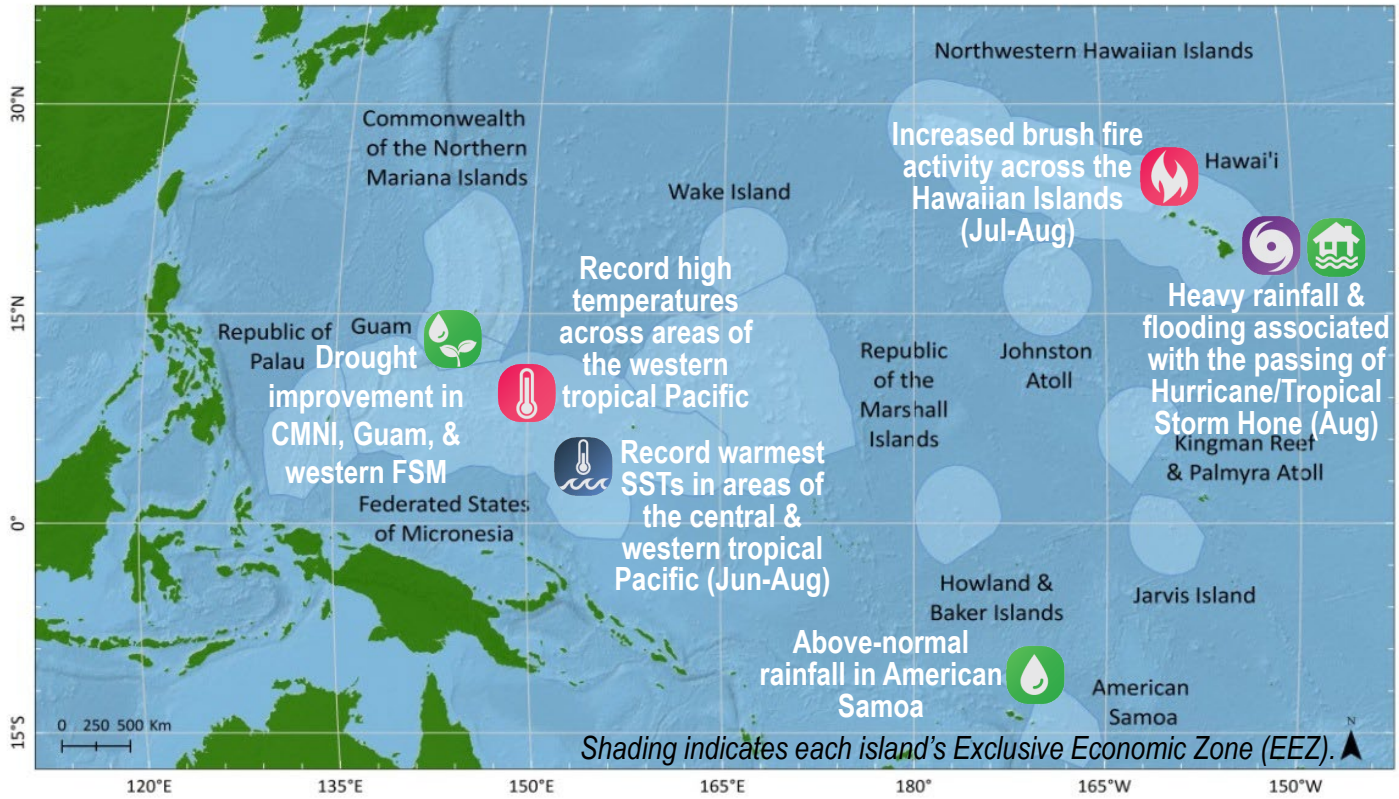
Significant Events – *For June 2024–August 2024*



Highlights for Hawaii and the U.S. Affiliated Pacific Islands

- ENSO-neutral conditions continued during August 2024, with near-average sea surface temperatures (SSTs) observed across most of the equatorial Pacific Ocean. Currently, a La Niña Watch is in effect, and favored to develop during September-November 2024 (71% chance) and is expected to persist through January-March 2025, according to the latest (9/12/24) ENSO diagnostic discussion by NOAA Climate Prediction Center (CPC).
- For the June-August (JJA) period, precipitation was normal to above normal across areas of the U.S. Affiliated Pacific Islands (USAPI) including Palau, portions of the Federated States of Micronesia (FSM), western portions of the Republic of the Marshall Islands (RMI), and American Samoa. Below-normal rainfall was observed in areas closer to the equator in FSM and in the Marianas. Additionally, record to near-record surface temperatures were observed in areas of Palau, FSM, and RMI. In the Hawaiian Islands, generally dry conditions prevailed during the JJA period until late-August when Hurricane Hone passed just south of the Big Island with the storm's outer rainbands producing heavy rainfall accumulations in portions of the Big Island and windward areas of Maui.
- For the JJA period, drought-related conditions significantly improved in CMNI (Rota, Saipan), Guam, western FSM (Yap State), and RMI (Wotje). In the Hawaiian Islands, brush fire activity increased as drought conditions intensified and expanded during July and into early August. In late August, heavy rainfall accumulations associated with the passing of Hurricane/Tropical Storm Hone significantly eased drought-related conditions on the Big Island.

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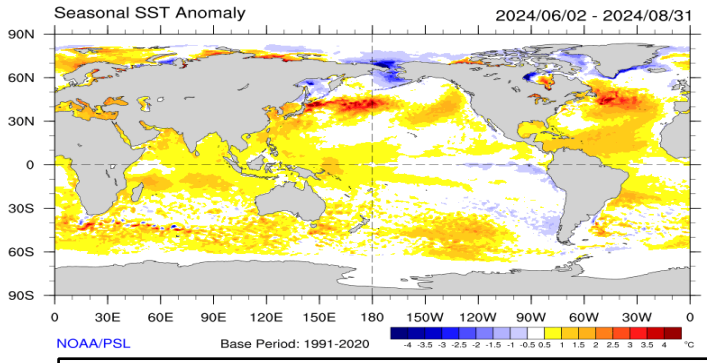
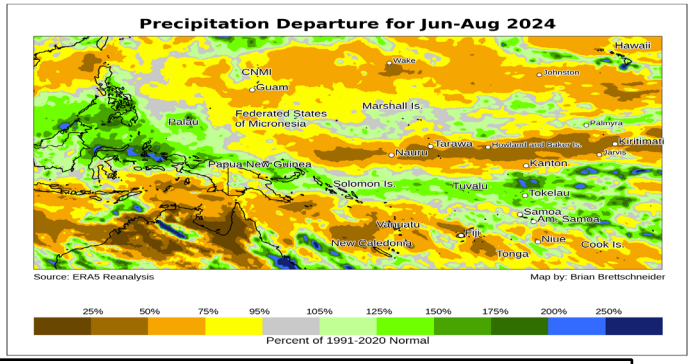
Climate Overview – *For June 2024–August 2024*





Seasonal sea surface temperature anomaly map for 6/2/24 to 8/31/24 (left) and 3-month seasonal precipitation departures from normal for the June–August 2024 period (right) for the central and western tropical Pacific Ocean with warmer colors representing drier-than-normal conditions and cooler colors wetter-than-normal conditions.
Source: NOAA Physical Sciences Laboratory (left); ERA5 Reanalysis, B. Brettschneider, National Weather Service (right).

By the end of the JJA period, SSTs were slightly above normal in the western tropical Pacific Ocean, while areas of near- to below-normal SSTs were observed in the eastern Pacific Ocean. According to the NOAA CPC update (9/9/24), Niño region SST departures were as follows: Niño 3.4 at -0.1˚C, Niño 3 at -0.2˚C, Niño 1+2 at -0.4˚C, and Niño 4 at 0.2˚C.

During the JJA period, sea level anomalies remained mostly unchanged in the western tropical Pacific and increased around the Hawaiian Islands during July and August. Specifically, below-normal levels (-5 to -10 cm) were observed in areas closer to the equator in the central and western Pacific Ocean during June, while areas further north (above ~7ºN), including Palau, Yap, and Guam, observed above-normal sea levels (+5 to +12 cm anomalies) during the JJA period. In contrast, near-normal to slightly below-normal sea levels were observed across areas of the eastern tropical Pacific Ocean during August, according to data from the University of Hawaii Sea Level Center.

During the JJA period, drought conditions improved significantly across CNMI (Saipan, Rota), Guam, western islands of FSM (Ulithi, Woleai, Yap), and RMI (Wotje), with conditions returning to normal by late July to early August in CNMI, Guam, and western FSM. For JJA precipitation totals, Airai (Palau) recorded 45.17 in. (86% of normal). In FSM, Yap observed 39.12 in. (89% of normal), Kapingamarangi 18.09 in. (47% of normal; 5th driest JJA), Pohnpei 43.45 in. (93% of normal), Lukunor 29.58 in. (72% of normal; 5th driest JJA), Kosrae 41.31 in. (107% of normal), and Chuuk 42.31 in. (106% of normal). In the Mariana Islands, Saipan observed 20.05 in. (85% of normal) and Guam 30.35 in. (89% of normal). In the RMI, Majuro observed 26.91 in. (79% of normal), while Kwajalein logged 29.58 in. (109% of normal). In Pago Pago, American Samoa, precipitation for JJA was above normal (21.09 in., 119% of normal), while mean average temperatures for JJA were above normal (81.1ºF, 10th warmest). In terms of broader-scale surface temperature anomalies in the western Pacific, reanalysis data (ERA5) shows record to near-record temperatures observed during the JJA 3-month period across much of the region including in CNMI, Guam, Palau, FSM, and RMI. Reanalysis data was verified by surface observational stations across areas of the western Pacific with numerous daily high temperature records broken—particularly during July and August (Guam International Airport broke daily high temperature records on 10 days during August). In the Hawaiian Islands, dry conditions prevailed across much of the state during JJA with an uptick in precipitation during August in association with Hurricane/Tropical Storm Hone. For the JJA period, Lihue observed 2.09 in. (36% of normal), Honolulu 0.23 in. (12% of normal), Molokai 0.89 in. (43% of normal), Kahului 1.94 in. (158% of normal), Kailua-Kona 1.73 in. (97% of normal), and Hilo 20.28 in. (73% of normal).

In the Northwest Pacific region (west of 180º), tropical cyclone (TC) activity has been below normal with 10 named storms and a regional Accumulated Cyclone Energy (ACE) Index of 85.6 (normal 147.9) by 9/8/24. In the Northeast Pacific region (east of 180º), TC activity was also below normal with 9 named storms and an ACE Index of 52.9 (normal 89.9), according to the Colorado State University, Tropical Meteorology Project.

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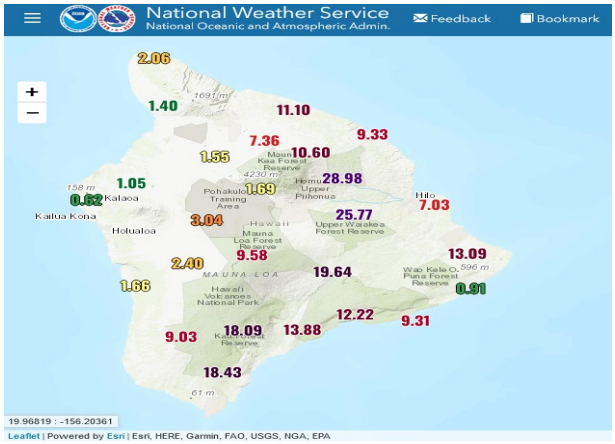
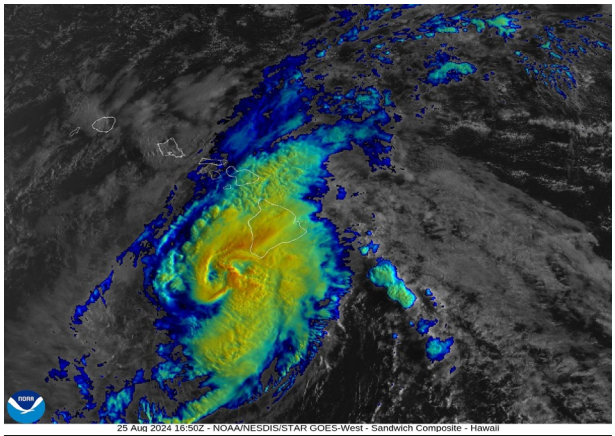
Sectoral Impacts – *For June 2024–August 2024*



Multi-day (late August) rainfall accumulations on the Big Island in association with Hurricane/Tropical Storm Hone. Source: National Weather Service, Honolulu WFO.



Satellite image of Hurricane Hone at 6:50 a.m. HST on 8/25/24 as it passes just south of Hawaii Island. Source: NOAA / NESDIS Center for Satellite Applications and Research.

Aerial photograph of the Kokee Fire (Kauai) on 7/19/24. The fire burned ~1600 acres with ground and air assets on the scene. Source: County of Kauai; Hawaii Army National Guard.

Facilities and Infrastructure – In the Hawaiian Islands, Governor Josh Green declared a state of emergency to assist with the response to the impacts of Hurricane/Tropical Storm Hone, which passed within 40 nautical miles south of South Point on the Big Island on 8/24-25. Heavy rainfall accumulations (up to 33.58 in. at Volcano Village) were observed in association with Hone, causing flash flooding on the Big Island. Moreover, strong winds (gusts up to 60+ mph) led to power outages on the Big Island due to downed trees and utility poles, impacting 20,000 people. Reports of damage associated with Hone were also observed on Maui and Oahu, according to the NWS Honolulu, HI Weather Forecast Office (WFO).

Fire – Drought conditions expanded and intensified across areas of the Hawaiian Islands leading to increased brush fire potential and activity across all counties from mid-July into August, according to the NWS Honolulu WFO. Several dangerous brush fires were observed in west Kauai during late July, including the Kokee Fire.

Heat – In the western Pacific, numerous observing stations recorded record to near-record temperatures during the June-August period. Notably, the stations logging record-level temperatures were in areas also experiencing near to record-level SSTs. Specifically, the observing station at the NWS WSO at the Majuro Airport (RMI) logged its 2nd warmest mean average temperature (83.7ºF) and mean minimum air temperature (80.3ºF) on record for JJA dating back to 1955. In FSM, Pohnpei had its warmest JJA mean average (83.0ºF) and mean minimum (77.1ºF) temperatures on record dating back to 1951. In Palau, Koror logged its warmest JJA mean minimum air temperature (78.6ºF) on record dating back to 1951. In American Samoa, Pago Pago International Airport observed its 10th warmest JJA mean average temperature (81.1ºF) as well as its 4th warmest June mean minimum (78.8ºF) and 7th warmest mean average (82.2ºF) temperatures on record dating back to 1957.

Water Resources – In Majuro (RMI), reservoir storage reached 78% of total capacity (36,000,000 gallons) on 8/31/24. In Kauai, 28-day average streamflows (9/11/24) were much below normal on the Wailua River near Lihue (2nd percentile), while 28-day flows were above normal on all USGS gauging stations on the Big Island, Maui, and Molokai (9/11/24), according to the U.S. Geological Survey.

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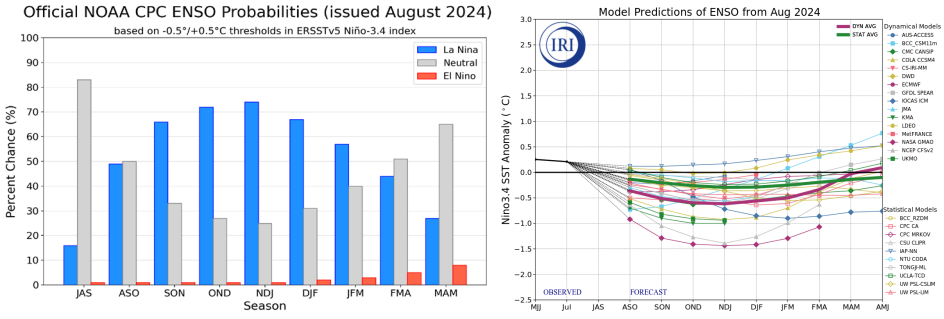
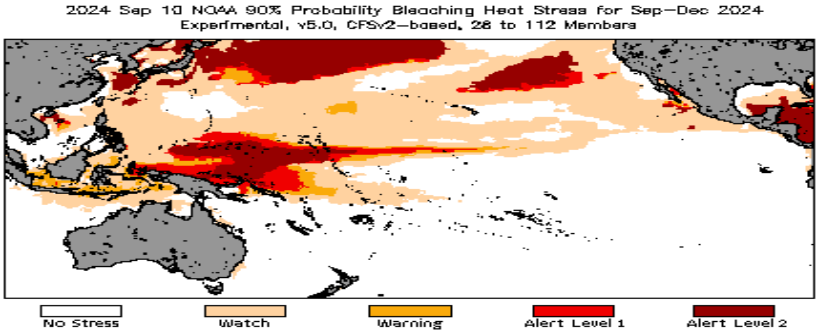
Seasonal Outlook – *For Sept. 2024–Nov. 2024*



Forecast for each of the three possible ENSO categories for the next 8 overlapping 3-month seasons. Blue bars show the chances of La Niña, gray bars the chances for neutral, and red bars the chances for El Niño (left); and ENSO forecast model predictions (right). Source: NOAA CPC (left); Columbia University IRI (right).

According to the latest ENSO prediction model simulations (above right), the IRI plume predicts a weak and short-duration La Niña, as indicated by the Niño 3.4 index values less than -0.5ºF. La Niña is favored to emerge during the September-November period (71% chance) and is expected to persist through January-March 2025. Additionally, the NOAA NCEP CFSv2 model suggests positive sea level anomalies of +10 to +20cm over the next several months in the western tropical Pacific.

The NOAA's Coral Reef Watch four-month coral bleaching heat stress outlook (Sep-Dec 2024) calls for a high probability (90%) of high heat stress (Alert Level 1-2) developing in areas across the western tropical Pacific Ocean, including areas of FSM, New Guinea, northern Solomon Islands, and southern portions of RMI.



NOAA Coral Reef Watch four-month coral bleaching heat stress outlook for Sep-Dec 2024. Red and maroon colors represent areas with a high probability of coral bleaching heat stress Alert Levels 1 & 2. Source: NOAA NESDIS.

Looking at the September-November 2024 precipitation forecast, below-normal rainfall is expected across the Hawaiian Islands, while average to below-average amounts are expected for Guam, CNMI (Saipan), and western RMI (Kwajalein). Elsewhere, average to above-average precipitation is forecasted for islands in eastern FSM (Kosrae, Pohnpei) and American Samoa. Above-average rainfall is expected in Palau, western FSM (Chuuk, Yap), and southern RMI (Majuro), according to the NOAA Pacific ENSO Applications Climate Center.

Regional Partners

NOAA Coral Reef Watch:
https://coralreefwatch.noaa.gov/

NOAA National Centers for Environmental Information:
https://www.ncei.noaa.gov/

NOAA NMFS Pacific Island Fisheries Science Center:
https://www.fisheries.noaa.gov/about/pacific-islands-fisheries-science-center

NOAA NWS Weather Forecast Office Honolulu & Guam:
https://www.weather.gov/hfo/
https://www.weather.gov/gum/

NOAA OceanWatch - Central Pacific Node:
https://oceanwatch.pifsc.noaa.gov/index.html

NPS Pacific Island Inventory & Monitoring Network:
https://www.nps.gov/im/pacn/index.htm

University of Guam - Water and Environmental Research Institute:
https://weri.uog.edu/

University of Hawaii - Asia Pacific Data Research Center (APDRC):
https://apdrc.soest.hawaii.edu/

University of Hawaii – Cooperative Institute for Marine & Atmospheric Research:
https://www.soest.hawaii.edu/jimar/index.htm

University of Hawaii - Sea Level Center:
https://uhslc.soest.hawaii.edu/

USGS Science Center - Pacific Coastal and Marine Science Center:
https://www.usgs.gov/pacific-coastal-and-marine-science-center

USGS Pacific Islands Water Science Center:
https://www.usgs.gov/pacific-coastal-and-marine-science-center

Western Regional Climate Center:
https://wrcc.dri.edu/

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