



# Hawai'i Ho'ohēkili

Skywarn Weather Spotter Newsletter  
National Weather Service, Honolulu, HI



Wet Season Edition, 2016-2017

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**Inside this edition: La Nina on the way, Hawaii's very wet 'Dry Season', how to prepare for flash flooding, and more!!**

## La Nina is favored to develop

ENSO-Neutral conditions were observed during September, with negative sea surface temperatures (SSTs) anomalies expanding across the eastern equatorial Pacific Ocean by early October (Fig 1). All of the Niño regions cooled considerably during late September and early October, with the latest weekly value of Niño-3.4 index at  $-0.9^{\circ}\text{C}$ . La Niña is favored to develop (~70% chance) during the Northern Hemisphere fall 2016 and slightly favored to persist (~55% chance) during winter.

## Quote from a Scientist—

During La Niña, the ocean surface in the central and eastern tropical Pacific gets cooler than normal, leading to sinking air and less rain above that region, just as the waters near Indonesia get warmer and cause more rising air and rain (Fig 2). This stronger Walker Circulation is completed by stronger east-to-west surface winds and west-to-east upper level winds. This atmospheric circulation works to enhance the cooler ocean surface, both by blowing across the surface just like you'd cool the surface of your coffee, and also by causing cold water from the deep ocean to rise up. Have you ever blown on the surface of a cup of coffee that has cream in it, but hasn't been stirred up? You'll see the cream rise up to the surface, brought there by the circulation you've created. - Emily Becker, NOAA Climate Prediction Center

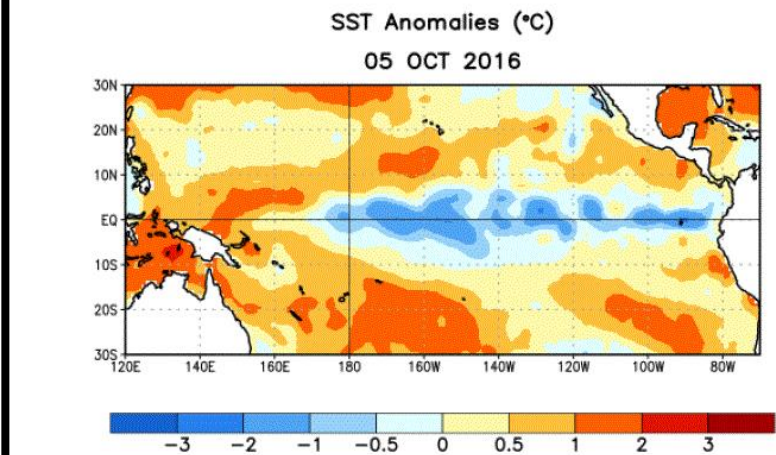


Figure 1. Average sea surface temperature (SST) anomalies ( $^{\circ}\text{C}$ ) for the week centered on 5 October 2016. Anomalies are computed with respect to the 1981-2010 base period weekly means.

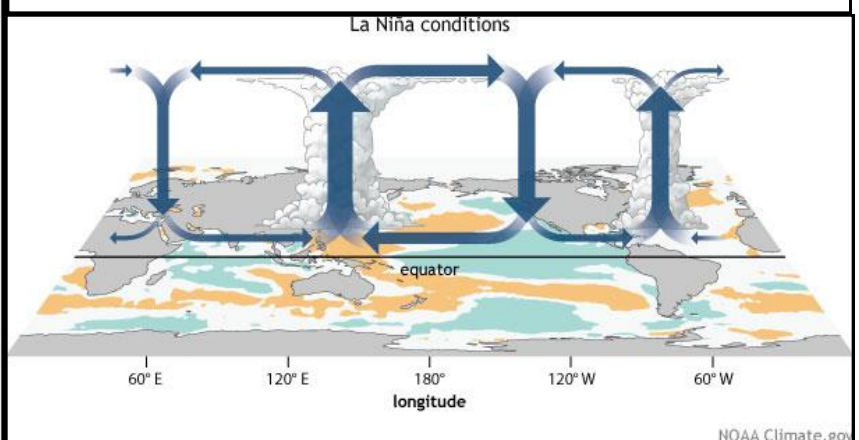
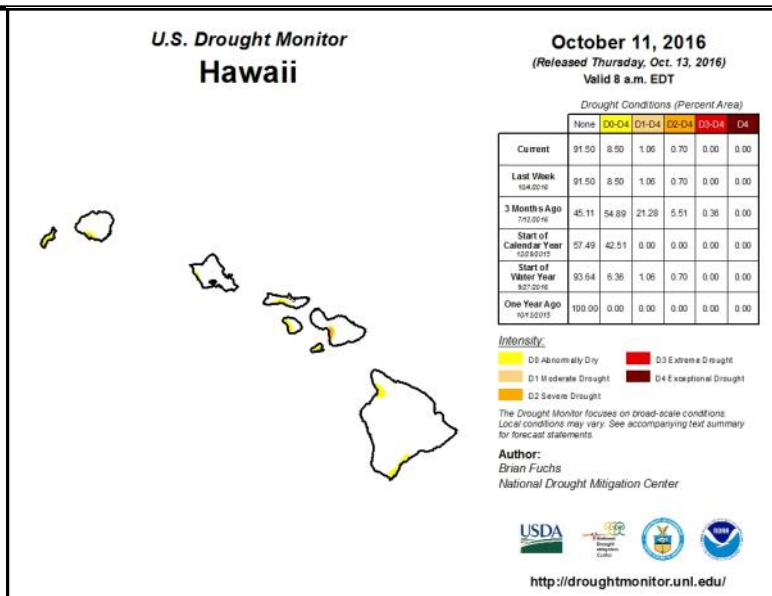


Figure 2. Generalized Walker Circulation (December-February) anomaly during La Niña events, overlaid on map of average sea surface temperature anomalies. Anomalous ocean cooling (blue-green) in the central and eastern Pacific Ocean and warming over the western Pacific Ocean enhance the rising branch of the Walker circulation over the Maritime Continent and the sinking branch over the eastern Pacific Ocean. Enhanced rising motion is also observed over northern South America, while anomalous sinking motion is found over eastern Africa. NOAA Climate.gov drawing by Fiona Martin.

## Summary of Dry Season (May through September 2016)

Statewide: Most locations had near to above average rainfall.

- Most areas drought-free except for small sections of leeward Maui near Kihei, and leeward Kauai near Hanapepe. Drought is mainly affecting ranching operations.
- 2nd wettest dry season in the last 30 years (based on rankings from 8 key sites). 2015 was the wettest.
- 2016 dry season had monthly rainfall records broken at several locations in July, August, and September.
- Above average tropical cyclone activity near Hawaii and above average sea surface temperatures have helped increase rainfall.
- Tropical cyclones and other tropical weather features bring associated rain bands over the islands and enhanced moisture from the deep tropics to fuel intense rainfall.
- Tropical Storm Darby made landfall on the Big Island in July and its trailing rain band produced damaging flash floods on Oahu.
- Enhanced moisture from a weak tropical disturbance contributed to severe flash flooding in Wailuku River on Maui in September.



## Outlook for the Wet Season (October 2016 through April 2017)

- NOAA's Climate Prediction Center (CPC) forecasts the current ENSO-neutral conditions will transitioning to a La Nina state (cool phase).
1. CPC issued a "La Nina Watch" on October 13, 2016.
  - While La Nina is favored to develop during the fall, it may not be long-lived and is only slightly favored (55% chance) to persist through the winter.
  - Probabilities favor near to above average rainfall through spring 2017.
1. Above average rainfall also reflected in the climate model consensus predictions.
  2. Prior wet seasons during weak La Nina events have had near average rainfall in the Hawaiian Islands.
  3. Prior wet seasons during ENSO-neutral events tend to have above average rainfall in the Hawaiian Islands.
- Drought recovery is probable for remaining areas on Kauai and Maui.

# Wet Season Preparedness Reminders

- Do not drive on roads with fast-flowing water.
  1. Just 2 feet of fast-flowing water can sweep most vehicles off a road.
  2. Road may be severely undercut.
- Do not walk across flooded streams.
  1. If you're hiking and get stranded, wait for the water to recede.
  2. Streams in Hawaii generally recede quickly.
- Expect more rainy weather impacts.
  1. Increased road travel times.
  2. Possible detours or road closures due to flooding or landslides.
  3. Outdoor activities may be postponed, canceled, or adjusted.
- The wet season brings increased potential for lightning strikes.
  1. Be prepared for power outages.
  2. Move indoors during a thunderstorm.
- If you travel through a flood-prone area, identify alternate routes ahead of time.
- If you live in a flood-prone area, have an evacuation plan in case flood waters quickly threaten your home.
- Stay informed of conditions that could change rapidly
  1. Sunny skies can turn cloudy with intense rainfall in less than an hour.
  2. Check out the latest forecasts, watches, warnings, and advisories via the media, NOAA Weather Radio, the Internet, or one of several weather mobile phone apps.
  3. Wireless Emergency Alerts (WEA) on mobile phones notify you that you're in a flash flood warning area.



Photos: Keith Regan as seen on Star Advertiser Website  
Iao Valley and Wailuku Stream, Sept 2016



**Aina Haina Recognized As TsunamiReady/StormReady:** In conjunction with the State of Hawaii Emergency Management Agency (HI-EMA) and the City and County of Honolulu Department of Emergency Management (DEM), NOAA's National Weather Service office in Honolulu recognized the community of Aina Haina (Oahu) as only the 5th municipality, and 8th overall community in the state, as both Storm-Ready and TsunamiReady.

In addition, Aina Haina will be recognized by HI-EMA and DEM for completion of the Hawaii Hazards Awareness and Resilience Program (HHARP). Aina Haina Prepared, a community emergency preparedness committee, has spearheaded a grassroots campaign to get their community prepared and resilient. They have successfully completed all requirements to be recognized as Storm Ready and Tsunami Ready by the National Weather Service.

### On the Web:

NOAA National Weather Service Honolulu HI: <http://www.weather.gov/hawaii/>

NOAA Weather Ready Nation: <http://www.nws.noaa.gov/com/weatherreadynation/>

NOAA Climate Prediction Center: <http://www.cpc.ncep.noaa.gov/>

FEMA Flood Preparedness Information: <https://www.ready.gov/floods>

Hawaii Emergency Management Agency: <http://dod.hawaii.gov/hiema/>

State of Hawaii-DLNR National Flood Insurance Page: <http://dlnreng.hawaii.gov/nfip/>

U.S. Drought Monitor: <http://droughtmonitor.unl.edu/>