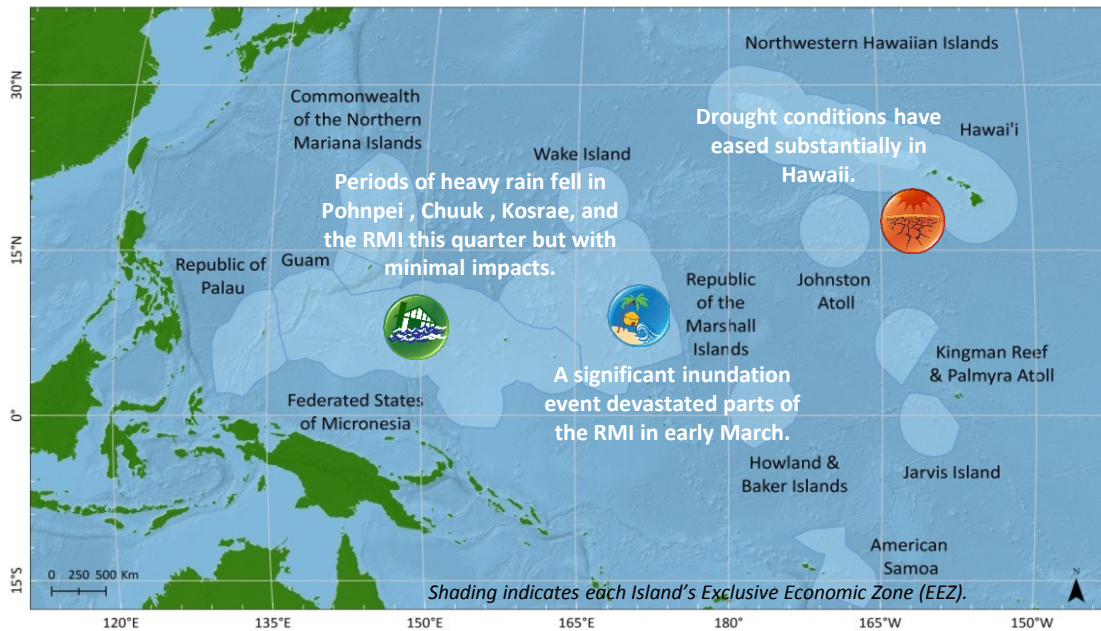


Significant Events and Impacts for 1st Quarter 2014



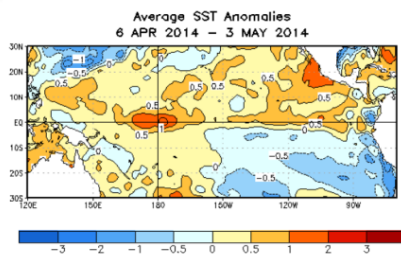
The region is currently under an El Niño Watch.

Sea-levels plummeted this quarter in Guam, Palau, and the Federated States of Micronesia, supportive to the evolution of El Niño across the region.

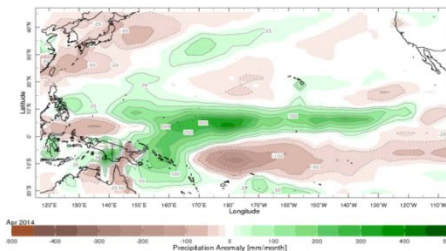
Above normal rainfall prevailed over much of Palau, the Federated States of Micronesia, and the Marshall Islands.

No significant impacts were noted in American Samoa this quarter.

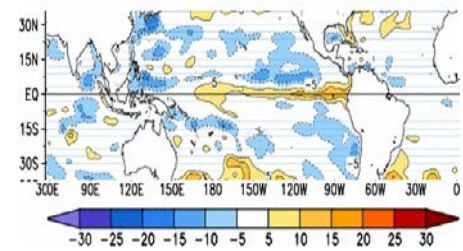
Regional Climate Overview for 1st Quarter 2014



Sea-Surface Temperature Anomaly Map. May 2014 Source: <http://www.cpc.ncep.noaa.gov>



April 2014 precipitation anomaly. Source: <http://iridl.ldeo.columbia.edu/>



Sea-Surface Height Anomaly, valid May 3, 2014. Source: <http://cpc.ncep.noaa.gov/>

ENSO-neutral conditions continued in the Equatorial Pacific Region, though the region remains under an El Niño Watch. Weather conditions were more in-line with El Niño during the quarter (e.g., increasing sea-surface temperatures, falling sea level, and wet conditions across Micronesia). As of May 8th the Niño 3.4 region anomaly was +0.4°C, which corresponds to ENSO neutral conditions.

Sea-surface temperatures were generally above-normal, with anomalies exceeding 1°C near and just east of the Marshall Islands. In addition, sub-surface ocean temperature anomalies exceeded 6°C in parts of the central and eastern equatorial Pacific this quarter. The monthly mean sea level in the 1st quarter continued to show slightly elevated levels in most of the USAPI stations; however, most stations were 3-4 inches lower than the last quarter. Palau experienced a 6" fall in this quarter and Kwajalein experienced a 3" sea level fall in April alone!

In Hawaii, rainfall was near normal in many areas of the state, though dryness lingered on the Big Island. In Saipan, rainfall was above normal as quarterly values exceeded 125% of normal. In the RMI, rainfall was well above normal (Kwajalein had 12.06" of rain in just 24 hours on 11 April), while in the FSM, quarterly rainfall, in terms of percent of normal, was above normal across most sites: Chuuk (203%), Kosrae (114%), and Yap (159%). Further west, Pohnpei was above normal (127%), while in Palau rainfall was slightly above normal. In American Samoa, rainfall was 103% of normal for the quarter.

Drought conditions improved over much of the Hawaiian Archipelago. As of the end of April, only 34% of the state of Hawaii was abnormally dry or in drought, compared to 57% last quarter, and over 80% this time last year. Meanwhile, prolonged dryness lifted out of Kwajalein, while parts of Guam saw slightly drier conditions develop toward the end of the quarter.

Tropical Cyclone activity for February-April in the western North Pacific basin was above normal with 3 named storms and several other smaller tropical disturbances. In the Southern Hemisphere, the late season was quite active with a total of 7 tropical cyclones, the most notable being TC Ita which affected the Solomon Islands, Papua New Guinea, northern Australia, and all of New Zealand with especially heavy rain.

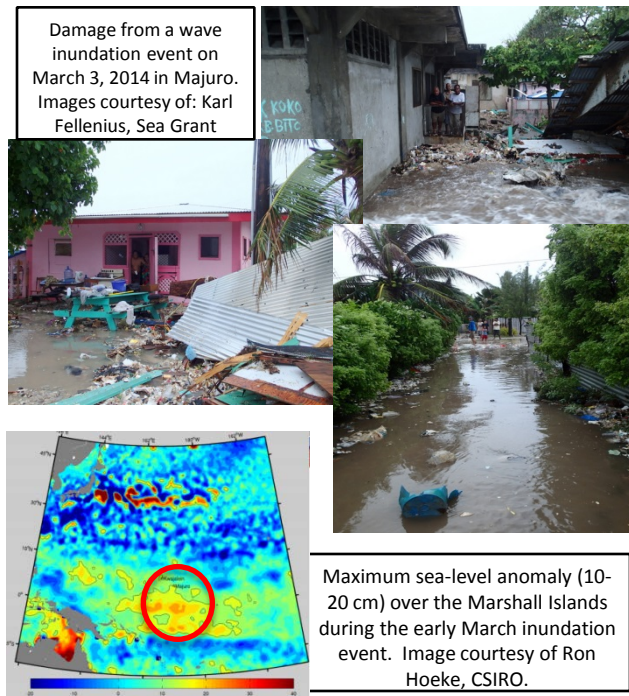
Sectoral Impacts for 1st Quarter 2014

Water Resources – Wet weather dominated much of RMI and FSM this quarter, leading to full and overflowing rain catchments. The plentiful rainfall did cause a few electrical shortages this quarter in Kwajalein as the rainwater seeped into degrading concrete structures. The northern atolls of RMI were very dry by comparison, but no water issues were reported.

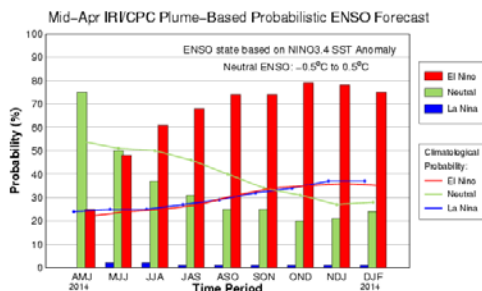
Facilities and Infrastructure – Large swells from the north-northeast combined with unusually high tides to inundate the RMI on March 3, 2014 (<http://soundwaves.usgs.gov/2014/04/>). Wave heights were as high as 5 m (16 feet) during this event. The inundation caused substantial damage on Majuro, Arno, Kili, and Mili atolls in the RMI. On Majuro, more than 1300 people were displaced from their homes and a total of 70 homes were lost or destroyed by the flood waters. In Arno, the high tides caused damage to the health center, a school, and affected food and freshwater supplies. Costs were around \$3 million.

Fishing – The Pacific-wide ocean color image for March showed a well-defined Transition Zone Chlorophyll Front in the north Pacific, and this boundary tends to migrate back and forth more during El Niño conditions.

Natural Resources – The tropical western Pacific and southeast Asia, including the Coral Triangle, have been experiencing fast elevation of sea-surface temperatures, leading to the accumulation of coral bleaching thermal stress to the Bleaching Warning level in areas centered near the Equator and the Dateline.



Regional Outlook for 2nd Quarter 2014 (May-July)



ENSO Forecast, April – December 2014. Source: <http://iri.columbia.edu/our-expertise/climate/forecasts/ens/>

ENSO Neutral conditions are expected to continue through June 2014. **Probabilities are rapidly increasing that there will be an El Niño in the following months.** http://www.prh.noaa.gov/peac/peu/2014_SB1/PEU_v20_SB1.pdf

The SST anomaly outlook for the 2nd quarter indicates near-normal values in Palau and FSM, but much above-normal temperatures along and east of the Dateline. **Coral bleaching thermal stresses are projected to be high** across the equatorial Pacific with the highest chance of bleaching from the Marshall Islands east to Fanning, and into parts of the eastern Pacific.

The forecast values for sea level in the 2nd quarter indicate that most of the stations in the north Pacific region are likely to be only 1-2 inches higher than normal. Palau is forecast to be marginally below normal, while Honolulu and Hilo will remain closer to normal. **The falling trend of sea level is supportive to the evolution of El Niño.**

Rainfall is anticipated to be above normal for Yap, near normal for Chuuk, Pohnpei, and Kosrae. **Palau is projected to be wetter than normal**, while the CNMI is expected to receive near normal rainfall. For the RMI, Kwajalein and Majuro are expected to receive above normal rainfall. Rainfall for American Samoa and Hawaii is projected to be near-normal.

Tropical cyclone activity is expected to be above normal across the western North Pacific region. In the southwest Pacific, the TC season ended on April 30th, and from a climatological perspective, there is only a slight chance for any extra-seasonal TC development during this precursor El Niño timeframe.

Regional Partners

Pacific ENSO Applications Climate Center:
<http://www.prh.noaa.gov/peac/>

NOAA NWS Weather Forecast Office Honolulu:
<http://www.prh.noaa.gov/pr/hnl/>

NOAA NWS Weather Forecast Office Guam:
<http://www.prh.noaa.gov/pr/guam/>

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

NOAA NESDIS National Oceanic Data Center:
<http://www.nodc.noaa.gov/>

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/>

USGS Science Center – Pacific Coastal and Marine Science Center: <http://walrus.wr.usgs.gov/>

University of Hawaii - Joint Institute of Marine and Atmospheric Research:
<http://www.soest.hawaii.edu/jimar/>

University of Guam - Water and Environmental Research Institute: <http://www.weriguam.org/>