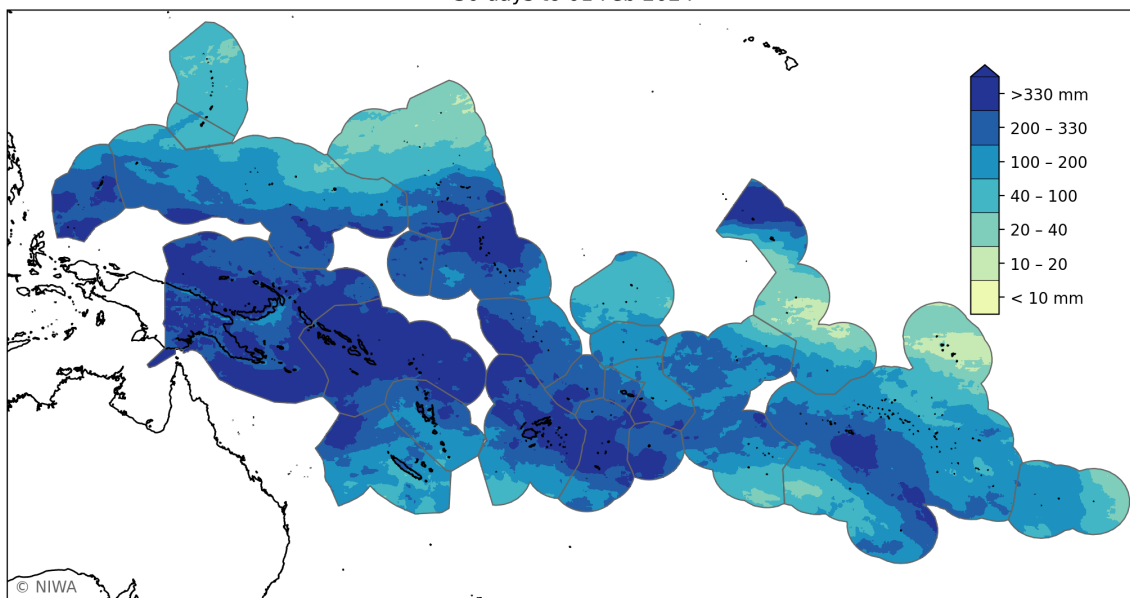
During November-January (top plot), over 990 mm of rain fell across parts of the southern Marshall Islands, parts of Papua New Guinea (PNG), the Solomon Islands, Nauru, the Gilbert Islands, the northern Line Islands, and Tuvalu. Less than 60 mm of rain fell in parts of New Caledonia and the central Line Islands.

During January (bottom plot), over 330 mm of rain fell across parts of Palau, southern Federated States of Micronesia (FSM), southern Marshall Islands, Gilbert Islands, northern Line Islands, PNG, Solomon Islands, northern Vanuatu, Tuvalu, Fiji, Tonga, Samoa, Niue, and Society Islands. Less than 40 mm of rain fell in the northern Marshall Islands, central Line Islands, and Marquesas.

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



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

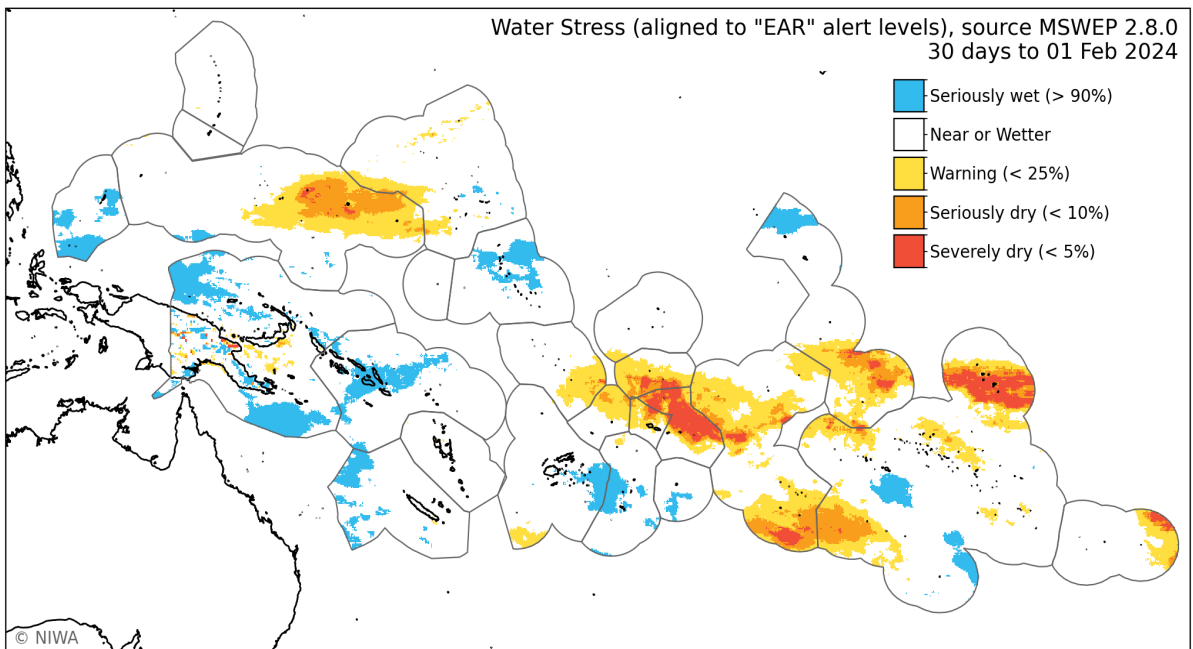
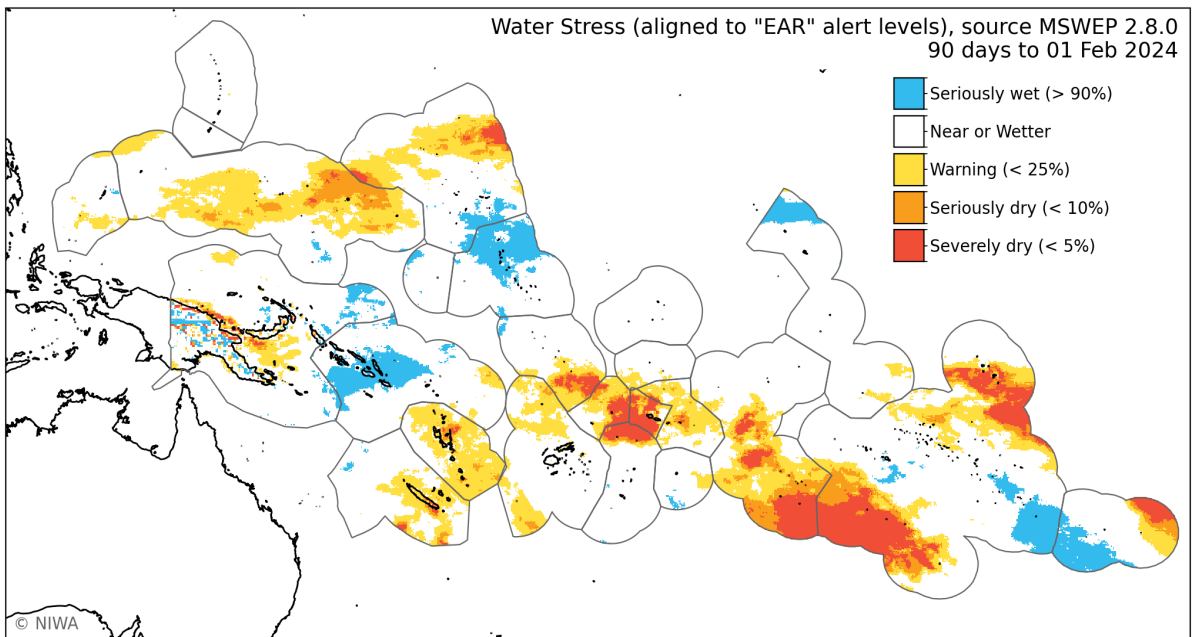


### EAR regional situation summary (1 February 2024)

The regional thresholds for cumulative rainfall over the last 90 and 30 days are shown in the plots below.

During November-January (top plot), severely or seriously dry conditions affected parts of FSM, Marshall Islands, PNG, Tuvalu, New Caledonia, Vanuatu, Wallis & Futuna, Samoa, American Samoa, northern Tonga, southern Cook Islands, Austral Islands, and Marquesas.

During January (bottom plot), severely or seriously dry conditions affected parts of FSM, PNG, Tokelau, Samoa, American Samoa, northern and southern Cook Islands, Austral Islands, and Marquesas.



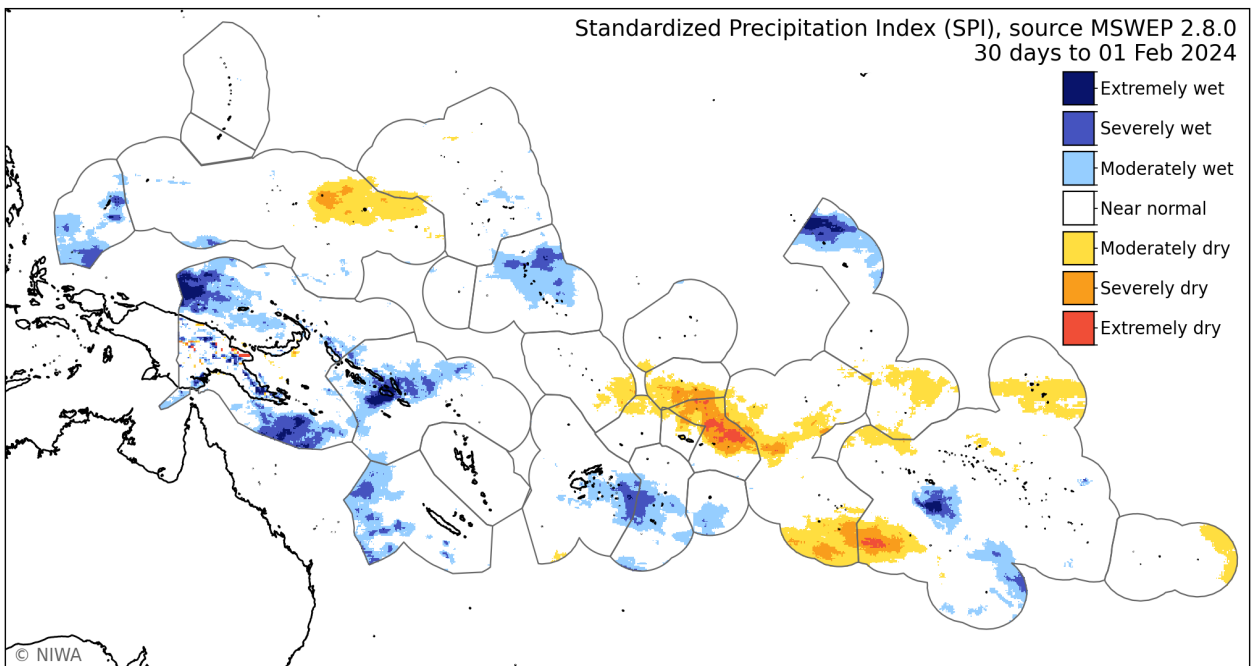
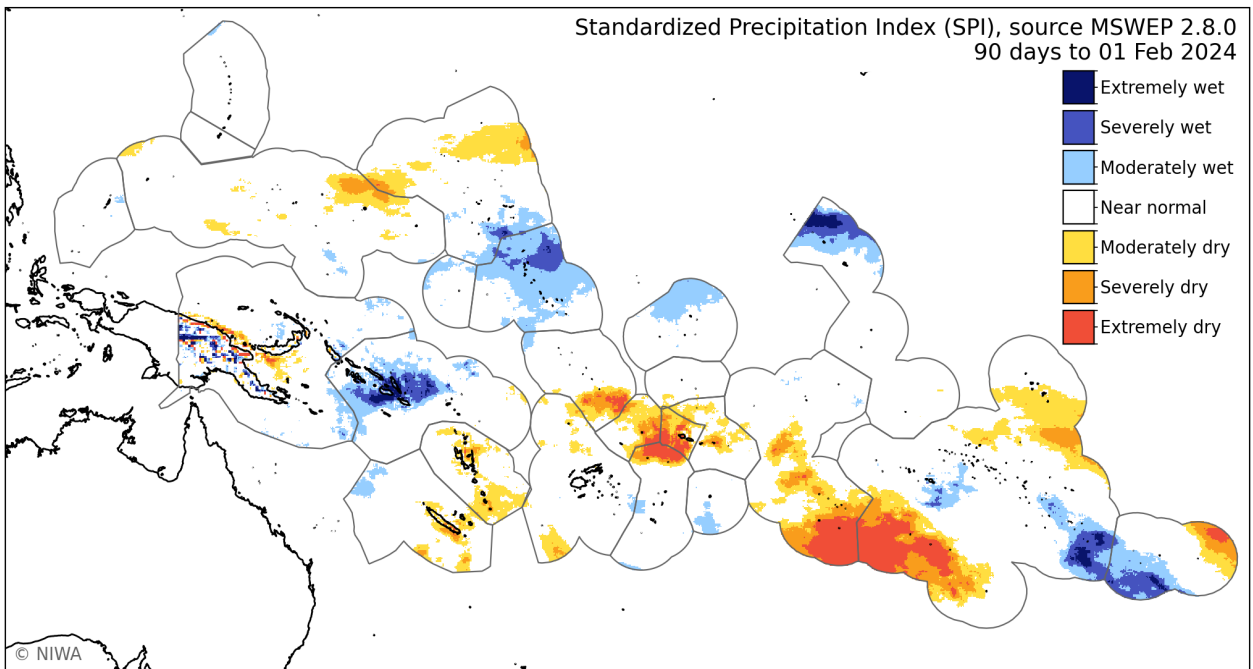


### SPI Regional situation summary (1 February 2024)

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

During November-January (top plot), extremely or severely dry conditions occurred in parts of PNG, New Caledonia, Vanuatu, Tuvalu, Wallis & Futuna, Samoa, American Samoa, northern Tonga, southern Cook Islands, and Austral Islands.

During January (bottom plot), extremely or severely dry conditions occurred in parts of FSM, PNG, Tokelau, American Samoa, southern Cook Islands, and Austral Islands.

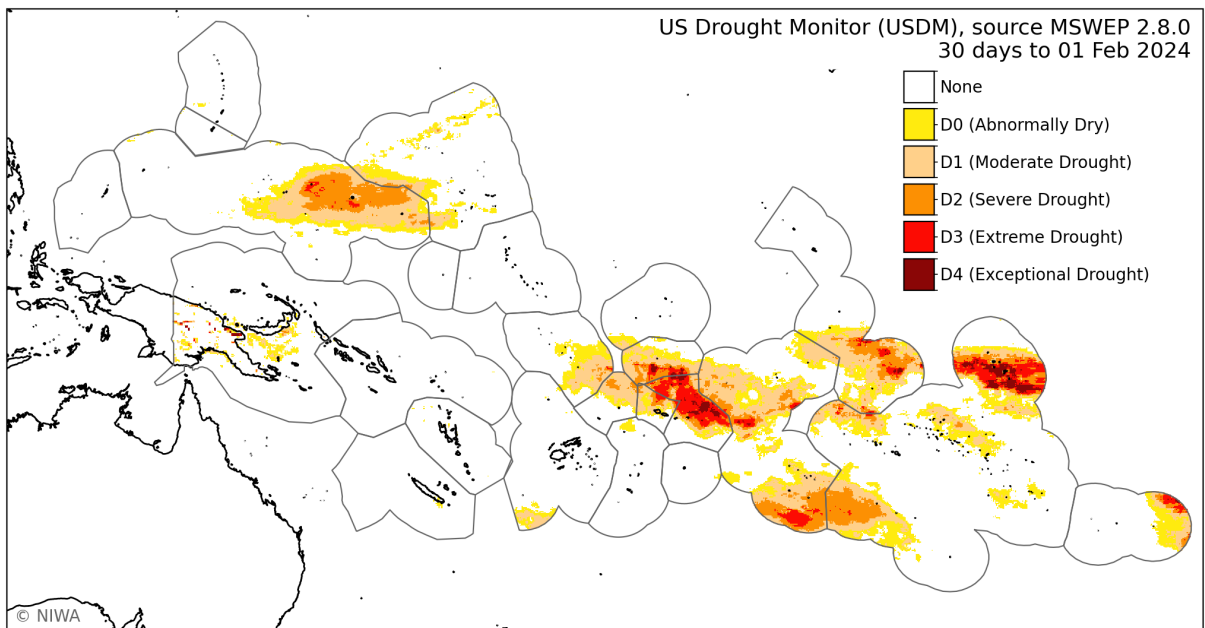
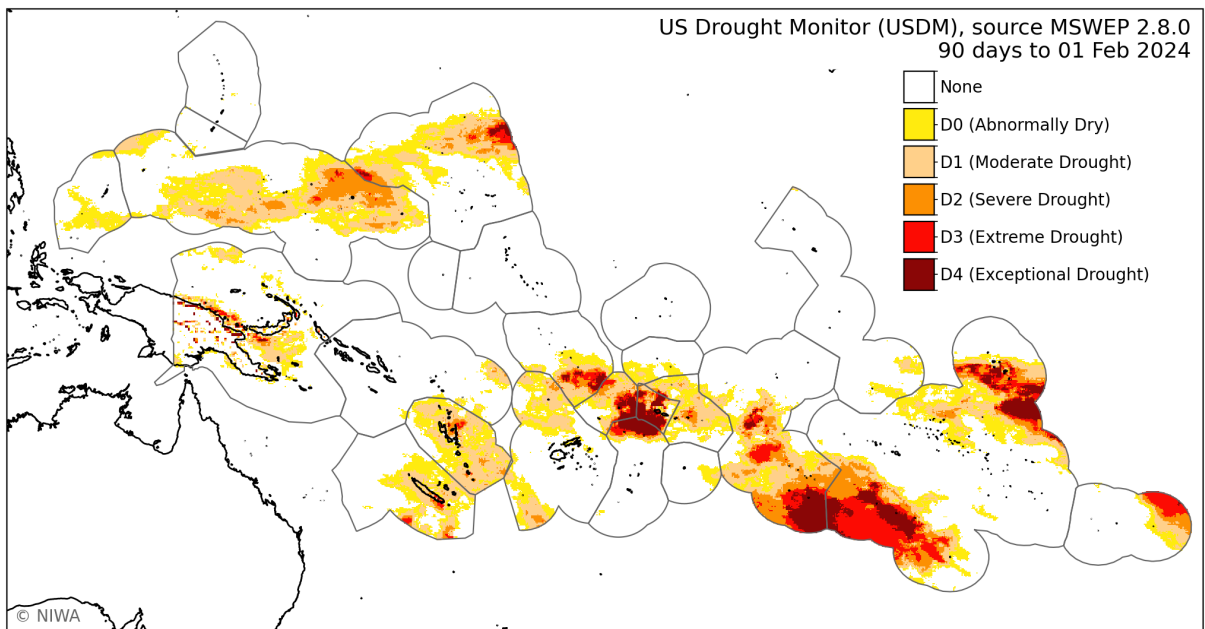


### USDM Regional situation summary (1 February 2024)

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

During November-January (top plot), extreme or exceptional drought occurred in parts of FSM, Marshall Islands, PNG, Tuvalu, New Caledonia, Vanuatu, Wallis & Futuna, Samoa, American Samoa, northern Tonga, southern Cook Islands, Austral Islands, and Marquesas.

During January (bottom plot), extreme or exceptional drought occurred in parts of FSM, PNG, Tokelau, American Samoa, northern and southern Cook Islands, Austral Islands, and Marquesas.

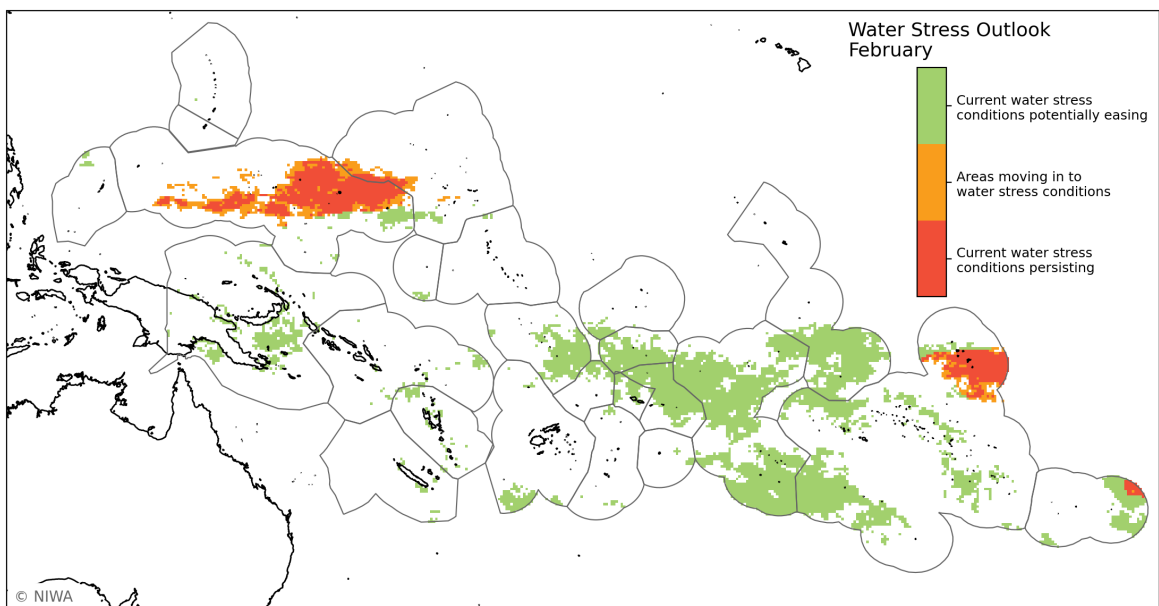
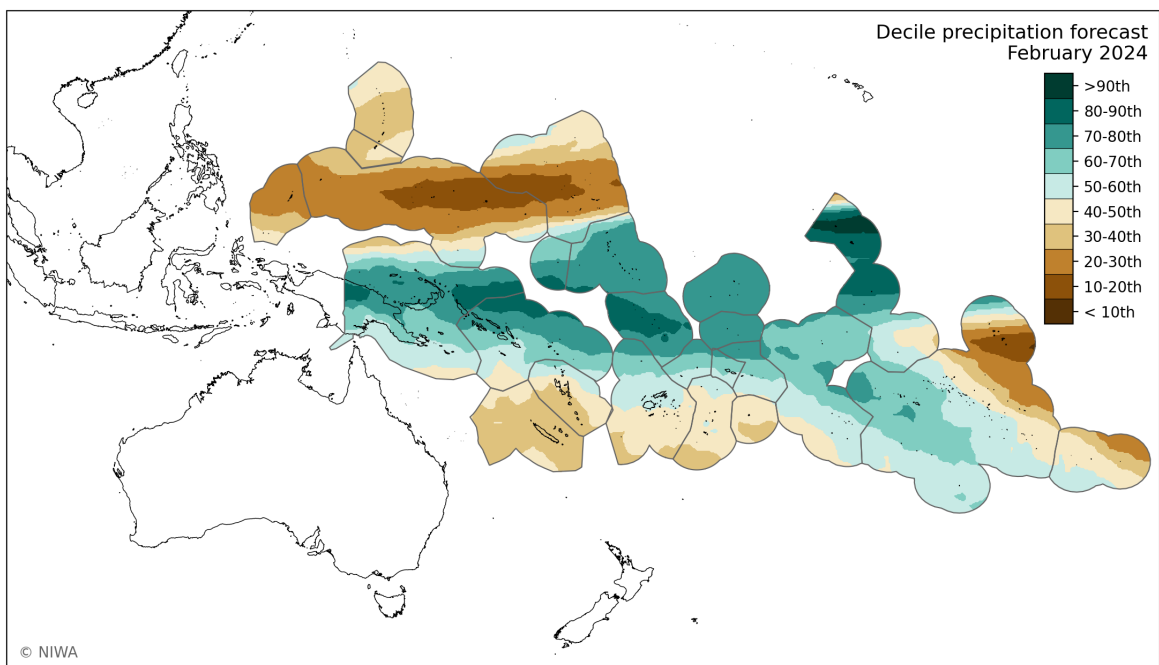


### February 2024 forecast summary

During February, below normal rainfall is favoured in Palau, Guam, Northern Marianas, FSM, Marshall Islands, New Caledonia, Vanuatu, southern Fiji, Tonga, Niue, Marquesas, northern Tuamotu Archipelago, and Pitcairn Islands.

Above normal rainfall is favoured in PNG, Solomon Islands, Nauru, Kiribati, Tuvalu, Tokelau, northern Fiji, Wallis & Futuna, Samoa, American Samoa, northern and southern Cook Islands, Austral Islands, and southern Tuamotu Archipelago.

Water stress conditions may persist or develop in parts of FSM and Marquesas.



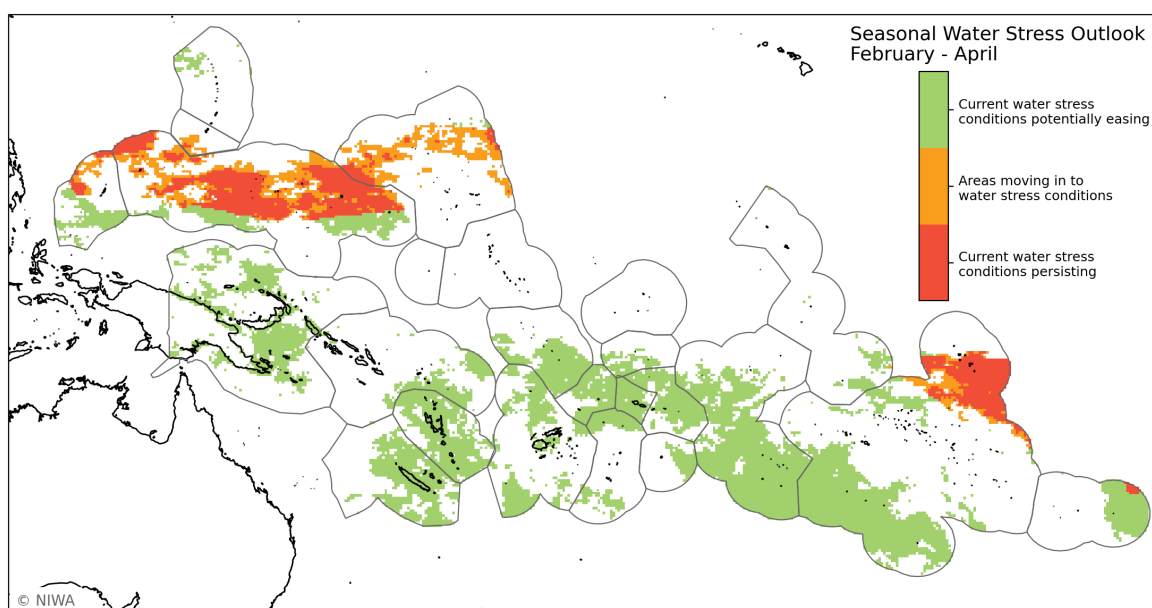
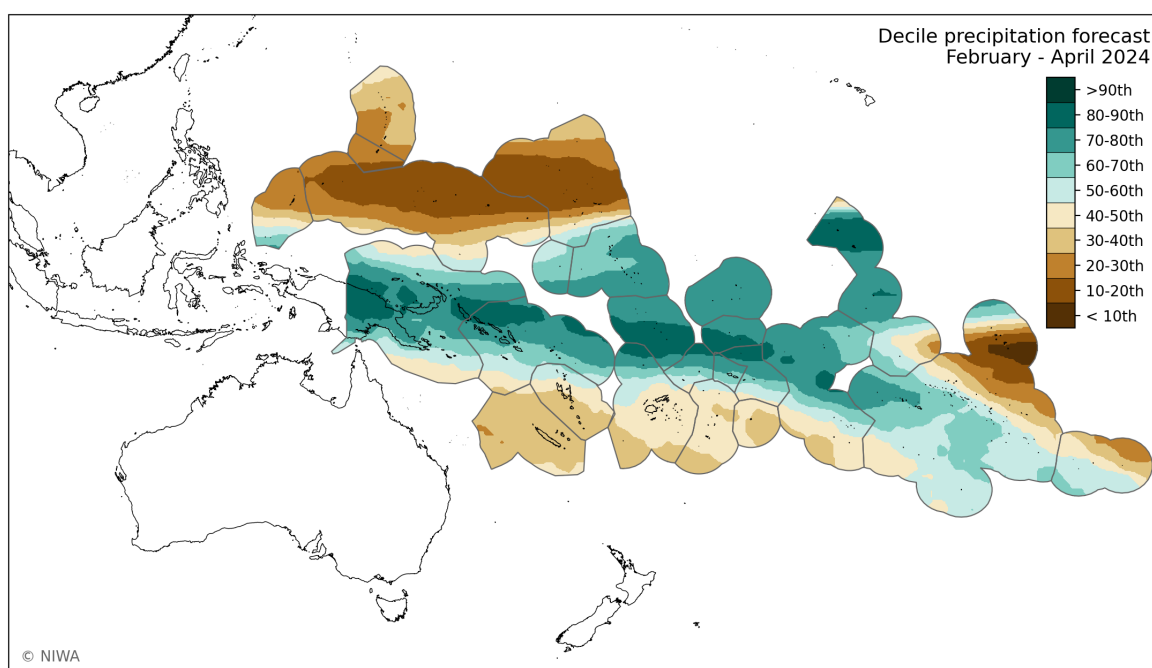


### February-April 2024 forecast summary

During February-April, below normal rainfall is favoured across Palau, Guam, Northern Marianas, FSM, Marshall Islands, New Caledonia, Vanuatu, Fiji, Tonga, Niue, part of the southern Cook Islands, Marquesas, northern Tuamotu Archipelago, and part of the Pitcairn Islands.

Above normal rainfall is favoured in southern Palau, PNG, Solomon Islands, part of northern Vanuatu, Nauru, Kiribati, Tuvalu, Tokelau, northern Fiji, Wallis & Futuna, Samoa, American Samoan, most of the Cook Islands, Society Islands, Austral Islands, and southern Tuamotu Archipelago.

Water stress conditions may persist or develop in parts of FSM, northern Marshall Islands, and Marquesas.

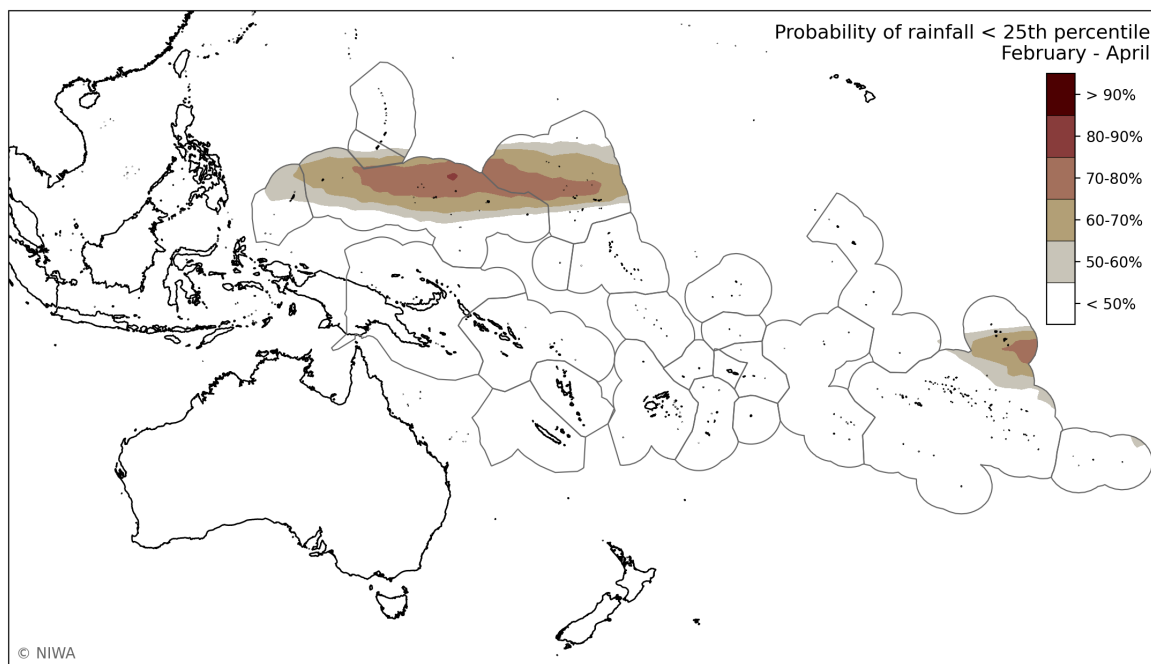
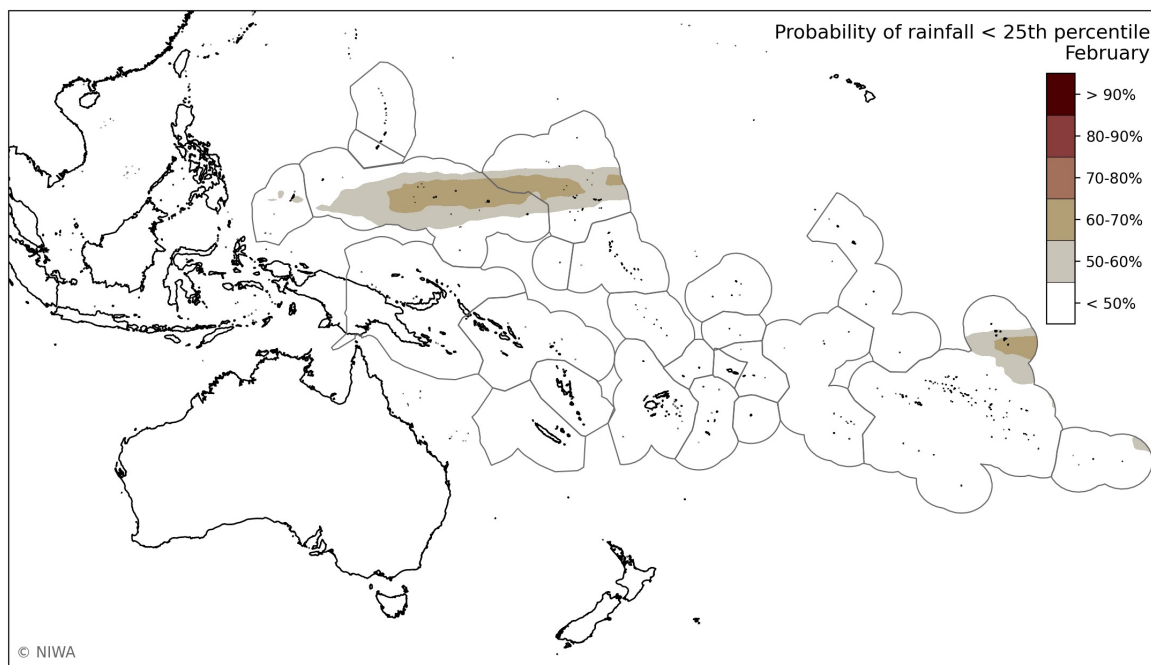


### Probabilities of rainfall < 25<sup>th</sup> percentile

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

For February, the highest chances for very dry conditions are across parts of Palau, FSM, Marshall Islands, and Marquesas.

For February-April, the highest chances for very dry conditions are across parts of Palau, FSM, Marshall Islands, and Marquesas.





# 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
<b>Rainfall watch</b>	Rainfall plots are derived from MSWEP data. Regional rainfall accumulation is shown for the last 30 days (1 month) and 90 days (3 months).
<b>Water stress watch</b>	Plots are derived from MSWEP data. Different Pacific Island Meteorological Services use different approaches to defining drought and water stress. Hence 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.
<b>Water stress outlook</b>	<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 <a href="#">here for the underlying data</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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