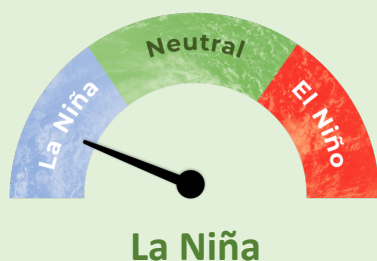


# Island Climate Update



**ENSO Watch**  
February 2022

## Recent



La Niña conditions continued in the equatorial Pacific during January.

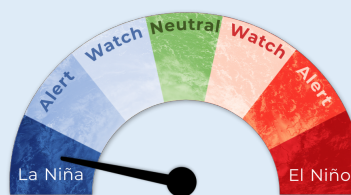
Sea surface temperatures were in the La Niña range in the central equatorial Pacific during January, on  $-0.70^{\circ}\text{C}$ .

The Southern Oscillation Index (SOI) was  $+0.9$  for November-January, near the La Niña threshold.

**75%** chance for **La Niña** conditions during February 2021 – April 2022.

Chance for **ENSO neutral** conditions during May - July 2022.

**65%**



**La Niña Event**

## Forecast

### ENSO situation summary

The NINO3.4 Index anomaly (in the central Pacific) during January was  $-0.70^{\circ}\text{C}$ , in the La Niña range. The monthly SOI was  $+0.3$  and three-month average SOI was  $+0.9$ , the latter near the La Niña threshold.

Upper-oceanic heat content increased in the western and central Pacific during January, signalling the decay of La Niña. Meanwhile, conditions remained cooler than average in the eastern Pacific.

In the subsurface equatorial Pacific, a substantial warm pool ( $+2^{\circ}\text{C}$  to  $3^{\circ}\text{C}$ ) at around 150 m depth continued to progress eastward from the western Pacific, which indicates an ongoing, gradual easing of La Niña conditions.

Despite this easing, La Niña conditions are forecast

to continue during February-April (75% chance).

From May-July, there is a 65% chance for the re-emergence of ENSO neutral conditions. Between August-October, ENSO neutral is favoured at a 50% chance.

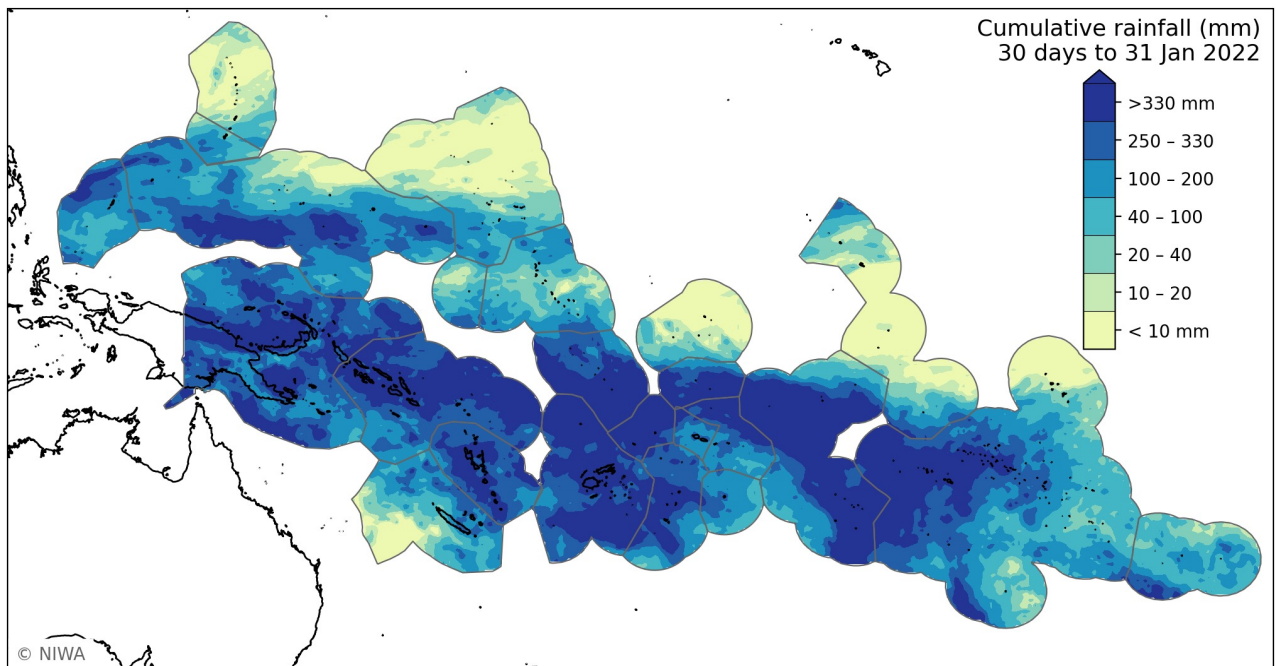
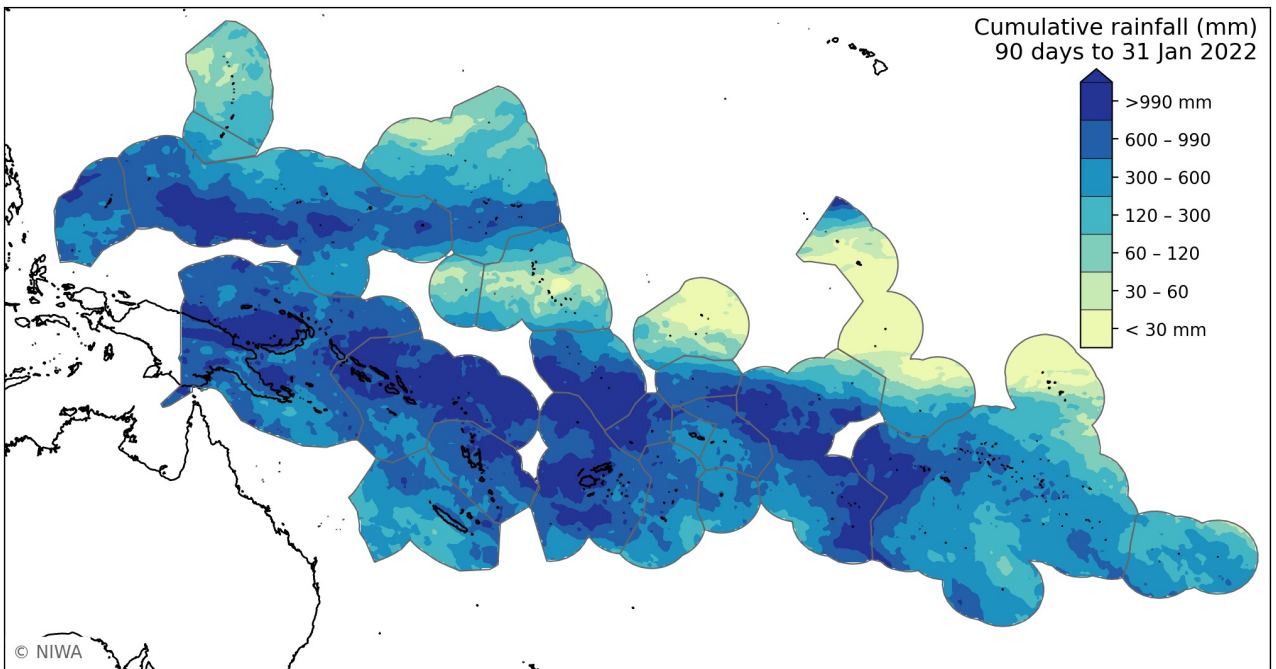
A pulse of convective activity associated with La Niña and the Madden-Julian Oscillation will be over the western Pacific during the first half of February, contributing to an increased risk for tropical cyclone activity. Island groups in the western part of the basin, New Caledonia and Vanuatu in particular, should remain up-to-date with the weather forecast.

### Regional situation summary (31 January 2022)

La Niña-like rainfall patterns continued in the tropical Pacific, with less rainfall near the equator and more rainfall toward the sub-tropics.

During January, less than 20 mm of rain was observed in parts of the Northern Marianas, northern Marshall Islands, the Phoenix and Line Islands of Kiribati, and parts of Marquesas.

These same islands have also experienced low rainfall during the last three months. Conversely, more than 300 mm of rain fell during January across parts of several island groups, spanning from Palau in the north-west to the Tuamotu Archipelago in the south-east.

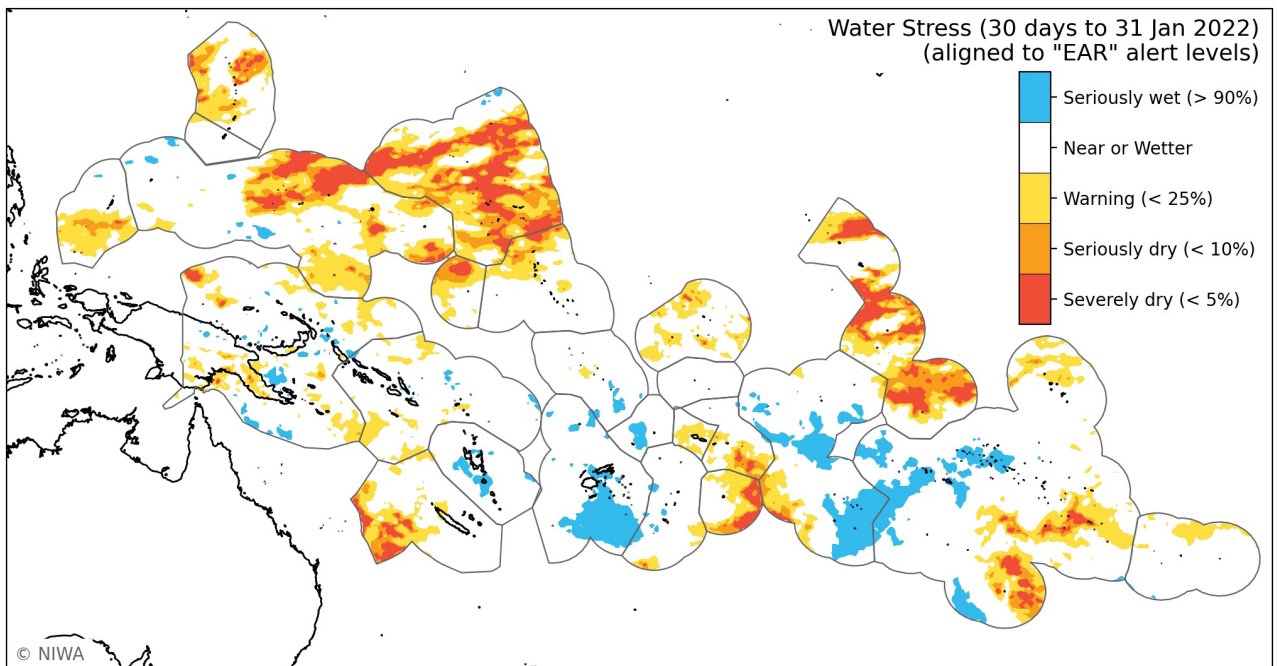
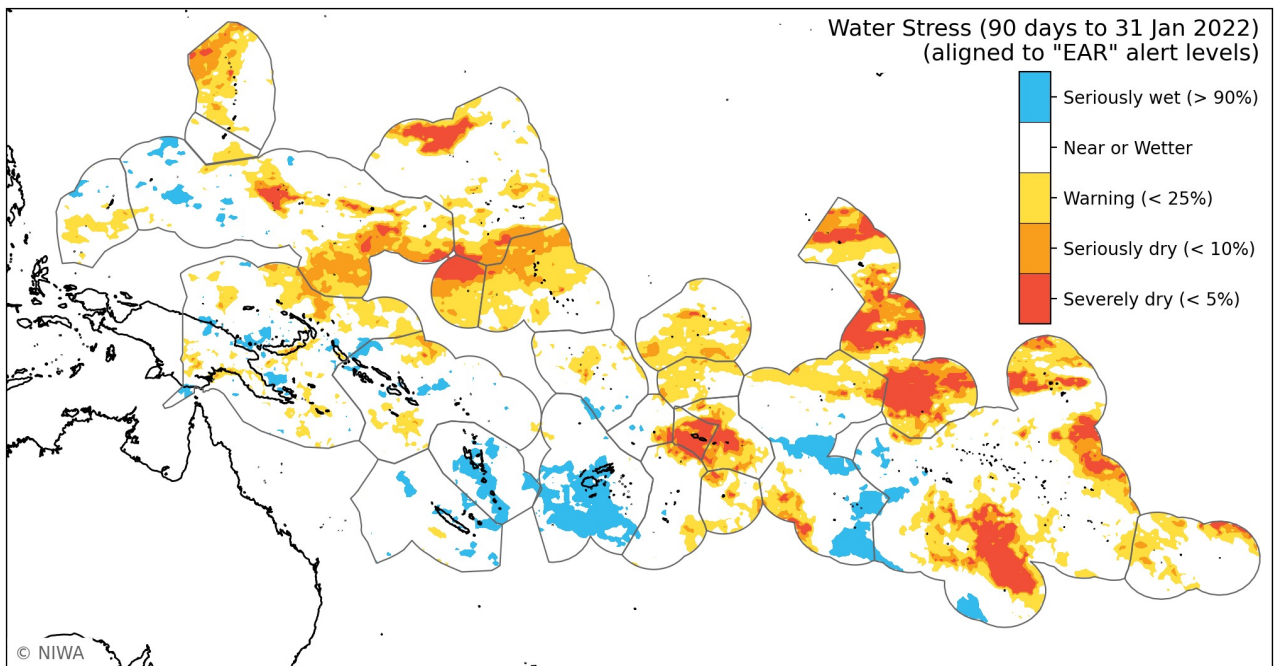


### EAR regional situation summary (31 January 2022)

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

Seriously (< 5<sup>th</sup> percentile) and severely dry (< 10<sup>th</sup> percentile) conditions were observed around the northern Marianas, eastern FSM, the Marshall Islands, the northern Gilberts, the Line Islands, and eastern French Polynesia.

Over the last three months, seriously or severely dry conditions affected many of the same island groups, but also included Nauru, the Phoenix Islands, Samoa, American Samoa, Wallis & Futuna, and Niue.

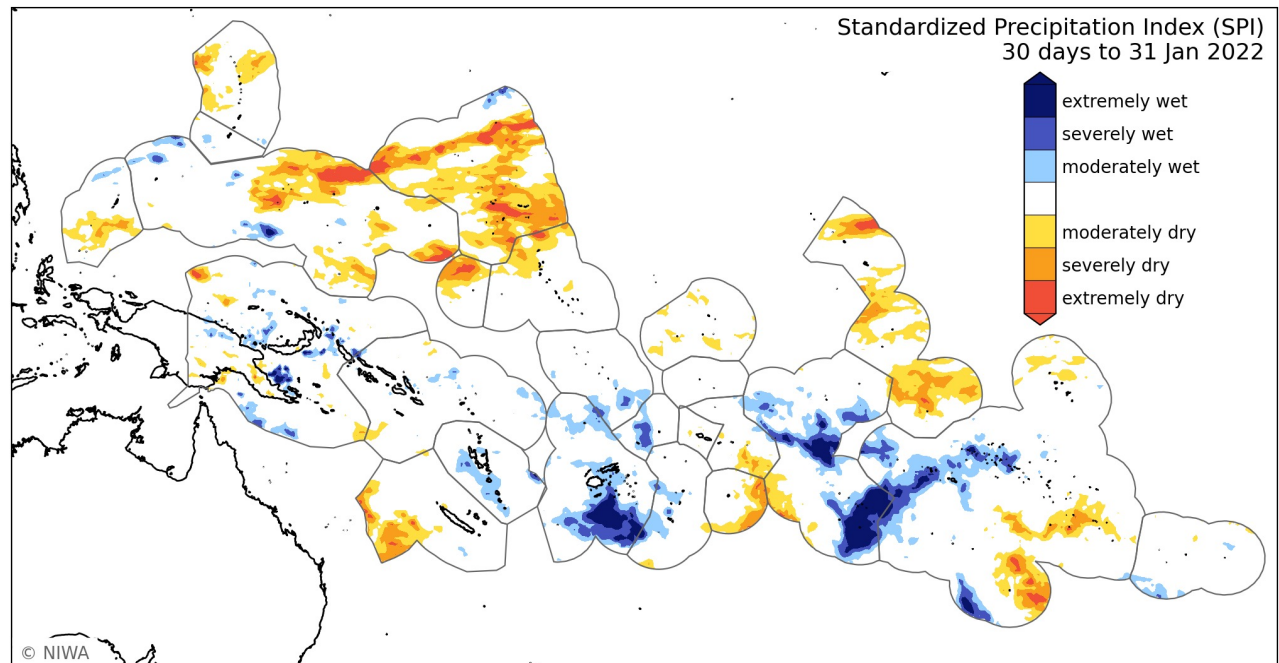
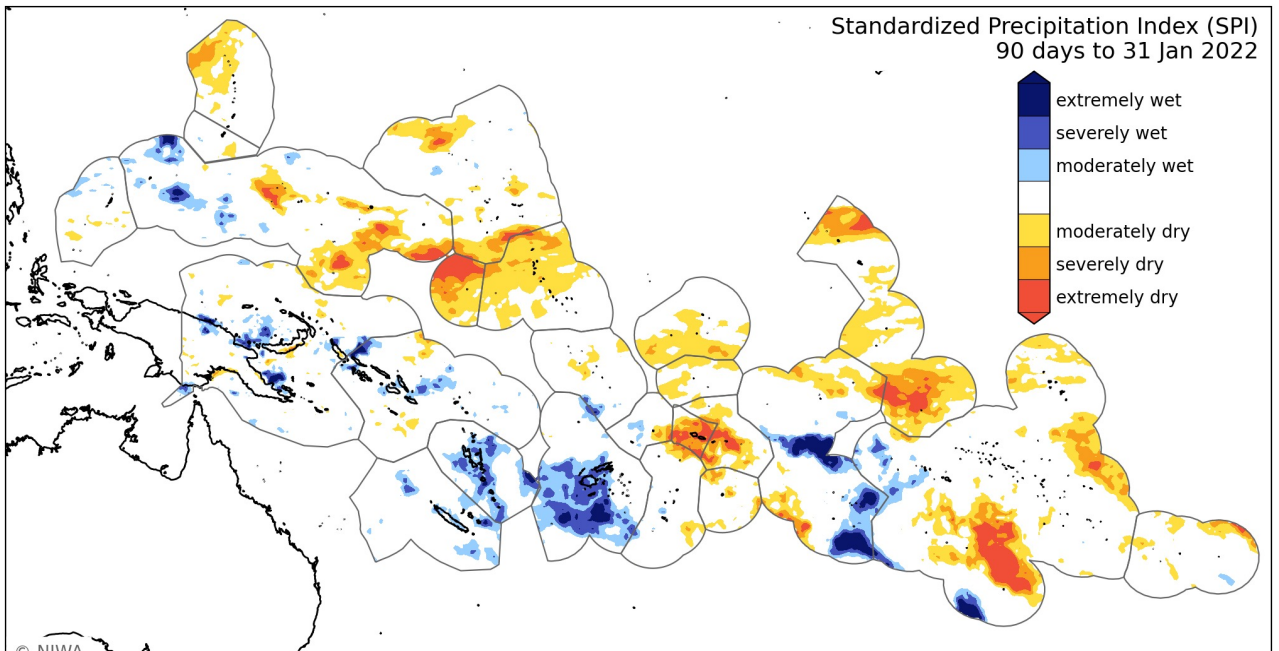


### SPI Regional situation summary (31 January 2022)

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

During January, extremely and severely dry conditions were observed in parts of eastern FSM, the Marshall Islands, the Line Islands, and eastern French Polynesia.

Over the last 3 months, the driest conditions were found in many of the same island groups, but also included Nauru, Samoa, and American Samoa.

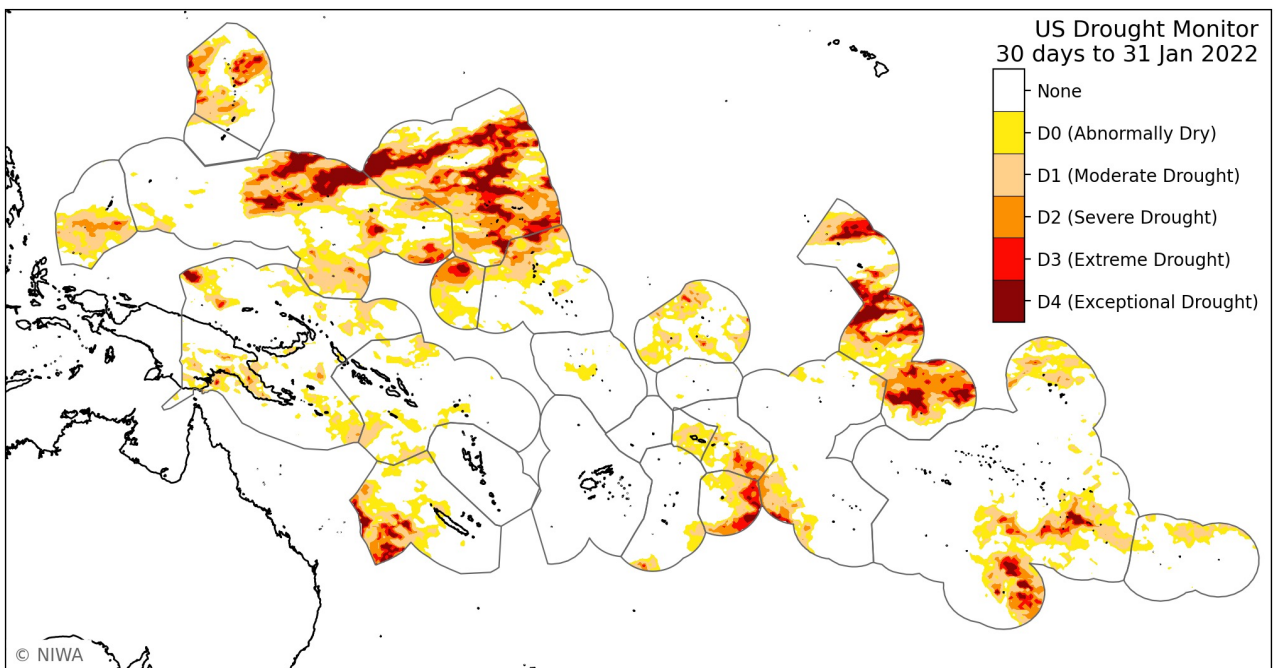
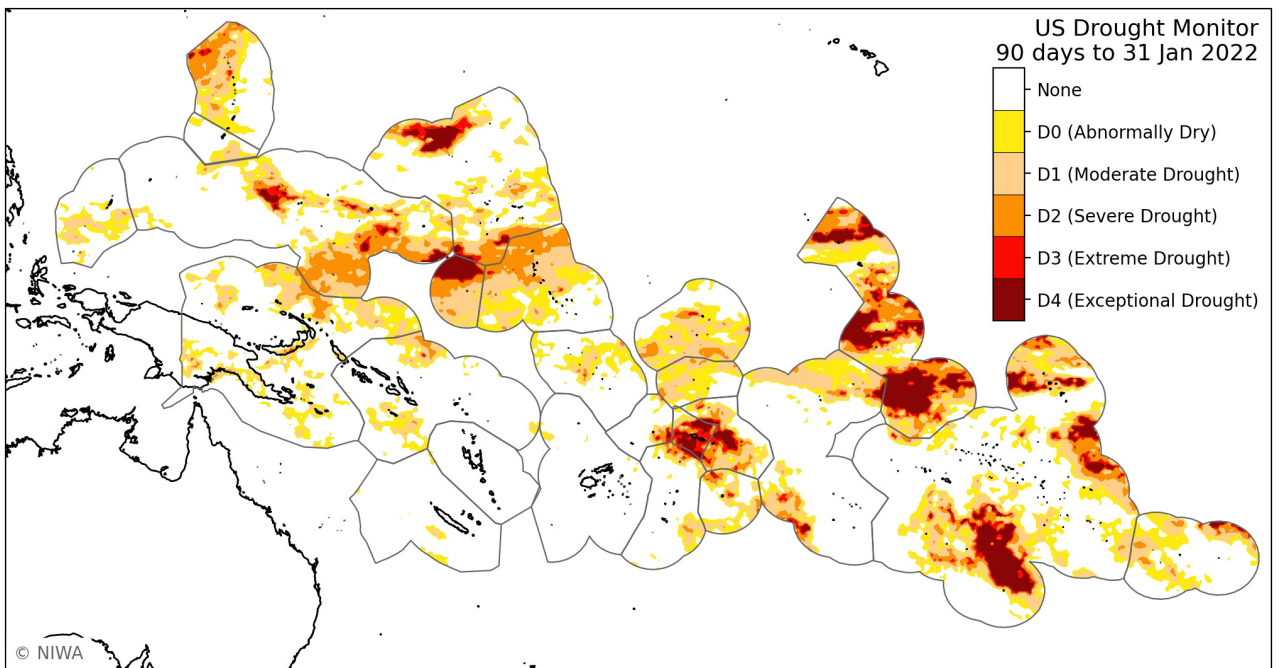


### USDM Regional situation summary (31 January 2022)

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

During January, extreme and exceptional drought was observed over parts of the Northern Marianas, eastern FSM, the Marshall Islands, Nauru, the Line Islands, and eastern French Polynesia.

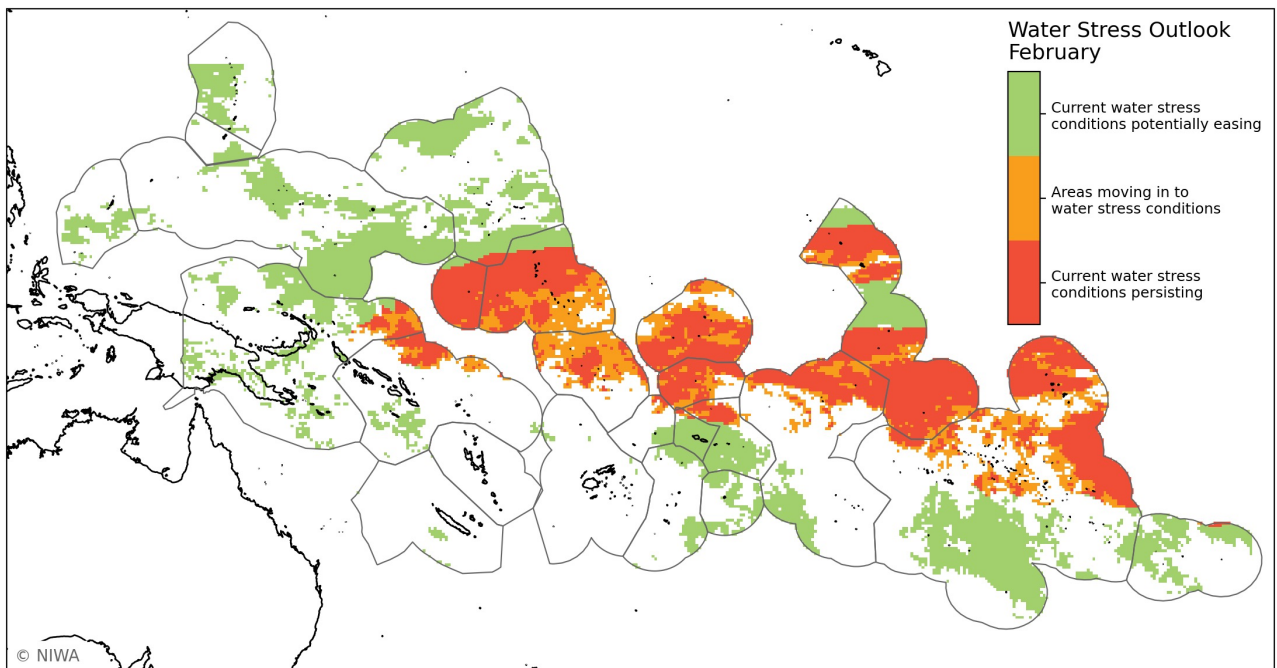
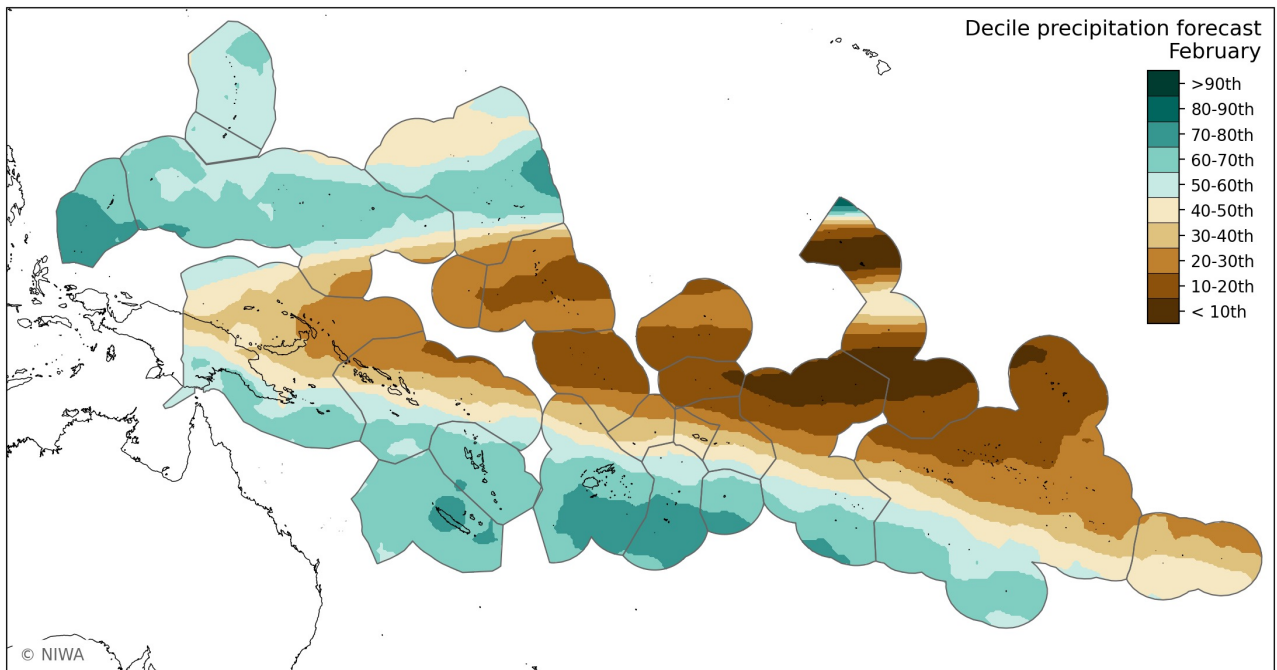
Over the last 3 months, extreme and exceptional drought was most pronounced for many of the same island groups, but also included the Gilbert Islands, Samoa, American Samoa, and Niue.



### February 2022 forecast summary

Drier than normal conditions are expected to occur along and extending southeastward of the equator during February, consistent with the continuation of La Niña conditions.

The island groups most likely to experience drier than normal conditions include eastern PNG, the northern Solomon Islands, Nauru, Kiribati, northern Tuvalu, Tokelau, Wallis & Futuna, Samoa, American Samoa, Northern Cook Islands, French Polynesia, and Pitcairn Islands. Wetter than normal conditions are forecast for island groups north of the equator in the western Pacific, and most island groups extending southeastward of PNG. Water stress may continue for Nauru, parts of Kiribati, Tuvalu, Tokelau, parts of the Northern Cook Islands, and parts of French Polynesia.

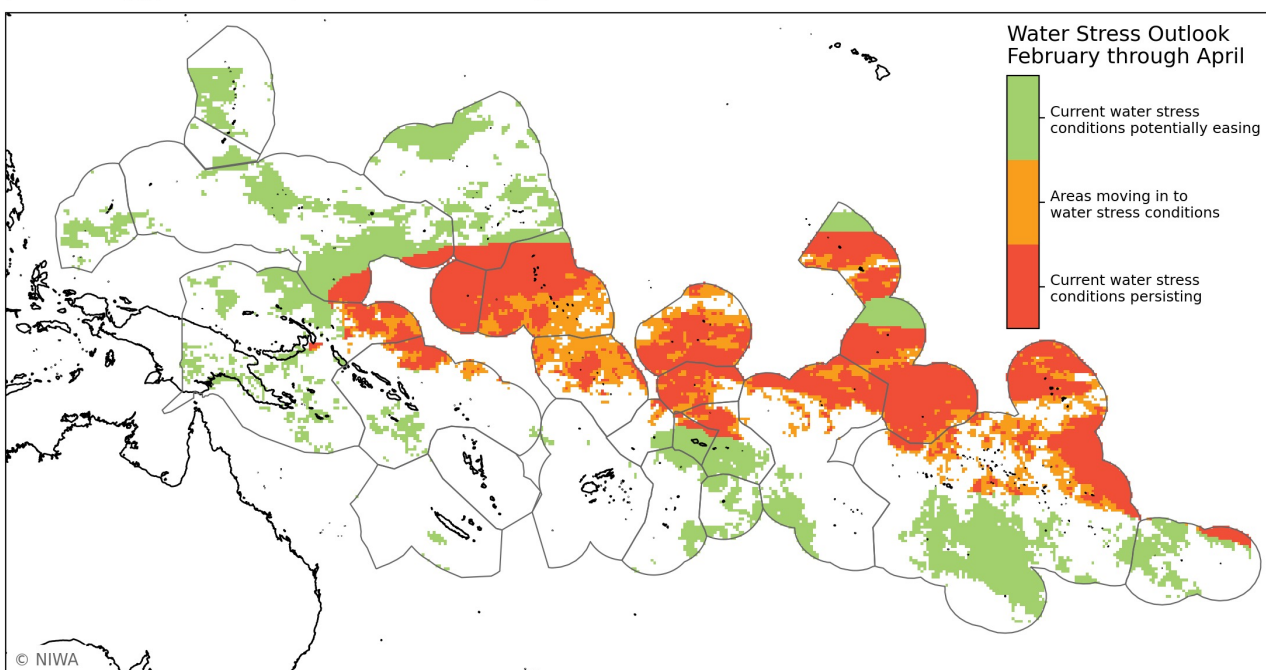
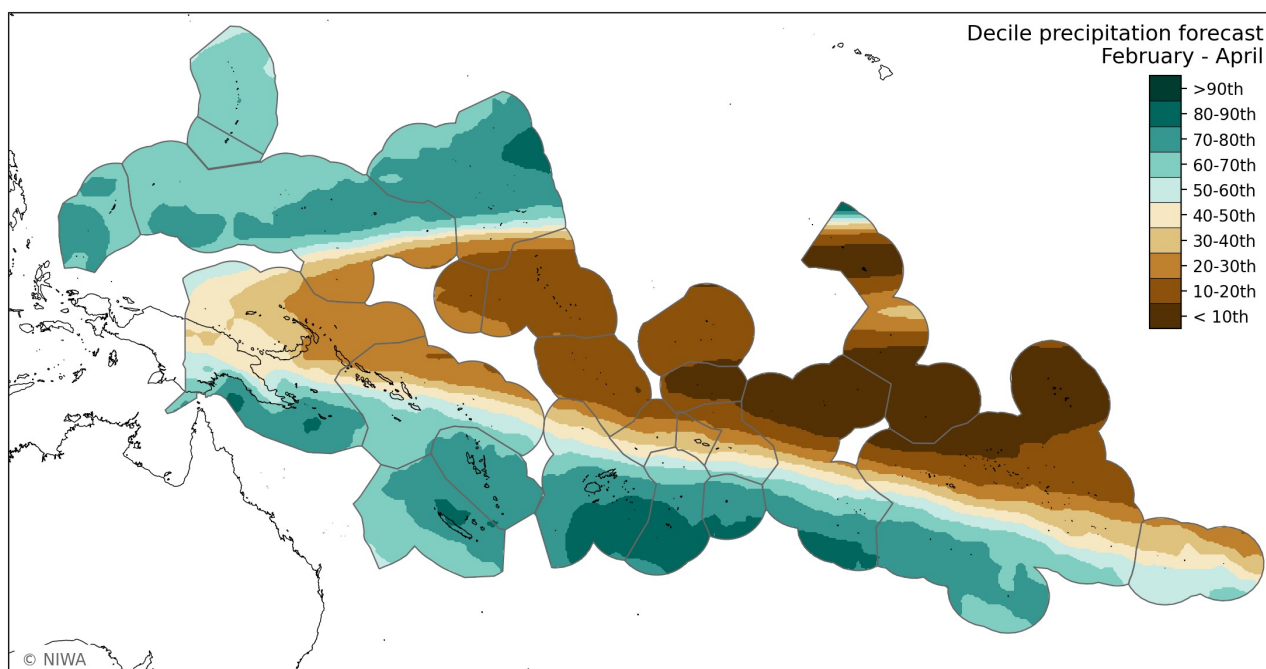


### February – April 2022 forecast summary

Seasonal rainfall patterns show a similar pattern to February with drier than normal conditions expected to occur along and extending southeastward of the equator, consistent with the continuation of La Niña conditions.

Many of the same island groups that are favoured to experience a drier than normal February also have elevated chances for a drier than normal February-April, including eastern PNG, the northern Solomon Islands, Nauru, Kiribati, northern Tuvalu, Tokelau, Wallis & Futuna, Samoa, American Samoa, Northern Cook Islands, French Polynesia, and Pitcairn Islands.

Seasonal water stress hotspots may develop over many of these same island groups.

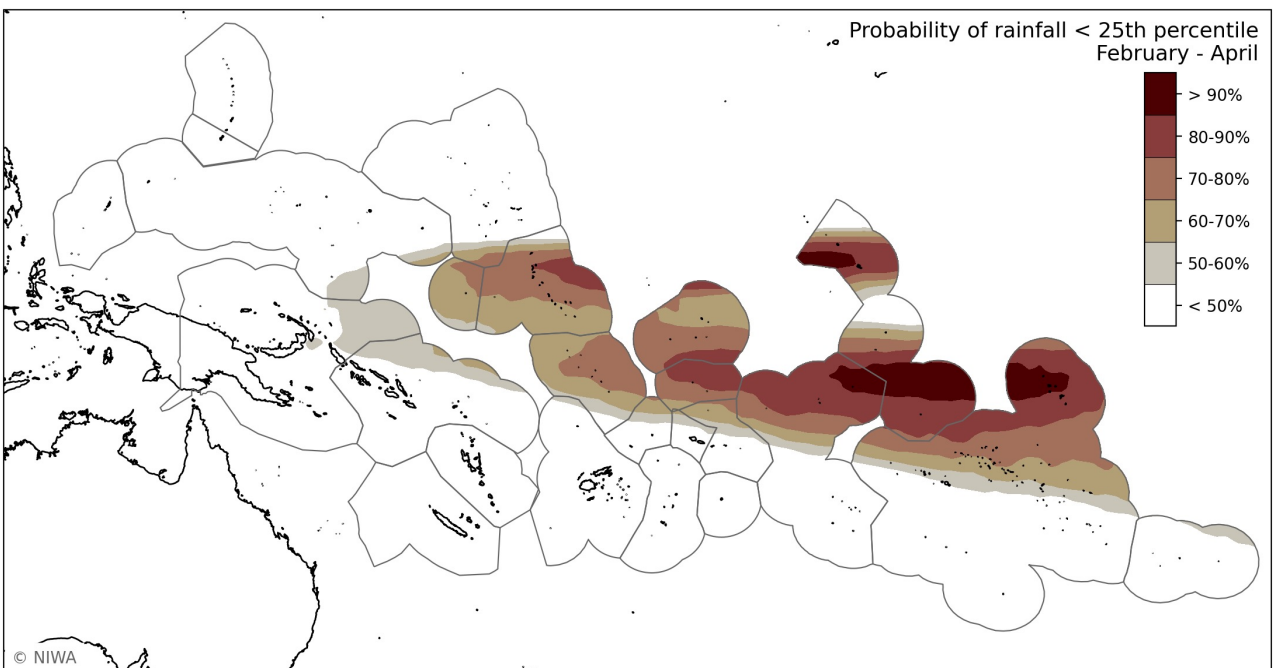
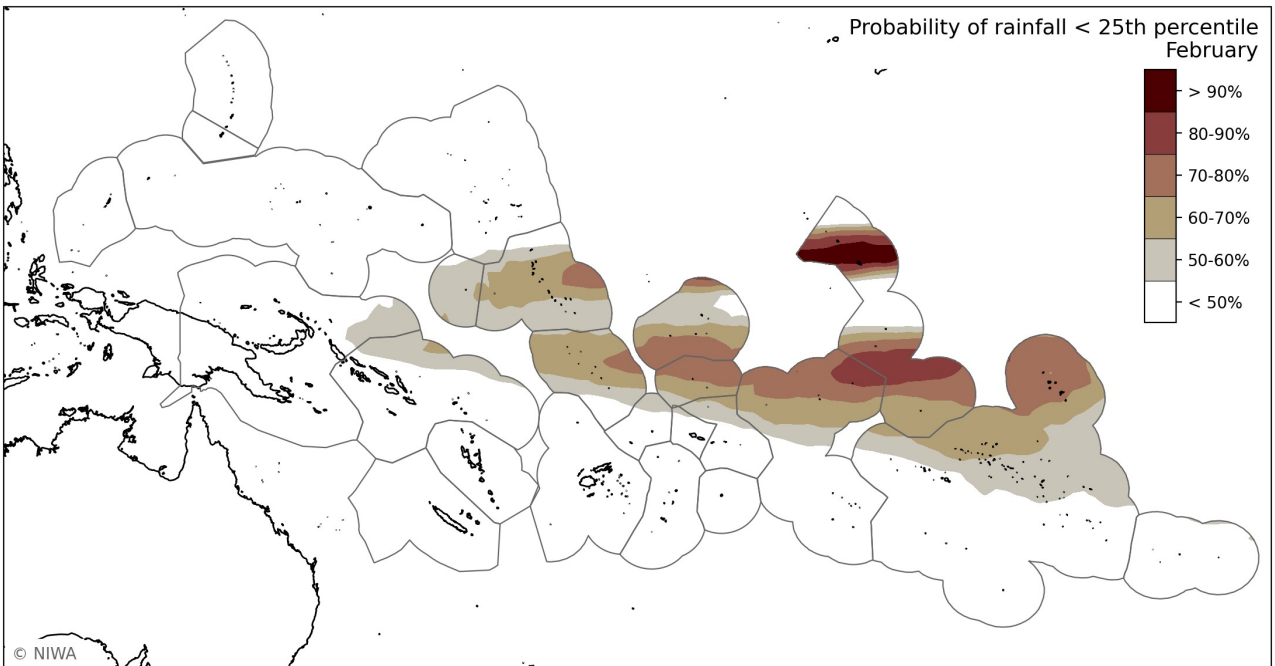


### Probabilities of rainfall < 25<sup>th</sup> percentile

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

For February, very dry conditions are highly likely for parts of the Phoenix and Line Islands in Kiribati, Tokelau, the Northern Cook Islands and Marquesas.

For February-April, very dry conditions are highly likely for many of the same island groups mentioned above, but also Nauru, the Gilbert Islands of Kiribati, and Tuvalu.








# Island Climate Update



## About

### Understanding the Island Climate Update bulletin

The ICU utilises satellite rainfall data from the [NASA GPM-IMERG](#) and a multi-model ensemble forecast utilising 480+ members derived from nine Global Climate Models available from the [Copernicus Climate Data Store](#).

Bulletin page	Description
<b>Rainfall watch</b>	Rainfall plots are derived from NASA GPM-IMERG satellite rainfall 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 NASA GPM-IMERG satellite rainfall 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>Additional regional and country-level resources are available online:</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 UNDM indices.</li> <li>• A range of probabilistic one to five monthly and seasonal forecast plots updated shortly after the 15<sup>th</sup> of each month.</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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