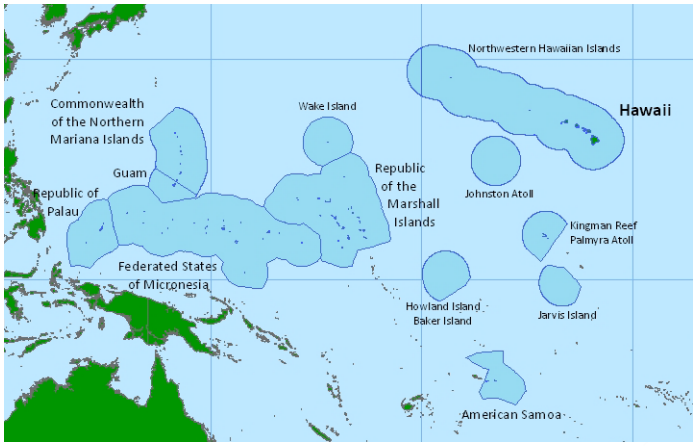
Fall Climate Impacts and Outlook

Hawaii and Pacific Islands Region

September 2012

Hawaii and Pacific Islands - *Significant Events and Impacts for Fall 2012*

Highlights for Hawaii and the Pacific Islands Region



The U.S.-Affiliated Pacific Islands.
Shading indicates each island's Exclusive Economic Zone (EEZ).

Hawaii and Northwestern Hawaiian Islands – Drought persisted through the rainy season, with extreme drought on leeward areas of Maui, Lanai, Molokai and the Big Island.

Guam/Commonwealth of the Northern Mariana Islands (CNMI) – Tropical Storm Suva passed just south of Guam, depositing 4 inches of rain over three to four days.

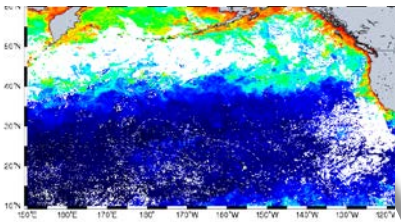
Republic of the Marshall Islands (RMI) – On Kwajalein, 5.52 inches fell in one day in June marking the 8th highest 24-hour rainfall event recorded.

Federated States of Micronesia (FSM) – Typhoon Guchol produced gusty winds and heavy rainfall in Yap. June was extremely wet at Kapingamarangi, Pohnpei.

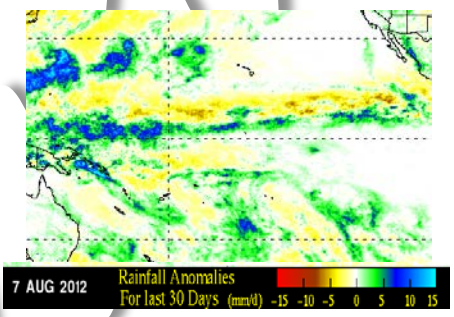
Republic of Palau – The sea level increased over three inches from May-June to reach more than 9 inches above normal.

American Samoa – Strong SE trade winds drove sea levels higher than normal in the harbor.

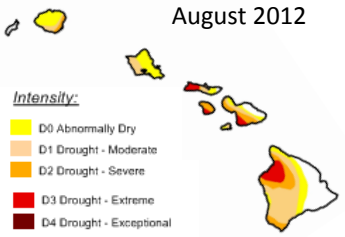
Regional Climate Overview for Fall 2012



MODIS Aqua Ocean color monthly composite showing the location of the TZCF in July 2012. Source: http://oceanwatch.pifsc.noaa.gov



Source: http://trmm.gsfc.nasa.gov/



U.S. Drought Monitor – Drought Conditions in Hawaii. Source: http://droughtmonitor.unl.edu

ENSO-neutral conditions continued in the Equatorial Pacific Region. The monsoon trough has been weak or absent.

Sea surface temperature (SST) anomalies were trending upward across much of the Pacific Ocean. This warming was consistent with a weakening of *the Trade Winds* across the east-central Pacific. *The Transition Zone Chlorophyll Front (TZCF)* migrated to its summer location.

Rainfall throughout much of the region was close to normal. In Hawaii, rainfall was below-normal in many areas of the state. In Guam and the CNMI, rainfall was near-normal. In the RMI, rainfall was below-normal to near-normal. In the FSM, rainfall was above-normal in Chuuk, below-normal in Kosrae, near-normal in Pohnpei except in Kapingamarangi where is was above-normal, and near-normal in Yap. In Palau, rainfall was near-normal. In American Samoa rainfall was near-normal.

Drought conditions existed across much of the Hawaiian Islands, and ranged from extreme to abnormally dry. With the exception of Kwajalein, dry conditions were experienced throughout the RMI. In the FSM, portions of Kosrae and the island in Pohnpei experienced slightly dry conditions. American Samoa passed through a normal dry season.

Sea Level was persistently high throughout much of the region.

Tropical Cyclone activity in the western North Pacific was above normal, in the eastern North Pacific near-normal, and in the Southern Hemisphere well below normal. Activity in Micronesia was below normal.

Regional Impacts for Fall 2012

Highlights for Hawaii and the Pacific Islands Region

Fisheries

Associated with the upwelling of deep, cold and nutrient-rich water masses, an ocean eddy located off the Kona Coast of the Big Island resulted in increased bioproductivity levels (i.e.: phytoplankton).

Agriculture and Husbandry

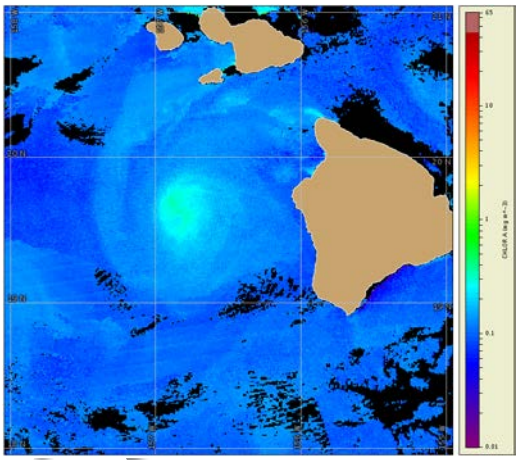
Farming and ranching continues to suffer in Hawaii due to persistence of drought conditions. On Kauai, Oahu, Maui, and the Big Island, degraded pastures have required ranchers to reduce their herd size. On Molokai there was a mandatory 30% cutback in irrigation water usage.

Water Resources

On Majuro in the RMI, water restrictions were considered when the reservoir fell to 17 million gallons (out of 33 million gallons total capacity).

Wildfire

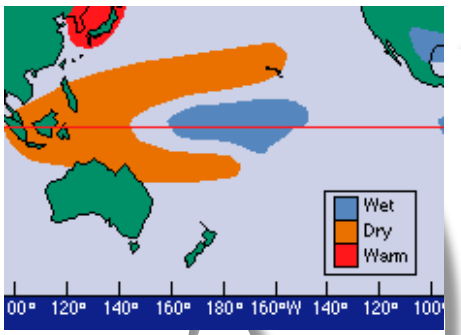
Dry conditions in Hawaii have led to wildfires. On the Big Island, a large brush fire damaged coffee and macadamia nut plants and pastures.



VIIRS Ocean color (chlorophyll-a) image acquired on 4 April 2012 by the newly-launched NOAA/NASA NPP satellite depicting the location of a mesoscale oceanographic eddy off the Island of Hawaii. Source: http://oceanwatch.pifsc.noaa.gov

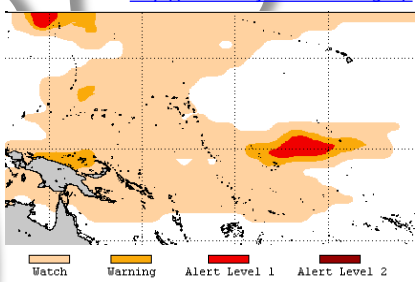
Regional Outlook for Winter 2012

Highlights for Hawaii and the Pacific Islands Region



Typical conditions in the Northern Hemisphere Winter during El Niño. Source: http://www.pmel.noaa.gov/tao/elnino/impacts.html

Bleaching Thermal Stress Outlook, Sep-Dec 2012. Source http://coralreefwatch.noaa.gov/



El Niño is expected to develop.

Due to the trend of increasing *SSTs*, a coral bleaching watch exists across much of the west Pacific and portions of the south central Pacific . Portions of the equatorial central Pacific are at Alert Level 1.

Below-normal temperatures and rainfall are expected for Hawaii. As a result, drought will worsen and the risk of wildfires will remain high. The southwest monsoon and tropical storms should bring rain to Guam and CNMI. In the FSM, rainfall is anticipated to be above-normal in Chuuk, near-normal in Kosrae, near-normal to above-normal in Pohnpei, and normal to above-normal in Yap. In Palau rainfall is expected to be near-normal to above-normal. As the El Niño builds, the expectation is that these areas will become progressively drier in the NH Spring , with some locations drying by the NH Winter. Near-normal to above-normal rainfall is expected for American Samoa.

Sea Levels will continue to be above normal, but are expected to fall across the region in conjunction with the strengthening of El Niño.

Tropical cyclone activity for 2012 will be slightly above- normal in the western North Pacific and near normal for Micronesia. For American Samoa, tropical cyclone activity is expected to progressively increase.

Regional Partners

PEAC Center: http://www.prh.noaa.gov/peac/

NOAA National Weather Service Weather Forecast Office Honolulu : http://www.prh.noaa.gov/pr/hnl/

NOAA National Weather Service Weather Forecast Office Guam: http://www.prh.noaa.gov/pr/guam/

NOAA NESDIS National Climatic Data Center: http://www.ncdc.noaa.gov/sotc/

NOAA NMFS Pacific Island Fisheries Science Center: http://www.pifsc.noaa.gov/

NOAA OceanWatch - Central Pacific http://oceanwatch.pifsc.noaa.gov/

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

USGS Pacific Islands Water Science Center: http://hi.water.usgs.gov/

University of Hawaii - Joint Institute of Marine and Atmospheric Research (JIMAR): http://www.soest.hawaii.edu/jimar/

University of Guam - Water and Environmental Research Institute (WERI): http://www.weriguam.org/