

October 2023 Micronesia ENSO Update

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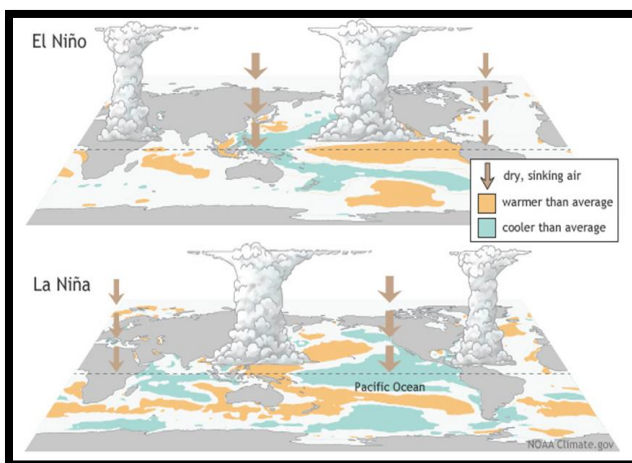
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Key Points

- All international meteorological agencies have declared El Niño
- Increased tropical cyclone (TC) risk through the rest of 2023
- Increased chance of severe drought December through April/May 2024
- See Page 2 for El Niño impacts, preparedness actions and web links to resources

WHAT IS EL NIÑO?: The El Niño - Southern Oscillation (ENSO) is a climate pattern that occurs roughly every 3 to 7 years over the Pacific Ocean. The extremes of this oscillation are referred to as El Niño and La Niña.

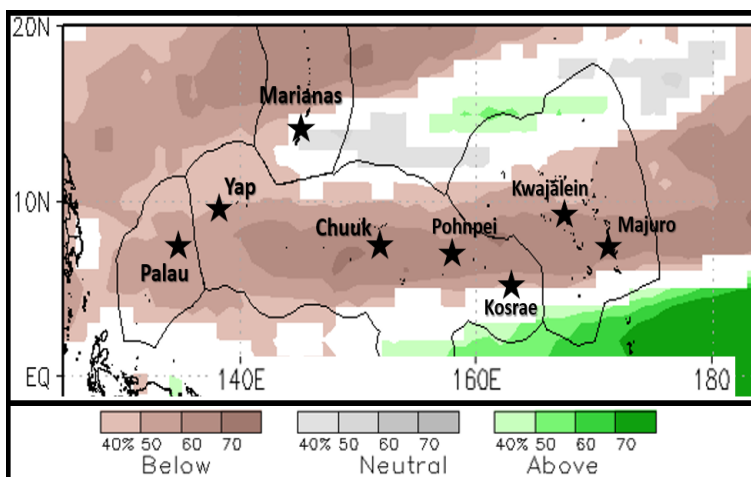
During an El Niño event, sea surface temperatures over the central and eastern Pacific become warmer than normal. The normal easterly trade winds weaken and sometimes, the winds will switch and blow from the west to the east. The result is drier weather conditions over the Western Pacific which can impact food and water availability, like taro.



Mostly, El Niño conditions linger for a year, but sometimes longer. Conditions can start as early as March and peak in December.

ENSO ALERT STATUS: EL NIÑO ADVISORY: All international meteorological agencies have declared El Niño. Sea surface temperatures continue to warm across the central and eastern Pacific Ocean along the equator. Large-scale tropical convection (large clusters of showers/thunderstorms) has shifted east as well. This is all an indication of a strengthening El Niño.

RAINFALL: The El Niño 'wet phase' will soon end as the 'dry phase' begins. Severe drought is becoming increasingly likely. Rainfall will decrease across much of Micronesia the next few months as large-scale rainfall patterns focus closer to the equator and farther to the east, south of Hawaii. The image to the right shows the likelihood of above, below, or neutral (near-normal) rainfall chances for the 3-month Dec-Jan-Feb period. Data from the [North American Multi-Model Ensemble \(NMME\) model](#).



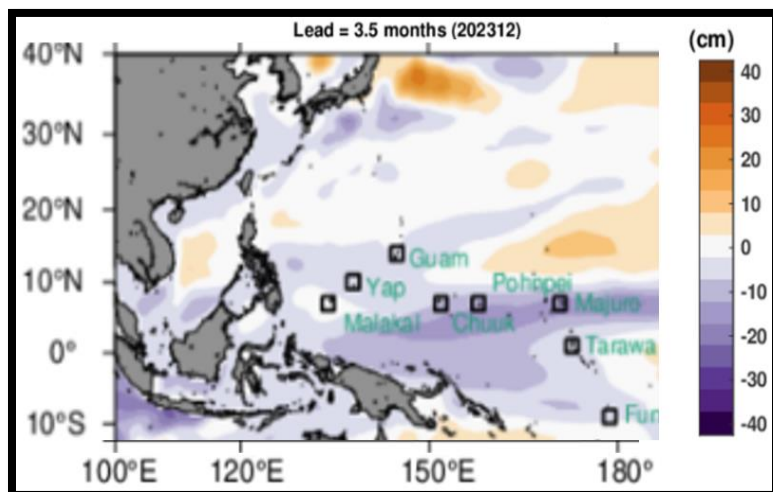


TROPICAL CYCLONES (TCs): El Niño typically brings an [increased TC risk to most islands of Micronesia](#). Palau tends to see a lower TC risk during El Niño.

SEA LEVELS: Sea levels are forecast to remain slightly below normal across much of Micronesia in the next few months due to El Niño (see image on next page). Despite these lower sea levels, high tide flooding is more likely to occur on these dates:

- ❖ Oct 14-18 new moon
- ❖ Oct 27-31 full moon
- ❖ Nov 13-15 new moon
- ❖ Nov 26-28 full moon
- ❖ Dec 13-15 new moon

It is important to note that large wave events and local storms/passing tropical disturbances could lead to coastal flooding and wave run-up despite El Niño's lower sea levels.



The image to the left, courtesy of the [University of Hawaii Sea Level Center \(UHSLC\)](#), shows forecast sea level heights (compared to normal) across the West Pacific for December 2023. Lower than normal sea level heights are projected for much of Micronesia, though models do show slightly higher sea levels for the northern Marshall Islands models.

Image courtesy of M. Widlansky (UHSLC)

CORAL BLEACHING: El Niño's dry phase increases concern for coral bleaching during the next several months - the greatest concern being impacts on shallow reef flats and lagoons. Drier, sunnier conditions, in combination with lower than normal sea level heights, increases exposure of these marine areas to warmer temperatures. This leads to stress on coral colonies that may result in bleaching and possibly coral death.

IMPACTS, PREPAREDNESS ACTIONS AND QUICK LINKS:

Drought: Localized water supply shortages, negative impacts to crops and plants, and a greater risk of wildfires. This potential drought will be monitored closely the next several months by the [NWS Guam](#) and the [US Affiliated Pacific Islands US Drought Monitor](#). **Tropical Cyclones:** Keep up to date with regional weather forecasts and outlooks from NWS Guam. Tropical cyclones can, and do, occur year round in the western North Pacific.

[National Weather Service Guam Homepage](#)

[US Drought Monitor for the USAPI](#)

[Guam Homeland Security Typhoon Preparedness Tips](#)

Note that preparedness tips may vary greatly island to island. Contact your local Weather Office (WFO Guam, WSO Palau, WSO Yap, WSO Chuuk, WSO Pohnpei, WSO Majuro) and emergency management office for island-specific information.