Pacific ENSO Update –
Special Bulletin March 1, 2005
(update to Newsletter issued 1st Quarter 2005, Vol.11, No.1)

SPECIAL ISSUE BULLETIN

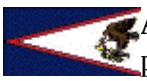
Due to the abrupt onset of very dry conditions throughout much of Micronesia during February 2005, and other unusual weather conditions in other areas of the tropical Pacific (such as the occurrence of three hurricanes near Samoa), this special bulletin is being issued with updated information to the last full issue of Pacific ENSO Update (1st Quarter, 2005). This bulletin will be followed by the next full issue of Pacific ENSO Update for the 2nd Quarter, 2005, to be issued in May.

CURRENT CONDITIONS

While there has been a slight cooling of sea surface temperatures (SST) in the eastern and central Pacific since the last issue of Pacific ENSO Update, the weather patterns throughout Micronesia and the South Pacific shifted dramatically during February. Whereas rainfall was abundant throughout the region during January 2005, widespread dry conditions became established across much of Micronesia during February 2005. The abrupt onset of dry weather during February 2005 was associated with a major eastward shift of the South Pacific portion of the Southern Hemisphere summer monsoon system along with its accompanying tropical cyclones. Three major hurricanes formed east of the International Date Line in the South Pacific: Nancy, Olaf, and Percy. These hurricanes affected American Samoa, several islands of the Cook Islands and French Polynesia. The official monthly Southern Oscillation Index (SOI) for January was +0.3 (the first time the monthly value has been positive since July 2004). However, the SOI fell substantially during February. On the 26th of February the 30-day SOI was sharply negative (near -2.5). The very low SOI reflected higher than normal pressure in northern Australia (+1.8 hPa at Darwin), and lower than normal pressure in portions of French Polynesia (-3.5 hPa at Tahiti).

According to the U.S. Climate Prediction Center (CPC), the climate of the tropical Pacific entered El Niño in the second half of 2004. Until now, the atmospheric response to El Niño has been weak. Although the climate anomalies of February 2005 (e.g., extreme dryness in much of Micronesia and intense hurricanes east of the International Date Line) are typically associated with El Niño, it is not yet clear whether these very unusual weather patterns are being caused by El Niño, or by some other short-term forcing of the climate system, perhaps in response to warmer than normal SSTs in the Southern Hemisphere. In any case, **the outlook from the CPC is still for the weak El Niño conditions to gradually subside back toward El Niño neutral conditions during mid-2005.** In this scenario, one would **expect drier than normal weather throughout much of Micronesia for the next 2 to 3 months; however, the widespread extreme dryness of February 2005 is unlikely to be repeated**, and many islands in the eastern parts of Micronesia such as Kosrae and Pohnpei should see a return to near normal rainfall by April. At other islands such as Kwajalein, Yap, Chuuk and Palau, the return of near normal rainfall may be delayed until May. For the CNMI, normal rainfall may be delayed until June.

LOCAL VARIABILITY SUMMARIES



AMERICAN SAMOA: During the first two months of 2005, a highly unusual number of tropical cyclones passed through the Samoa region with some of the islands greatly affected. Hurricane Olaf passed near Manu'a with serious effects there. January rainfall for Pago Pago was 13.25 inches or 95% of that normally expected, and February rainfall was 10.55 inches (83%). **Rainfall and cyclone activity predictions in the 1st Quarter 2005 Pacific ENSO Update are still valid.**

GUAM/CNMI: Thanks to some substantial daily rainfall totals near one inch during shearline passages and some trade-wind cloud clusters, the rainfall on Guam was near normal at some locations in January and at most locations in February. At the WSO Tiyan, January rainfall was 1.55 inches (35%) and February was 5.17 inches (138%) for a 2-month total of 6.72 inches (82%). At Andersen Air Force Base, 2-month rainfall was higher at 9.60 inches (88%). Typhoon Kulap passed to the east of Guam and Saipan in mid-January, but was far enough offshore so that very little rain occurred. Northerly winds after the typhoon passage brought emissions from the Anatahan

volcano southward to Guam, Saipan, Rota, and Tinian in the form of a thick volcanic smog that had a notable smell and caused some residents to have itchy eyes with others reporting respiratory and gastrointestinal symptoms. Rainfall in the CNMI was about half of normal for January and February 2005. The two-month total at the Saipan International Airport was 4.86 inches (87%), and at Capitol Hill it was only 3.27 inches (47%). On Tinian and Rota, the two month totals of 3.64 inches and 5.58 inches were 52% and 56% of normal respectively. **Rainfall and cyclone activity predictions through January 2006 appearing in the 1st Quarter 2005 Pacific ENSO Update are still valid.**

MICRONESIA (FSM): Nearly all islands of the FSM had abundant rains during January. Many islands from Chuuk State eastward had very heavy rainfall due in part to the development of Tropical Storm Kulap in the region. Deep convection along shear lines and during other tropical disturbances kept islands of Yap State and the Republic of Palau wet during January. Widespread dry conditions became established in most of the FSM during February. Monthly rainfall totals of 30% of normal or less occurred in the Republic of Palau, Yap State, Chuuk, State, and Pohnpei State. Surface water resources such as streams declined rapidly, and preferred crops began to be stressed.. **Rainfall predictions in the 1st Quarter 2005 Pacific ENSO Update are still valid beyond May 2005 for all of the FSM, but are being revised downward in some cases for March through May 2005.** Near normal rains should return first to Kosrae and Pohnpei by April 2005 and then westward and northward to Chuuk, Yap and Palau in May.

Chuuk: January rainfall for Weno Island was 20.93 inches or 196% of normal. The rainfall total fell to only 1.91 inches (31%) during February. At Lukunoch the rainfall total for January and February was 16.86 inches (158%) and 0.42 inches (7%) respectively. To the west at Polowat, January was very wet with a total of 23.92 inches (299%), while February was dry with 4.24 inches (68%). The **March through May** rainfall prediction is reduced from 80% of normal in the 1st Quarter Newsletter to **70% of normal**.

Pohnpei: At Kolonia, the January rainfall was 14.33 inches (110%). During February, the rainfall total fell to only 3.16 inches (29%). As a result of the low rainfall in Pohnpei, stream flow decreased markedly, and popular crops such as Yams and Sakau were stressed. Burning of the roadside vegetation was common. **March through May** rainfall prediction is reduced from 85% of normal in the 1st Quarter Newsletter to **70% of normal**, and recovering as indicated in the Newsletter thereafter. **Rainfall predictions for Kapingamarangi remain unchanged.**

Kosrae: Rainfall at the Kosrae Airport during January was 26.91 inches (187%), and during February it was 8.47 inches (52%). Rainfall at Kosrae was not interrupted as much during February as at other islands. **Rainfall predictions for Kosrae that appear in the 1st Quarter Newsletter are still valid.**

Yap: Rainfall was abundant throughout Yap State during January, especially at the atolls. The total was 6.94 inches (95%) near the Yap airport, 12.68 inches (204%) at Ulithi, and 17.75 inches at Woleai (166%). During February it became very dry throughout Yap State. The total rainfall was 2.04 inches (34%) near the Yap airport, 1.92 inches (38%) at Ulithi, and 2.16 inches (29%) at Woleai. **March through May** rainfall prediction is reduced from 70% of normal in the 1st Quarter Newsletter to **60% of normal**, and recovering thereafter as indicated in the Newsletter.

MARSHALL ISLANDS (RMI) : Rainfall in the RMI during January and February 2005 was near normal in the central and southern atolls and dry in the north. At Majuro (representative of the southern atolls), rainfall for January and February was 5.59 inches (66%) and 9.92 inches (161%) respectively. At Kwajalein (representative of northern atolls), January rainfall was 3.42 inches or 75% of normal and rainfall in February was 1.41 inches or 44% of normal. **Rainfall and cyclone activity predictions in the 1st Quarter 2005 Pacific ENSO Update are still valid** through January 2006 for all of the Marshall Islands, with the following corrections for **March through May**: **for the islands south of 6ºN** reduce predicted rainfall from 110% to **100%,** and for the **northern atolls** reduce the predicted rainfall from 70% to **60%**.

PALAU: At Koror, rainfall totals were above normal during January and well below normal during February. At the Koror weather station, January rainfall was 11.39 inches or 106% of normal. During February, the rainfall total was well below normal at 1.03 inches (11%). **March through May** rainfall prediction is reduced from 70% of normal in the 1st Quarter Newsletter to **60% of normal**, and recovering thereafter as indicated in the Newsletter.