

pacific

ENSO

update

4th Quarter, 2012 Vol. 18, No. 4

ISSUED: November 8, 2012

**A Quarterly Bulletin of the Pacific El Niño/Southern Oscillation Applications Climate (PEAC) Center
Providing Information on Climate Variability for the U.S.-Affiliated Pacific Islands**

<http://www.prh.noaa.gov/peac>

CURRENT CONDITIONS

According to the U.S. Climate Prediction Center (CPC), the climate of the Pacific Ocean basin continues to straddle the borderline between ENSO-neutral and weak El Niño. For several months, the Pacific basin has been in an El Niño watch, but now has downgraded the ENSO Alert System Status to “Not Active”. La Niña conditions ended in early 2012, and the climate system then entered ENSO-neutral. It was thought that a transition to El Niño would occur sometime in the latter half of 2012, with El Niño most likely to become established during the Northern Hemisphere (NH) fall months. Whereas the equatorial Pacific Ocean began to show signs of El Niño with an observed warming of both the sea surface temperatures (SSTs) and the sub-surface waters down to 300 meters, the atmosphere showed few signs of an impending El Niño. The monsoon was weak or absent at low latitudes (e.g., throughout most of Micronesia) and tropical cyclone development occurred mostly to the west and north of the average longitude and latitude of development. Sea levels also remained higher than normal across Micronesia, which is not typical of El Niño.

Rainfall has been generally above normal across most of Micronesia from Palau in the west through Chuuk and Pohnpei in the east, and in Guam and the CNMI to the north. In the far eastern portions of Micronesia (e.g., Kosrae, Kwajalein and Majuro), rainfall has been below normal. In late July and early August, a strong surge of the southwest monsoon spread eastward well to the north of Micronesia. Several tropical cyclones formed to the north and west of the region. During August and September, southwesterly winds again surged, but this time extended across Yap and Palau, and occasionally as far eastward as Guam, the CNMI and Chuuk, giving these islands abundant rainfall from passing tropical disturbances and mesoscale clusters of heavy showers and occasional thunderstorms.

Parts of Hawaii remain in extreme drought. Areas of Maui County and the Big Island head into this coming wet season under extreme drought. Reports from Maui include: Up country agriculture continues to be negatively and significantly impacted by drought; ranchers have had to increase irrigation, supplement feed for livestock and reduce herd sizes; axis deer, seeking food and water, have been encroaching on forage previously reserved for livestock.; and a 10% reduction request of water usage remains in effect for central and southern parts of the island. On

the Big Island, worsening drought conditions have also forced some ranchers to reduce their herd size by 25% and supplement feed for their livestock. Flower growers have had to spend much money to fill catchment tanks for irrigation and the lack of rainfall has decreased the amount of nectar available for bees. This has negatively impacted the bee industry on island.

On Kauai, Molokai and Oahu, there are reports of poor pasture and general vegetation conditions. On Molokai there has also been an encroachment of Axis deer leading to crop damage and the water level in the Kualapuu Reservoir remains very low. This continues the mandatory 30% cutback in irrigation water consumption. On Lanai, especially in the middle and lower elevation areas, plants and animals have been struggling to survive.

Although the locations in Hawaii will soon enter their winter rainy season, dry conditions are expected to continue in the first few months of 2013.

The rainfall forecast is somewhat uncertain across Micronesia during the next three to six months. If El Niño were to become established late in the year, there is a possibility of some general dryness across the region in the late winter through spring. If ENSO-neutral conditions persist as is now the current expectation, then rainfall would likely be near normal with some isolated dry conditions noted, particularly in the northern RMI and perhaps in the CNMI. In the absence of a moderate or strong El Niño, it is unlikely that widespread severe dry conditions would occur. The local variability summaries that follow generally reflect the ENSO-neutral scenario.

The following comments from the **EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION** were posted on the U.S. Climate Prediction Center/NCEP and the International Research Institute (IRI) for Climate and Society web site the 8th of November, 2012:

“ENSO Alert System Status: Not Active

Synopsis: ENSO-neutral is favored through the Northern Hemisphere winter 2012-13.

During October 2012, the Pacific Ocean continued to reflect borderline ENSO-neutral/ weak El Niño conditions. Equatorial sea surface temperature (SST) anomalies increased across the Pacific Ocean during the latter half of the month, which was also reflected in the Niño indices... ”

Continued on Pg. 12

SEA SURFACE TEMPERATURES

SOUTHERN OSCILLATION INDEX

During October 2012, the Pacific Ocean continued to reflect borderline ENSO-neutral/ weak El Niño conditions. Equatorial sea surface temperature (SST) anomalies increased across the Pacific Ocean during the latter half of the month, which was also reflected in the Niño indices. The oceanic heat content anomalies also increased slightly in association with the downwelling oceanic Kelvin wave. While the subsurface and surface Pacific Ocean has recently warmed, the tropical atmosphere remained largely consistent with ENSO-neutral.

Relative to last month, the SST model predictions more strongly favor ENSO-neutral, although remaining above-average in the Niño-3.4 region through the Northern Hemisphere winter 2012-13.

The 3-month average of the Southern Oscillation Index for the 3rd Quarter of 2011 was 0.0, with monthly values of -0.1, -0.3 and +0.4 for the months of July, August, and September 2012, respectively. The atmosphere was still largely ENSO-neutral, as reflected by the Southern Oscillation index and near-average upper-level and lower-level winds across much of the Pacific.

Normally, positive SOI values in excess of +1.0 are associated with La Niña conditions, and negative SOI values below -1.0 are associated with El Niño conditions. Low SOI values suggest a weak coupling between the ocean and the atmosphere. The SOI is an index representing the normalized sea-level pressure difference between Darwin, Australia and Tahiti, respectively.

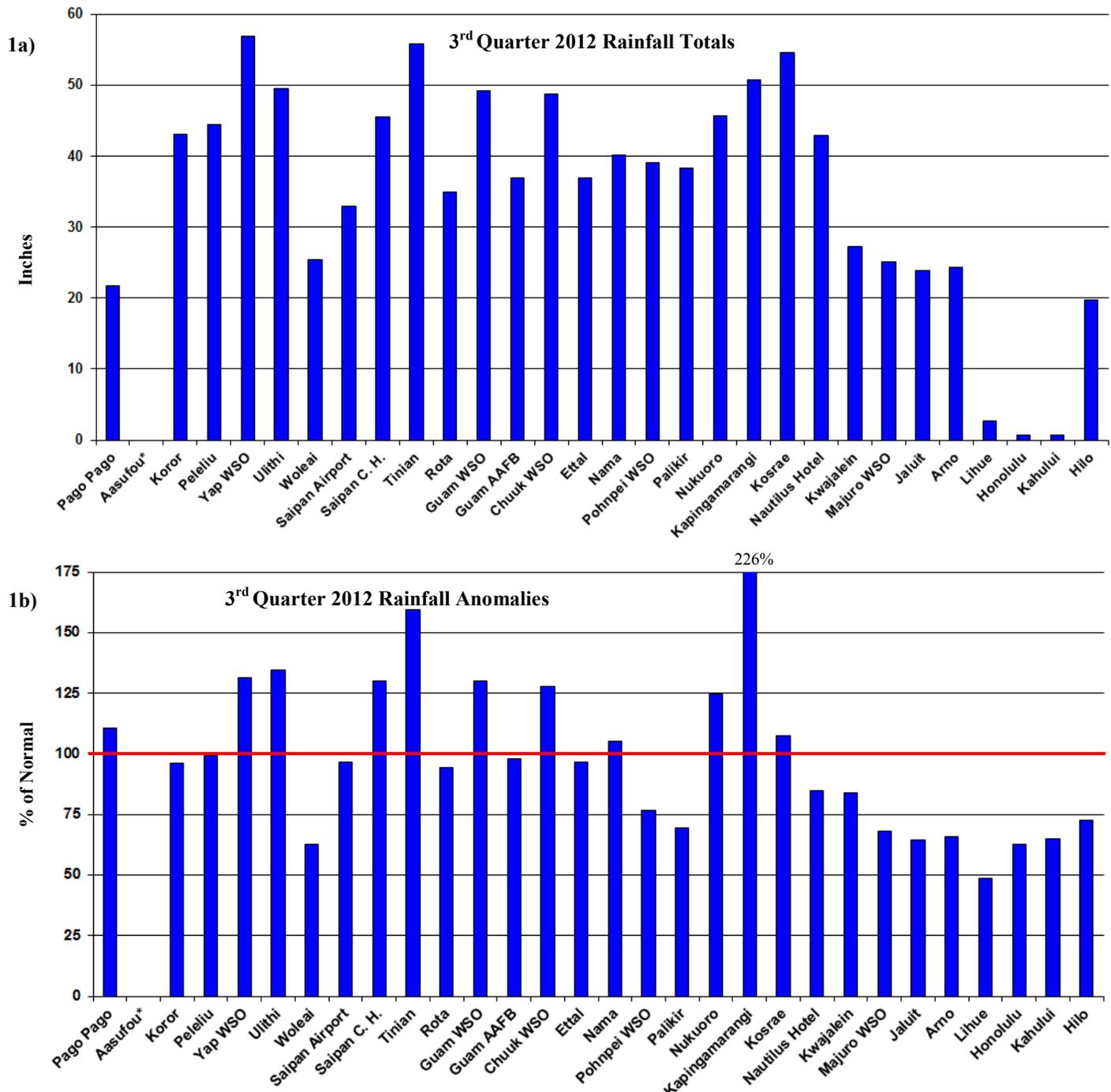


Figure 1, above. 3rd Quarter 2011 rainfall totals (a) in inches and (b) anomalies (expressed as % of normal). *Aasufou data not available.

TROPICAL CYCLONE

The PEAC Center archives western North Pacific tropical cyclone numbers, track coordinates, and 1-minute average maximum sustained wind taken from operational warnings issued by the Joint Typhoon Warning Center (JTWC) of the U. S. Air Force and Navy, located at Pearl Harbor, Hawaii. Western North Pacific tropical cyclone names are obtained from warnings issued by the Japan Meteorological Agency (JMA), which is the World Meteorological Organization's Regional Specialized Meteorological Center (RSMC) for the western North Pacific basin. The PEAC archives South Pacific tropical cyclone names, track coordinates, central pressure, and 10-minute average maximum sustained wind estimates from advisories issued by RSMCs at Brisbane, Nadi, Wellington and Port Moresby. The numbering scheme for Southern Hemisphere tropical cyclones and the 1-minute average maximum sustained wind estimates are taken from warnings issued by the JTWC, which has a warning responsibility to its constituency across the South Pacific and South Indian oceans that overlaps the local centers. Tropical cyclone advisories for eastern North Pacific tropical cyclones are provided by RSMC Miami, and tropical cyclone advisories for the central North Pacific (140° W to the 180° meridian) are provided by RSMC Honolulu. There are sometime differences in the statistics (e.g., storm maximum intensity) for a given tropical cyclone between the JTWC and the local centers that are noted in this summary.

Tropical Cyclone Summary

Tropical cyclone activity across the Pacific basin has been near normal during 2012. The 24 tropical cyclones numbered by the JTWC through October is near normal. Of these 24 numbered cyclones, 15 were typhoons, 8 were tropical storms, and one intensified only to tropical depression (TD) status. Two of the JTWC typhoons -- Pakhar (02W) and Sanvu (03W) – were deemed to have peaked only at tropical-storm intensity by the JMA. The 2012 typhoon season was characterized by a northward and westward displacement, which is usually typical of a La Niña pattern. Okinawa and the Philippine Islands were especially prone to typhoon strikes during 2012. Other notable areas where typhoons made landfall included Taiwan, Korea, Vietnam, and mainland China. Once again, tropical cyclone activity was low throughout the islands of Micronesia. However, some of the basin's named cyclones began their lives as disturbances within Micronesia, contributing to abundant rainfall at some islands, particularly in the western half of the region (i.e., Palau, Yap, Guam, the CNMI and Chuuk). There were no direct strikes by any typhoon or tropical storm on any island in Micronesia through October 2012.

The tropical cyclone activity of the eastern North Pacific was near normal with 16 cyclones named by the National Hurricane Center in Miami. The normal annual count of named storms there is 16. A below normal number of eastern North Pacific tropical cyclones survived westward journeys to provide enhanced rains to the state of Hawaii. Several hurricanes took northward turns, affecting the Mexican coastline. The lack of the remnants of eastern Pacific hurricanes moving past Hawaii may be a contributing factor to very dry conditions occurring now throughout the state.

No tropical cyclones were named through October 2012 by the Central Pacific Hurricane Center in Hawaii. This is not particularly unusual, since there is an average annual total of only one named cyclone there. During an El Niño event, there are often two or more cyclones named in Hawaiian waters, and more of the Mexican-origin storms arrive in Hawaiian waters with some wind and rainfall still intact.

The following experimental forecast for the annual total of western North Pacific TC activity was issued by Paul Stanko (Senior forecaster, Guam WFO) on 07 October 2012: 2012 Weighted Seasonal Forecast: "This season is continuing to cool off a little more from August, but is still running a little hot for typhoons. Therefore, 2012 is now gradually falling into line with my assumption that this year would still be in the inactive period. ..." For the **Northwest Pacific**, the final weighted forecasts are: **Tropical Depressions**: 28 (was 30 in August, 28 in January, normal = 31, varies between 20 and 44). **Tropical Storms**: 26 (was 27 in August, 24 in January, normal = 27, varies between 15 and 39). **Typhoons**: 17 (was 19 in August, 14 in January, normal 17, varies between 9 and 26), **Major Typhoons** (Cat 3 or Higher): 10 (was 10 in August, 8 in January, normal = 9, varies between 3 and 15, 7 so far). Within **Micronesia**, the final weighted forecasts are: Suspect areas which will later grow into **Tropical Depressions**: 18 (was 17 in August, 18 in January, normal 20, varies between 7 and 35, 12 so far), **Tropical Depressions** (25 kt or more in Micronesia): 13 (was 12 in August, 15 in January, normal 18, varies between 7 and 28, 8 so far), **Tropical Storms** (34 kt or more in Micronesia): 10 (was 9 in August, 11 in January, normal 14, varies between 3 and 22, 6 so far), **Typhoons** (64 kt or more in Micronesia): 7 (was 7 in August, 7 in January, normal 8, varies between 0 and 17, 4 so far), **Major Typhoons** (100 kt or more in Micronesia): 4 (was 5 in August, 4 in January, normal 5, varies between 0 and 10, 2 so far).

Tropical cyclone activity is usually enhanced throughout Micronesia during El Niño. In the eastern parts of Micronesia (e.g., Pohnpei, Kosrae, and the RMI), typhoons are almost exclusively associated with El Niño. Although conditions for several months have been on the verge of El Niño, tropical cyclone activity in Micronesia has been below normal. This continues an unusual quiescence of tropical cyclone activity in the Pacific basin and especially in Micronesia for at least the past 6 years. Because a transition to El Niño is still remotely possible over the next month or two, we cannot rule out the occurrence of one or two named tropical cyclones in Micronesian waters through January of 2013. Islands located in the western part of the region (e.g., Guam, the CNMI, Yap, and Palau) will have the greatest risk of a named cyclone passing close by or developing nearby.

PEAC Center Tropical Cyclone Outlook

The PEAC outlook for tropical cyclones in the western North Pacific basin for the remainder of 2012 (November and December) is for near normal activity (which is the occurrence of about 5 more named cyclones) and continuation of their westward displacement. The anticipated distribution of tropical cyclones for the remainder of 2012 reduces the risk (with respect to normal) of a damaging tropical storm or typhoon at all islands located eastward of 145°E. The risk of a damaging tropical cyclone at Yap, Guam, the CNMI and Palau (all located to the west of 145°E) will be close to normal. The upcoming cyclone/hurricane season for American Samoa is also anticipated to be near normal (see island summaries for further details).

¹ The PEAC tropical cyclone forecasts for 2012 are based on forecasts of the status of ENSO and input from three seasonal outlooks for tropical cyclone activity in the western North Pacific basin: (1) The Guam Weather Forecast Office (WFO), (2) The City University of Hong Kong Laboratory for Atmospheric Research, under the direction of Dr. J. C-L. Chan, and (3) The Benfield Hazard Research Centre, University College London, TSR research group, UK, led by Dr. Adam Lea and Professor Mark Saunders.

LOCAL SUMMARY AND FORECAST



American Samoa: Through the heart of its dry season (roughly June through October), American Samoa was dry during the first two months and wet in September.

American Samoa Rainfall Summary 3rd Qtr 2012						
Station		Jul.	Aug.	Sep.	3rd Qtr	Predicted ¹
Pago Pago WSO	Inches	5.84	3.19	12.73	21.76	18.70
	% Norm	93%	48%	190%	111%	95%
Aasoufou	Inches	13.84	9.30	23.54*	46.68*	36.13
	% Norm	105%	63%	150%	107%	95%

¹ Predictions made in 2nd Quarter 2012 newsletter.

* Estimated from xmACIS averages.

Climate Outlook: Computer forecasts and a consensus of outlooks from several regional meteorological centers indicate that rainfall in American Samoa is likely to be near normal for the next few months as the next rainy season becomes established.

The rainy season and the cyclone/hurricane season of 2012-2013 in the American Samoa region are about to begin. Anticipated atmospheric circulation anomalies associated with ENSO-neutral or weak El Niño favor a near-normal distribution of tropical cyclone activity in the region of American Samoa. Recent seasonal forecasts from the Australia Bureau of Meteorology have called for a near average cyclone season in all Australian waters. The threat of a direct strike by a hurricane at some location within American Samoa will be at its typical level of risk, normally on the order of 15-20% or once every 5 to 6 years.

Predicted rainfall for American Samoa from Oct 2012 through Sep 2013 is:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²
Oct - Dec 2012 (Onset of Rainy Season)	90% (31.13 inches - Pago Pago)
January - March 2013 (Heart of Next Rainy Season)	100%
April - June 2013 (Onset of Next Dry Season)	100%
June - October 2013 (Heart of Next Dry Season)	100%

² Forecast rainfall quantities represent BEST ESTIMATES given the probabilistic forecast for each particular season and station.



Guam/CNMI: Almost all locations throughout Guam and the CNMI were wetter than normal during the 3rd Quarter of 2012, with a very wet August contributing most to the 3-month surplus. August rainfall totals over 20 inches occurred at most locations on Guam and in the CNMI. The 32.05 inches recorded at Tinian was an all-time August record and second only to the 37.85 inches recorded there during June 2004. The highest monthly total on Guam during the 3rd Quarter was the August total of 26.42 inches (163%) at the Guam Weather Service Fore-



LOCAL SUMMARY AND FORECAST

cast Office. The Saipan International Airport also had a big month during August 2012, with 26.73 inches (214%). The heavy rain during August was associated with the western North Pacific monsoon trough. During the last week of July into the first week of August, the monsoon trough extended eastward into the western North Pacific basin to the north of Guam and the CNMI. Several tropical cyclones formed in association with this monsoon activity, all to the north and west of Guam and the CNMI. This helped to usher in the monsoonal southwesterly surface winds. Some tropical disturbances and many mesoscale clusters of showers and thunderstorms contributed to almost daily episodes of heavy showers and thunderstorms. The daily rainfall totals were particularly heavy during the first week of August, with a peak rainfall total of 6.35 inches on Guam during a 24-hour period straddling the 7th and 8th. An extreme hourly rainfall total of 3.25 inches occurred in central Guam on the 7th. This caused local street flooding and pushed water levels in some of the rivers of central Guam to heights not seen since the extreme rains during the typhoons of 2002. Flood waters re-worked streambeds of the Sigua, Lonfit, Maguagua and Tarzan rivers and uprooted trees on the river banks. Sporadic heavy daily rainfall events (e.g., 2 inches or more in 24 hours) continued on Guam and in the CNMI through mid-October, then came to an abrupt end as the trade winds of the oncoming dry season became established after the 15th.

Guam and CNMI Rainfall Summary 3rd Qtr 2012						
Station		Jul.	Aug.	Sep.	3rd Qtr	Predicted ¹
Guam						
GIA (WFO)	Inches	6.74	26.42	15.98	49.14	45.30
	% Norm	64%	192%	118%	130%	120%
AAFB	Inches	8.29	17.60	10.98	36.87	45.19
	% WSO	76%	131%	82%	98%	120%
University Of Guam	Inches	7.64	25.01	12.92	45.57	45.30
	% WSO	73%	182%	96%	121%	120%
Ugum Watershed	Inches	8.78	18.90	14.67	42.35	45.30
	% WSO	77%	135%	101%	106%	120%
Ypapao (Dededo)	Inches	7.76	26.93	16.60	51.29	45.30
	% WSO	71%	200%	123%	136%	120%
Sinajaña	Inches	11.51	25.39	12.68	49.58	45.30
	% WSO	109%	189%	94%	131%	120%
CNMI						
Saipan Intl. Airport	Inches	5.19	26.73	10.41	42.33	40.92
	% Norm	64%	214%	77%	124%	120%
Capital Hill	Inches	11.84	23.14	10.48	45.46	42.00
	% Norm	132%	185%	78%	130%	120%
Tinian Airport	Inches	7.80	32.05	15.95	55.80	42.00
	% Norm	87%	256%	118%	159%	120%
Rota Airport	Inches	7.34	18.34	9.26	34.94	44.40
	% Norm	70%	139%	69%	94%	120%

¹ Predictions made in 2nd Quarter 2012 newsletter.

LOCAL SUMMARY AND FORECAST

Climate Outlook: El Niño typically has two notable effects on the weather of Guam and the CNMI: (1) an increased risk of a damaging typhoon, particularly during October of the El Niño year through the January of the follow-on year to El Niño; and (2) a high risk of very dry conditions during the first 6-months of the year that follows a moderate or strong El Niño (i.e., January through June). The dryness is exacerbated in two ways: (1) a reduction in the monthly values of rainfall; and (2) an extension of the dry season into June and July. For Guam and the CNMI, the severity of the typhoon threat and the drought is closely related to the severity of the El Niño event. For weak events, the effect is not nearly as severe or persistent as for moderate and strong events. Because we are now only at the borderline of El Niño and it is very late in the year, it is likely that the ENSO status will remain neutral. Even if El Niño were to develop, it would be short-lived and would likely have little significant effect on the behavior of typhoons and rainfall. Tropical cyclones can affect the southern Mariana Islands in November and December, even in ENSO-neutral conditions. Thus, it would be prudent at this time to expect some tropical cyclone activity during the next couple of months, and to prepare for normal dry season weather conditions during the six-month period January-June 2013. An extreme drought of the magnitude that occurred during the first half of 1983 and of 1998 is not anticipated. The risk of a typhoon on Guam and in the CNMI is cautiously set to 15-20% over the course of the next 2 months.

Predicted rainfall for the Mariana Islands from October 2012 through September 2013 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²	
	Guam/Rota	Saipan/Tinian
Oct – Dec 2012 (End of Rainy Season)	100% (25.63 inches)	100% (22.06 inches)
Jan – March 2013 (Onset of Next Dry Season)	90%	85%
Apr – June 2013 (2nd half of Next Dry Season)	90%	85%
July - September 2013 (Next Rainy Season)	100%	95%

² Forecast rainfall quantities represent BEST ESTIMATES given the probabilistic forecast for each particular season and station.



Federated States of Micronesia:

Yap State: All locations on Yap Island were very wet during the 3rd Quarter of 2012, with the very heavy rainfall of August and September, more than compensating for the somewhat dry conditions during July. Rainfall totals in excess of 25 inches occurred during September at several Yap Island locations. This represented almost twice the normal rainfall for that month. Yap Island was embedded in monsoon flow for most of the 3rd Quarter. Several of the basin's tropical cyclones passed well to the north of Yap, but they served to anchor and enhance the deep southwesterly flow over the island, with its embedded showers, squalls and thunderstorms. The monsoon flow persisted on Yap Island through mid-October, and then, as at Guam and in the CNMI, light trade winds became established, and heavy shower activity eased. The weather at Ulithi (located about 130 miles to the northeast

LOCAL SUMMARY AND FORECAST

of Yap Island) was also wet during the 3rd Quarter, with its 3-month total of 49.47 inches 135% of average. In the southeastern portion of Yap State, the island of Woleai (located about 390 miles southeast of Yap) was much drier, with a 3rd Quarter total of only 25.35 inches (63%). This is plausible, since the monsoon trough and monsoon cloud band was located well to the north of this location, as a weak ridge of high pressure built in over the Island from the east, southeast of the monsoon band.

Yap State Rainfall Summary 3rd Qtr 2012						
Station		Jul.	Aug.	Sep.	3rd Qtr	Predict-ed ¹
Yap Island						
Yap WSO	Inches	12.74	18.92	25.19	56.85	43.25
	% Norm	88%	124%	186%	131%	100%
Dugor	Inches	13.82	20.03	26.73	60.58	43.25
	% WSO	95%	132%	197%	140%	100%
Gilman	Inches	10.19	22.11	22.70	55.00	43.25
	% WSO	70%	145%	168%	127%	100%
Luweech	Inches	12.98	23.41	25.01	61.40	43.25
	% WSO	89%	154%	185%	142%	100%
Maap	Inches	11.00	16.30	28.25	55.55	43.25
	% WSO	76%	107%	209%	128%	100%
North Fanif	Inches	14.40	24.10	26.33	64.83	43.25
	% WSO	99%	159%	195%	150%	100%
Rumung	Inches	9.22	14.32	24.54	48.08	43.25
	% WSO	63%	94%	182%	111%	100%
Tamil	Inches	17.53	14.29	20.13	51.95	43.25
	% WSO	121%	94%	149%	120%	100%
Outer Islands						
Ulithi	Inches	17.19	19.30	12.98	49.47	36.76
	% Norm	139%	149%	113%	135%	100%
Woleai	Inches	10.93	6.59	7.83	25.35	40.40
	% Norm	78%	45%	67%	63%	100%

¹ Predictions made in 2nd Quarter 2012 newsletter.

Climate Outlook: El Niño typically has a high risk of producing very dry conditions during the first 6-months of the year (i.e., January through June) that follows a moderate or strong El Niño event. The dryness is exacerbated in two ways: (1) a reduction in the monthly values of rainfall; and (2) an extension of the dry season into June and July. Because we are now only at the borderline of El Niño and it is very late in the year, if an El Niño were to develop, it is not likely to have a big effect on the rainfall or tropical cyclone activity. Yap can expect its normal dry season rainfall. Even in ENSO-neutral conditions, there is a normal risk (roughly a 10-15% chance) of a damaging tropical cyclone affecting any of the islands of Yap State during November and December. An extreme drought of the magnitude that occurred during the first half of 1983 or of 1998 is not anticipated. Most tropical cyclones affecting Yap State form near Chuuk

LOCAL SUMMARY AND FORECAST

or Guam and pass to the north of Yap Island. The two most recent typhoons affecting Yap State during El Niño were Mitag and Sudal. These occurred during the spring months of March 2002 and April 2004, respectively.

Predicted rainfall for Yap State from October 2012 through September 2013 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²	
	Yap and Ulithi	Woleai
October – December 2012 (End of Rainy Season)	100% (30.41 inches)	100% (36.36 inches)
January – March 2013 (Heart of Next Dry Season)	80%	90%
April – June 2013 (Onset of Next Rainy Season)	85%	90%
July – September 2013 (Heart of Next Rainy Season)	100%	100%

² Forecast rainfall quantities represent BEST ESTIMATES given the probabilistic forecast for each particular season and station.

Chuuk State: Rainfall was near normal to above normal across Chuuk State during the 3rd Quarter of 2012. Two stations, Ettal and Fananu, had a month with less than 10 inches during the 3rd Quarter, and two stations, WSO Chuuk and Losap, had a month with more than 20 inches. Losap had the highest 3rd Quarter total of 54.61 inches (143%) and Fananu had the lowest total for the 3rd Quarter of 31.93 inches (84%). Chuuk State was located at the eastern reach of the monsoonal flow, and several tropical disturbances formed in the region that contributed to the observed abundant rainfall. In early October, high surf of 7-10 feet on the north side of Chuuk Lagoon generated by a distant typhoon was responsible for a boating accident that fortunately only resulted in minor injuries.

Chuuk State Rainfall Summary 3rd Qtr 2012						
Station		Jul.	Aug.	Sep.	3rd Qtr	Predicted ¹
Chuuk Lagoon						
Chuuk WSO	Inches	16.92	21.78	10.04	48.74	42.02
	% Norm	140%	149%	87%	128%	110%
Piis Panew	Inches	13.34	13.98	14.96	42.28	42.02
	% WSO	110%	96%	130%	111%	110%
Northern Atolls						
Fananu	Inches	7.72	14.02	10.19	31.93	42.02
	% WSO	64%	96%	88%	84%	110%
Onoun	Inches	14.39	12.96	15.57	42.92	42.02
	% WSO	119%	89%	135%	112%	110%
Northern Mortlocks						
Losap	Inches	10.31	23.83	20.47	54.61	42.02
	% WSO	85%	164%	178%	143%	110%
Nama	Inches	10.70	19.13	10.30	40.13	42.02
	% WSO	88%	131%	89%	105%	110%

4th Quarter, 2012

LOCAL SUMMARY AND FORECAST

Chuuk State Rainfall Summary 3rd Qtr 2012						
Station		Jul.	Aug.	Sep.	3rd Qtr	Predicted ¹
Southern Mortlocks						
Lukunoch	Inches	13.06	10.26	15.02	38.36	38.20
	% Norm	85%	79%	148%	100%	100%
Ettal	Inches	16.52	12.30	8.07	36.89	38.20
	% Luku	108%	94%	79%	96%	100%
Ta	Inches	18.00	15.45	10.23	43.68	38.20
	% Luku	117%	118%	78%	113%	100%
Namoluk	Inches	14.41	11.63	11.38	37.42	38.20
	% Luku	94%	89%	112%	97%	100%
Western Atolls						
Polowat	Inches	12.48	13.18	14.46	40.12	36.29
	% Norm	89%	88%	109%	95%	95%

¹ Predictions made in 2nd Quarter 2012 newsletter.

Climate Outlook: Conditions in Chuuk State are anticipated to be a little wetter than normal for the next month or two, and then transition to a slightly drier than normal conditions during the first few months of 2013. Typically, in the winter and spring that follow El Niño, Chuuk State experiences a prolonged reduction of rainfall. The dryness is most severe after a strong El Niño, but can be severe during moderate events as well. With the current conditions at the borderline of El Niño, and only a few months left for El Niño to actually materialize, it is not likely that Chuuk State will face widespread and prolonged dry conditions during the first half of 2013. Instead, the rainfall will likely be slightly below normal during the first four to five months of 2013, with a month or two of localized very dry conditions occurring randomly at several of the islands or atolls during the first six months of 2013. For the next two months, there is a low risk (1-in-15, or 7%) for a tropical storm or typhoon to develop and pass within the boundaries of Chuuk State.

Predictions for Chuuk State from October 2012 through September 2013 are as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²			
	Chuuk Lagoon, and Nama	Polowat	Northern Atolls	Mortlocks
Oct – Dec 2012	110% (39.11 inches)	100% (35.55 in)	100% (35.55 in)	110% (39.11 in)
Jan – Mar 2013	90%	85%	85%	90%
Apr – June 2013	90%	90%	90%	95%
Jul – Sep 2013	100%	95%	100%	100%

² Forecast rainfall quantities represent BEST ESTIMATES given the probabilistic forecast for each particular season and station.

LOCAL SUMMARY AND FORECAST

Pohnpei State: The 2012 3rd Quarter rainfall was below normal at all recording locations on Pohnpei Island. August rainfall was less than 10 inches at Palikir and at the Pohnpei International Airport, which was only 51% and 68% of average August rainfall, respectively. The southernmost atolls of Pohnpei State (Nukuoro and Kapingamarangi) had more rainfall during the 3rd Quarter than did any location on Pohnpei Island or any of the other atolls. Kapingamarangi's 3rd Quarter total of 50.78 inches was a remarkable 223% above average, and was the highest 3rd Quarter rainfall recorded in Pohnpei State. The high rainfall at Kapingamarangi was one of only a few atmospheric behaviors seen throughout the Pacific that are typically associated with El Niño. During the October PEAC conference call, it was noted that rainfall during early October had been abundant on Pohnpei Island. No sea inundations were reported for Pohnpei State during the 3rd Quarter.

Pohnpei State Rainfall Summary 3rd Qtr 2012						
Station		Jul.	Aug.	Sep.	3rd Qtr	Predict-ed ¹
Pohnpei Island						
Pohnpei WSO	Inches	14.21	13.62	11.27	39.10	56.08
	% Norm	77%	82%	70%	77%	110%
Palikir	Inches	15.69	9.17	13.39	38.25	60.58
	% Norm	79%	51%	77%	69%	110%
Kolonia Airport	Inches	13.95	9.23	10.34	33.52	46.04
	% Norm	92%	68%	78%	80%	110%
Atolls of Pohnpei State						
Nukuoro	Inches	16.09	15.68	13.94	45.71	36.75
	% Norm	112%	138%	127%	124%	100%
Pingelap	Inches	14.52	10.59	9.15	34.26	45.60
	% Norm	91%	71%	61%	75%	100%
Mwoakil- loa	Inches	14.51	13.11	12.18	39.80	41.85
	% WSO	96%	97%	92%	95%	100%
Kapinga- marangi	Inches	20.65	15.57	14.56	50.78	21.36
	% Norm	198%	253%	247%	223%	95%

¹ Predictions made in 2nd Quarter 2012 newsletter.

Climate Outlook: Despite recent dryness on Pohnpei Island and on some of the northern atolls of Pohnpei State, computer models available to PEAC indicate that rainfall should be abundant at least through December 2012. Thereafter, through June of 2013, it is possible that localized dry conditions could occur on Pohnpei Island and on the northern atolls of the state. During any month from January through at least April, there could be a month or two at these locations during which the monthly rainfall is less than 10 inches. In the south, at Kapingamarangi and at Nukuoro, the rainfall (which has been high for the past few months) should be nearer to normal. During El Niño, there is a

LOCAL SUMMARY AND FORECAST

tendency for drier-than-normal conditions to persist at Pohnpei Island until May or June of the year following the wet part of the event. However, with the shift in the forecast from weak-El Niño to ENSO-neutral conditions, we now expect rainfall across the State to be closer to normal.

A direct strike of any Pohnpei State location by a tropical storm or typhoon is not anticipated in the foreseeable future. Through December, one or two tropical disturbances may pass to the north and/or west of Pohnpei Island accompanied by some heavy showers and thunderstorms.

Predicted rainfall for Pohnpei State from October 2012 through September 2013 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²	
	Pohnpei Island and atolls	Kapingamarangi
Oct - Dec 2012	100% (47.68 inches)	110% (23.94 inches)
Jan - Mar 2013	95%	100%
Apr - Jun 2013	90%	100%
Jul - Sep 2013	100%	90%

² Forecast rainfall quantities represent BEST ESTIMATES given the probabilistic forecast for each particular season and station.

Kosrae State: Rainfall was near average to slightly below average across the island of Kosrae during the 3rd Quarter of 2012. There was a moderate degree of variation of rainfall on the island. Wetter areas during the 3rd Quarter were the Airport (northwest) receiving 54.53 inches (108%) of normal rainfall and Utwa (south) receiving 50.09 inches (99%). Drier areas were on the east side, with the Nautilus Hotel having the island's lowest reading of 42.96 inches (85%) and the Capitol Village of Tofol having similar amounts with 45.24 inches (89%).

Kosrae State Rainfall Summary 3rd Qtr 2012						
Station		Jul.	Aug.	Sep.	3rd Qtr	Predict-ed ¹
Airport (SAWRS)	Inches	18.55	20.46	15.52	54.53	50.70
	% Norm	109%	124%	90%	108%	100%
Utwa	Inches	18.20	18.82	13.07	50.09	50.70
	% SAWRS	107%	114%	76%	99%	100%
Nautilus Hotel	Inches	17.33	14.69	10.94	42.96	50.70
	% SAWRS	102%	89%	64%	85%	100%
Tofol	Inches	21.15	12.99	11.10	45.24	50.70
	% SAWRS	124%	79%	65%	89%	100%

¹ Predictions made in 2nd Quarter 2012 newsletter.

LOCAL SUMMARY AND FORECAST

Climate Outlook: Computer forecasts indicate that rainfall will likely be near normal at Kosrae for the next several months. The earlier expectation of a weak El Niño brought with it the expectation of lower than normal rainfall during the period from January through at least April. The shift in the predictions from weak-El Niño to ENSO-neutral should increase winter and spring rainfall amounts since Kosrae normally has very high rainfall year-round. It should be noted that Kosrae is one of the locations in eastern Micronesia where rainfall has been on a gradual decline over its post-WWII period of record. But, the trade wind convergence between the northeast trades and the southeast trades should bring wet weather back to Kosrae the remainder of this year and the first half of next year.

Predicted rainfall for Kosrae State from October 2012 through September 2013 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²
October – December 2012	90% (41.94 inches)
January – March 2013	100%
April – June 2013	110%
July - September 2013	100%

² Forecast rainfall quantities represent BEST ESTIMATES given the probabilistic forecast for each particular season and station.



Republic of Palau: Southwesterly monsoon flow dominated the weather of Palau over the past three months. Several of the western North Pacific basin tropical cyclones passed well north of Palau while moving westward toward the Philippines or northwestward towards Taiwan or Okinawa. This monsoon flow and the tropical cyclones passing to the north provided Palau with near-average rainfall. The highest 3rd Quarter rainfall total recorded in Palau was at the international airport, where the 3-month total of 58.75 inches was 131% of normal. The rainfall at the airport typically is higher than at other Palau locations. At Peleliu, it is typically a little drier than at Koror and Babeldaob Island locations, but during the 3rd Quarter of 2012, the rainfall total at Peleliu (50.93 inches and 114%) surpassed Koror’s total. Despite that, Koror’s 3-month total of 43.09 inches in the 3rd Quarter was near average at 96%.

Republic of Palau Rainfall Summary 3rd Qtr 2012						
Station		Jul.	Aug.	Sep.	3rd Qtr	Predicted ¹
Koror WSO	Inches	16.36	13.72	13.01	43.09	49.34
	% Norm	91%	92%	110%	96%	110%
Intl. Airport	Inches	21.27	16.21	21.27	58.75	49.34
	% WSO	118%	108%	179%	131%	110%
Peleliu	Inches	18.82	14.97	17.14	50.93	49.34
	% WSO	104%	100%	145%	114%	110%

¹ Predictions made in 2nd Quarter 2012 newsletter.

4th Quarter, 2012

LOCAL SUMMARY AND FORECAST

Climate Outlook: Since ENSO-neutral conditions are now expected to dominate the climate pattern in the western North Pacific, we expect rainfall to be near normal without a period of significantly dry weather that usually follows an El Niño event. Occasional westerly winds could still affect Palau during November and December, and bring short periods of heavy rain. Tropical cyclone activity should be normal, which means that Palau could see a tropical storm pass to the north or even nearby through December, bringing a few days of gusty westerly winds, high surf on the western shores, and some heavy showers.

Predicted rainfall for Palau from October 2012 through September 2013 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²
October – December 2012	100% (37.36 inches)
January – March 2013	95%
April – June 2013	95%
July – October 2013	100%

² Forecast rainfall quantities represent BEST ESTIMATES given the probabilistic forecast for each particular season and station.



Republic of the Marshall Islands

(RMI): Nearly all of the rainfall reports from the atolls of the RMI indicated rather persistent dry conditions during the 3rd Quarter of 2012. Some atolls were very dry with 3-month totals below 50% of average. WSO Majuro had a 3-month total of 25.16 inches or only 69%. The rainfall during both July and September 2012 at WSO Majuro was below 10 inches. This level of dryness is insufficient to replenish the water supply in the municipal reservoir at the Majuro International Airport. During the October PEAC conference call, it was reported that the water level in the reservoir was below half its 33-million-gallon capacity, and that it had not filled above 20 million gallons from July through September. This kind of situation typically triggers some level of rationing. Quarterly rainfall was particularly low in the southern atoll of Mili (36%) and in the northern atolls of Wotje (45%) and Utirik (45%).

RMI Rainfall Summary 3rd Qtr 2012						
Station		Jul.	Aug.	Sep.	3rd Qtr	Predicted ¹
RMI Northern Atolls						
Kwajalein	Inches	11.83	9.23	6.17	27.23	32.38
	% Norm	113%	91%	52%	84%	100%
Wotje	Inches	7.10	2.79	4.08	13.97	31.04
	% Norm	72%	29%	36%	45%	100%
Utirik	Inches	1.98	6.69	5.15	13.82	30.71
	% Norm	22%	78%	45%	45%	100%

¹ Predictions made in 2nd Quarter 2012 newsletter.

LOCAL SUMMARY AND FORECAST

RMI Rainfall Summary 3rd Qtr 2012						
Station		Jul.	Aug.	Sep.	3rd Qtr	Predicted ¹
RMI Central and Southern Atolls						
Majuro WSO	Inches	7.54	10.15	7.47	25.16	36.94
	% Norm	98%	88%	60%	68%	100%
Aling-laplap	Inches	9.8	10.08	8.44	28.33	34.55
	% Norm	84%	93%	70%	82%	100%
Arno	Inches	5.04	11.33	7.96	24.33	36.94
	% Norm	39%	98%	64%	66%	100%
Jaluit	Inches	12.08	2.16	9.55	23.79	36.94
	% Norm	93%	19%	77%	64%	100%
Mili	Inches	1.10	6.39	5.81	13.30	36.94
	% Norm	8%	60%	47%	36%	100%

¹ Predictions made in 2nd Quarter 2012 newsletter.

Climate Outlook: Normally, the rainy season in the RMI slowly builds from April through June, and then extends through the final quarter of the year. Unfortunately, during the past three months, which was the heart of the normal RMI rainy season, many islands experienced persistent dryness. Computer models now indicate near average to below average rainfall over the final two months of the year. This is consistent with the expectation that ENSO-neutral conditions will dominate the climate pattern instead of El Niño conditions that were previously anticipated.

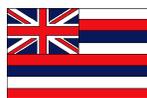
There are two factors that should influence rainfall in the first half of 2013. The first is the establishment of the trade wind convergence over the southern half of the RMI, which should provide increased rainfall across the southern islands. In addition, Majuro and Kwajalein are two of several locations in eastern Micronesia with a robust drying trend of rainfall during the post-WWII period of record. The forecasts below indicate a relaxation of the very dry conditions experienced over the last two to three months but with consideration of the long-term drying trend. Significant tropical cyclone activity is not expected in the RMI until at least the end of the forecast period.

Predicted rainfall for the RMI from October 2012 through September 2013 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²	
	Southern Atolls	Northern Atolls
October – December 2012 (End of Rainy Season)	80% (30.44 inches)	70% (21.10 inches)
January – March 2013 (Dry Season)	90%	80%
April – June 2013 (End of Dry Season)	95%	90%
July – September 2013 (Onset of Rainy Season)	95%	95%

² Forecast rainfall quantities represent BEST ESTIMATES given the probabilistic forecast for each particular season and station.

LOCAL SUMMARY AND FORECAST



Hawaii: Throughout the summer and into the fall, Hawaii for the most part has experienced typical summertime trade winds. Although, there were a few days in October where the trade winds dropped off which led to more humid and vuggy conditions but these have been short-lived. Below-normal rainfall was also typical on the islands of Kauai, Oahu and Maui in July and August. A near-normal amount of rainfall was experienced on the Big Island of Hawaii in these same months. In September, below-normal rainfall continued on Kauai and was present on Hawaii. Maui received above-normal rainfall in September with only 0.37 inches (195%) while Oahu rainfall was close to normal.

As for other weather related events: There were a few upper level disturbances in July which led to some days with increased high clouds. In October, there were thunderstorms offshore to the north of Kauai, but no significant rainfall impacted the islands.

The strong start to the dry season in August led to the redevelopment of drought conditions in many areas on Kauai, Oahu and Lanai. Although the 2012 Hawaiian Islands dry season has concluded, large areas of the state, especially in the leeward areas of Maui County and the Big Island, head into the new wet season under significant drought.

State of Hawaii Rainfall Summary 3rd Qtr 2012					
Station		July	Aug.	Sep.	3rd Qtr
Lihue Airport	Inches	1.45	1.18	0.79	3.42
	% Norm*	86%	64%	41%	63%
Honolulu Airport	Inches	0.57	0.07	0.07	0.71
	% Norm*	158%	37%	12%	62%
Kahului Airport	Inches	0.63	0.19	0.08	0.90
	% Norm*	166%	40%	42%	86%
Hilo Airport	Inches	5.18	8.74	4.45	18.37
	% Norm*	54%	104%	48%	68%

Climate Outlook: The Monthly Forecast Discussion issued on October 18 by the NOAA Climate Prediction Center indicated below normal temperatures are favored for Hawaii from November-December-January 2012-2013. Below median precipitation is also favored through December-January-February 2012-2013. The next forecast will be issued by the Climate Prediction November 15, 2012.

Receive *Pacific ENSO Update* notifications by email:
Visit www.prh.noaa.gov/peac/subscribe.php and click on *subscribe*.

Seasonal Sea-Level Outlook for the US-Affiliated Pacific Islands

The following sections describe: (i) the *Canonical Correlation Analysis (CCA)* forecasts for seasonal (mean and maxima) sea-level deviations for the forthcoming seasons OND, NDJ, and DJF of 2012-2013, (ii) the observed monthly mean and maximum sea-level deviations for the season JAS 2012, and (iii) a Synopsis of ENSO and seasonal sea level variability. Note that the deviations are defined as ‘the difference between the mean sea level for the given month and the 1975 through 1995 mean sea level value computed at each station’. Also note that the CCA-forecasting technique adapted here does not account for sea-level deviations created by other atmospheric or geological factors such as tropical cyclones, storm surges or tsunamis.

(i) **Seasonal sea level forecast** (*deviations with respect to climatology*) for OND, NDJ, and DJF of 2012-2013

Forecasts of the sea-level deviations in the USAPI (see <http://www.prh.noaa.gov/peac/map.php> for location of stations) are presented using CCA statistical model based on the independent SST values in JAS 2012, the resulting CCA model has been used to forecast the sea-level of three consecutive seasons: OND, NDJ, and DJF (see table 1). All the tide gauge stations (at 0 to 2-months lead time) show skillful forecasts for these three consecutive seasons. Consistent with the on-going borderline ENSO-neutral/ weak El Niño conditions, the sea level in these islands are projected to be closer to normal with some positive deviations.

Table 1: Forecasts of sea-level deviation (in inches) for Oct-Nov-Dec, Nov-Dec-Jan, and Dec-Jan-Feb 2012-2013.

Tide Gauge Station	Seasonal Mean Deviations ¹				Seasonal Max Deviations ²					
	OND	NDJ	DJF	Forecast Quality ³	OND	NDJ	DJF	Forecast Quality ³	Return Period ⁴ for OND Season	
Lead Time ⁵	0	1M	2M		0	1M	2M		20 Year	100 Year
Marianas, Guam	+1	+1	+1	V. Good	+18	+18	+18	Good	6.5	9.1
Malakal, Palau	+2	+1	+1	V. Good	+38	+36	+36	V. Good	6.1	6.4
Yap, FSM	+1	+1	+1	V. Good	+29	+28	+28	V. Good	8.2	11.0
Chuuk, FSM**	+1	+1	+1	N/A	+29	+28	+28	N/A	N/A	N/A
Pohnpei, FSM	+2	+2	+2	V. Good	+33	+33	+33	V. Good	9.1	11.8
Kapingamarangi, FSM	+1	+1	+2	Good	+27	+28	+28	Fair	5.7	6.4
Majuro, RMI	+1	+1	+1	V. Good	+42	+41	+42	V. Good	6.6	8.4
Kwajalein, RMI	+1	+1	+1	V. Good	+38	+38	+38	V. Good	4.9	6.1
Pago Pago, Am. Samoa	+2	+2	+2	Good	+26	+26	+26	Good	3.0	3.7
Honolulu, Hawaii	+1	0	-1	Fair	+20	+21	+20	Fair	3.2	5.2
Hilo, Hawaii	+2	+1	0	Fair	+24	+25	+24	Fair	3.2	5.2

Note: (-) indicates negative deviations (fall of sea level from the mean), and (+) indicates positive deviations (rise of sea level from the mean); N/A: data not available. Deviations from -1 to +1 inch are considered negligible, and deviations from -2 to +2 inches are unlikely to cause any adverse climatic impact. Forecasts for Chuuk (**) are estimated subjectively based on information from WSO Chuuk and observations from neighboring stations of Pohnpei and Yap. See http://www.prh.noaa.gov/peac/peu/2012_4th/sea_level.php#footnote for explanations of footnotes 1 through 5.

Remarks: The forecasts values of sea level for OND, NDJ, and DJF seasons (Table 1, above) indicate that most of the stations in the north Pacific region are likely to be marginally (e.g., 1-2 inches) higher than normal in the forthcoming seasons. Other south Pacific station (e.g., Pago Pago) is likely to be 2-3 inches higher than normal during the same time period. Here in Hawaii, both Honolulu and Hilo are likely to be closer to normal during the same time period.

Falling sea levels in the USAPI region during the recent months are supportive to the on-going borderline ENSO-neutral/ weak El Niño conditions, as according to CPC-IRI’s ENSO Alert System Status, it is El Niño Watch now and chances for borderline ENSO-neutral/ weak El Niño conditions are expected to continue into Northern Hemisphere winter 2012-13, possibly strengthening during the next few months.

Pacific ENSO Update is Now Available Online:

Visit <http://www.prh.noaa.gov/peac/update.php>
to receive notification when the newsletter is available online.

Seasonal Sea-Level Outlook for the US-Affiliated Pacific Islands

(ii) Observed Monthly Sea Level Deviation in July-August-September (JAS) 2012

The monthly time series (July to September 2011) for sea level deviations have been taken from the UH Sea Level Center. The full time series (in mm) for monthly mean is available at: <ftp://ilikai.soest.hawaii.edu/islp/slpp.deviation>. Locations of these stations can be found at: <http://www.prh.noaa.gov/peac/map.php>.

Table 2 : Monthly observed max/mean sea level deviations in inches (year-to-year standard deviation in parentheses)

Tide Gauge Station	Monthly Mean Deviations ¹				Monthly Max Deviations ²			
	July	Aug.	Sept.	Standard Deviations	July	Aug.	Sept.	Standard Deviations
Marianas, Guam	+9.2	+8.2	+8.6	3.3	+25	+25	+22	3.4
Malakal, Palau	+10.3	+11.2	+9.3	4.1	+43	+46	+46	4.3
Yap, FSM	+7.8	+7.4	+6.7	4.4	+34	+34	+31	4.0
Chuuk, FSM**	*	*	*	*	*	*	*	*
Pohnpei, FSM	+8.4	+6.1	*	2.8	+38	+33	*	3.3
Kapingamarangi, FSM	*	*	*	2.4	*	*	*	2.6
Majuro, RMI	+6.0	+5.2	*	2.3	+45	+45	*	3.0
Kwajalein, RMI	+7.4	+6.4	+5.9	2.2	+44	+42	+42	2.8
Pago Pago, American Samoa	+7.9	+6.8	+7.8	2.8	+32	+29	+29	3.3
Honolulu, Hawaii	-0.5	-0.5	+1.8	1.9	+19	+18	+16	2.3
Hilo, Hawaii	-1.0	-2.5	+1.5	1.8	+23	+21	+16	2.4

* Data currently unavailable; 1 Difference between the mean sea level for the given month and the 1975 through 1995 mean sea level value at each station; 2 Same as 1 except for maxima.

Remarks: As compared to August 2012, the monthly mean sea level in September 2012 shows fall in all stations, except Guam and Pago Pago—where slight rise was recorded. Guam recorded +0.4 inches and Pago Pago registered +1.0 inches further rise. A synopsis of last 6-months sea level variability is as follows: In May, most of the stations recorded slight fall except Guam and Pohnpei; In June, all stations recorded slight fall except Malakal and Kwajalein; In July, all stations again recorded rise; In August, all stations recorded fall except Malakal at Palau; Currently, all USAPI stations are 6 to 9 inches higher than normal; The monthly maxima remained static; no considerable rise or fall was observed.

(iii) ENSO and Seasonal Sea Level Variability: A Synopsis

Seasons	Seasonal Mean Deviations: Observed rise/fall (inches)					
	JAS12 (Border-line ENSO neu- tral)	JAS11 (Moderate -to-weak La Nina)	JFM98 (Strong El Nino)	JFM99 (Strong La Nina)	OND97 (Strong El Nino)	OND98 (Strong La Ni- na)
Marianas, Guam	+9	+7	-6	+7	-7	+8
Malakal, Palau	+10	+10	-9	+8	-7	+9
Yap, FSM	+7	+7	-7	+6	-9	+7
Pohnpei, FSM	+7	+7	-5	+4	-10	+8
Majuro, RMI	+6	+4	-2	+2	-9	+6
Kwajalein, RMI	+7	+4	-4	+3	-7	+3
Pago Pago	+8	+9	-6	+4	+2	+7

Remarks: As the sea level in the USA-PI is very sensitive to the phase of the ENSO climate cycle, a perspective of sea level anomalies during the recent ENSO event (2011-12) and the historically strongest ENSO events of 1997-99 is presented in Table 3. The objective is to provide an insight to the readers' about the strength of on-going ENSO and the trend of rising sea level. Observations revealed that despite ENSO-neutral (JAS12) and weak La Niña (JAS11) conditions the sea level rise in these two years is even higher than the historically strong La Niña (OND98) year. This is an indication of trend of rising sea level which could be, among others, due to enhanced trend wind in the region of western Pacific.

Table 3: Sea-Level Deviation in Current and Major ENSO Years

Pacific ENSO Update

Excerpts from El Niño/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

Issued by NOAA NWS Climate Prediction Center - 8 November 2012

http://www.cpc.noaa.gov/products/analysis_monitoring/enso_advisory/index.shtml

ENSO Alert System Status: Not Active

Synopsis: ENSO-neutral is favored through the Northern Hemisphere winter 2012-13.

During October 2012, the Pacific Ocean continued to reflect borderline ENSO-neutral/ weak El Niño conditions. Equatorial sea surface temperature (SST) anomalies increased across the Pacific Ocean during the latter half of the month, which was also reflected in the Niño indices. The oceanic heat content (average temperature in the upper 300m of the ocean) anomalies also increased slightly in association with the downwelling oceanic Kelvin wave. While the subsurface and surface Pacific Ocean has recently warmed, the tropical atmosphere remained largely consistent with ENSO-neutral. Upper-level and lower-level winds were near average, and the strength of anomalous convection decreased over the past month. Thus, the atmosphere and ocean continue to indicate borderline ENSO-neutral/ weak El Niño conditions.

Relative to last month, the SST model predictions more strongly favor ENSO-neutral, although remaining above-average in the Niño-3.4 region through the Northern Hemisphere winter 2012-13. While the tropical ocean and atmosphere may resemble a weak El Niño at times, it is now considered less likely that a fully coupled El Niño will develop. Therefore, the previous El Niño Watch has been discontinued as the chance of El Niño has decreased. While the development of El Niño, or even La Niña, cannot be ruled out during the next few months, ENSO-neutral is now favored through the Northern Hemisphere winter 2012-13 (see CPC/IRI consensus forecast).

This discussion is a consolidated effort of the National Oceanic and Atmospheric Administration (NOAA), NOAA's National Weather Service, and their funded institutions. Oceanic and atmospheric conditions are updated weekly on the Climate Prediction Center web site (El Niño/La Niña Current Conditions and Expert Discussions). Forecasts for the evolution of El Niño/La Niña are updated monthly in the Forecast Forum section of CPC's Climate Diagnostics Bulletin. The next ENSO Diagnostics Discussion is scheduled for 6 December 2012. To receive an e-mail notification when the monthly ENSO Diagnostic Discussions are released, please send an e-mail message to: ncep.list.enso-update@noaa.gov.

The Pacific ENSO Update is a bulletin of the Pacific El Niño-Southern Oscillation (ENSO) Applications Climate (PEAC) Center. PEAC conducts research & produces information products on climate variability related to the ENSO climate cycle in the U.S.-Affiliated Pacific Islands (USAPI). This bulletin is intended to supply information for the benefit of those involved in such climate-sensitive sectors as civil defense, resource management, and developmental planning in the various jurisdictions of the USAPI.

The Pacific ENSO Update is produced quarterly both online and in hard copy, with additional special reports on important changes in ENSO conditions as needed. For more information about this issue please contact the editor, LTJG Charlene Felkley, at peac@noaa.gov or at the address listed below.

PEAC is part of the Weather Forecast Office (WFO) Honolulu's mission and roles/responsibilities. All oversight and direction for PEAC is provided by the Weather Forecast Office Honolulu in collaboration with the Joint Institute for Marine and Atmospheric Research (JIMAR) at the University of Hawaii. Publication of the Pacific ENSO Update is supported by the National Oceanic and Atmospheric Administration (NOAA), National Weather Service-Pacific Region Climate Services. The views expressed herein are those of the authors and do not necessarily reflect the views of NOAA, any of its sub-agencies, or cooperating organizations.

ACKNOWLEDGEMENTS AND FURTHER INFORMATION

Pacific ENSO Applications Climate (PEAC) Center:

HIG #340, 2525 Correa Road, Honolulu, Hawai'i 96822
LTJG Charlene Felkley, PEAC Outreach Officer, at 808-956-2324 for information on PEAC, the Pacific ENSO Update and ENSO-related climate data for the Pacific Islands.

Dr. Rashed Chowdhury, Principal Research Scientist, at 808-956-2324 for information on ENSO and sea-level variability in the USAPI.

Duncan Gifford, Graduate Research Assistant and Webmaster, at 808-956-2324 for information related to the PEAC website.

University of Hawai'i - Joint Institute of Marine and Atmospheric Research (JIMAR), School of Ocean and Earth Science and Technology (SOEST), Department of Oceanography:

MSB #317, 1000 Pope Road, Honolulu, Hawai'i 96822
Dr. Mark Merrifield, PEAC Principal Investigator at 808-956-6161 for more information on sea level and climate in Hawai'i.

NOAA National Weather Service

Weather Forecast Office (WFO) Honolulu:
HIG #250, 2525 Correa Rd., Honolulu, HI, 96822
Raymond Tanabe, PEAC Director, at 808-973-5270

NOAA National Weather Service

Weather Forecast Office (WFO) Guam:
3232 Hueneme Road, Barrigada, Guam, 96913
Chip Guard, Warning Coordination Meteorologist, at 671-472-0900 for information on tropical cyclones and climate in the USAPI.

University of Guam - Water and Environmental Research Institute (WERI):

UOG Station, Mangilao, Guam 96913
Dr. Mark Lander, PEAC Meteorologist, at 671-735-2685 for information on tropical cyclones and climate in the USAPI.