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Providing Information on Climate Variability for the U.S.-Affiliated Pacific Islands

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CURRENT CONDITIONS

El Niño conditions in the ocean abruptly ended at the beginning of February 2007, and oceanic and atmospheric circulation patterns are now in an ENSO-neutral state. Some of the islands in the RMI, Chuuk State, and Guam have experienced very dry conditions for some or all of the past three months. Three-month rainfall totals were less than half of normal at some locations in the northern RMI (see figures 1a, 1b). Other island groups have had adequate to abundant rainfall. Three-month rainfall totals exceeded 125% of normal at some locations in Chuuk State, Pohnpei State, American Samoa, and (surprisingly) Saipan. The 51.67 inches of rainfall at American Samoa during the first three months of 2007 was the highest recorded value in the USAPI, followed closely by the just-over 50 inches recorded in the same time period at Nukuoro in Pohnpei State. The year's first typhoon (Kong-Rey) formed southwest of Pohnpei near the end of March, bringing substantial rainfall to locations in Pohnpei State, Chuuk State, and many islands of the CNMI. It tracked too far north and east of Guam and Rota, however, to provide much relief to ongoing dryness there.

Based on the anticipated demise of El Niño, below normal rainfall was forecast throughout most of Micronesia and Hawaii for the first quarter of 2007, while American Samoa was forecast to be wet. Widespread dryness did not occur, but more localized extreme dryness was experienced especially in the northern RMI, where it was so dry that emergency measures were needed to ensure adequate water supplies. Recently, some much-needed rains have occurred to alleviate extreme dryness in the northern RMI. Persistent very dry weather on Guam has exacerbated the wildfire situation, with many hundreds of acres scorched in the southern grasslands. American Samoa was overall very wet in the first quarter of 2007. Only four tropical cyclones (Zita, Arthur, TC 11P, and Becky,) formed in the South Pacific during the 1st quarter of 2007, and contrary to expectations, none of them affected American Samoa.

Many of the islands of Micronesia have now passed through the heart of their dry seasons, and the slow northward march of heavy convective rainfall has already begun. It is likely that the worst of persistent dryness is over for many of the islands of the RMI that have been extremely dry. On some islands (especially those north of 10° N), it is still anticipated that May and June will be drier than normal, but in general, a near-normal distribu-

tion of rainfall is anticipated for the next three months. Rainfall forecasts issued by NOAA's Climate Prediction Center for Hawaii give equal chances of below average, near average, or above average rainfall through early summer.

Sea-level variation in the USAPI is sensitive to ENSO-cycle, with low sea-level observed during El Niño and high sea-level during La Niña years. Consistent with the transition from ENSO-neutral to La Niña conditions, observations reveal that the sea level has already started to record a rise this year as most locations across the USAPI have recorded moderate positive deviations.

The following comments from the EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION were posted on the U.S. Climate Prediction Center web site on April 05, 2007:

Synopsis: A transition from ENSO-neutral to La Niña conditions is possible within the next 3 months.

"The pattern of anomalous sea surface temperatures (SSTs) during March 2007 was consistent with ENSO-neutral conditions in the tropical Pacific, with average to slightly below-average SSTs extending from the date line to the west coast of South America. ..."

"The upper-ocean heat content remains below-average across the central and east-central equatorial Pacific, with temperatures at thermocline depth generally 3°-5°C below average. ... Stronger than-average low-level easterly winds persisted throughout the month of March over the central equatorial Pacific, and convection was enhanced over the western equatorial Pacific and Indonesia and suppressed near the date line. Collectively, these atmospheric and oceanic conditions are consistent with a trend towards a Pacific cold (La Niña) episode."

"Most of the statistical and coupled model forecasts, including those from the NCEP Climate Forecast System (CFS), indicate additional anomalous surface cooling during the next several months. Some forecast models, especially the CFS, indicate a transition to La Niña during May-July 2007. This forecast is consistent with the observed trends in atmospheric and oceanic conditions. However, the spread of the most recent statistical and coupled model forecasts (ENSO-neutral to La Niña) indicates considerable uncertainty as to when La Niña might develop and how strong it might be."

CURRENT CONDITIONS

SST (Sea Surface Temperatures)

Warm sea surface temperatures (SST) in the equatorial strip across the central and eastern Pacific rapidly cooled during January 2007, and put an abrupt end to El Niño by February. During March 2007, the SST was consistent with ENSO-neutral conditions in the tropical Pacific, with average to slightly below-average SSTs extending from the date line to the west coast of South America. An area of anomalously warm SSTs persisted well west of the date line (near 165°E), and an area of SSTs exceeding 30°C was centered between 150°E and 165°E. Warm SST in this region may be responsible for the continuing heavy rainfall at Kapingamarangi.

SOI (Southern Oscillation Index)

The 6-month average of the Southern Oscillation Index was -0.9 during the second half of 2006. This is consistent with weak El Niño conditions present at that time. Since then, the SOI has risen slightly, and its values stood at -1.1, -0.5, and -0.4 during January, February and March 2007, respectively.

While the eastern equatorial Pacific Ocean temperature anomalies have gone from warm to cold during the first quarter of 2007, the SOI has not reversed sign, and remains in negative territory. If the ocean continues to cool, and La Niña conditions develop (as some computer models are now indicating), then the SOI should rise and become predominantly positive in the coming months. If ENSO-neutral conditions prevail, then the SOI should fluctuate near zero for the foreseeable future.

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

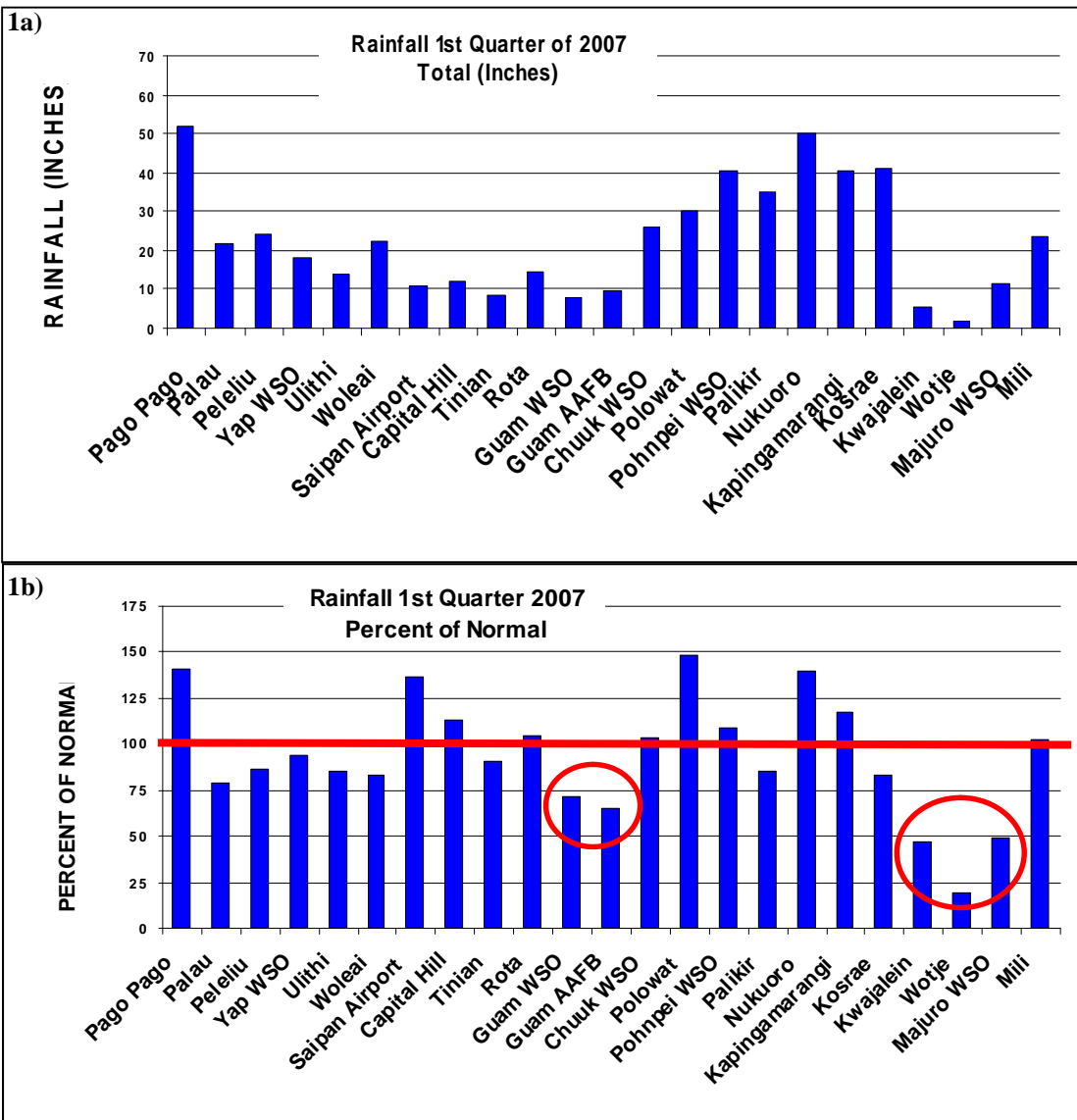


Figure 1, left. 1st Quarter 2007 Rainfall (a) totals in inches and (b) anomalies (expressed as percent of normal) at indicated stations. Red line indicates normal rainfall. Red circles indicate locations with rainfall anomalies less than 75% of normal.

TROPICAL CYCLONE

The PEAC 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 Meteorology 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 the Tropical Cyclone Warning Centers at Brisbane, Nadi, and Wellington. The numbering scheme and the 1-minute average maximum sustained wind estimates are taken from warnings issued by the JTWC. There are sometimes differences in the statistics (e.g., storm maximum intensity) for a given tropical cyclone among the agencies that are noted in this summary.

2nd Quarter, 2007

TROPICAL CYCLONE

Tropical Activity Summary

The 2006-2007 tropical cyclone season in the Southern Hemisphere has been somewhat lackluster, with generally below normal numbers in most categories (e.g., number of tropical cyclones and number of hurricanes in the South Pacific). In an average year, there are 28 tropical cyclones numbered by the JTWC in all of the South Pacific and South Indian Ocean. During the period July 2006 through late April 2007, there have been 24 cyclones numbered by the JTWC, of which 22 were given names by the respective RSMC. Of these 24, ten occurred in the South Pacific while 14 occurred in the South Indian Ocean.

Only four tropical cyclones (Zita, Arthur, TC 11P, and Becky,) formed in the South Pacific during the 1st quarter of 2007, and (contrary to expectations) none of them affected American Samoa. Zita, the first south Pacific storm of 2007, formed west-northwest of Tahiti on January 22nd and quickly dissipated. The storm that would eventually become Arthur formed northwest of American Samoa on January 25th, and much like Zita, rapidly began to weaken after only 2 days at tropical storm strength. TC 11P formed north of Fiji on February 2nd, and tracked over Fiji's north island (Vanua Levu) and then south of Tonga before weakening around February 6th. Finally, Becky formed northwest of Vanuatu on March 26th, and dissipated off the coast of New Caledonia around March 29th.

Tropical cyclone activity in the western North Pacific basin was quiet during the first quarter of 2007, with only one numbered cyclone that formed at the end of March. This time of year is normally quiet, with only one or two numbered tropical cyclones in a typical year. In recent years, however, there have been some notable tropical cyclones during this normally quiet time of the year, including Typhoon Mitag (March 2002) and Typhoon Sudal (April 2004). The numbers of tropical cyclones in the western North Pacific basin increases through April, May and June, with the normal numbers for those months standing at 0.8, 1.3, and 2.2 respectively. The number of early season tropical cyclones in the western North Pacific is strongly related to El Niño, with more storms occurring during the onset of El Niño and fewer of them occurring during the year that follows El Niño.

PEAC Tropical Cyclone Outlook

The PEAC tropical cyclone outlook for the upcoming typhoon season of 2007 is for overall activity in the basins (e.g., numbers of tropical storms, numbers of typhoons, and numbers of intense typhoons) to be below normal. The track distribution should be near normal. Islands from Pohnpei eastward into the RMI experience tropical storms and typhoons primarily during El Niño, so the risk of a damaging tropical cyclone in these locations is considered low during 2007.

TROPICAL CYCLONE

The PEAC forecast considered input from two seasonal outlooks for tropical cyclone activity in the western North Pacific basin: (1) The City University of Hong Kong Laboratory for Atmospheric Research, under the direction of J. C-L. Chan, and (2) The Benfield Hazard Research Centre, University College London, Tropical Storm Risk (TSR) research group, UK, led by Dr Adam Lea and Professor Mark Saunders. **Both the Hong Kong Laboratory for Atmospheric Research and the Tropical Storm Research consortium anticipate that the North Pacific will see slightly below average tropical activity in 2007.**

The Hong Kong center, which issued its 2007 Predictions of Tropical Cyclone Activity over the Western North Pacific on April 23, is predicting 28 total tropical cyclones (3 less than the normal 31), 25 tropical storms or typhoons (2 less than the normal 27), and 14 typhoons (3 less than the normal 17). The Hong Kong Laboratory's forecast covers the entire western North Pacific basin, and can be viewed at http://weather.cityu.edu.hk/tc_forecast/2007_forecast_APR.htm.

The Tropical Storm Risk (TSR) group's Extended Range Forecast for the Northwest Pacific Typhoon Activity in 2007 was issued on March 6, 2007. **The TSR group is expecting a small (15%) reduction in all categories: annual number of tropical cyclones, annual number of typhoons, annual number of intense typhoons, and the accumulated cyclone energy (ACE).** ACE is a measure of the total energy expended by a tropical cyclone during its life. These forecasts span the full Northwest Pacific season from January to December, although 95% of typhoons historically occur after May 1st. The activity so far in 2007 has been slightly below normal. The TSR forecast can be viewed at <http://tsr.mssl.ucl.ac.uk/docs/TSRNWPFforecastMar2007.pdf>

In the Central Pacific basin, including Hawaii, the hurricane season runs from June 1 through November 30. On average, between four and five tropical cyclones are observed in the Central Pacific every year. This number has ranged from zero, most recently as 1979, to as many as 11 in 1992 and 1994. The outlook for the Central Pacific is for slightly below average tropical cyclone activity this season.

The average annual number of tropical cyclones in the western North Pacific basin, however, is close to 30. Even a substantial reduction to, say, 20, could still yield a few dangerous cyclones for the islands to contend with. **Every Island in Micronesia must always be prepared for a typhoon, even if when the odds for a direct strike are anticipated to be below normal (as they are for the coming 2007 typhoon season).** Also, hazards associated with typhoons, such as dangerously high surf, do not require that the typhoon pass close to the affected location.

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LOCAL SUMMARY AND FORECAST



American Samoa: The 1st quarter of 2007 started off with wet conditions across American Samoa. Above-normal rainfall totals were recorded at Pago Pago International Airport, which received 51.67 inches of rain for the quarter (138.5% of normal). Likewise, Aasufou recorded 80.09 inches (149.9% of normal) for the three month period. The most rainfall received for both stations during this quarter occurred in January, when WSO Pago Pago received 21.01 inches (149.9% of normal) and Aasufou received 36.76 inches of rainfall (198.5% of normal). — WSO Pago Pago

American Samoa Rainfall Summary 1st Qtr 2007

Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Pago Pago WSO	Rain (Inches)	21.01	10.35	20.31	51.67	43.93
	% of Normal	150%	85%	182%	138%	120%
Aasufou	Rain (Inches)	36.76	17.58	27.56	80.09	64.11
	% of Normal	199%	98%	142%	150%	120%

¹ Predictions made in the 4th Quarter 2006 PEAC Newsletter

Climate Outlook: American Samoa has passed through the heart of its rainy season, and is now entering the onset of the next dry season (May to June 2007). It has been very wet in American Samoa for many months. However, with sea surface temperatures cooling and forecasts favoring weak La Niña conditions to develop, American Samoa will likely experience near normal to below normal rainfall through June and slightly below normal rainfall through the heart of the 2007 dry season. As of the 24th of April, the Pago Pago Weather Service Office has only recorded 3.19 inches of rainfall for the month (28.6% of normal).

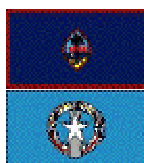
The threat of a damaging tropical cyclone in any of the islands of American Samoa is nearly over for this season. It was anticipated that the cyclone threat for American Samoa (and the South Pacific in general) was going to be higher than average because of El Niño. In fact, the cyclone numbers were below average for the South Pacific, and there is only a very small chance for another hurricane to affect the region during the next two months.

Predicted rainfall for American Samoa from May 2007 through April 2008 is as follows:

Inclusive Period	% of long-term average
May - Jun 2007 (Onset of Next Dry Season)	90%
Jul - Sep 2007 (Heart of Next Dry Season)	85%
Oct 2007 - Jan 2008 (Onset of Next Rainy Season)	95%
Feb - Apr 2008 (Heart of Next Rainy Season)	100%

For more information on American Samoa's weather and climate go to <http://www.prh.noaa.gov/samoa/>

LOCAL SUMMARY AND FORECAST



Guam/CNMI: The weather on Guam during the first quarter of 2007 was dry. The total rainfall for the first three months of 2007 was approximately 10 inches at all recording locations (ranging from 7.46 at the University in Mangilao to 11.47 inches at Ypapao in the north). These amounts, and those elsewhere on the island, were roughly 70% of the normal rainfall expected during this typically dry time of year. Wildfires have been frequent in March and early April, burning many hundreds of acres of grassland, particularly in the south. Several episodes of very large surf occurred on Guam in the first quarter, which is caused by intense extratropical low-pressure systems that move out into the North Pacific from East Asia and track towards the Gulf of Alaska this time of year. Most such storm systems race east and push high surf in the direction of Hawaii, but occasionally the winds line-up just right to send very high

Guam and CNMI Rainfall Summary 1st Qtr 2007

Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Guam						
GIA	Rain (Inches)	4.24	1.36	2.39	7.99	8.38
	% of Normal	95%	36%	80%	72%	75%
AAFB	Rain (Inches)	3.39	1.73	4.59	9.71	11.26
	% of Normal	59%	33%	112%	65%	75%
Dededo (Ypapao)	Rain (Inches)	4.39	2.16	4.92	11.47	11.33
	% of WSO	N/A	N/A	N/A	71%*	75%
Ugum Watershed	Rain (Inches)	3.52	1.52	3.59	8.63	9.21
	% of WSO	N/A	N/A	N/A	70%**	75%
CNMI						
Saipan Intl. Airport	Rain (Inches)	3.62	3.33	3.83	10.78	5.53
	% of Normal	109%	133%	184%	142%	70%
Capitol Hill	Rain (Inches)	6.90	1.82	3.57	12.29	7.58
	% of Normal	151%	53%	125%	129%	70%
Tinian Airport	Rain (Inches)	3.08	2.05	3.51	8.64	6.65
	% of Normal	77%	68%	140%	91%	70%
Rota Airport	Rain (Inches)	9.77	1.69	2.86	14.32	9.55
	% of Normal	185%	36%	78%	105%	70%

¹ Predictions made in the 4th Quarter 2006 PEAC Newsletter
 * % of normal for Dededo is with respect to WSO Finigayan
 ** % of normal are with respect to the WSO Tiyan (GIA)

LOCAL SUMMARY AND FORECAST

surf southward toward Guam or other islands of Micronesia.

The 1st quarter rainfall totals in the CNMI were approximately the same as those experienced on Guam. At some locations in the CNMI the rainfall was actually slightly higher than at any Guam location. The highest amount of rain recorded in the CNMI for the 1st quarter was 14.32 inches at the Rota Airport. Heavy rainfall during January 2007 was responsible for roughly half of the three-month total. Though the amounts of rainfall in the CNMI were quite dry when compared with other locations across the USAPI (see Fig. 1a), they were above normal at some locations (see Fig. 1b) because it is normally so very dry at this time of year. At the very beginning of April, Typhoon Kong-Rey passed just to the north of Saipan providing a shot of very welcome heavy rainfall for that island. Amounts of rain on Saipan associated with Kong-Rey totaled approximately 3 inches. Further south on Guam, the rainfall associated with the passage of Kong Rey was only one-half inch, which did little to alleviate dry conditions there. Rota received about 0.75 inches of rain, while Tinian had slightly less rain than Saipan.

Climate Outlook: Slightly below normal to near normal rainfall is anticipated throughout all of Guam and the CNMI during May and June 2007. Island residents are urged to continue their participation in voluntary water conservation measures. The rainy season should begin on time during July, with amounts near normal or slightly below normal for the remainder of the year. Tropical cyclone activity is expected to be below normal through August, returning to near normal from September through the remainder of the year. In an average year, Guam and the CNMI may expect to be threatened by 3 or 4 typhoons, with winds of typhoon force or greater expected to recur on average once every 5 to 7 years. Thus the odds of damaging winds from a typhoon on Guam and for all the islands of the CNMI are approximately 15 to 20% during any given year. Hazardous surf from a nearby or remote typhoon is experienced at least once each year.

Predicted rainfall for Guam and the CNMI from May 2007 through April 2008 is as follows:

Inclusive Period	% of long-term average	
	Guam/Rota	Saipan/Tinian
May – Jul 2007 (End of Dry Season)	85%	90%
Aug – Oct 2007 (Heart of Rainy Season)	95%	95%
Nov 2007 – Jan 2008 (Onset of Next Dry Season)	95%	90%
Feb – Apr 2008 (Heart of Dry Season)	95%	90%

For more information on
Guam's weather and climate go to
www.weather.gov/guam

LOCAL SUMMARY AND FORECAST



Federated States of Micronesia

Yap State: Rainfall throughout Yap State during the first quarter of 2007 was slightly below normal at most locations. The pattern of a normal January, a dry February, and a normal March was repeated across the State. Monthly rainfall below 10 inches was recorded at all locations across Yap during all three months. In a typical pattern, Ulithi received less rainfall than Yap WSO, which, in turn, received less rainfall than Woleai. The first quarter total of 22.04 inches at Woleai was the highest recorded value in Yap State. No reports were received by the PEAC of any problems with water quantity within Yap State in the first three months of the year.

Climate Outlook: Below normal to near normal rainfall is anticipated throughout all of Yap State during May and June. Thereafter, rainfall should be near normal for the remainder of the year. Yap has passed through the heart of its dry season with near normal rainfall. Slightly drier than normal rainfall during the past three months has had no significant impact on water resources or agriculture. Slightly drier than normal rainfall during the past three months has had no appreciable impact on typical conditions expected during Yap's dry season. At Yap Island and at Ulithi, the average monthly rainfall is below 10 inches during each month from November through May. At Woleai,

Yap State Rainfall Summary 1st Qtr 2007

Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Yap Proper						
Yap WSO	Rain (Inches)	7.13	4.62	6.28	18.03	13.50
	% of Normal	98%	85%	102%	96%	70%
Dugor*	Rain (Inches)	6.73	4.15	8.16	19.04	13.50
Gilman*	Rain (Inches)	7.18	4.55	6.26	17.99	13.50
Luweech*	Rain (Inches)	7.25	5.36	6.60	19.21	13.50
Maap*	Rain (Inches)	5.63	5.24	4.62	15.49	13.50
North Fanif*	Rain (Inches)	6.62	4.35	6.38	17.35	13.50
Rumung*	Rain (Inches)	6.83	5.33	7.80	19.96	13.50
Tamil*	Rain (Inches)	4.86	2.93	3.21	11.00	13.50
Outer Islands						
Ulithi	Rain (Inches)	6.38	3.14	4.55	14.07	11.47
	% of Normal	102%	62%	90%	86%	70%
Woleai	Rain (Inches)	6.24	6.42	9.38	22.04	21.18
	% of Normal	58%	86%	113%	83%	80%

¹ Predictions made in the 4th Quarter 2006 PEAC Newsletter

* Long term normal is not established for these sites

LOCAL SUMMARY AND FORECAST

only February and March typically have rainfall totals less than 10 inches. Island residents are still urged to participate in voluntary water conservation measures until the rainy season gets underway in June or July.

Predicted rainfall for Yap State from May 2007 through April 2008 is as follows:

Inclusive Period	% of long-term average	
	Yap and Ulithi	Woleai
May – Jul 2007 (End of Dry Season)	85%	90%
Aug – Oct 2007 (Heart of Next Rainy Season)	95%	100%
Nov 2007 – Feb 2008 (Onset of Next Dry Season)	100%	100%
Feb – Apr 2008 (Heart of Next Dry Season)	90%	95%

Chuuk State: 1st Quarter rainfall amounts varied substantially across Chuuk State, with the highest totals in southern atolls (such as Ettal, Lukunoch, and Ta), and the lowest totals in northern atolls (such as Fananu, Onoun and Piis Panew). Rainfall totals near or below 5 inches in each of the months January, February and March at some northern atolls caused serious problems for residents where there was limited rainfall catchment storage capability. Also, the combination of high surf with high astronomical tides caused sea inundation of taro patches on several atolls. These conditions led to the Declaration of Disaster by the Chuuk State Government. Conditions were quite dry at Chuuk Lagoon and in the northern atolls for all of January through most of February. By early February it seemed that some of the atolls of Chuuk State would be in serious trouble because of a lack of rain. Later in February, however, a tropical disturbance moved through Chuuk State, accompanied by heavy rainfall that alleviated the dry conditions to all locations except

Chuuk State Rainfall Summary 1st Qtr 2007

Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Chuuk Lagoon						
Chuuk WSO	Rain (Inches)	3.92	9.01	13.26	26.19	18.91
	% of Normal	37%	147%	148%	102%	75%
Piis Panew*	Rain (Inches)	0.56	4.25	4.49	9.30	18.91
Xavier H. School*	Rain (Inches)	3.52	6.65	10.18	20.35	18.91
Southern Mortlocks						
Lukunoch*	Rain (Inches)	17.24	9.30	6.09	32.63	20.17
Ettal*	Rain (Inches)	11.00	10.58	14.75	36.33	20.17
Ta*	Rain (Inches)	19.73	7.18	13.40	40.31	20.17

¹ Predictions made in the 4th Quarter 2006 PEAC Newsletter
* Long term normal is not established for these sites

LOCAL SUMMARY AND FORECAST

Chuuk State Rainfall Summary 1st Qtr 2007

Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Northern Atolls						
Fananu*	Rain (Inches)	2.36	6.49	7.07	15.92	17.65
Onoun*	Rain (Inches)	7.61	4.86	4.77	17.24	17.65
Northern Mortlocks						
Losap*	Rain (Inches)	3.41	10.66	9.06	23.13	20.17
Nama*	Rain (Inches)	6.14	13.61	6.90	26.65	20.17
Western Atolls						
Polowat	Rain (Inches)	5.71	15.46	9.15	30.32	16.40
	% of Normal	N/A	N/A	N/A	148%	80%

¹ Predictions made in the 4th Quarter 2006 PEAC Newsletter
* Long term normal is not established for these sites

the northern islands. In late March, the tropical depression that became Typhoon Kong-Rey moved through Chuuk State causing another episode of heavy rainfall at many locations.

Climate Outlook: The anticipated onset of widespread El Niño-related dry conditions during the first quarter of 2007 did not occur in Chuuk, although some atolls in the northern portion of the state experienced a period of abnormally dry weather during January through mid-February. Problems with drought occurred at some of these northern atolls as rain catchment was substantially reduced. Two tropical disturbances (one in late February and one in late March) alone provided enough rain to avert serious water problems in the northern atolls of Chuuk State. Rainfall amounts throughout most of Chuuk State should be near normal for the foreseeable future.

Predicted rainfall for Chuuk State from May 2007 through April 2008 is as follows:

Inclusive Period	% of long-term average			
	Chuuk Lagoon Losap and Nama	Polowat	Northern Islands	Mortlocks
May - Jul 2007	95%	95%	90%	95%
Aug - Oct 2007	100%	100%	95%	100%
Nov 07 - Jan 08	100%	100%	100%	100%
Feb - Apr 2008	110%	110%	100%	100%

Pohnpei State: First quarter rainfall throughout Pohnpei State was near normal at most locations, with a few atolls (most notably Mwoakilloa and Nukuoro) experiencing very wet conditions. An extreme daily rainfall event at Mwoakilloa at the end of February associated with a tropical disturbance passing through Pohnpei State brought the February monthly total to 25.97 inches (the highest monthly total at any recording location

LOCAL SUMMARY AND FORECAST

Pohnpei State Rainfall Summary 1st Qtr 2007

Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Pohnpei Island						
Pohnpei WSO	Rain (Inches)	4.90	19.50	16.14	40.54	29.92
	% of Normal	39%	199%	116%	112%	80%
Palikir	Rain (Inches)	8.54	10.11	16.50	35.15	32.44
	% of Normal	60%	87%	114%	87%	80%
Kolonias Airport	Rain (Inches)	3.93	17.31	16.26	37.50	25.80
	% of Normal	35%	186%	140%	117%	80%
Atolls of Pohnpei State						
Nukuoro	Rain (Inches)	22.64	14.97	12.71	50.32	28.12
	% of Normal	193%	142%	93%	140%	80%
Pingelap	Rain (Inches)	9.76	8.66	13.87	32.29	31.24
	% of Normal	79%	71%	96%	83%	80%
Mwoakil- loa*	Rain (Inches)	5.24	25.97	13.53	44.74	30.04
	% of Normal	N/A	N/A	N/A	119%	80%
Kapingamarangi	Rain (Inches)	9.03	18.41	13.04	40.48	34.60
	% of Normal	86%	179%	94%	117%	100%

¹ Predictions made in the 4th Quarter 2006 PEAC Newsletter

* Long term normal is not established for these sites

in all of the state during the first three months of 2007). For most of January it was quite dry on Pohnpei Island and on some atolls. It was so hot and dry on Pohnpei Island during January (with only 4.90 inches of rain at the Pohnpei WSO in Kolonia) that residents began to worry about the water supply and stream flow. Luckily, rains returned in February, and fears of drought were eased. Kapingamarangi was wet once again, and has been for many months. The tropical depression that became Typhoon Kong-Rey passed just to the southwest of Pohnpei Island in late March. This scenario was typical for this time of year, and does not indicate an increased risk of a typhoon or tropical storm for Pohnpei in the year ahead.

Climate Outlook: Rainfall throughout Pohnpei State should be near normal for the foreseeable future. The rainfall at Kapingamarangi could drop below normal for the first time in many months if La Niña conditions develop during the summer. No typhoons or tropical storms are anticipated this year in Pohnpei State. Several tropical disturbances should begin near Pohnpei State and move away to the west to become tropical cyclones affecting Guam, Yap, or the CNMI. This pattern is normal, and was seen with the development of Typhoon Kong-Rey.

LOCAL SUMMARY AND FORECAST

Predicted rainfall for Pohnpei State from May 2007 through April 2008 is as follows:

Inclusive Period	% of long-term average	
	Pohnpei Island and atolls	Kapingamarangi
May – Jun 2007	100%	100%
Jul – Oct 2007	100%	95%
Nov 2007 – Jan 2008	100%	95%
Feb - Apr 2008	110%	90%

Kosrae State: Total rainfall during the 1st quarter of 2007 was slightly drier than normal at all Kosrae rain gage sites. The largest rainfall deficit occurred in the month of February when rainfall totals around the island were about one-half to two-thirds of February's normal rainfall. The first quarter rainfall totals at Kosrae aligned with PEAC predictions made in the final quarter of 2006, which predicted Kosrae rainfall to be 80% of normal in the first quarter of 2007.

Kosrae State Rainfall Summary 1st Qtr 2007

Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Airport (SAWRS)	Rain (Inches)	16.27	10.20	14.42	40.89	39.53
	% of Normal	113%	62%	77%	83%	80%
Utwa*	Rain (Inches)	16.19	6.39	12.40	34.98	39.53
	% of Normal	N/A	N/A	N/A	71%	80%
Nautilus*	Rain (Inches)	16.50	10.38	14.50	41.38	39.53
	% of Normal	N/A	N/A	N/A	84%	80%

¹ Predictions made in the 4th Quarter 2006 PEAC Newsletter

* Long term normal is not established for these sites

Climate Outlook: For the rest of 2007, rainfall amounts in Kosrae State should be near normal (typically over 15 inches per month). No tropical cyclone activity is expected for Kosrae State.

Predicted rainfall for Kosrae State from May 2007 through April 2008 is as follows:

Inclusive Period	% of long-term average
May – Jul 2007 (End of Dry Season)	95%
Aug – Oct 2007 (Heart of Next Rainy Season)	100%
Nov 2007 – Jan 2008 (Onset of Next Dry Season)	100%
Feb – Apr 2008 (Heart of Next Dry Season)	110%

LOCAL SUMMARY AND FORECAST



Republic of Palau: The 1st quarter 2007 total rainfall throughout Palau was slightly below normal, with a wet January (118% of normal at the Koror WSO) followed by relatively dry conditions in both February and March (46% and 65% respectively at the WSO). Rainfall totals during the 1st quarter of 2007 were not quite as dry as the 70% of normal that was forecast by PEAC in the 4th Quarter of 2006, although two of the individual months had rainfall totals less than 70% of normal. Stream flow remained adequate, and the PEAC did not receive any reports of problems with the water supply or agriculture in Palau due to dry weather.

Republic of Palau Rainfall Summary 1st Qtr 2007

Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Koror WSO	Rain (Inches)	12.63	4.06	5.31	22.00	19.61
	% of Normal	113%	42%	60%	74%	70%
Nekken*	Rain (Inches)	10.99	5.32	7.00	23.31	19.61
	% of Normal	N/A	N/A	N/A	83%	70%
Intl. Airport*	Rain (Inches)	12.90	5.63	6.75	25.28	19.61
	% of Normal	N/A	N/A	N/A	90%	70%
Peleliu*	Rain (Inches)	14.60	3.03	6.71	23.58	19.61
	% of Normal	N/A	N/A	N/A	87%	70%

¹ Predictions made in the 4th Quarter 2006 PEAC Newsletter

* Long term normal is not established for these sites

Climate Outlook: Although the Republic of Palau has experienced two months of abnormally dry weather (February and March), it is anticipated that rainfall amounts will return to near normal for the foreseeable future. Palau has a complex pattern of monthly rainfall with the highest average rainfall occurring in the months of June and July; the lowest average rainfall in the months of February, March and April; and a secondary minimum in September when the monsoon trough and typhoon tracks pull well to the north.

The previous PEAC forecast for Palau, which predicted monthly rainfall totals of roughly 6 to 8 inches per month between February and April, was reasonable. The forecast still indicates a slight delay in the normal return of heavier rains in May, and for the normal June and July seasonal peak of rainfall to arrive on schedule. Tropical cyclone activity should be near normal, meaning that Palau should experience three or four episodes of near-gale (25 to 35 mph) westerly winds associated with tropical cyclones passing to the north. Surges in the southwest monsoon can also produce such episodes of wind on Palau,

For more information on
Palau's weather and climate go to
<http://www.prh.noaa.gov/koror/>

2nd Quarter, 2007

LOCAL SUMMARY AND FORECAST

usually during the period from July through October. Rains associated with the monsoon trough and with tropical cyclones passing to north of Palau may yield a month or two with rainfall of 20 inches or more in any of the months during the period July through December. Because of this effect, some of the inclusive periods below have been given slightly above normal rainfall.

Predicted rainfall for Palau from May 2007 through April 2008 is as follows:

Inclusive Period	% of long-term average
May – Jun 2007 (anticipated return of high rainfall)	90%
Jul – Oct 2007	110%
Nov 2007 – Jan 2008	110%
Feb – Apr 2008	100%



Republic of the Marshall Islands (RMI):

Several atolls in the northern RMI experienced extremely dry conditions in the first quarter of 2007, and emergency measures had to be taken to insure adequate drinking water for some islands. Agriculture was severely affected, rain catchment was ineffective, and the quality and quantity of water in the thin lens aquifers on many atolls were threatened. Majuro was placed on severe water restrictions as its main water supply, the 33 million gallon reservoir at the airport,

RMI Rainfall Summary 1st Qtr 2007

Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
RMI Central and Southern Atolls						
Majuro WSO	Rain (Inches)	2.00	4.90	4.31	11.21	18.29
	% of Normal	24%	80%	52%	49%	80%
Laura*	Rain (Inches)	4.39	6.70	N/A	N/A	18.29
Arno*	Rain (Inches)	0.84	7.09	4.54	12.47	18.29
Aling-laplap*	Rain (Inches)	2.29	3.82	5.11	11.22	18.29
Mili*	Rain (Inches)	1.47	9.70	12.23	23.40	18.29
RMI Northern Atolls						
Kwajalein	Rain (Inches)	0.77	3.43	1.39	5.59	8.32
	% of Normal	17%	106%	34%	47%	70%
Wotje*	Rain (Inches)	0.52	1.50	0.07	2.09	7.80
Utirik*	Rain (Inches)	2.73	0.09	2.15	4.97	7.08

¹ Predictions made in the 4th Quarter 2006 PEAC Newsletter

* Long term normal is not established for these sites

LOCAL SUMMARY AND FORECAST

fell to less than 5% of capacity. Fortunately, some heavy rain showers fell across the area in early April, helping to alleviate the severe problems with low water supplies and wilting crops. The three-month total rainfall for some of the atolls in the northern RMI was less than 5 inches!

Climate Outlook: Welcome rains came to the northern RMI in April. Although near normal rainfall is now anticipated for most of the atolls of the RMI, residents of the northern RMI are urged to continue to participate in voluntary water conservation measures in case there should be several weeks of hot, dry weather during May and June. Thereafter, normal summer rains should be experienced on all islands.

Predicted rainfall for the RMI from May 2007 through April 2008 is as follows:

Inclusive Period	% of long-term average		
	South of 6°N	6°N to 8°N	North of 8°N
May – Jun 2007	100%	95%	90%
Jul – Oct 2007	100%	100%	100%
Nov 2007 – Jan 2008	100%	100%	90%
Feb – Apr 2008	100%	95%	90%

For more information on weather and climate in the RMI go to

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

or

<http://www.rts-wx.com/climatology>



Hawaii: The 1st quarter of 2007 started out cool and dry for most of the state. Kona winds persisted for much of January, producing only one significant rain event for the month. More significantly, downslope enhancement of these southwesterly winds produced episodes of very strong winds across portions of windward Oahu, resulting in numerous reports of damaged roofs, downed utility poles and black-outs.

The passage of two cold fronts in early February brought overnight temperatures down into the 50's and brought periods of light to moderate showers across some areas. Rainfall for February remained below average across most of the state, with only a few windward and interior areas across the islands receiving above average rainfall.

March started out dry for most of the state, but several mid-month cold fronts brought heavy showers to portions of Oahu, Molokai and upcountry Maui. A flash flood warning was issued for Molokai the morning of March 14th, but despite heavy rains, no road closures or significant damage was reported. Trade winds returned to the islands for the last two weeks of March, bringing light showers to windward areas and overall dry conditions elsewhere.

Dry conditions across the state are reflected in the National Weather Service's 3-month and 6-month Standardized Precipitation Index (SPI), which indicates "moderately dry" to "very dry" conditions across portions of Kauai, Oahu and the Big Island.

LOCAL SUMMARY AND FORECAST

State of Hawaii Rainfall Summary, 1st Qtr 2007

Station		Jan.	Feb.	Mar.	4th Qtr
Lihue Airport	Rain (Inches)	1.69	1.50	5.82	9.01
	% of Normal	37%	46%	163%	79%
Honolulu Airport	Rain (Inches)	1.10	0.40	0.68	2.18
	% of Normal	40%	17%	36%	31%
Kahului Airport	Rain (Inches)	0.48	0.93	2.13	3.54
	% of Normal	13%	39%	91%	42%
Hilo Airport	Rain (Inches)	12.13	14.23	4.25	30.61
	% of Normal	125%	161%	30%	93%

Additional individual rainfall station information and specific island information for Hawaii can be found in the Monthly Precipitation Summaries which are located online at <http://www.prh.noaa.gov/hnl/pages/hydrology.php>.

Climate Outlook: The following is in excerpt from the Climate Prediction Center's official Seasonal Outlook Discussion for Hawaii...

"The tropical Pacific is currently in an ENSO-neutral state. Subsurface conditions and recent forecasts indicate a possible transition to La Niña conditions within the next 3 months.

[CPC's models] predict a tendency for below normal temperature for the Hawaiian Islands for May-Jun-Jul 2007 to Aug-Sep-Oct 2007, however they give no indication of either above or below normal precipitation for Hawaii."

The Climate Prediction Center's (CPC's) Prognostic Discussion of Hawaii and official Seasonal Outlook Discussion for Hawaii can be viewed at www.cpc.noaa.gov/products/predictions/90day/fxhw40.html. For a map displaying the global effects of La Niña on temperature and precipitation, please visit www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensocycle/laninasfc.shtml.

Note: Dynamical forecast models historically have a difficult time producing skillful forecasts through the late spring/early summer season because of the often rapid changes in SST during that time.

For more information on Hawaii's weather and climate go to
www.weather.gov/hawaii

Seasonal Sea Level Outlook for the US-Affiliated Pacific Islands

The following sections describe: (i) the CCA-based forecasts for sea level deviations for the forthcoming seasons; (ii) tide predictions (March 01 - May 31); (iii) the observed/forecast monthly sea-level deviations for the previous season JFM 2007; and (iv) sea-level variability for AMJ with exceedance probability. All units are in inches. *Deviations are defined here as the difference between the mean sea level for the given month and the 1975 - 1995 mean sea level value computed at each station. Also, note that the forecasting technique adapted here does not account for sea level deviations created by other atmospheric or geological conditions such as tropical cyclones, storm surges or tsunamis.*

(i) Seasonal Sea Level Forecast (deviations with respect to climatology) for AMJ, MJJ, and JJA 2007

Forecasts of the sea level anomalies in the USAPI are presented using CCA statistical model. Based on the independent SST values in JFM 2007, the resulting CCA model was used to forecast the sea level of three consecutive seasons: AMJ, MJJ and JJA (Table 1).

Table 1: Forecasts of sea level deviation (in inches) for AMJ, MJJ, and JJA 2007

Tide Gauge	AMJ	MJJ	JJA	Forecast Quality ¹
Lead time ²	0	1M	2M	
Guam	+4	+4	+5	Good
Malakal	+1	+2	+3	Strong
Yap	+1	+2	+3	Good
Pohnpei	+3	+2	+1	Strong
Kapingamarangi	**	**	**	V. Strong
Majuro	+2	**	**	Strong
Kwajalein	+3	+3	+2	Strong
Pago Pago	**	**	+2	V. Strong

1. Forecast quality is a measure of the expected CCA cross-validation correlation skill. These forecasts are generally thought to be of useful skill (or at least fair skill) if the CCA cross-validation value is greater than 0.3. Higher skills correspond to a greater expected accuracy of the forecasts. Skill levels greater than 0.4 and 0.5 are thought to be moderate and good, respectively, while skill levels greater than 0.6 and 0.8 are thought to be strong and very strong, respectively. For CCA cross-validation skill in JFM, FMA and MAM, please refer to: www.soest.hawaii.edu/MET/Enso/peu/2007_2nd/Sea_Level.htm.

2. Lead time is the time interval between the end of the initial period and the beginning of the forecast period. For example, lead-0, lead-1M, and lead-2M means 'sea-level' of target season 0 (AMJ), 1 (MJJ), and 2 (JJA) month leads based on SSTs of JFM 2007.

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 of +/- 1 in. are considered negligible and denoted by **. Deviations +/- 2 in. are unlikely to cause any adverse climatic impact.

With a mean skill greater than 0.65 (at 0 to 2-months lead time) in all three consecutive seasons (AMJ, MJJ, and JJA), all tide gauge stations are well predicted. The forecast values of sea-level for AMJ, MJJ, and JJA (Table 1) display rise in all the North Pacific islands. In the South Pacific, Pago-Pago displays rise as well. This rising trend is consistent with the on-going ENSO-neutral or transition from ENSO-neutral to La Niña conditions that is expected within the next 3 months; the USAPI are sensitive to ENSO events, with rising sea level observed during La Niña years.

(ii) Tide Predictions (April 01 to June 30)

Figure 2, right: Predicted water level plots from April 01-June 30, 2007 for 3 major stations (a) Marinas, Guam (b) Kwajalein, RMI and (c) Pago-Pago, American Samoa. X-axis: date/time (GMT); Y-axis: height in feet relative to mean lower low water level (MLLW); MR = Mean difference between high and low tides; SR = Difference between high and low tide during full moon (spring tide); and ML = Arithmetic means of high and low tides.

NOAA's website for tide and currents has been used to generate this water level plot for the next three months. Other tide-related monthly extreme data can be found in the web edition of this newsletter. *Observations reveal that the MR, SR, and ML for these three stations are likely to remain within the normal range during the next three months (April 01 to June 30, 2007). No abrupt deviations are observed from the simulation results.*

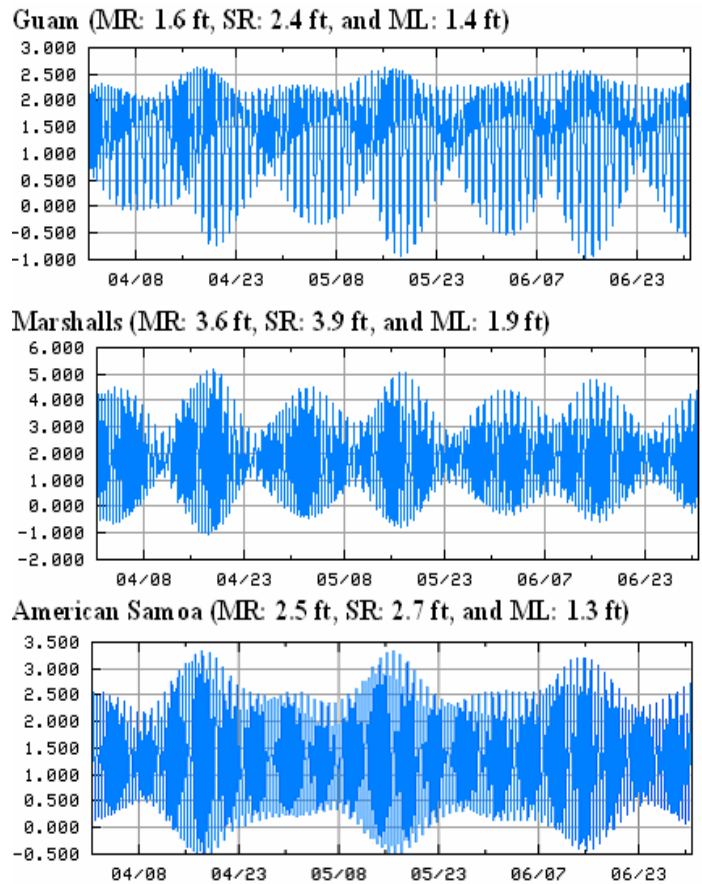


Figure 2: Predicted water level for AMJ 2007 at (a) Marinas, Guam (b) Kwajalein, RMI and (c) Pago-Pago, American Samoa.

EXPERIMENTAL SEA LEVEL FORECASTS

(iii) Observed monthly sea level deviation in Jan-Feb-Mar (JFM), 2007

The monthly time series (January to March) for sea level deviations have been taken from the UH Sea Level Center. The full time series (in mm) is available at [ftp://ilikai.soest.hawaii.edu/islp/slpp/deviations](http://ilikai.soest.hawaii.edu/islp/slpp/deviations). See Figure 3 (below) for location of these stations.

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

Tide Gauge Station	Jan.	Feb.	Mar.
Marianas, Guam	+0.7 (4.2)	n/a (4.3)	n/a (4.1)
Malakal, Palau	-3.7 (4.8)	-4.8 (5.0)	-3.9 (4.6)
Yap, FSM	n/a (4.0)	n/a (3.9)	n/a (4.1)
Kwajalein, Marshalls	+0.9 (3.1)	+3.0 (2.4)	+5.3 (2.1)
Majuro, Marshalls	+1.3 (3.4)	+1.8 (2.2)	n/a (1.7)
Pohnpei, FSM	+1.3 (4.4)	+2.5 (3.0)	n/a (2.3)
Kapingamarangi, FSM	+2.3 (3.8)	+2.2 (3.8)	+5.1 (3.5)
Pago Pago, A Samoa	+3.1 (2.0)	+0.1 (2.9)	+1.2 (2.6)

Note: - indicate negative deviations (fall of sea-level from the mean), and + indicate positive deviations (rise of sea-level from the mean), n/a: data not available, and figures in parenthesis are year-to-year SD (standard deviations) for the month.

Table 2 (left) provides the monthly observed sea level deviations (in inches). For average observed/forecast sea level deviation for the previous season (JFM) please refer to www.soest.hawaii.edu/MET/Enso/peu/2007_2nd/Sea_Level.htm. Like the previous two quarters, a moderate to positive deviation has been observed at most locations in JFM. Only Malakal at Palau recorded negative deviations during this time. Sea-level variation in the USAPI is sensitive to ENSO-cycle, with low sea-level observed during El Niño and high sea-level during La Niña years. Consistent with the transition from ENSO-neutral to La Niña conditions, observations reveal that the sea level has already started to record a rise this year.

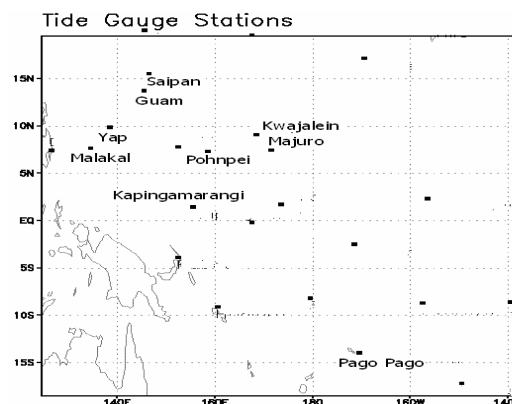


Figure 3: Locations of tide gauge stations in the USAPI

(iv) Generalized Extreme Value (GEV) Analysis for Apr-May-Jun for 100, 20, and 1-year return periods

Table 3: GEV Station	Return Period		
	100 years	20 years	1 year
Marinas, Guam	9.54	7.73	2.72
Siapan, CNMI	6.06	4.65	**
Malakal, Palau	8.77	6.61	**
Yap, FSM	32.04	14.65	**
Kwajalein, RMI	5.45	4.20	**
Majuro, RMI	5.14	4.36	**
Pohnpei, FSM	8.12	5.88	**
Kapingamarangi, FSM	6.49	5.13	**
Pago Pago, A. Samoa	6.90	5.79	**

Note: Deviations of +/- 1 inch are considered negligible and are denoted by **. Deviations +/- 2 inches are unlikely to cause any adverse climatic impact.

Table 3 (left): Deviation of high sea level (in inches) for the AMJ Season for 100, 20, and 1-year Return Periods

With the objective to provide an improved outlook on seasonal sea-level variability, the *GEV Analysis* has been calculated from the 6-hourly sea-level data (available at the University of Hawaii sea level center) (Table 3). This product defines the thresholds beyond the seasonal tidal range that have low but finite probabilities of being exceeded on a seasonal scale. (Note: this product is based on historical data only and does not take into account any trends that may be present.)

How to correctly interpret GEV:

From Table 3 (left), we can see that the highest AMJ tidal deviation for Marinas, Guam in 100 years will most likely not exceed 9.54 inches above normal (100 year return period). Likewise, about once every 20 years we can expect the highest tide at Marinas to be 7.73 inches above normal for the AMJ season (20 year return period). From the last column we see that for any single given year, the highest tide at Marinas, Guam during AMJ will most likely not exceed 2.72 inches (1 year return period).

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Pacific ENSO Update

ENSO FORECAST

Excerpt from PROGNOSTIC DISCUSSION FOR LONG-LEAD OUTLOOKS

NOAA-NWS-Climate Prediction Center-Camp Springs, MD - 8:30 EDT Thursday April 19, 2007

Equatorial SSTs in the Eastern Pacific Ocean are at least 0.5 °C colder than average from about 135 °W to near the South American Coast... Elsewhere across the Equatorial Pacific, SSTs are near average.

SSTs in the NIÑO 3.4 region were about 1.0 °C above normal at the start of January 2007... and rapidly decreased to near zero in mid-February and have fluctuated near zero since then. Nearly all prediction tools indicate that SST anomalies in NIÑO 3.4 region will continue to decrease during the next few months... although at varying speeds. ENSO-neutral conditions are currently in place and it is unclear whether or not La Niña conditions will develop during the May-June-July season. The possible magnitude and duration of La Niña conditions is also unclear... with most tools suggesting either ENSO-neutral or weak La Niña conditions this summer.

EL NINO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

Issued by NOAA NWS Climate Prediction Center - April 5, 2007

Synopsis: *A transition from ENSO-neutral to La Niña conditions is possible within the next 3 months.*

The pattern of anomalous sea surface temperatures (SSTs) during March 2007 was consistent with ENSO-neutral conditions in the tropical Pacific, with average to slightly below-average SSTs extending from the date line to the west coast of South America. The latest weekly SST departures are near 0°C in the Niño 3.4 region, and below -0.5°C in the Niño 3 and Niño 1+2 regions...

The upper-ocean heat content remains below-average across the central and east-central equatorial Pacific, with temperatures at thermocline depth generally 3°-5°C below average. Consistent with the surface and sub-surface temperature patterns, stronger than-average low-level easterly winds persisted throughout the month of March over the central equatorial Pacific, and convection was enhanced over the western equatorial Pacific and Indonesia and suppressed near the date line. Collectively, these atmospheric and oceanic conditions are consistent with a trend towards a Pacific cold (La Niña) episode.

Most of the statistical and coupled model forecasts, including those from the NCEP Climate Forecast System (CFS), indicate additional anomalous surface cooling during the next several months. Some forecast models, especially the CFS, indicate a transition to La Niña during May-July 2007. This forecast is consistent with the observed trends in atmospheric and oceanic conditions. However, the spread of the most recent statistical and coupled model forecasts (ENSO-neutral to La Niña) indicates considerable uncertainty as to when La Niña might develop and how strong it might be.

The Pacific ENSO Update is a bulletin of the Pacific El Niño-Southern Oscillation (ENSO) Applications Center (PEAC). 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, LT(jg) Sarah Jones, 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 author(s) and do not necessarily reflect the views of NOAA, any of its sub-agencies, or cooperating organizations.

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