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**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**

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CURRENT CONDITIONS

According to the U.S. Climate Prediction Center (CPC), the present oceanic and atmospheric anomalies indicate an ongoing transition from La Niña to ENSO-neutral. Precipitation and surface wind anomalies in the tropical Pacific have reflected La Niña for the past several months, characterized by a westward retraction of deep tropical convection toward Indonesia, suppressed precipitation centered on the Date Line, and enhanced easterly winds across most of Micronesia. The weather across the USAPI has remained tranquil, with no extremes of high wind and few extremes of heavy rain. For the past two months, persistent dry conditions have threatened the water resources of some atolls in the RMI. The most troublesome aspect of recent La Niña conditions has been elevated sea level.

During the 1st Quarter of 2009, most of the islands of Micronesia, Hawaii and American Samoa had rainfall totals that were near normal (see Figure 1). Unusually persistent trade winds continued to dominate the weather across Micronesia. There were no early season tropical cyclones in Micronesia, and tropical cyclone activity in the South Pacific was mostly confined to Australian waters eastward to Fiji.

Although the present state of the Pacific climate appears to be transitioning from La Niña to ENSO-neutral, the wind and rainfall patterns affecting the USAPI are still those typical of La Niña. These anomalies, which include enhanced trade winds, above normal sea level and a suppression of tropical cyclone activity, could continue through June. The very strange collection of climate anomalies that existed in the western Pacific for most of 2008 (persistent strong easterly wind, nearly complete suppression of tropical cyclone activity eastward of Guam's longitude, and high stands of the sea throughout Micronesia) are not likely to recur in such strong measure during the coming months of 2009.

Near normal rainfall is anticipated throughout much of Micronesia during the next 3 to 6 months. Tropical cyclone activity, which has been very quiet in Micronesia and throughout much of the western North Pacific for the past two years, should rebound somewhat during 2009, but will still be relatively quiet everywhere eastward of the Marianas (see each island's summary for the meaning of a "normal" versus a "suppressed" tropical cyclone threat).

Sea level variation in the USAPI is sensitive to the ENSO-cycle, with low sea level observed during El Niño events and

high sea level observed during La Niña events. Sea levels have been higher than average in the Pacific since early 2007. **Current forecasts indicate that sea level across the USAPI will remain elevated 2-6 inches above normal for the next 3 months, while sea level at Hawaiian stations is expected to remain near normal.**

The following comments were taken from WFO Guam's MONTHLY PACIFIC ENSO DISCUSSION FOR MICRONESIA AND AMERICAN SAMOA, issued in April 2009:

"While sea surface temperatures (SSTs) remained cooler than normal in the eastern and east-central equatorial Pacific, they continued to exhibit warming throughout the month. Positive subsurface heat content anomalies in the upper 300 meters of the equatorial western and central Pacific Ocean pushed eastward, while negative subsurface anomalies weakened in the eastern Pacific. During most of April, the atmosphere continued to exhibit La Niña characteristics, with below normal convection near the International Date Line and enhanced convection across Indonesia. Equatorial low-level easterly and upper-level westerly winds also continued across the Pacific during March and into April. CPC noted that 'Collectively, these oceanic and atmospheric anomalies are consistent with a weakening La Niña.'

CPC expects La Niña to give way to ENSO-neutral conditions by May. Most of the latest climate forecast models support this view. This week, equatorial low-level westerly winds penetrated eastward to 145°E. In addition, the strong persistent trade winds of early April have temporarily weakened. These occurrences support a weakening of the atmospheric affects of La Niña.

As La Niña wanes, the trade winds will weaken, and sea levels will slowly decrease for the next couple of months. This should reduce the risk for non-tropical cyclone-related inundation to the high and low islands. With the emergence of equatorial westerly winds, we could see a more typical May-June beginning of tropical cyclone activity in western Micronesia. American Samoa will be moving into its dry season, which should be relatively normal. Rains have returned to most locations in Micronesia south of 9°N. The northern Republic of the Marshall Islands, northern Yap State and the Marianas will likely have below normal rainfall for the next month or so. Chuuk and Pohnpei States and the southern Marshall Islands should return to near normal rainfall, while Kosrae State and the Republic of Palau will likely have normal to above normal rainfall."

SEA SURFACE TEMPERATURES

SOUTHERN OSCILLATION INDEX

During March and April, positive sea-surface temperature (SST) anomalies extended in a horseshoe pattern from the central North Pacific to the central South Pacific, while negative anomalies extended from the west coast of North America to the Gulf of Alaska. In the past four weeks, the trend in SST anomalies was positive (warming) across the equatorial Pacific Ocean, especially in the far eastern Pacific. Upper ocean heat content anomalies have weakened since late December 2008 and have recently become positive. From March through mid-April, negative sub-surface temperature departures weakened east of the Date Line, while positive departures expanded eastward to near 100°W.

The 3-month average of the Southern Oscillation Index for the 1st Quarter of 2009 was +1.0, with monthly values of +1.2, +1.8 and -0.1 for the months of January, February and March 2009, respectively. March 2009 is the first month since June 2008 to record a negative SOI value, marking a turn from La Niña toward ENSO-neutral conditions.

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. The SOI is an index representing the normalized sea level pressure difference between Darwin, Australia and Tahiti, respectively.

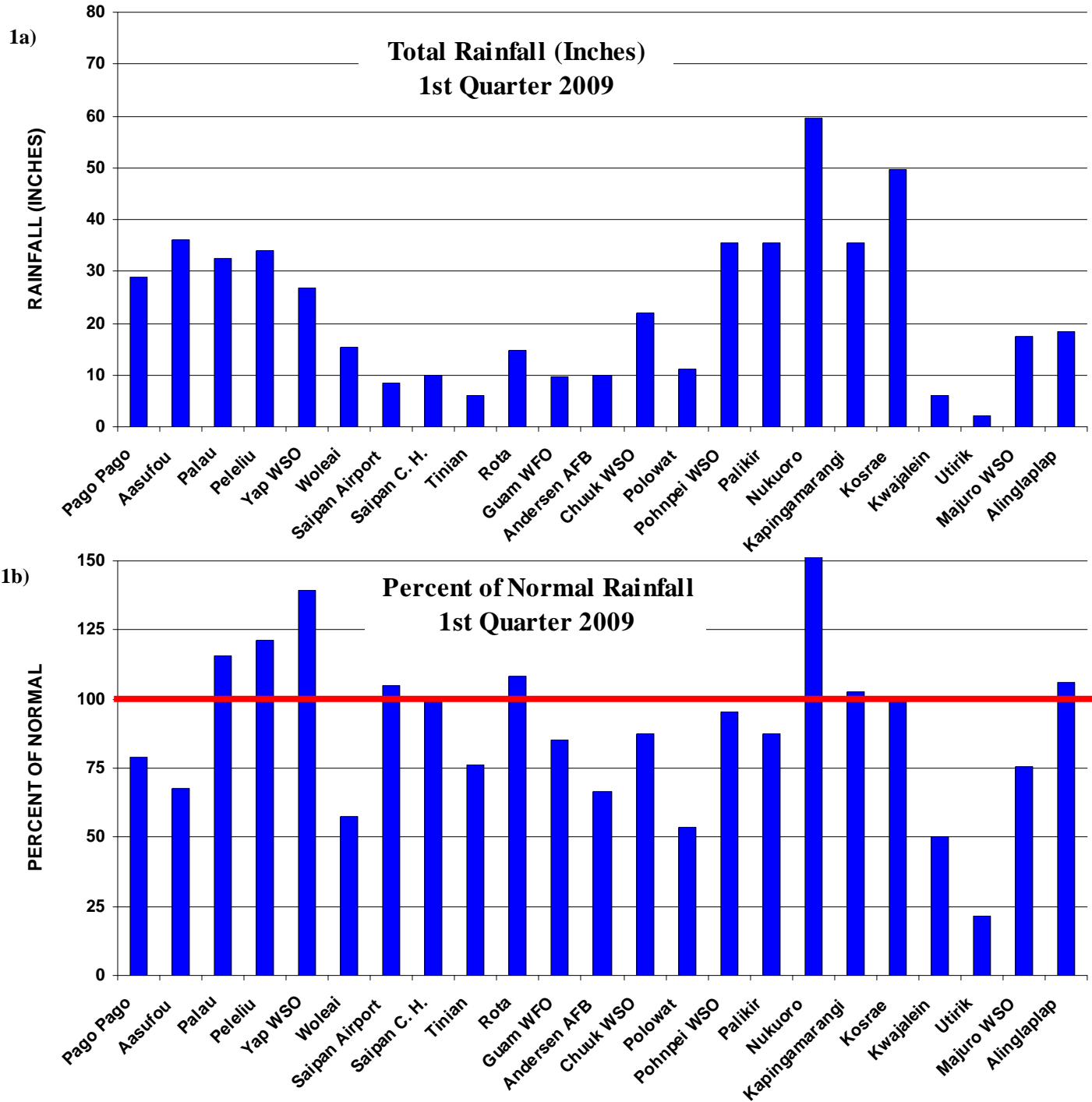


Figure 1, above. 1st Quarter 2009 rainfall totals (a) in inches and (b) anomalies (expressed as % of normal).

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 United States 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 (TCWC) at Brisbane, the RSMC Nadi, and the New Zealand Meteorological Center at 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, but JTCW values are given precedence when available.

Tropical Cyclone Summary

For over two years now, tropical cyclone activity in the western North Pacific has been below normal in almost every category (e.g., number of typhoons, number of very intense typhoons, and number of typhoons affecting Micronesia), and the tropical cyclone activity has been displaced far to the north and west of normal. This behavior is typical of La Niña (especially those La Niña years that follow El Niño years). Through April, there have been no tropical cyclones in the western North Pacific during 2009. This represents a continuation of below normal activity in that basin. Normally there are two or three named tropical cyclones in the western North Pacific basin during the first four months of the year. Some recent typhoons that have adversely affected Micronesia in the spring include: Typhoon Mitag (affected Yap on the March 3, 2002); Typhoon Sudal (affected Yap on the April 9, 2004); and, Super Typhoon Isa (reached its peak intensity west of Guam shortly after a prolonged episode of very heavy rain caused the Sokehs mudslide disaster in Pohnpei on April 20, 1997).

The nearly-ended tropical cyclone season of the Southern Hemisphere (SH) was also below normal in most categories. The 27 tropical cyclones numbered by the JTWC in the SH from July 2008 through April 2009 is one below normal. Of the 27 cyclones numbered by the JTWC, 9 reached hurricane intensity, and 18 were tropical storms. Two cyclones reached Category 4 intensity on the Saffir Simpson Scale. None reached the catastrophic Category 5 level. Continuing a trend of global and basin quiescence, the Accumulated Cyclone Energy (ACE) for the current SH cyclone season is far below normal (54% of normal) with the season almost over. One of the most notable cyclones of the current SH season was Cyclone Hamish. This powerful Category 4 cyclone moved southward just offshore of Australia's east coast, causing some coastal inundation. The tropical cyclone warning center in Nadi, Fiji, monitored 15 tropical disturbances in its regional area of responsibility, which extends from the Solomon Islands eastward into the Cook Islands. Twelve of the fifteen disturbances intensified into what the Fiji Center designated as tropical depressions. Five of these tropical depressions intensified into named cyclones: Hettie, Innis, Joni, Ken, and Lin. Floods and mudslides associated with Tropical Depression 04F killed at least eleven people in Fiji as several towns and rural areas on Viti Levu were flooded. Cyclone Lin adversely affected Fiji and Tonga. On April 4, Lin passed directly over Tonga with winds up to 70 mph and heavy rains. Reports indicate that power lines were knocked down by high winds, and the heavy rains triggered minor flooding in Nuku'alofa. Most of the power lines in Tonga were either downed or damaged by the storm and numerous trees fell across the island. No one was injured by the storm, but significant crop losses were reported. The PEAC Center received no reports of any adverse affects from any of this year's South Pacific cyclones in American Samoa.

PEAC Center Tropical Cyclone Outlook

The PEAC outlook for tropical cyclones in the western North Pacific basin for the 2009 typhoon season is for near normal activity within the whole basin, but some reduction still noted within Micronesia, particularly eastward of the Marianas. The anticipated distribution of tropical cyclones for 2009 reduces the risk of a damaging tropical storm or typhoon at all islands located eastward of 145°E. For example, Guam at 145°E will experience a slightly below normal risk, and the RMI at 170°E will have almost no risk of a damaging tropical cyclone. The risk of a damaging tropical cyclone at Yap or Palau (both located to the west of 140°E) will be near normal, with two periods of elevated risk: one in May through early July, and the other period of highest risk in the fall months of October through December. The hurricane season for American Samoa is nearly over, and no further activity is anticipated in the region until the next cyclone season begins. The Central Pacific hurricane season runs from June 1 to November 30; a Tropical Weather Outlook for the central North Pacific (from 140°W to 180) will be issued by the Central Pacific Hurricane Center on June 1.

The PEAC tropical forecast considers 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 Dr. J. C-L. Chan (http://apost02.cityu.edu.hk/tc_forecast/2008_forecast_APR.htm), 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 (<http://tsr.mssl.ucl.ac.uk/>).

LOCAL SUMMARY AND FORECAST



American Samoa: American Samoa finished the heart of its 2008-09 rainy season with slightly below average rainfall totals, with 79% of normal rainfall at Pago Pago International Airport (28.95 inches total) and 68% of normal at Aasufou (36.14 inches total). February was particularly dry, with both sites recording only 60% of normal rainfall for the month. The 2008-09 hurricane season in the American Samoa region passed without incident, as persistent easterly wind anomalies associated with La Niña kept tropical cyclones away from American Samoa and prevented the Australian Northwest Monsoon from making any major incursions across the region.

American Samoa Rainfall Summary 1st Qtr 2009						
Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Pago Pago WSO	Inches	11.34	7.62	9.99	28.95	37.31
	% Norm	90%	60%	89%	79%	100%
Aasufou	Inches	14.75	10.72	11.75	36.14	53.42
	% Norm	77%	60%	66%	68%	100%

¹ Predictions made in 4th Quarter 2008 newsletter.

Climate Outlook: Computer forecasts and a consensus of outlooks from several regional meteorological centers show a pattern of wetter than normal conditions to the south and west of American Samoa, and drier than normal conditions to the north and east. Thus, American Samoa sits right along the axis between anticipated wetter-than-normal conditions and drier-than-normal conditions. **The PEAC Center anticipates that the rainfall in American Samoa will be near normal for the next three months, and remain near normal until the next rainy season.** The next rainy season of 2009-10 should be wetter than the one just finished given the relaxation of La Niña and the progression to ENSO-neutral conditions.

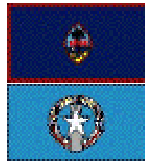
The tropical cyclone season of the Southern Hemisphere for 2008-09 is coming to a close. **It is unlikely that any tropical cyclone will impact the islands of American Samoa or its coastal waters in the next three months.** Beginning in late November 2009, the next cyclone season of 2009-10 may be more active than the one just completed, which was very quiet.

Predicted rainfall from April 2009 through March 2010 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²
April - June 2009 (Onset of Dry Season)	90% (24.78 inches - Pago Pago)
July - September 2009 (Heart of next Dry Season)	95%
October - December 2009 (Onset of next Rainy Season)	100%
January - March 2010 (Heart of Rainy Season)	120%

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

LOCAL SUMMARY AND FORECAST



Guam/CNMI: Most Guam and CNMI locations have been relatively dry through April 2009, with 1st Quarter rainfall totals rainfall less than 10 inches at many locations. The 1st Quarter total of 6.00 inches (76% of normal) at Tinian was the driest reading in the region, and the 14.77 inches (108% of normal) on the island of Rota was the wettest 1st quarter total for the region. There was a general lack of any large-scale rain-producing weather systems and no early season tropical cyclone activity. Streams on Guam are running slow, and algal growth has proliferated in stagnant low flow. Most stream channels are filled with debris (dead palm fronds and other leafy waste). This debris and algal growth will be flushed to the sea with the first significant rainfall of the season, which may not occur until June. Grassland wildfires have occurred throughout much of southern Guam, burning away vast swaths of multi-year sword grass stands. The burns have not yet been as extensive as those ignited during the drought of 1998 when 12% of Guam's land area was scorched.

Guam and CNMI Rainfall Summary 1st Qtr 2009						
Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Guam						
GIA (WFO)	Inches	4.53	1.90	3.06	9.49	10.05
	% Norm	92%	51%	103%	85%	90%
AAFB	Inches	5.55	1.01	3.42	9.98	13.60
	% Norm	97%	19%	84%	66%	90%
University of Guam	Inches	5.94	1.28	2.79	10.01	10.05
	% Norm	120%	34%	94%	90%	90%
Dededo (Ypapao)*	Inches	5.44	2.68	3.84	11.96	13.46
	% Norm	95%	51%	94%	80%	90%
Ugum Water-shed**	Inches	7.20	1.82	3.47	12.49	18.13
	% Norm	82%	39%	53%	62%	90%
Sinajaña***	Inches	5.73	1.68	3.82	11.23	10.05
	% Norm	116%	45%	128%	101%	90%
CNMI						
Saipan Intl. Airport	Inches	2.83	2.60	2.85	8.28	6.97
	% Norm	85%	104%	137%	105%	90%
Capitol Hill	Inches	2.84	3.19	3.95	9.98	9.07
	% Norm	67%	100%	107%	99%	90%
Tinian Airport	Inches	2.01	1.30	2.69	6.00	7.11
	% Norm	60%	52%	129%	76%	90%
Rota Airport	Inches	2.85	3.24	8.68	14.77	12.31
	% Norm	54%	69%	235%	108%	90%

¹ Predictions made in 4th Quarter 2008 newsletter.

* % of normal with respect to Andersen AFB.

** % of normal with respect to WSMO Finigayan (now closed), on the northwest side of Guam.

*** % of normal for Sinajaña is with respect to WFO Guam.

LOCAL SUMMARY AND FORECAST

Almost half of the quarterly rainfall total on Guam occurred during a heavy rainfall event on the 4th of January. On that day, 4 to 5 inches of rainfall fell island-wide. This was the heaviest 24-hour rainfall on Guam in over 2 years! The cause was an outbreak of convection along a shear line that was moving slowly southward through Guam and the CNMI. Embedded convection along the east-west oriented shear line passed continually over the island in a phenomenon known as “training”, analogous to the passage of the many cars of a freight train over any place along the railway. The heaviest of rainfall events in Guam and in the CNMI almost always involve training of showers embedded along a band (such as tropical cyclone rain bands, the monsoon cloud band, and shear lines). A lack of such training situations (i.e., no monsoon, no tropical cyclones, and few shear lines) is the reason for the lack of extreme rainfall events in Guam and in the CNMI since the latter half of 2006.

Climate Outlook: Rainfall is anticipated to be slightly below normal for Guam and the CNMI for the remainder of the dry season (through June), and continue to be slightly below normal as the rainy season gets underway during July through September. The months of October through December may be wetter than normal if tropical cyclone activity returns to near normal in the region. The tranquil weather patterns of the past two years is expected to continue at least through the beginning of the rainy season in July, and no extreme of heavy rainfall (i.e., 4 inches or more in a 24-hours) is anticipated until tropical cyclone activity returns to a more normal distribution some time in the fall.

The 2009 typhoon season of the western North Pacific is already experiencing a delay. The number of tropical cyclones is anticipated to be near normal in the western North Pacific basin during the typhoon season of 2009, but will still exhibit a displacement of the distribution of the activity to the west. This displacement of cyclone activity should not be as extreme as that noted for the past two years. For all of 2009, one or two tropical storms and one typhoon may pass within 200 miles of any Guam or CNMI location (this represents a slight reduction of risk). The greatest risk of a damaging tropical cyclone will be during the months of September through December.

Predicted rainfall for Guam and the Mariana Islands from April 2009 through March 2010 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²	
	Guam/Rota	Saipan/Tinian
April – June 2009 (End of Dry Season)	90% (14.79 inches)	90% (7.73 inches)
July - September 2009 (Heart of Next Rainy Season)	90%	95%
October - December 2009 (End of Next Rainy Season)	110%	100%
January - March 2010 (Onset of Next Dry Season)	100%	100%

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

LOCAL SUMMARY AND FORECAST



Federated States of Micronesia

Yap State: The month of February was particularly wet in Yap State with almost half of the 1st Quarter rainfall occurring in that month. The 15.07 inches of rain during February at the WSO Yap was over twice (252%) of the normal February rainfall. January rainfall was slightly above normal, while March rainfall (the typical heart of Yap’s dry season) was below normal. Overall, the 1st Quarter rainfall was above normal throughout Yap State, except at Woleai, which was the only Yap State location to report below normal rainfall.

Yap State Rainfall Summary 1st Qtr 2009						
Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Yap Island						
Yap WSO	Inches	8.60	15.07	3.16	26.83	18.83
	% Norm	117%	252%	53%	139%	100%
Dugor*	Inches	6.54	12.29	3.48	22.31	18.83
	% WSO	90%	226%	57%	116%	100%
Gilman*	Inches	6.72	14.48	4.60	25.80	18.83
	% WSO	93%	266%	75%	134%	100%
Luweech*	Inches	7.24	12.64	2.97	22.85	18.83
	% WSO	100%	232%	48%	119%	100%
Maap*	Inches	6.56	13.65	2.00	22.21	18.83
	% WSO	91%	250%	33%	115%	100%
North Fanif*	Inches	8.90	13.05	3.93	25.88	18.83
	% WSO	123%	239%	64%	134%	100%
Rumung*	Inches	9.26	13.51	2.52	25.29	18.83
	% WSO	128%	248%	41%	131%	100%
Tamil*	Inches	8.67	14.50	4.31	27.48	18.83
	% WSO	120%	266%	70%	143%	100%
Outer Islands						
Ulithi	Inches	N/A	N/A	N/A	N/A	N/A
	% Norm	N/A	N/A	N/A	N/A	100%
Woleai	Inches	3.48	5.51	6.26	15.25	26.29
	% Norm	33%	73%	75%	58%	100%

¹ Predictions made in 4th Quarter 2008 newsletter.

* Long term normal is not established for these sites.

Climate Outlook: For the next few months, tropical disturbances and any tropical cyclone activity in the western North Pacific basin will still have the westward bias that has been noted for the past two years. This will allow abundant rainfall to occur throughout Yap State. The westward bias in tropical cyclone formation means that Yap State and the Republic of Palau stand the highest chances of any Micronesia location to be within the circulation of a developing tropical cyclone during the next three months. **While a direct hit by a typhoon is not anticipated, there could be one or two episodes of gale-force wind from a tropical cyclone forming within the region, then moving westward toward the Philippines. Later in the year (October through December), there is a normal risk (5-10%) of a damaging tropical cyclone in Yap State or its northern atolls.** Based on the gradual shift of the Pacific basin from La Niña to ENSO-neutral conditions, rainfall should be above normal throughout most of Yap State at least through the end of the calendar year.

LOCAL SUMMARY AND FORECAST

Predicted rainfall for Yap State from April 2009 through March 2010 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²	
	Yap and Ulithi	Woleai
April – June 2009 (Onset of Rainy Season)	120% (32.63 inches)	90% (32.63 inches)
July – September 2009 (Heart of Rainy Season)	110%	100%
October – December 2009 (End of Rainy Season)	120%	100%
January – March 2010 (Onset of next Dry Season)	100%	100%

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

Chuuk State: Most of Chuuk State was relatively dry during the 1st Quarter of 2009, with all rain recording sites throughout the state receiving below normal rainfall totals. In a continued pattern of tranquil weather that has persisted for over two years, nearly all monthly totals at all stations were less than 10 inches. Dry conditions have not caused any serious problems within Chuuk State. However, the repeated sea inundation at many locations in Chuuk State this past December continues to be the main climate issue. Although high surf episodes are over for now, the effects of the salt water washed into taro patches and other low-lying areas in Chuuk will take many more months to recover from.

Climate Outlook: Based on a slow relaxation of the pattern of anomalous low-level easterly wind, the risk of a tropical storm or typhoon is very unlikely anywhere in Chuuk State through September of 2009. In the months of October through December 2009, the monsoon trough should push eastward into

Chuuk State Rainfall Summary 1st Qtr 2009						
Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Chuuk Lagoon						
Chuuk WSO	Inches	9.69	8.62	3.67	21.98	25.77
	% Norm	91%	139%	44%	87%	100%
Piis Panew*	Inches	2.05	3.84	2.42	8.31	25.77
	% WSO	19%	63%	27%	33%	100%
Southern Mortlocks						
Lukunoch*	Inches	6.98	12.46	5.29	24.73	28.35
	% WSO	65%	203%	59%	98%	110%
Ettal*	Inches	6.05	9.51	3.06	18.62	28.35
	% WSO	57%	155%	34%	74%	110%
Ta*	Inches	7.75	9.63	6.62	24.00	28.35
	% WSO	73%	157%	74%	93%	110%

¹ Predictions made in 4th Quarter 2008 newsletter.
* Long term normal is not established for these sites.

LOCAL SUMMARY AND FORECAST

Chuuk State Rainfall Summary 1st Qtr 2009						
Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Northern Atolls						
Fananu*	Inches	3.87	5.52	6.25	15.64	25.77
	% WSO	36%	90%	70%	62%	100%
Onoun*	Inches	7.42	7.82	3.44	18.68	25.77
	% WSO	69%	128%	38%	74%	100%
Northern Mortlocks						
Losap*	Inches	5.14	5.68	6.41	17.23	25.77
	% WSO	48%	93%	72%	68%	100%
Nama*	Inches	8.74	6.25	3.90	18.89	25.77
	% WSO	82%	102%	44%	75%	100%
Namoluk*	Inches	7.21	9.25	4.19	20.65	25.77
	% WSO	68%	151%	47%	80%	100%
Western Atolls						
Polowat	Inches	4.36	4.08	2.58	11.02	23.19
	% WSO	54%	65%	41%	54%	90%

¹ Predictions made in 4th Quarter 2008 newsletter.
* Long term normal is not established for these sites.

Micronesia to near its normal location. Many of the tropical cyclones of the western North Pacific basin form near the eastern end of the monsoon trough, which is the reason that the area around Chuuk and Pohnpei typically sees an abundance of tropical disturbances, but not many full-fledged tropical storms or typhoons. **The rainfall throughout Chuuk State should be abundant for the foreseeable future.**

Predictions for Chuuk State from April 2009 through March 2010 are as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²			
	Chuuk Lagoon, Northern Mortlocks	Polowat	Northern Atolls and Islands	Southern Mortlocks
Apr – Jun 2009	120% (42.65 inches)	90% (31.99 in)	100% (35.54 in)	110% (39.09 in)
Jul – Sep 2009	120%	90%	120%	110%
Oct – Dec 2009	110%	100%	100%	100%
Jan – Mar 2010	100%	100%	100%	100%

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

Pohnpei State: The 1st Quarter rainfall was generally near normal across Pohnpei State, with all locations on Pohnpei Island recording 3-month totals between 25.88 inches (at Kolonia airport) and 35.57 inches (at the WSO). The only location within Pohnpei State that was substantially wetter than normal was the island of Nukuoro, which recorded 59.69 inches of rain for the 1st Quarter of 2009 (166% of normal).

LOCAL SUMMARY AND FORECAST

Pohnpei State Rainfall Summary 1st Qtr 2009						
Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Pohnpei Island						
Pohnpei WSO	Inches	10.83	12.23	12.51	35.57	36.26
	% Norm	83%	113%	92%	95%	100%
Palikir	Inches	11.91	10.53	12.95	35.39	39.76
	% Norm	N/A	N/A	N/A	89%	100%
Kolonia Airport	Inches	8.62	7.59	9.67	25.88	30.45
	% Norm	N/A	N/A	N/A	85%	100%
Atolls of Pohnpei State						
Nukuoro	Inches	13.81	20.04	25.84	59.69	35.96
	% Norm	118%	190%	190%	166%	100%
Pingelap	Inches	8.35	11.84	11.85	32.04	39.07
	% Norm	68%	97%	98%	82%	100%
Mwoakil-loa	Inches	9.32	8.76	13.37	34.55	33.87
	% Norm	85%	94%	85%	102%	100%
Kapingamarangi	Inches	7.06	18.57	9.81	35.44	34.75
	% Norm	68%	181%	71%	102%	100%

¹ Predictions made in 4th Quarter 2008 newsletter.

Climate Outlook: Based on a the gradual transition of the Pacific basin climate from La Niña to ENSO-neutral conditions, a tropical storm or typhoon is very unlikely anywhere in Pohnpei State through the remainder of 2009. A weather pattern featuring light easterly winds should be accompanied by near normal rainfall for the foreseeable future. **As was the case in the spring of 2008, the rainfall during the spring months of 2009 (April, May and June) could be quite wet once again, especially at Sapwafik (Ngetik) and Nukuoro.**

Predicted rainfall for Pohnpei State from April 2009 through March 2010 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²	
	Pohnpei Island and atolls	Kapingamarangi
Apr - Jun 2009	120% (64.09 inches)	100% (31.28 inches)
Jul - Sep 2009	100%	100%
Oct - Dec 2009	100%	100%
Jan - Mar 2010	100%	100%

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

LOCAL SUMMARY AND FORECAST

Kosrae State: Although many of the islands of Micronesia eastward of the longitude of Kosrae experienced dry conditions in the 1st Quarter of 2009, Kosrae is at a latitude that places it within the narrow east-west zone of rain clouds known as the Inter-tropical Convergence Zone (ITCZ). This nearly basin-long cloud band becomes sharper and more concentrated in areas west of the date line when the low level winds there are easterly. La Niña accentuates the easterly winds in this region, and during such times, one can see abundant rainfall in islands within the band (e.g., Kosrae), and drought at islands that are north of the band (e.g., Kwajalein). During the 1st Quarter of 2009, the rainfall on Kosrae was mostly near normal. The 3-month total rainfall was approximately 50 inches, except on the eastern shore of the island at the Nautilus Hotel where the 1st Quarter total was only 34.09 inches.

Kosrae State Rainfall Summary 1st Qtr 2009						
Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
Airport (SAWRS)	Inches	17.06	19.72	12.80	49.58	49.41
	% Norm	119%	121%	69%	100%	110%
Utwa*	Inches	12.83	23.71	13.24	49.78	49.41
	% WSO	89%	145%	71%	101%	110%
Nautilus Hotel*	Inches	14.72	13.40	5.97	34.09	49.41
	% WSO	102%	82%	30%	69%	110%
Tofol*	Inches	15.94	22.66	15.15	53.75	49.41
	% WSO	111%	139%	81%	109%	110%

¹ Predictions made in 4th Quarter 2008 newsletter.

* Long term normal is not established for these sites.

Climate Outlook: The risk of a damaging tropical storm or typhoon is very unlikely at Kosrae during all of 2009. Based on the slow transition of the Pacific basin climate from La Niña to ENSO-neutral, **rainfall at Kosrae should remain near normal for the foreseeable future.**

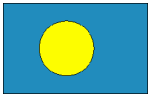
Forecast rainfall for Kosrae State from April 2009 through March 2010 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²
April - June 2009	110% (65.41 inches)
July - September 2009	100%
October - December 2009	100%
January - March 2010	100%

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

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LOCAL SUMMARY AND FORECAST



Republic of Palau: Rainfall was above normal in Palau during the 1st Quarter of 2009, due in large measure to a very wet February. The general pattern of above normal rainfall during the 1st Quarter, with a very wet February, was seen at both Palau and at Yap. Typical of La Niña, rainfall was more widespread in the western portions of Micronesia, and more narrowly focused on the ITCZ cloud band further east.

Republic of Palau Rainfall Summary 1st Qtr 2009						
Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
WSO Koror	Inches	9.23	14.67	8.48	32.38	29.64
	% Norm	86%	160%	103%	116%	100%
Nekken	Inches	11.96	14.23	8.11	34.30	29.64
	% Norm	107%	147%	92%	122%	100%
Intl. Airport	Inches	10.52	16.07	5.85	32.44	29.64
	% Norm	94%	166%	67%	116%	100%
Peleliu	Inches	13.93	17.72	2.23	33.88	29.64
	% Norm	124%	184%	25%	121%	100%

¹ Predictions made in 4th Quarter 2008 newsletter.

Climate Outlook: As the Pacific basin transitions from La Niña to ENSO-neutral, rainfall should continue to be abundant in Palau. Tropical cyclone activity in 2009 should still have a westward bias, but will not be as dramatic as seen during the past two years. **The anticipated weather patterns for the next few months elevates the risk for Palau to experience gusty westerly winds in the southern periphery of a tropical storm passing to its north. One or two such tropical storms may pass north of Palau in the next three months.** Between July and October, southwest winds should persist over Palau as the western Pacific monsoon becomes well-established in that area. Abundant rainfall is expected through August, before a small respite in September when the monsoon trough moves to its most northern position and typhoons pass well to the north of Palau. From October through the end of the calendar year, as the monsoon trough sinks slowly southward, active disturbances and developing tropical cyclones along the trough should keep Palau wet. Palau is far enough south, however, to avoid substantial risk of a direct hit by a tropical cyclone. In addition to the spring risk, one or two additional episodes of westerly gales and rough seas from a tropical storm or typhoon passing to the north of Palau are likely from October to December.

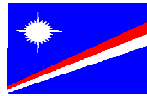
Predicted rainfall for Palau from April 2009 through March 2010 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²
April – June 2009	110% (42.09 inches)
July – September 2009	100%
October – December 2009	120%
January – March 2010	100%

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

2nd Quarter, 2009

LOCAL SUMMARY AND FORECAST



Republic of the Marshall Islands (RMI): The rainfall throughout most of the atolls of the RMI was below normal during the 1st Quarter of 2009, with the northern atolls especially dry. The 3-month total of 17.31 inches at Majuro WSO was 76% of its normal. In the northern RMI, Kwajalein, Utirik, and Wotje were very dry with 50%, 21%, and 37% of their normal 3-month totals, respectively. In late April, water was delivered by ship to the island of Utirik. The municipal water supply on Majuro has been at low reserve levels for the past few months. For several weeks during March and April, the WSO Guam issued a special weather statement to urge water conservation in the RMI. Recent rains on Majuro have helped to alleviate dry conditions in the south.

RMI Rainfall Summary 1st Qtr 2009						
Station		Jan.	Feb.	Mar.	1st Qtr	Predicted ¹
RMI Central Atolls (6° N - 8° N)						
Majuro WSO	Inches	6.26	6.96	4.09	17.31	19.87
	% Norm	74%	113%	49%	76%	85%
Laura*	Inches	6.36	4.62	5.32	16.30	19.87
	% Norm	79%	67%	63%	71%	85%
Aling-laplap*	Inches	9.46	4.15	4.81	18.42	19.87
	% Norm	117%	60%	57%	79%	85%
RMI Southern Atolls (South of 6° N)						
Jaluit*	Inches	6.76	6.57	4.80	18.13	22.21
	% Norm	84%	96%	57%	79%	95%
RMI Northern Atolls (North of 8° N)						
Kwajalein	Inches	1.84	2.37	1.78	5.99	10.14
	% Norm	40%	73%	43%	50%	80%
Wotje*	Inches	0.79	1.61	1.70	4.10	10.14
	% Norm	16%	55%	41%	37%	80%
Utirik*	Inches	0.78	0.82	0.56	2.16	10.14
	% Norm	20%	30%	16%	21%	80%

¹ Predictions made in 4th Quarter 2008 newsletter.

* Normal values are estimated based on WSO Majuro, Kwajalein and satellite-derived precipitation distribution.

Climate Outlook: Normally, La Niña is considered to be beneficial (or at least not harmful) to the RMI as it nearly eliminates the threat of a damaging tropical cyclone, and normal rainfall is typically experienced throughout the region. The persistent La Niña conditions over the past two years have altered that perception somewhat, as rainfall has been substantially deficient on some of the northern atolls to the point of requiring conservation and delivery of water. Also, elevated sea level related to La Niña, in combination with episodes of high surf, has resulted in several instances of destructive inundation and severe coastal erosion.

The dry season in the RMI is typically centered on the months of January, February and March, and amounts of rainfall become progressively lower the further north one travels. The normal

LOCAL SUMMARY AND FORECAST

monthly rainfall on Majuro is less than 10 inches for the three months of January, February and March. During April the monthly average increases to over 10 inches, and remains over 10 inches for all subsequent months of the year. Further north at Kwajalein, all months between December and June feature a monthly average of less than 10 inches, with a minimum of 3.23 inches in February. **There are already signs that the rains are increasing in the RMI, and rainfall amounts from May onward should be adequate for fresh water supplies. A normal rainy season is anticipated.**

Predicted rainfall for the RMI from April 2009 through March 2010 is as follows:

Inclusive Period	% of long-term average / Forecast rainfall (inches) ²		
	South of 6°N	6°N to 8°N	North of 8°N
April – June 2009 (End of Dry Season)	95% (32.22 inches)	90% (30.53 in)	75% (18.83 in)
July – Sept 2009 (Onset of Rains)	100%	100%	95%
Oct – Dec 2009 (Rainy Season)	100%	100%	100%
Jan – Mar 2010 (Dry Season)	100%	100%	90%

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



Hawaii: The first week of 2009 began with a very wet weather pattern, bringing heavy rainfall to portions of Kauai, Niihau, Oahu, and the Big Island. During the second week of January, north

Pacific weather transitioned to a more progressive pattern, with a series of quick cold front passages producing brief periods of heavy rains and cool temperatures across the island chain. The cold front on January 16 was the most active, featuring a single 24-hour total of 9.74 inches at Kaupo Gap on the southeast slope of Haleakala, Maui. Minor flooding problems accompanied these fronts but no significant damages occurred. While the passage of the cold fronts helped eliminate drought areas on Kauai and Oahu, significant areas of drought continued to persist over the leeward sections of the Big Island and Maui County.

February started with a weak shear line pushing across the island chain on February 1 and 2 before stalling just east of the Big Island. This shear line produced the most significant rainfall of the month including 4 to 7 inch totals over the windward slopes of Maui and the Big Island. On February 7, a brief break in the trades allowed local land and sea breezes to occur with deep convection forming over west Oahu and the Big Island interior. Short-lived heavy showers produced minor flooding and even quarter-inch hail. Moderate trades returned on February 8 and 9 only to weaken once again as a strong upper level trough affected island weather from February 10 to 12. Heavy afternoon showers and thunderstorms occurred on all 3 days with the Kapolei area of Oahu and the South Kohala District of the Big Island seeing the strongest activity. The Kapolei thunderstorm produced brief but intense rainfall that prompted a flash flood warning but did not produce significant damage. However, this thunderstorm did produce a tornado which caused

LOCAL SUMMARY AND FORECAST

property damage and some injuries. From February 13 through the end of the month, a rather strong and persistent blocking high pressure pattern became established over the north central Pacific, resulting in uninterrupted trade winds and limiting daily rainfall totals to less than 1 inch along windward slopes.

Through most of March, the weather pattern over the Hawaiian Islands involved trade winds. Two notable breaks in the trades occurred from March 7 through 9 and from March 12 through 19, both of which produced the month’s most significant rain events. On March 7, a strong upper level trough helped trigger heavy rainfall across windward areas of the state. At Hilo Airport, over 18 inches of rain in 2-days broke daily rainfall records for March 7 and 8. Flooding resulted in the closure of some secondary roads in the Hilo area but otherwise did not produce significant damages or injuries. Hanalei River on the island of Kauai briefly overflowed during the night of March 8 and into the early morning hours of March 9. Over windward Oahu, 5 to 8 inches of rain on the night of March 9 prompted the issuance of a flash flood warning and forced the closure of the Kamehameha Highway off-ramp on the H-3 Freeway. A weak cold front swept across the state on the 12th and cool air surged over the island chain from the northwest. Heavy showers and thunderstorms over Oahu and Maui County during the morning hours of March 14 prompted the issuance of a flash flood warning due to heavy rainfall in the Ewa and Kapolei areas of Oahu, but there were no reports of significant damage. Trades returned at moderate to fresh levels on March 20 and persisted through the remainder of the month. While no flooding problems occurred during this time frame, windward areas, especially on the Big Island, saw frequent shower activity during the last 2 weeks of the month.

For up-to-date information about hydrology in Hawaii, please visit: www.prh.noaa.gov/hnl/pages/hydrology.php.

State of Hawaii Rainfall Summary 1st Qtr 2009					
Station		Jan.	Feb.	Mar.	1st Qtr
Lihue Airport	Inches	2.24	1.23	2.08	5.55
	% Norm	49%	38%	58%	49%
Honolulu Airport	Inches	3.69	0.25	2.25	6.19
	% Norm	135%	11%	119%	89%
Kahului Airport	Inches	4.43	0.38	2.22	7.03
	% Norm	118%	16%	94%	83%
Hilo Airport	Inches	8.72	10.36	29.28	48.36
	% Norm	90%	117%	204%	147%

Climate Outlook: The following comments are from the US Climate Prediction Center’s Seasonal Outlook Discussion: **“NCEP models predict a tendency for below normal temperature for Hawaii from May-June-July to June-July-August 2009. NCEP tools give no indication of either above or below median precipitation for Hawaii for May 2009. However, above median precipitation for Hilo is expected from August-September-October to October-November-December 2009.”**

Seasonal Sea Level Outlook for the US-Affiliated Pacific Islands

The following sections describe: (i) the *Canonical Correlation Analysis (CCA)*-based forecasts of sea level deviations for forthcoming seasons AMJ, MJJ and JJA 2009; (ii) the observed monthly mean and maximum sea-level deviations for the season JFM 2009, and (iii) forecast verifications (observed/forecast values) for the previous season JFM 2009. All units are in inches. *Note that 'deviation' is defined here as 'the observed or forecast difference between the monthly mean [or maximum] and the climatological monthly mean values (from the period 1975- 1995) 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 2009 (Table 1). See Figure 2 for locations of tide stations.

Table 1: Forecasts of sea level deviation (in inches) for April-May-June, May-June-July, and June-July-August 2009.

Tide Gauge Station	Seasonal Mean Deviations ¹				Seasonal Max Deviations ²					
	AMJ	MJJ	JJA	Forecast Quality ³	AMJ	MJJ	JJA	Forecast Quality ³	Return Period ⁴ for AMJ Season	
Lead Time ⁵	0	1M	2M		0	1M	2M		20 Year	100 Year
Marianas, Guam	+7	+7	+7	Good	+22	+23	+24	Good	5.6	6.7
Malakal, Palau	+2	+3	+4	Good	+37	+37	+39	Good	9.6	14.3
Yap, FSM	+4	+5	+5	Good	+32	+32	+33	Good	16.8	33.1
Chuuk, FSM**	+4	+3	+3	N/A	+32	+32	+33	N/A	N/A	N/A
Pohnpei, FSM	+4	+3	+2	V. Good	+34	+33	+36	V. Good	5.8	7.1
Kapingamarangi, FSM	+2	+2	+2	V. Good	+29	+29	+30	V. Good	7.4	9.4
Majuro, RMI	+2	+1	0	Good	+41	+39	+47	Good	4.1	5.1
Kwajalein, RMI	+4	+4	+3	Good	+42	+41	+36	Good	4.5	5.9
Pago Pago, AS	+4	+4	+3	V. Good	+28	+28	+31	V. Good	3.9	5.4
Honolulu, Hawaii ⁶	0	0	+1	Fair	+22	+21	+22	Fair	4.1	5.9
Hilo, Hawaii ⁶	0	0	+1	Fair	+22	+24	+25	Fair	7.9	11.4

Remarks: The positive sea-level deviations forecast for the AMJ, MJJ, and JJA 2009 seasons (Table 1, above) indicate that sea levels will remain elevated 2 to 7 inches at all USAPI stations for the next several months, while the Hawaiian stations are expected to remain near normal. **Consistent with the transition to ENSO-neutral conditions, mean sea levels are not expected to record any further rise; however, maximum sea levels may continue to rise 1 to 4 inches at all locations in the next 3-6 months, except at Majuro, where maximum sea level could increase up to 6 inches.**

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.

Seasonal Mean Deviations (1) is defined as the difference between the mean sea level for the given month and the 1975-1995 mean sea level value at each station. Likewise, **Seasonal Maximum Deviations (2)** is defined as the difference between the maximum sea level (calculated from hourly data) for the given month and the 1975-1995 mean sea level value at each station.

Forecast Quality (3) is a measure of the expected CCA cross-validation correlation skill. Higher skills correspond to greater expected accuracy of the forecasts. In general terms, these kinds of forecasts are thought to be of useful (but poor) skill if the CCA cross-validation value lies between 0.3~0.4. Skill levels greater than 0.4 and 0.6 are thought to be fair and good skills. Skill level greater than 0.7 is thought to be very good. Refer to www.soest.hawaii.edu/MET/Enso/peu/2009_2nd/Sea_Level.htm for cross-validation skills.

Return period (RP) (4) of extreme values are calculated from hourly sea-level data. For example, the predicted rise of 5.6 inches at 20-year RP at Marianas, Guam indicates that this station may experience an extreme tide event once every 20 years that could result in sea level rise of up to 5.6 inches **above the median of seasonal maxima** during the AMJ season. Likewise, about once every 100 years we can expect the highest AMJ tide at Marianas, Guam to be as high as 6.7 inches above the median of seasonal maxima. During some seasons some stations display alarmingly high values at the 20 and 100 year RP. *These high values are due to large and significant increases in the tidal range caused by the passage of past storm events during that season.*

Lead time (5) 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 2009.

Hawaii stations (6) should be considered experimental. Any feedback regarding the usefulness of these forecasts will be appreciated.

Seasonal Sea Level Outlook for the US-Affiliated Pacific Islands

(ii) Observed Monthly Sea Level Deviation in January-February-March (JFM) 2009 Season

The monthly time series (January - March 2009) 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 2 (below) for location of these stations.

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			
	Jan.	Feb.	Mar.	Standard Deviations	Jan.	Feb.	Mar.	Standard Deviations
Marianas, Guam	+7.6	8.8	8.3	(+3.8)	+22.8	+23.4	+24.2	(+3.8)
Malakal, Palau	+4.8	+3.9	+2.9	(+4.5)	+43.2	+40.7	+38.6	(+4.9)
Yap, FSM	+4.1	+6.2	+6.7	(+3.8)	+31.5	+34.2	+32.8	(+4.4)
Chuuk, FSM**	*	*	*	(*)	*	*	*	(*)
Pohnpei, FSM	+6.2	+6.4	*	(+3.1)	+38.2	+36.4	*	(+3.2)
Kapingamarangi, FSM	+5.9	+6.9	+5.4	(+3.5)	+35.8	+34.5	+29.8	(+4.1)
Majuro, RMI	+4.2	+4.4	*	(+2.2)	+46.3	+47.5	*	(+2.5)
Kwajalein, RMI	+1.4	+2.9	*	(+2.4)	+41.9	+42.3	+36.2	(+2.8)
Pago Pago, American Samoa	+4.1	*	*	(+2.6)	+30.8	*	*	(+3.0)
Honolulu, Hawaii	-0.7	-2.0	-1.9	(+1.7)	+21.8	+19.4	+14.9	(+2.0)
Hilo, Hawaii	+1.0	-1.0	-2.0	(+2.1)	+28.3	+23.4	+18.9	(+3.0)

Note: - indicate negative deviations (fall from the mean), and + indicate positive deviations (rise from the mean); *: data not available; Data for Chuuk (***) is estimated subjectively based on information from WSO Chuuk and observations from neighboring stations. Standard deviations describe how widely spread the values are in the dataset. See Table 1 for other notes.

Remarks: As compared to February 2009, the mean/maxima of sea level in March 2009 was slightly lower at most stations. However, the observed values for seasonal mean/maxima are still elevated at all the USAPI stations. The Hawaiian stations, on the other hand, recorded further fall and are now slightly below normal. These trends (falling sea levels) are consistent with the weakening of La Niña and transition to ENSO-neutral conditions.

(iii) Forecast Verification (Seasonal Mean) for JFM 2009

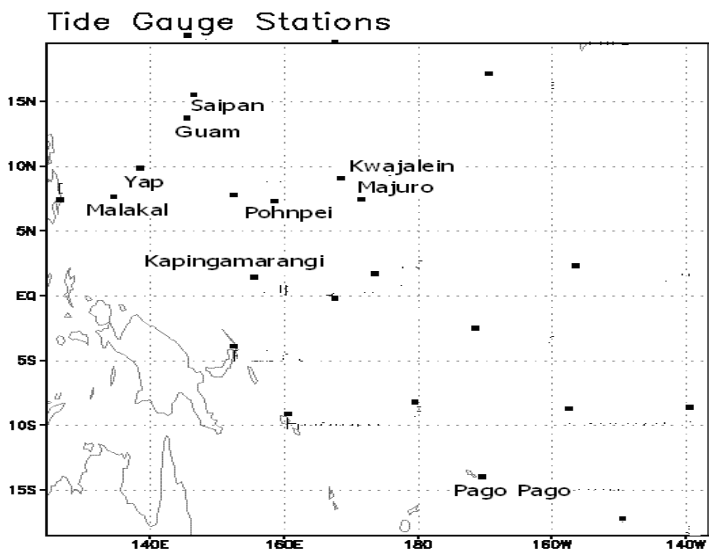


Figure 2, above: Locations of USAPI tide gauge stations.

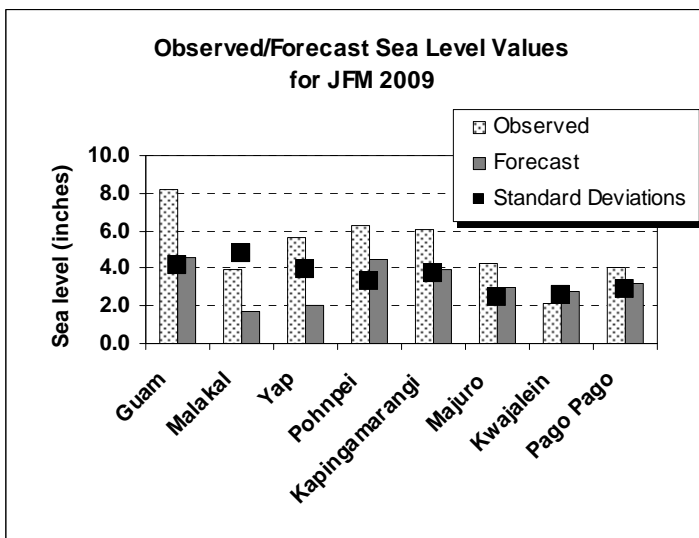


Figure 3: The observed and forecast values for the previous season JFM is presented above. Forecasts were generally skillful; however, most locations were under-forecast by one to four inches.

Pacific ENSO Update

Excerpts from EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

Issued by the U.S. Climate Prediction Center (CPC)

9 April 2009

Synopsis: A transition to ENSO-neutral conditions is expected during April 2009.

Atmospheric and oceanic conditions during March 2009 continued to reflect weak La Niña conditions. The monthly sea surface temperatures (SST) remain below-average across parts of the east-central and eastern Pacific Ocean. The Niño-3.4 SST index value persisted near -0.5°C during the month. Negative subsurface oceanic heat content anomalies (average temperatures in the upper 300m of the ocean) weakened further across the eastern half of the equatorial Pacific Ocean. At thermocline depth, positive temperature anomalies in the western and central Pacific expanded eastward, while negative temperature anomalies became confined to the far eastern Pacific. Convection remained suppressed near the Date Line, and enhanced across Indonesia, but weakened during the later part of the month due to Madden-Julian Oscillation (MJO) activity. Enhanced low-level easterly winds and upper-level westerly winds also decreased across the equatorial Pacific Ocean. Collectively, these oceanic and atmospheric anomalies are consistent with a weakening La Niña.

A majority of model forecasts for the Niño-3.4 region show that once ENSO-neutral conditions are reached, it will continue through the remainder of 2009. Several models indicate La Niña will continue through March-May 2009. Based on current observations, recent trends, and model forecasts, a transition to ENSO-neutral conditions is expected during April 2009.

Over the equatorial Pacific Ocean, La Niña-like impacts are expected to linger during April-June 2009, including above-average precipitation over Indonesia, and below-average precipitation over the central Pacific. Over the United States, La Niña impacts are strongest during the Northern Hemisphere winter and typically weaken during the spring. During December 2008-February 2009, tropical precipitation anomalies reflected La Niña, characterized by a westward retraction of deep tropical convection towards Indonesia, suppressed precipitation centered on the Date Line, and enhanced rainfall over northeastern South America.

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 Sarah Duncan, 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.

ACKNOWLEDGEMENTS AND FURTHER INFORMATION

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