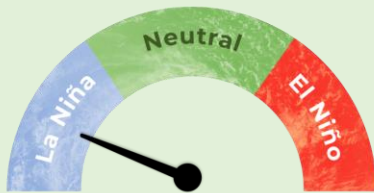


Island Climate Update



ENSO Watch
June 2022

Recent



La Niña

La Niña conditions continued in the equatorial Pacific during May.

Sea surface temperatures (SSTs) were near the La Niña threshold in the central equatorial Pacific during May, on -0.71°C .

The Southern Oscillation Index (SOI) was $+1.9$ during May, well within the La Niña range.

60% chance for **La Niña** conditions during **June – August 2022**.

Chance for **La Niña** conditions during **September - November 2022**.

55%



La Niña Event

Forecast

ENSO situation summary

The NINO3.4 Index anomaly over the last month (to 5 June) was -0.71°C , near the La Niña threshold and a slight decrease compared to April. The May monthly SOI was $+1.9$, well within the La Niña range and the equal-2nd highest May value on record since at least 1876 (May 1917 was higher and May 1956 was equal); this suggests that the atmospheric imprint of La Niña is strong.

In the subsurface equatorial Pacific, warmer than average water was pushing across the western and central part of the basin at 100-150 m depth. These warmer waters could surface in the eastern Pacific in mid-winter. Meanwhile, cooler than average waters continued from the surface to 75 m depth in the central Pacific, reflective of the ongoing La Niña. These signatures were reflected in upper-oceanic heat content (OHC). During May, OHC decreased in the eastern equatorial Pacific and increased slightly in the central part of the basin.

Trade winds across the equatorial Pacific were stronger than normal during May, except for a corridor in the north-east, west of Central America. A period of reduced trades is expected in early June, followed by a re-enhancement of trades from mid-month. The latter may induce a cooling effect in the central Pacific during mid-winter.

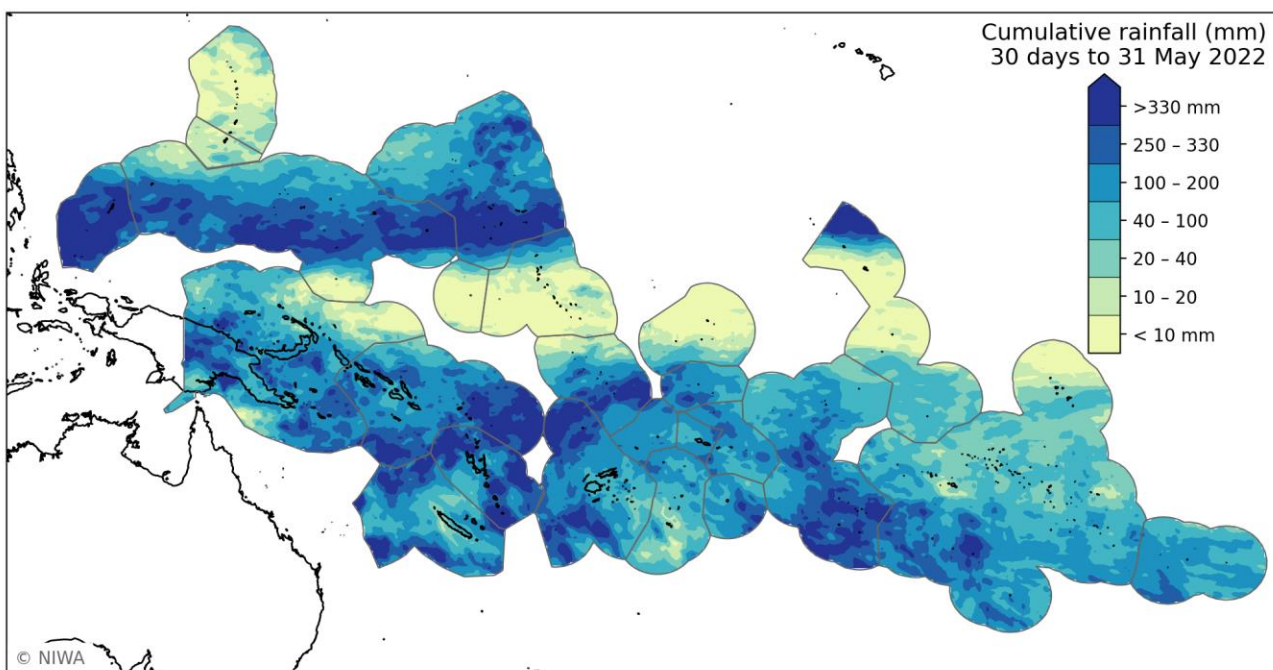
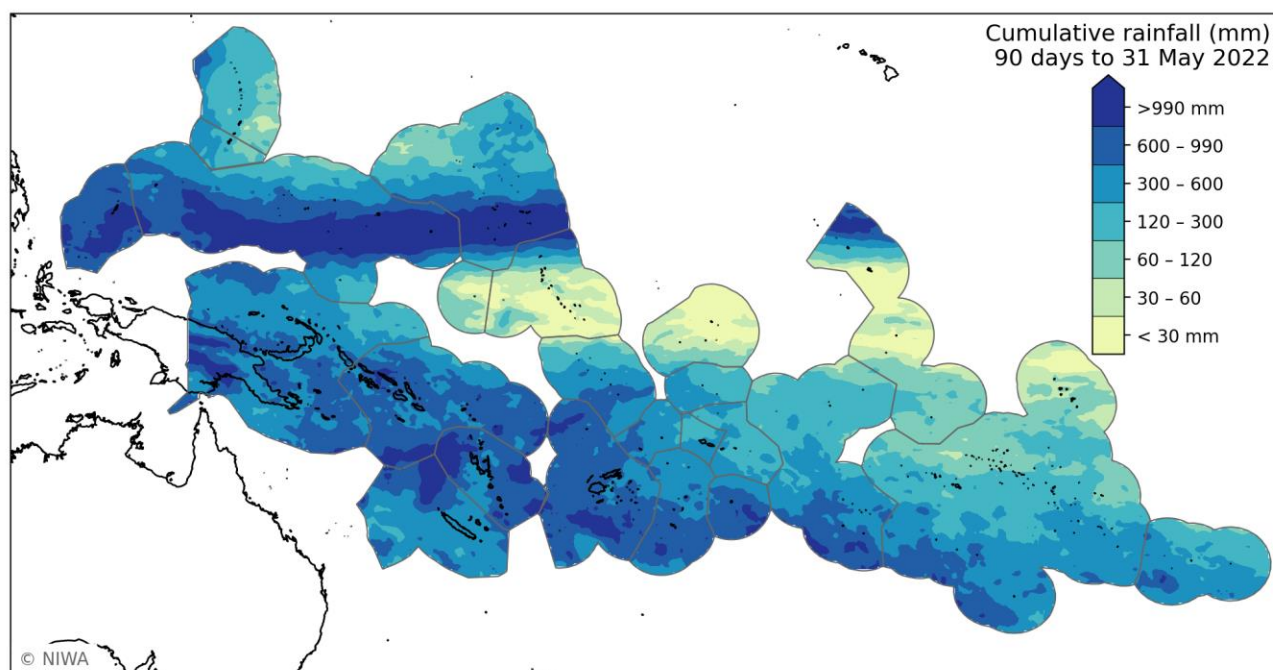
La Niña conditions are favoured to continue during June-August (60% chance, an increase of 13% compared to last month). During September-November, there is around a 55% chance for La Niña and a 40% chance for ENSO neutral. Should La Niña persist through or redevelop by December-February 2022-23, the current event would qualify as a “triple-dip”. Since 1900, using an Oceanic Niño threshold of -0.5 , the following would qualify as triple-dip events: 1998-2000, 1983-1985, 1973-1975, and 1908-1910.

Regional situation summary (31 May 2022)

Rainfall estimates for the last month and three months are shown below. Rainfall was particularly heavy in the western North Pacific and toward the South Pacific sub-tropics with lower amounts along the equator.

During May (bottom plot), particularly heavy rainfall (>300 mm) fell in parts of Palau, FSM, Marshall Islands, Solomon Islands, Vanuatu, southern Tuvalu, and Southern Cook Islands. Less than 20 mm fell in parts of Northern Marianas, Nauru, and Kiribati.

During March-May (top plot), less than 60 mm of rainfall fell in parts of Nauru and Kiribati.

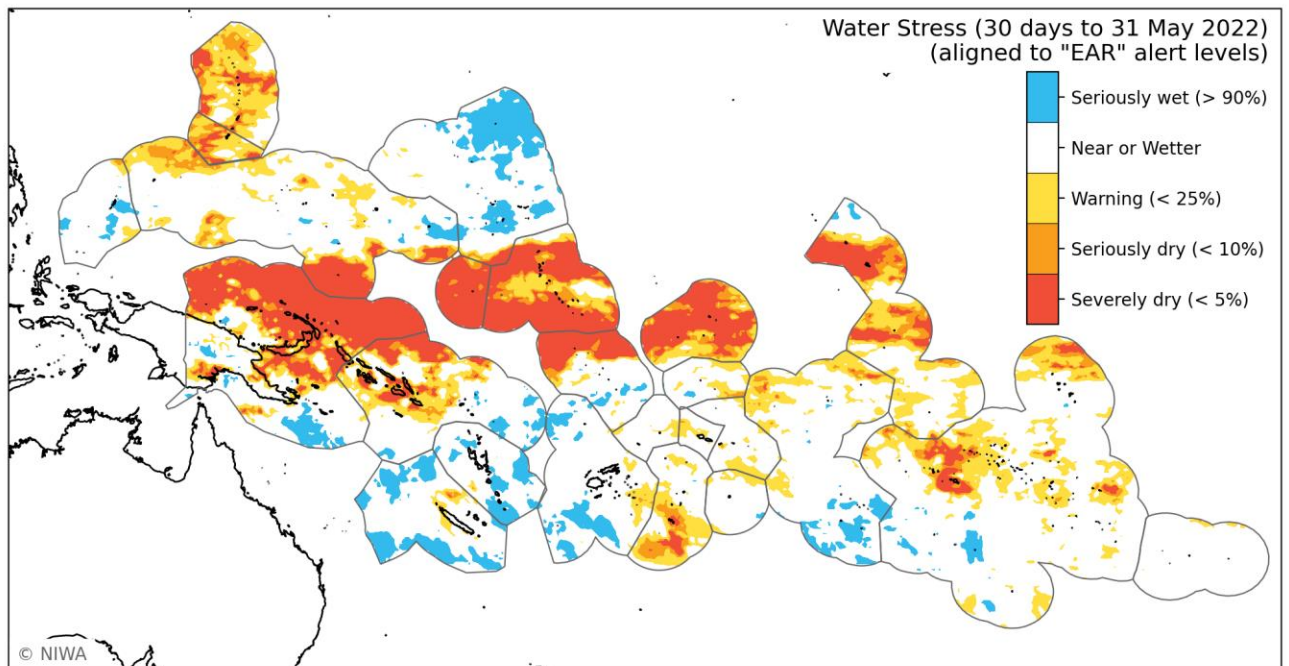
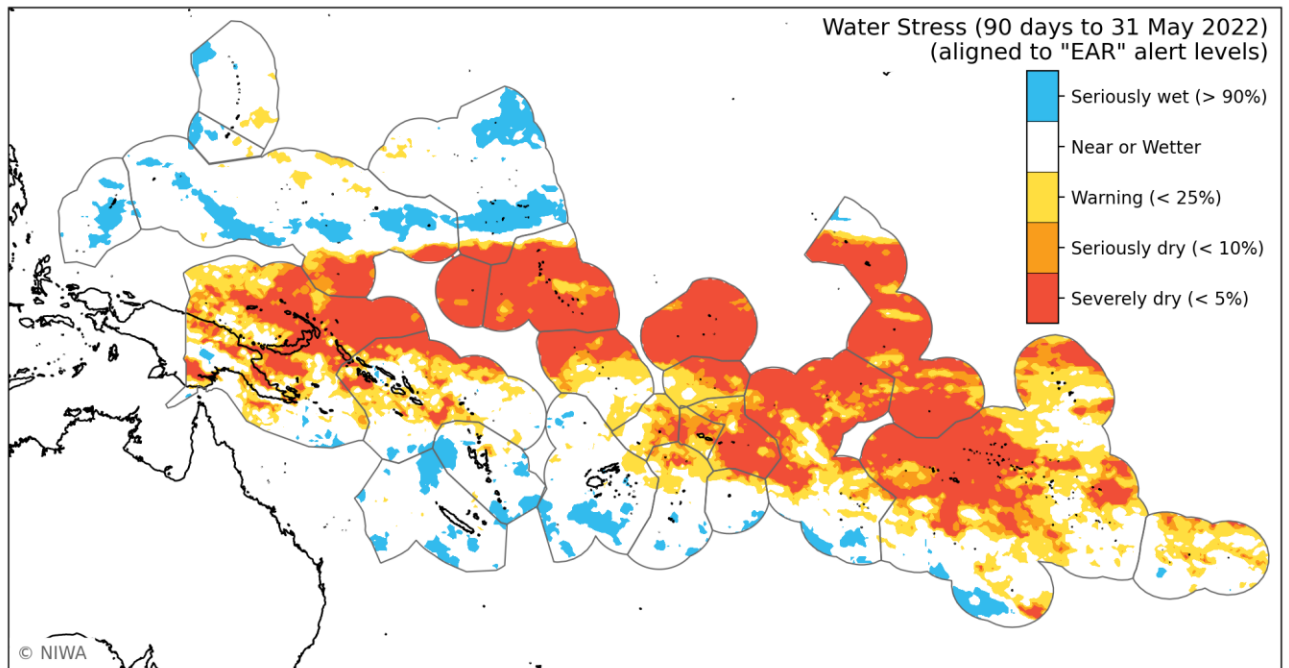


EAR regional situation summary (31 May 2022)

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

During May (bottom plot), severely (<5th percentile) and seriously dry (<10th percentile) conditions occurred in parts of Northern Marianas, southern FSM, PNG, Solomon Islands, Nauru, Kiribati, northern Tuvalu, southern Tonga, and parts of French Polynesia.

During March-May (top plot), severely or seriously dry conditions affected southern FSM, PNG, Solomon Islands, Nauru, Kiribati, northern Tuvalu, Tokelau, Samoa, American Samoa, northern Tonga, Cook Islands, and French Polynesia.

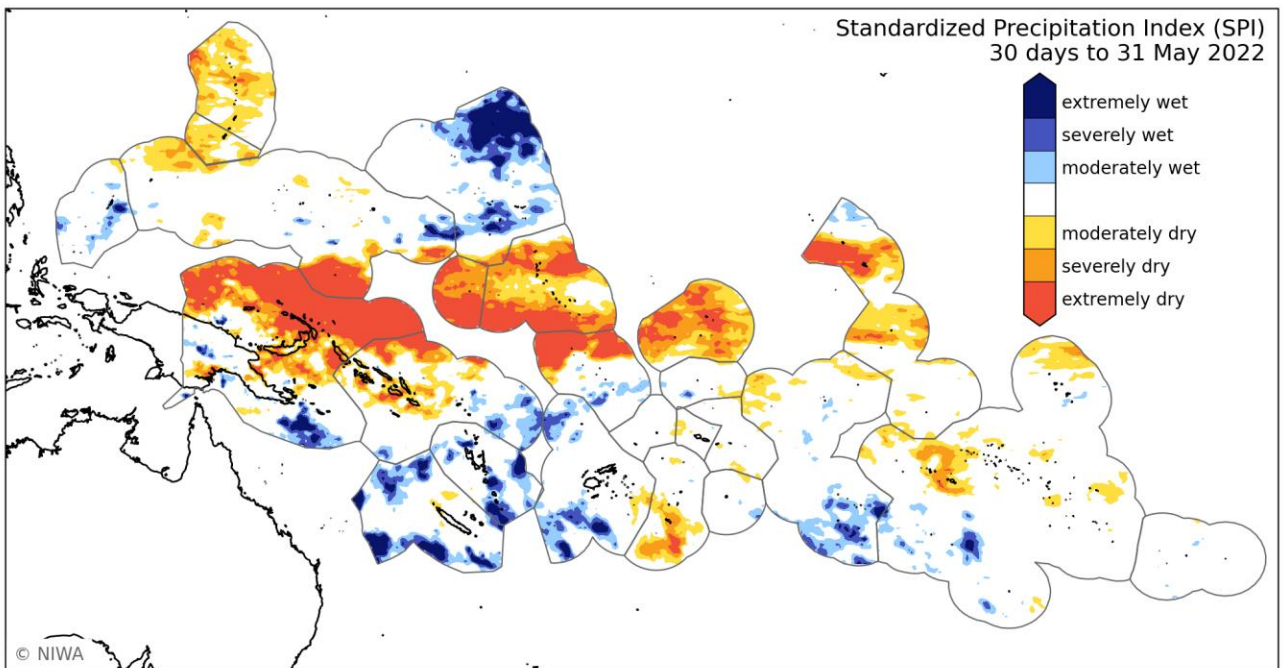
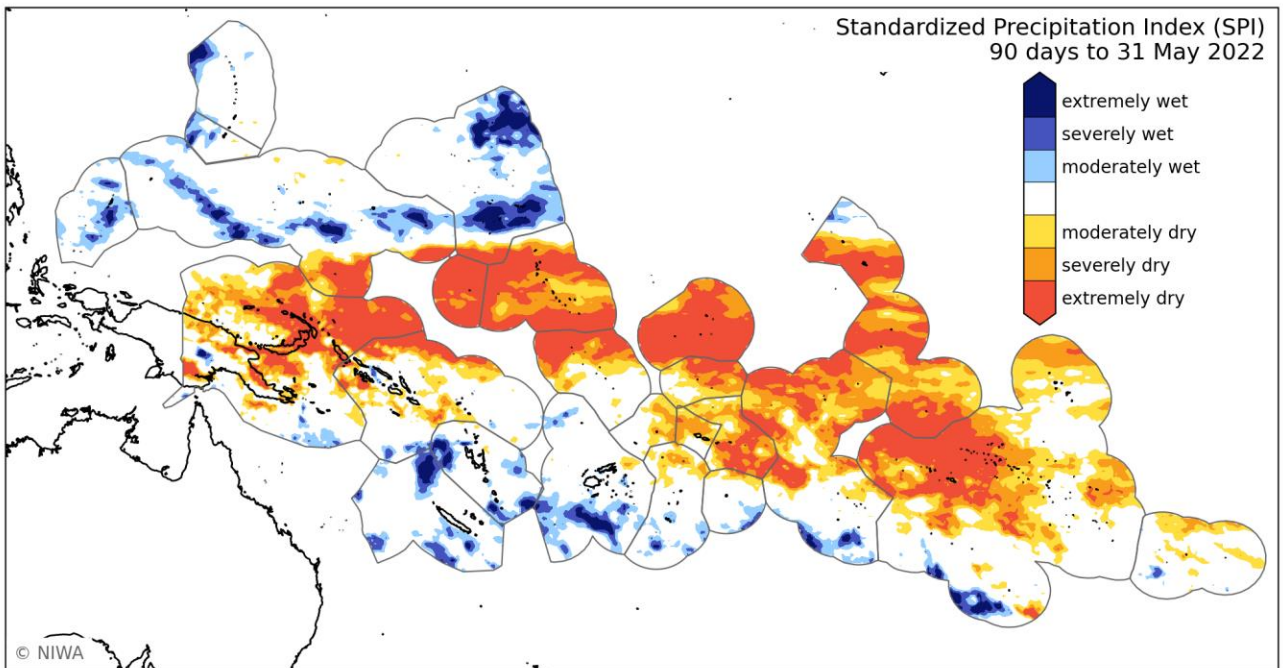


SPI Regional situation summary (31 May 2022)

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

During May (bottom plot), extremely or severely dry conditions occurred in Northern Marianas, southern FSM, PNG, Nauru, Kiribati, northern Tuvalu, southern Tonga, and western French Polynesia.

During March-May (top plot), the driest conditions were found in southern FSM, PNG, Kiribati, northern Tuvalu, Tokelau, Wallis & Futuna, Samoa, American Samoa, northern Tonga, Northern Cook Islands, and western French Polynesia.

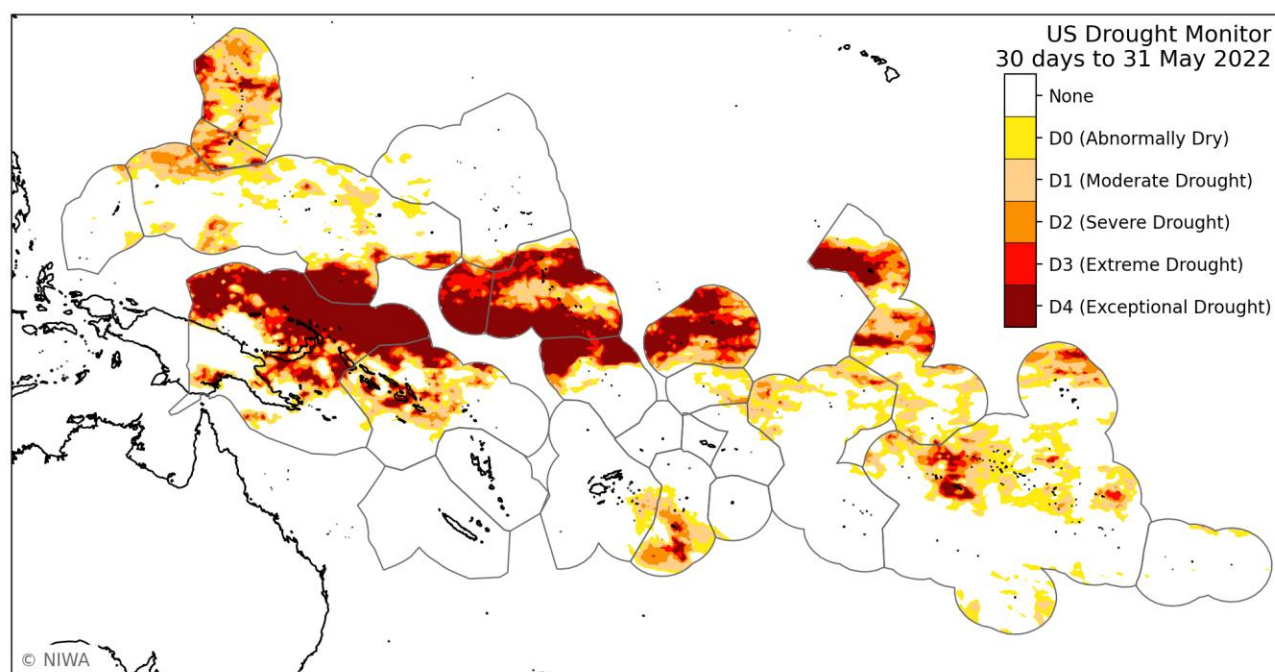
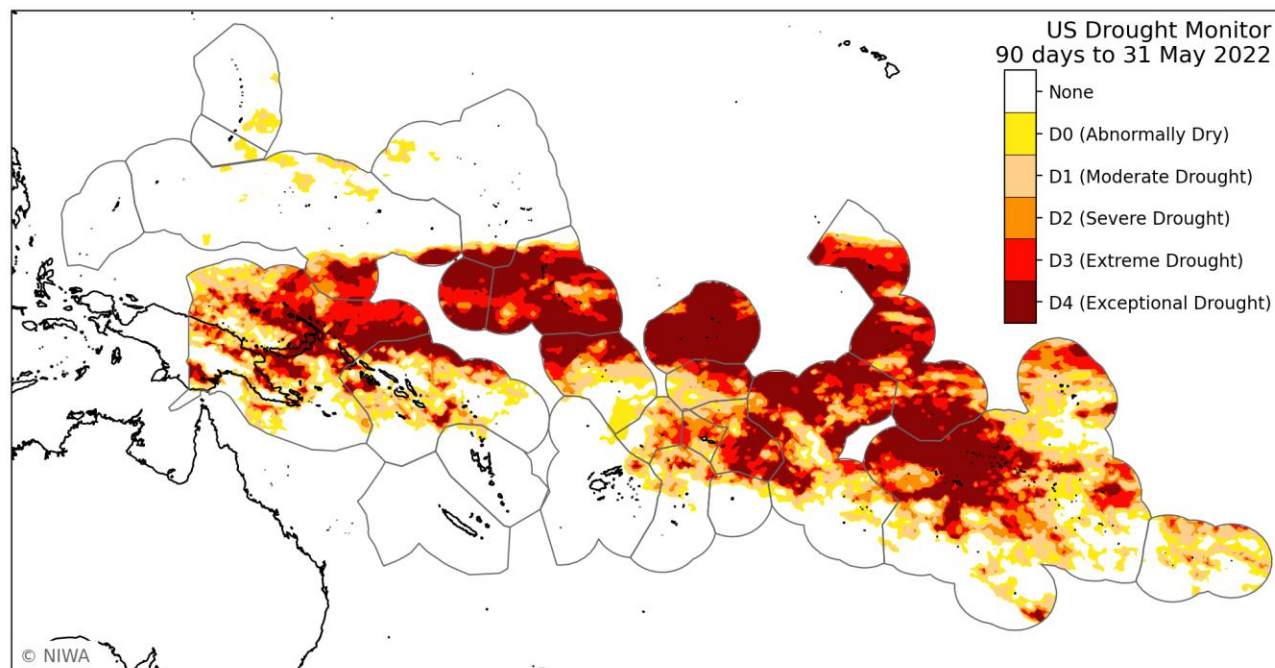


USDM Regional situation summary (31 May 2022)

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

During May (bottom plot), extreme or exceptional drought occurred in Northern Marianas, southern FSM, eastern PNG, Solomon Islands, Nauru, Kiribati, southern Tonga, and western French Polynesia.

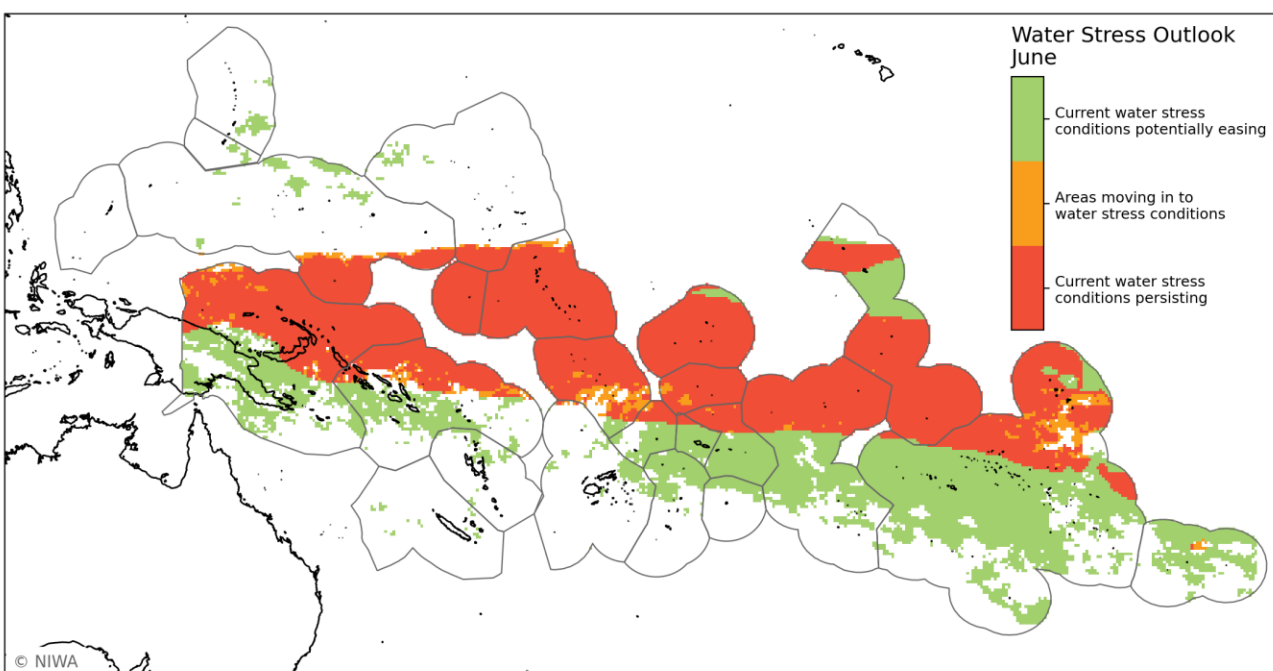
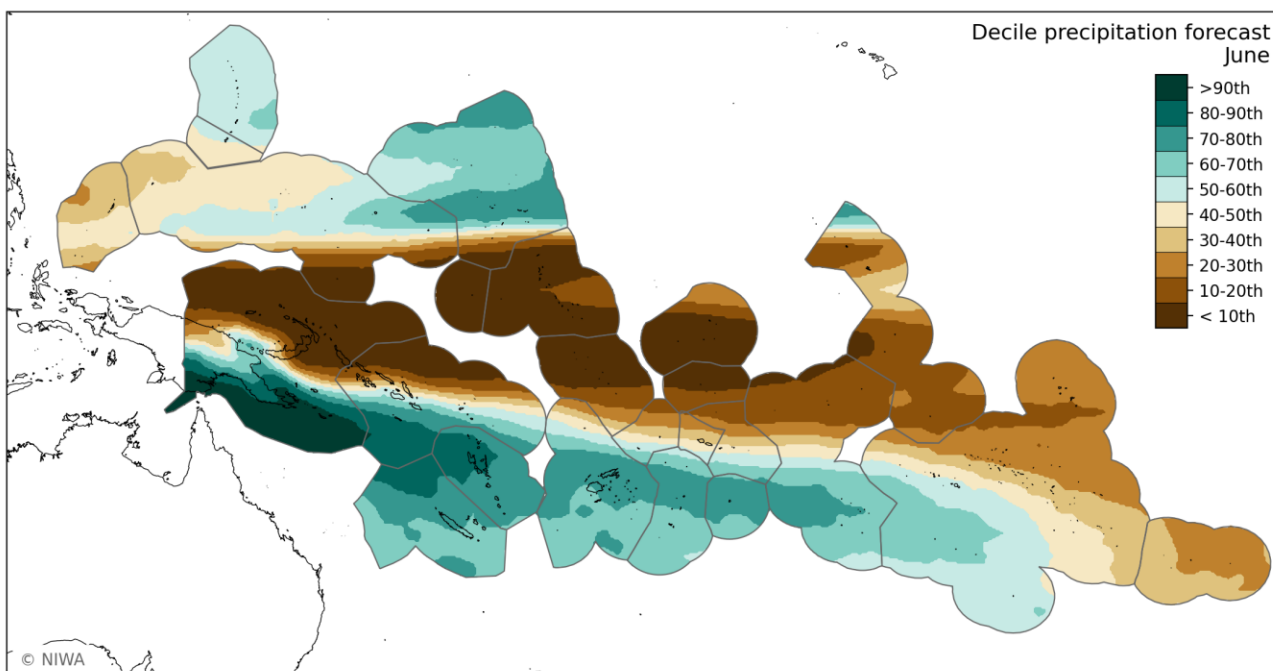
During March-May (top plot), extreme or exceptional drought occurred in southern FSM, PNG, Nauru, Kiribati, northern Tuvalu, Samoa, American Samoa, northern Tonga, Northern Cook Islands, and western French Polynesia.



June 2022 forecast summary

During June, there is a high chance for drier than normal conditions along and extending southeastward of the equator and in parts of the western North Pacific.

The island groups most likely to be drier than normal are Palau, western and southern FSM, eastern PNG, northern Solomon Islands, Nauru, Kiribati, Tuvalu, Tokelau, northern Wallis & Futuna, Samoa, Northern Cook Islands, Marquesas, the Tuamotu Archipelago, and Pitcairn Islands. Water stress is forecast to continue in many of these island groups, but ease in PNG, parts of the Solomon Islands, and continue to ease in Wallis & Futuna, Samoa, American Samoa, Southern Cook Islands, and southern French Polynesia.



Island Climate Update

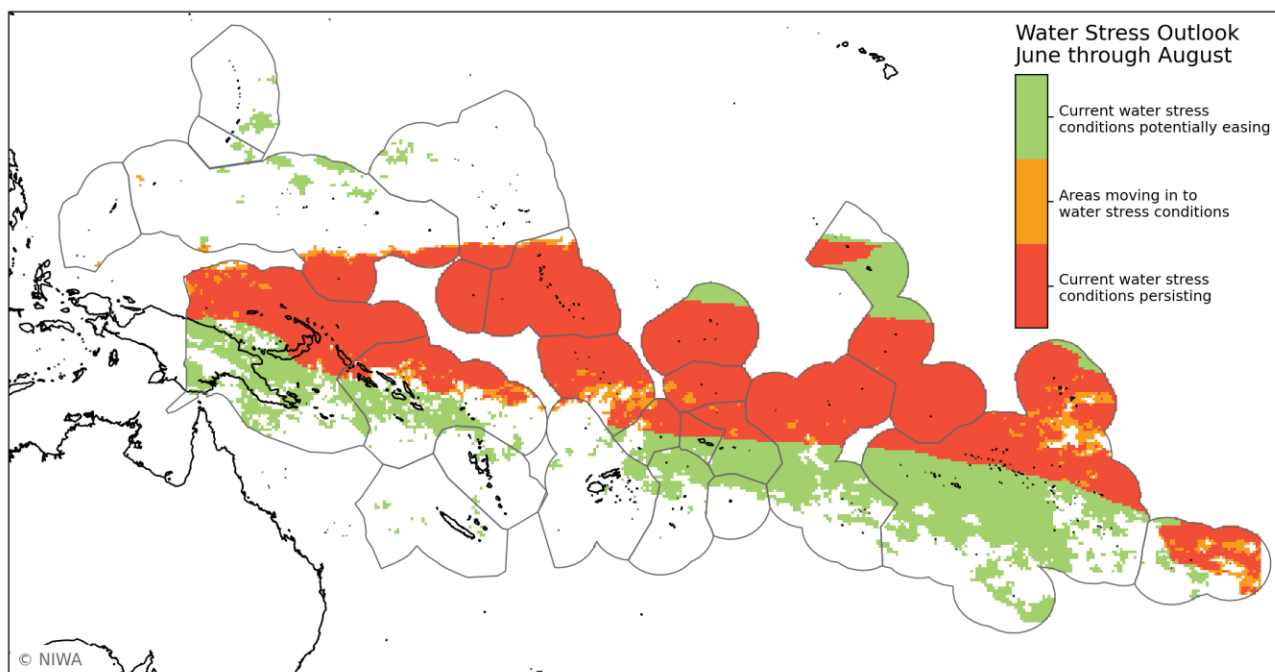
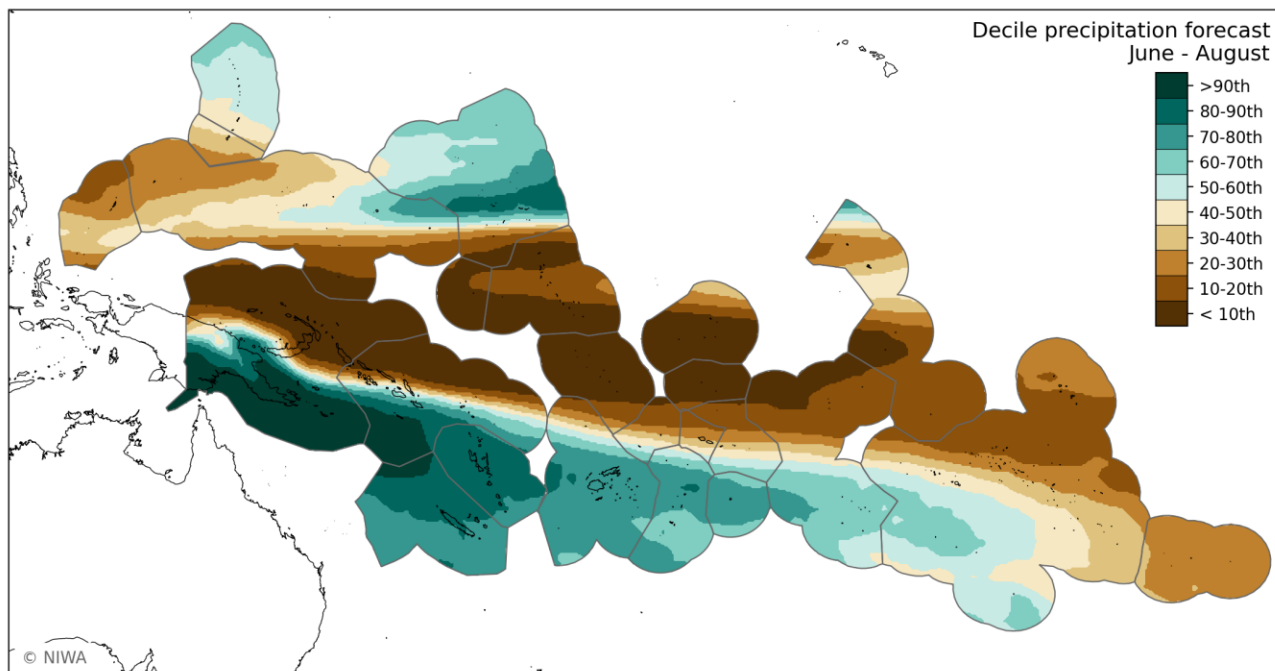
Water Stress Outlook

June – August 2022 forecast summary

Seasonal rainfall patterns remain consistent with La Niña.

The island groups most likely to be drier than normal are Palau, western and southern FSM, eastern PNG, northern Solomon Islands, Nauru, Kiribati, Tuvalu, Tokelau, northern Wallis & Futuna, Samoa, American Samoa, Northern Cook Islands, Marquesas, the Tuamotu Archipelago, and Pitcairn Islands. Water stress may persist over many of these island groups but ease in PNG, Solomon Islands, Wallis & Futuna, Samoa, American Samoa, northern Tonga, Southern Cook Islands, and southern French Polynesia.

Wetter than normal conditions are most likely in eastern FSM, Marshall Islands, PNG, and most island groups extending southeastward of PNG.

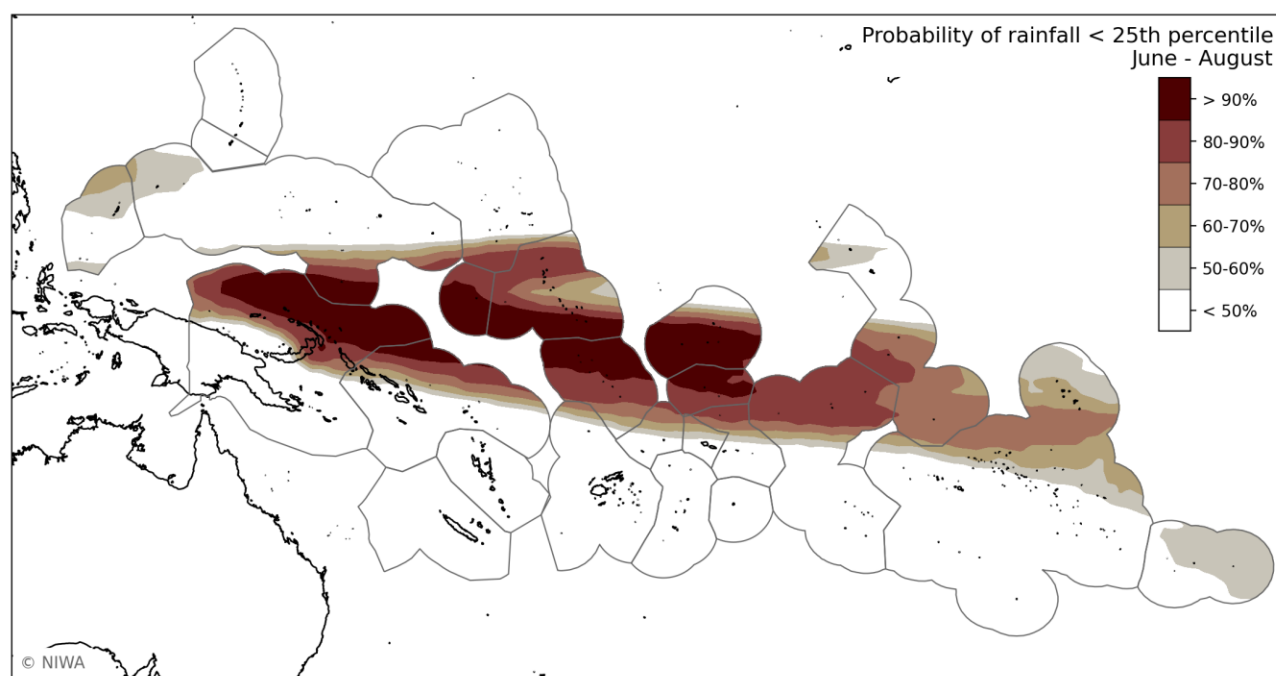
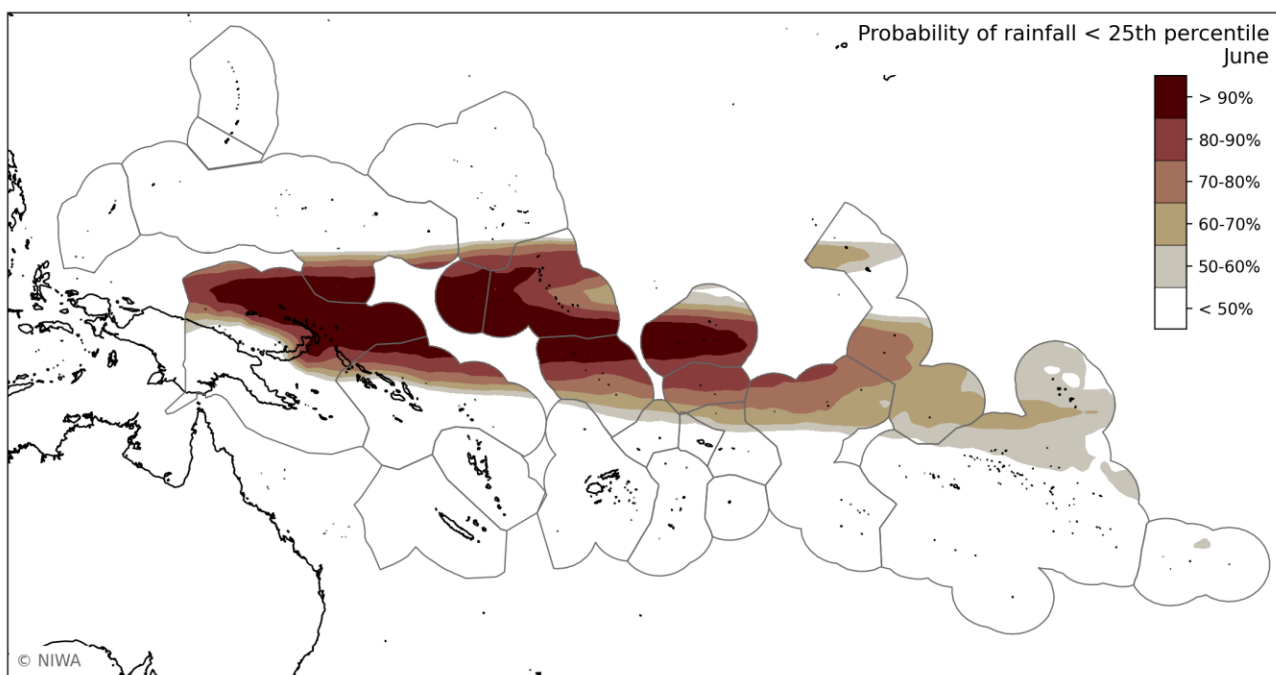


Probabilities of rainfall < 25th percentile

The probability (likelihood) of dry conditions with cumulative rainfall being less than the 25th percentile for June (top plot) and for the season (June-August, bottom plot) are shown.

For June, very dry conditions are most likely for southern FSM, eastern PNG, Nauru, Kiribati, Tuvalu, Tokelau, and Northern Cook Islands.

For June-August, very dry conditions are likely in many of these island groups, with chances increasing for Northern Cook Islands and northern French Polynesia.



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
Rainfall watch	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).
Water stress watch	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 an 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>Online Resources</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: a cumulative rainfall, number of dry days, number of days since last rainfall > 1 mm, EAR, SPI and UNDM indices. • A range of probabilistic one to five monthly and seasonal forecast plots updated shortly after the 15th of each month.



NIWA is the Network co-lead for the [WMO RAV 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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