Hawai'i Ho'ohekili

Skywarn Weather Spotter Newsletter
National Weather Service, Honolulu, HI

Dry Season Edition, 2021 | Issued — April 2021 | Spotter Newsletter Volume 21

Inside this edition: March flooding event, New zone configurations, April Hawaii Drought Monitor, and an ENSO Update!!

- March flood event March 8 to 13th:
- Torrential rainfall and flash flooding over portions of the state
- March 8th: Cold front focused on Oahu and Maui. Kaupakalua Reservoir resulted in the overtopping of the dam.
- March 9th: Flooding damaged numerous roads and homes from Kaneohe to Kahuku, and Haleiwa along the North shore. Kauai and Big Island also reported flooding impacts across the islands.
- March 10th: Thunderstorms over Oahu. Kauai with already saturated soils generated a large landslide on March 11th leading into Hanalei.
- March 12: Cold front pushed across the island chain resulting in another round of significant flooding for the state.

Preliminary data from a USGS rain gauge on Mt. Waialeale had the highest March rainfall total of 111.72" !


COURTESY: Dan Campbel Lloyd


COURTESY: Kauai Police Dept


COURTESY: Oahu Civil Defense

Photos

- Top Right: Waterfall over the North Shore of Kauai
- Bottom Right: Landslide over Kuhio highway, March 11th.
- Left bottom: East Oahu as the streams come close to overflowing its banks.

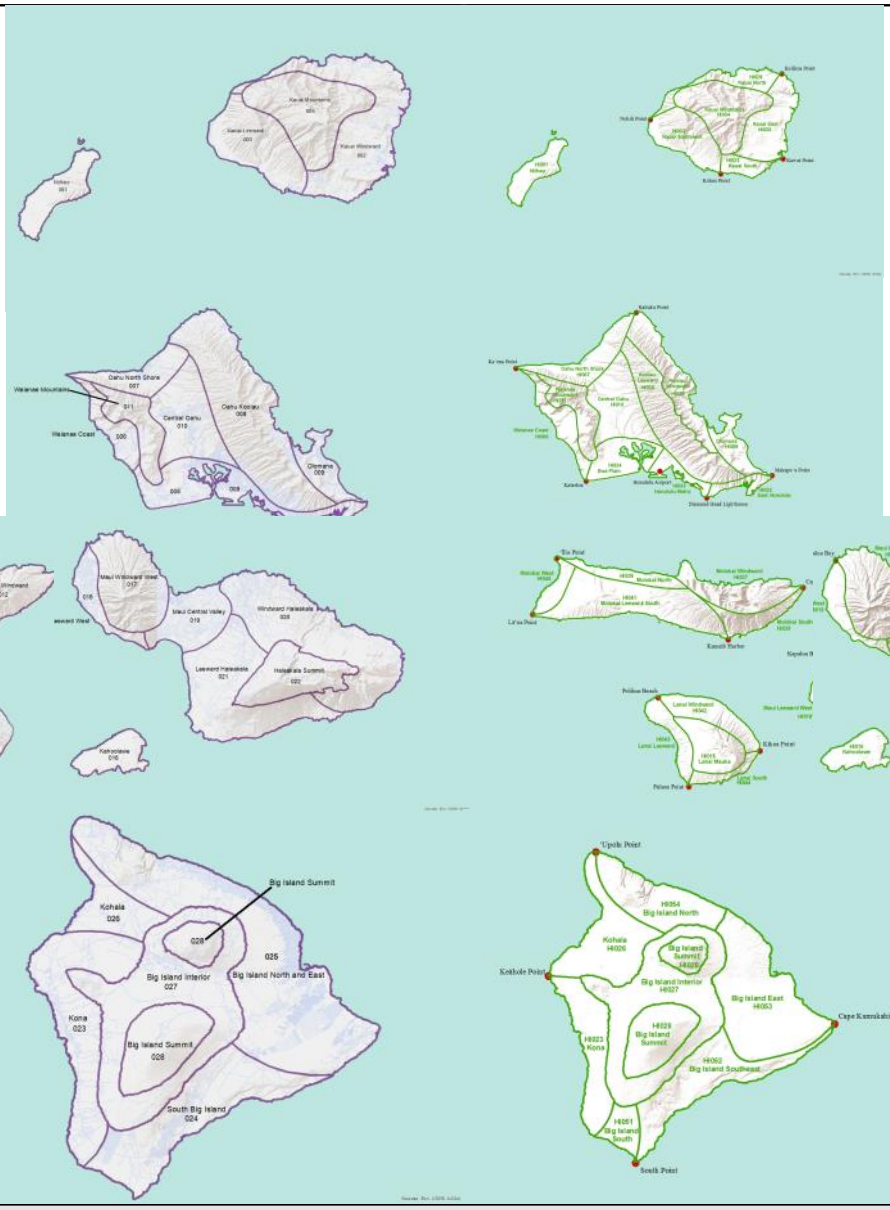
Changes to Public Forecast Zones for HFO

On Tuesday, March 30, 2021, our office changed the Public Forecast Zone configuration on Kauai, Oahu, Molokai, Lanai, Maui, and the Big Island. We split 11 zones into 26 new zones and adjusted boundaries of five additional zones. These zone changes optimize the issuance of hazard coastal products while also capturing weather conditions that vary significantly across the terrain of the islands.

Please check out the service change notice: https://www.weather.gov/media/notification/pdf2/scn21-03hfo_zone_changeaaa.pdf

And the zone changes: https://www.weather.gov/hfo/state_zones

Before March 2021

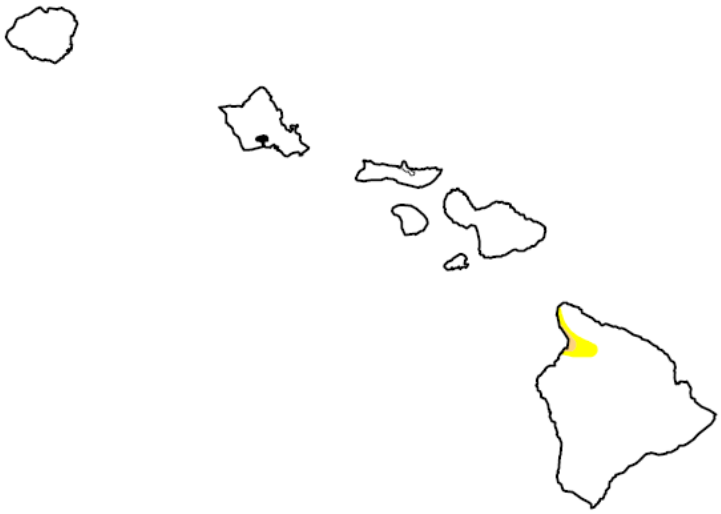


After March 2021

‘Olelo No’Eau

Hawaiian Proverb: Ao ‘ōpiopio
English: Young Cloud
Explanation: A cloud that rises from sea level or close to the cloud banks and is as white as steam. When you see this in Kona, Hawaii, this is a sign of rain

U.S. Drought Monitor
Hawaii



April 13, 2021
(Released Thursday, Apr. 15, 2021)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	97.58	2.42	0.50	0.00	0.00	0.00
Last Week 04-06-2021	98.13	1.87	0.00	0.00	0.00	0.00
3 Months Ago 01-12-2021	58.59	41.41	21.39	10.02	4.30	0.39
Start of Calendar Year 12-29-2020	63.87	36.13	19.31	9.68	2.60	0.00
Start of Water Year 09-29-2020	13.46	86.54	39.71	13.33	2.25	0.00
One Year Ago 04-14-2020	94.37	5.63	1.14	0.28	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

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National Drought Mitigation Center

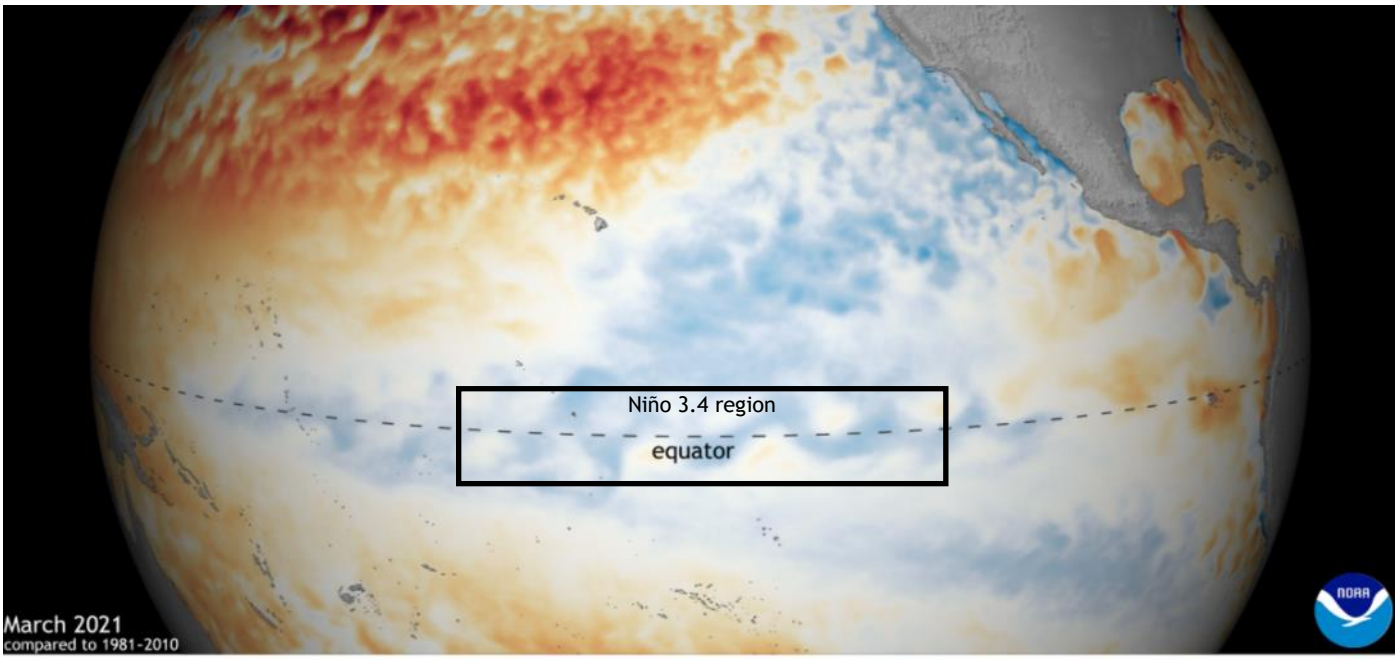
droughtmonitor.unl.edu

...A WET MARCH WIPES OUT DROUGHT IN HAWAII… - NWS Hydrologist Kevin Kodama

The wettest March since 2006 over many areas of the state helped eliminate remaining significant drought in Maui County and the Big Island. This includes an area of severe drought, or the D2 category on the U.S. Drought Monitor map, over southwest Molokai, and moderate, or the D1 category, over west-central Molokai and central Maui. An area of moderate drought in the lower South Kohala District was also eliminated, but may return soon due to recent dryness.

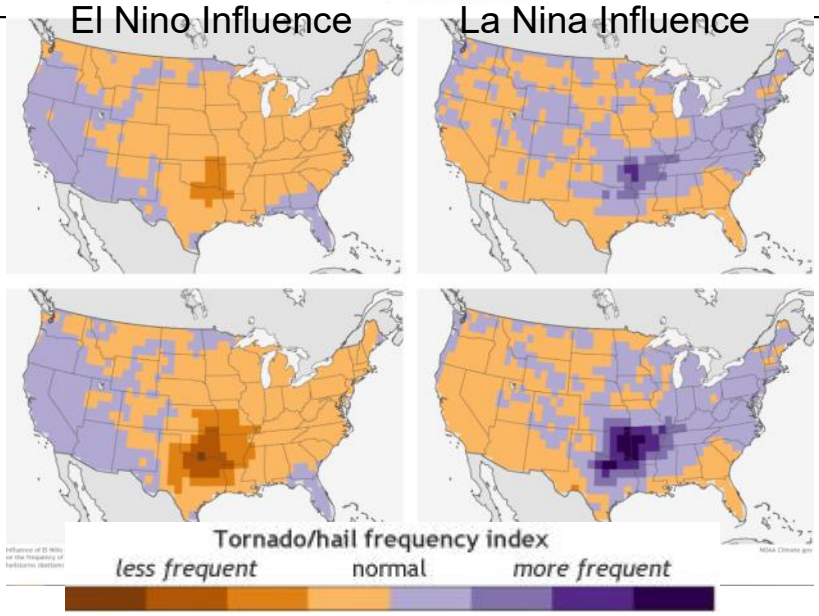
However, leeward portions of the Kohala region on the Big Island had below average rainfall during March despite the wet conditions elsewhere in the state. Impacts may begin to appear in the near future in this area. The Long-Lead Hawaiian Islands Outlook issued on March 18, 2021 by the NOAA Climate Prediction Center showed probabilities transitioning to near to below normal rainfall for the rest of the spring and through summer 2021. Probabilities show a slight tilt favoring below normal temperatures for the east half of the state by late summer 2021, but continue to favor above normal temperatures for the west half.

With the exception of the Kona slopes of the Big Island, leeward areas of the state may slip back into drought conditions at some point over the next several months. Trade wind rainfall may be enough to prevent drought development along the windward slopes. The summer months are part of the wet season on the Kona slopes, which should be sufficient to mitigate drought development in this area.



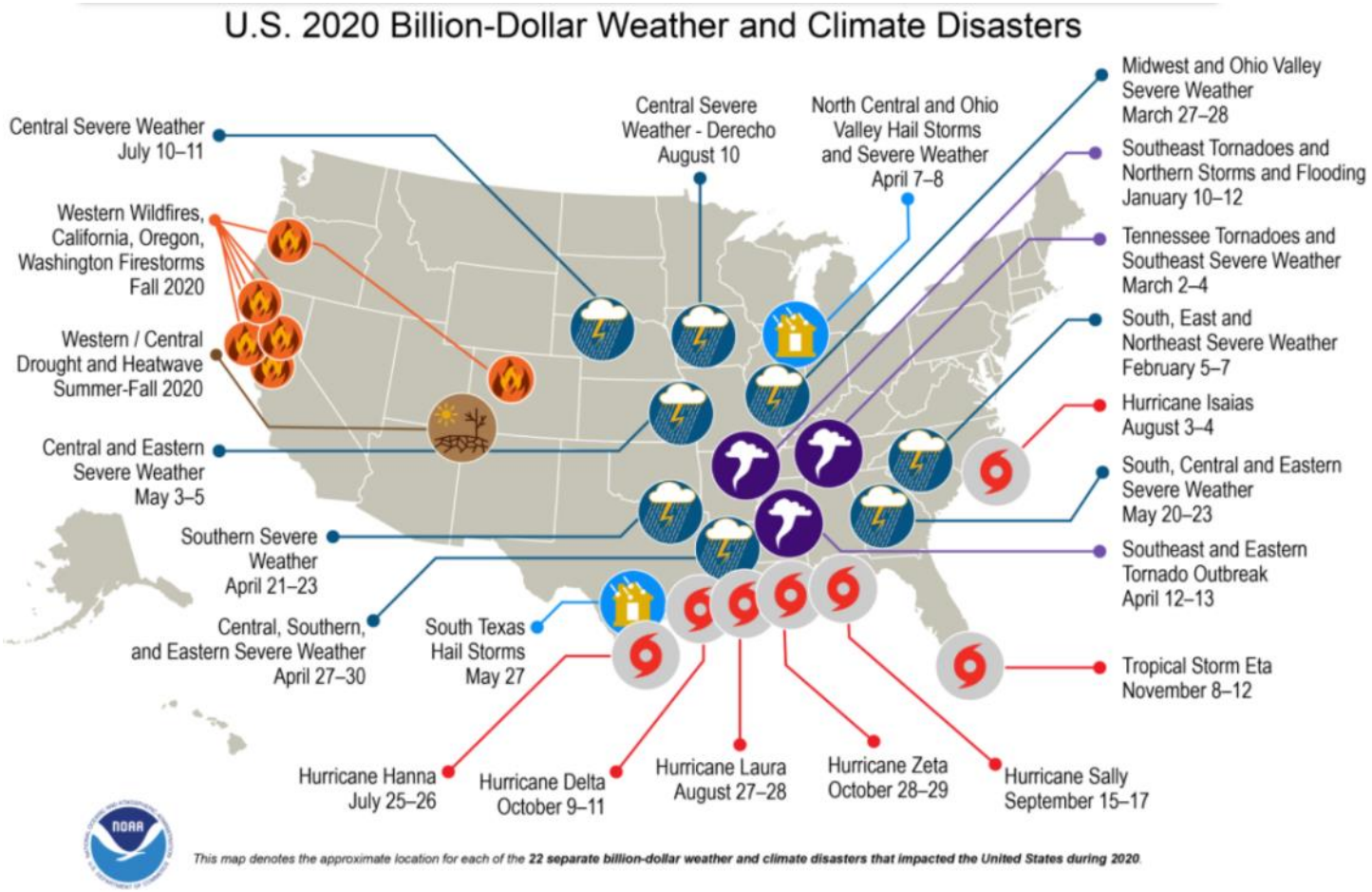
April 2021 NOAA ENSO Blog Update—La Niña is hanging on in the tropical Pacific, but it's likely a transition to neutral will occur in the next month or so, and the chance of neutral goes up to 80% in May–July.

The atmosphere over the tropical Pacific still reflected the strengthened Walker circulation characteristic of La Niña during March, although the relationship was showing signs of weakening. The sky was clearer than average over the central tropical Pacific, while the other side of this signal—more clouds and rain than average over Indonesia—weakened in March. The trade winds, near-surface east-to-west winds that strengthen during La Niña, were just a bit stronger than average in the western and central Pacific.



One yardstick we use to track the atmospheric arm of ENSO is the atmospheric pressure difference at sea level between the western Pacific and the central/eastern Pacific. A stronger Walker circulation equals higher-than-average pressure in the eastern Pacific and lower-than-average pressure in the western Pacific. When these indexes are positive, they are indicating a stronger Walker circulation. Much like the sea surface temperature, the indexes have been in solid La Niña territory since last fall and are still indicating the strengthened Walker circulation. However, they moved closer to neutral in March, indicating that the atmospheric response is weakening. Forecasters estimate about equal chances that the March–May season will qualify as La Niña or neutral, and it's very likely (80% chance) that neutral conditions will reign by M-J.

The fact that La Niña is still around is significant, though, as La Niña can make conditions more conducive for severe weather outbreaks. La Niña's wavier jet stream can create a friendlier environment for tornadoes across much of the US. Mike Tippett and Chiara Lepore wrote in the spring of 2017, "Two important ingredients for tornadoes are atmospheric instability (e.g., warm, moist air near the surface and cool dry air aloft) and vertical wind shear (winds at different altitudes blowing in different directions or speeds)." La Niña has been linked to increases in these severe-weather-friendly conditions, and to increased reports of tornadoes, hail, and winds.



Billion-Dollar Weather and Climate Disasters: Overview

The U.S. has sustained 291 weather and climate disasters since 1980 where overall damages/costs reached or exceeded $1 billion (including CPI adjustment to 2021). The total cost of these 291 events exceeds $1.900 trillion.

2021 in Progress…

In 2021 (as of April 8), there has been 1 weather/climate disaster event with losses exceeding $1 billion to affect the United States. This was 1 winter storm event. This event resulted in the deaths of 138 people and had significant economic effects on the areas impacted. The 1980–2020 annual average is 7.1 events (CPI-adjusted); the annual average for the most recent 5 years (2016–2020) is 16.2 events (CPI-adjusted).

2020 sets the new annual record of 22 events - shattering the previous annual record of 16 events that occurred in 2011 and 2017. 2020 is the sixth consecutive year (2015-2020) in which 10 or more billion-dollar weather and climate disaster events have impacted the United States. Over the last 41 years (1980-2020), the years with 10 or more separate billion-dollar disaster events include 1998, 2008, 2011-2012, and 2015-2020.

Methodology and Data Sources - The National Centers for Environmental Information (NCEI) is the Nation's Scorekeeper in terms of addressing severe weather and climate events in their historical perspective. NCEI tracks and evaluates climate events in the U.S. and globally that have great economic and societal impacts.