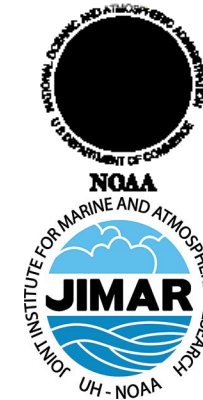




# NWS Climate Services

## July PEAC Audio Conference Call Summary

### 20 July, 1430 HST (21 June 2023, 0030 GMT)

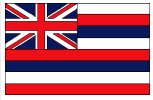


### June rainfall totals reported

% Normal: **blue** above normal & **red** below normal. Departure from normal: **blue**-above & **red**-below (same for 3 mon %)

	Rainfall	% Norm	Normal	Departure	3 mon %
	Inches	June	Inches	inches	AMJ
Airai	13.44	79	17.01	-3.57	91
Yap	14.59	121	12.04	2.55	120
Chuuk	13.73	118	11.66	2.07	148
Pohnpei	17.94	121	14.81	3.13	137
Kosrae	24.30	166	14.64	9.66	122
Kwajalein	9.93	143	6.93	3.00	227
Majuro	11.56	105	11.01	0.55	118
Guam NAS	9.00	146	6.18	2.82	204
Saipan	3.34	92	3.62	-0.28	58
Pago Pago	5.81	109	5.33	0.48	149
Lihue	1.02	80	1.28	-0.26	206
Honolulu	0.39	217	0.18	0.21	294
Kahului	0.12	133	0.09	0.03	117
Hilo	4.38	69	6.33	-1.95	84

## Reports from around the Region



**Hawaii** (Kevin Kodama)

Precipitation Summaries for HI can also be found:

[https://www.weather.gov/hfo/hydro\\_summary](https://www.weather.gov/hfo/hydro_summary)

### Kauai

Most of the June rainfall totals on Kaua'i were near to above average. Along the lower leeward slopes of the island to the west of Hanapēpē, monthly totals were around half an inch or less, but these small amounts were still well above the June average. The U.S. Geological Survey's (USGS) gage on Mount Wai'ale'ale had the highest monthly total of 36.33 inches (110 percent of average), and the highest daily total of 8.92 inches on June 1.

Nearly all of the gages on Kaua'i had above average rainfall totals for 2023 through the end of June. The Mount Wai'ale'ale gage had the highest year-to-date total of 215.69 inches (114 percent of average).

### Oahu

Most of the June rainfall totals on Kaua'i were near to above average. Along the lower leeward slopes of the island to the west of Hanapēpē, monthly totals were around half an inch or less, but these small amounts were still well above the June average. The U.S. Geological Survey's (USGS) gage on Mount Wai'ale'ale had the highest monthly total of 36.33 inches (110 percent of average), and the highest daily total of 8.92 inches on June 1.

Nearly all of the gages on Kaua'i had above average rainfall totals for 2023 through the end of June. The Mount Wai'ale'ale gage had the highest year-to-date total of 215.69 inches (114 percent of average).

### Maui

The driest overall conditions in the state for the month of June were in Maui County. Most of the gages had below average monthly totals, with several sites at less than 50 percent of average. The USGS' gage on Pu'u Kukui had the highest monthly total of 10.39 inches (35 percent of average), and the highest daily total of 1.55 inches on June 13.

Most of the gages in Maui County had near to above average rainfall totals for 2023 through the end of June. The USGS' rain gage at West Wailuaiki Stream had the highest year-to-date total of 115.49 inches (96 percent of average).

### Big Island

June rainfall totals were near to above average at most of the gages in the North Kona, South Kona, and Ka'u Districts. The rain gages over the rest of the Big Island had mostly below average monthly totals. Among the automated sites, the USGS' rain gage at Honoli'i Stream had the highest monthly total of 9.31 inches (61 percent of average). The USGS' rain gage at Kawainui Stream had the highest daily total among the automated sites with 1.65 inches recorded on June 27. However, the highest overall monthly total of 10.63 inches came from the manually read CoCoRaHS gage near Hōlualoa. This site also had the highest daily total of 2.85 inches on June 21. Records for the lowest June rainfall were broken at the Honoka'a and Kamuela Upper sites. Waikoloa Village had its lowest June total since 2013.

Rainfall totals for 2023 through the end of June were near to above average at most of the gages across the Big Island. The Honoli'i Stream rain gage had the highest year-to-date total of 114.32 inches (103 percent of average).

## Current State of ENSO and predictions

Issued 13 July 2023

ENSO Alert System Status: **El Niño Advisory**

**Synopsis:** **There is a greater than 90% chance that El Niño will continue through the Northern Hemisphere winter.**

In June, a weak El Niño was associated with above-average sea surface temperatures (SSTs) across the equatorial Pacific Ocean. Nearly all of the weekly Niño indices were at or in excess of +1.0°C: Niño-3.4 was +1.0°C, Niño-3 was +1.5°C, and Niño1+2 was +3.3°C. Area-averaged subsurface temperatures anomalies increased compared to May, with positive anomalies below the surface of the equatorial Pacific Ocean. In contrast, the tropical atmospheric anomalies were weaker compared to the oceanic anomalies. For the June monthly average, low-level winds were near average over most of the equatorial Pacific. Upper-level wind anomalies were easterly over the western Pacific and westerly over the eastern Pacific. Convection and rainfall were enhanced around the International Date Line and were weakly suppressed in the vicinity of Indonesia. The equatorial Southern Oscillation Index (SOI) remained negative (0.5 standard deviations below average), while the traditional, station-based SOI was near zero. Collectively, the coupled ocean-atmosphere system reflected a weak El Niño.

The most recent IRI plume indicates El Niño will persist through the Northern Hemisphere winter 2023-24. Forecasters favor continued growth of El Niño through the fall, peaking this winter with moderate-to-strong intensity (81% chance of November-January Niño-3.4  $\geq$  1.0°C). An event that becomes "historically strong" (seasonally averaged Niño-3.4  $\geq$  2.0°C), rivaling the winters of 1997-98 or 2015-16, has an approximately 1 in 5 chance. In summary, there is a greater than 90% chance that El Niño will continue through the Northern Hemisphere winter.

## 6. Rainfall Verification (AMJ)- April, May, June

The verification result of AMJ rainfall forecasts was 11 hits and 3 misses (Heidke score: 0.4794

April, May, June (AMJ) 2023 Verification													
Updated 7/26/2023		AMJ											
Location	UKMO	ECMWF	CA	NASA	NCEP	IRI	APCC	Initial:	Initial:	3 mo Verification			
								Rainfall Outlook	Final Probs	% norm	Total (in)	Tercile	
<b>Palau</b>													
Airai 7° 22' N, 134° 32' E	Avg-above	Above	Avg-above	Avg.	Avg.	Avg-above	Above	Above	Above	25:35:40	91	38.57	Avg.
<b>FSM</b>													
Yap 9° 29' N, 138° 05' E	Avg-above	Above	Above	Avg.	Avg.	Above	Above	Above	Above	25:35:40	120	30.73	Avg.
Chuuk 7° 28' N, 151° 51' E	Avg-above	Avg.	Avg-above	Avg-below	Avg.	Above	Above	Avg-above	Avg-above	30:35:35	148	52.44	Above
Pohnpei 6° 59' N, 158° 12' E	Above	Avg-above	Avg-above	Avg-below	Avg.	Avg-above	Above	Above	Above	30:30:40	137	72.86	Above
Kosrae 5° 21' N, 162° 57' E	Above	Avg-above	Avg-above	Avg.	Avg.	Above	Above	Above	Above	25:30:45	122	60.79	Above
<b>RMI</b>													
Kwajalein 8° 43' N, 167° 44' E	Avg-above	Avg.	Avg.	Avg-below	Avg.	Avg.	Avg.	Avg-above	Avg-above	30:35:35	227	42.98	Above
Majuro 7° 04' N, 171° 17' E	Above	Avg-above	Avg-above	Avg-below	Avg.	Avg.	Avg.	Avg-above	Avg-above	30:35:35	118	36.14	Above
<b>Guam and CNMI</b>													
Guam 13° 29' N, 144° 48' E	Above	Avg-above	Avg-above	Avg-above	Avg.	Above	Above	Avg-above	Avg-above	30:35:35	204	45.16	Above
Saipan 15° 06' N, 145° 48' E	Avg-above	Avg-above	Avg-above	Avg-above	Avg.	Above	Above	Avg-above	Avg-above	30:35:35	58	13.74	Above
<b>American Samoa</b>													
Pago Pago 14° 20' S, 170° 43' W	Avg-below	Below	Below	Avg-below	Avg.	Clim.	Below	Above	Above	30:30:40	149	36.25	Above
<b>State of Hawaii</b>													
19.7° - 21.0° N, 155.0° - 159.5° W													
Lihue	Above	Above	Avg-above	Avg-above	Avg-above	Avg-above	Above	Avg-above	Avg-above	30:35:35	206	9.72	Above
Honolulu	Above	Above	Avg-above	Avg-above	Avg-above	Avg-above	Above	Avg-above	Avg-above	30:35:35	294	3.23	Above
Kahului	Above	Above	Avg-above	Avg-above	Avg-above	Avg-above	Above	Avg-above	Avg-above	30:35:35	117	1.72	Avg.
Hilo	Above	Above	Avg-above	Avg-above	Avg-above	Avg-above	Above	Avg-above	Avg-above	30:35:35	84	18.94	Below

11	Hit
3	Miss
Heidke:	0.4794
RPSS:	0.0859

### Tercile Cut-offs for Season based on 1981-2010 Pacific Rainfall Climatologies (Luke He)

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwaj
below (<)								
33.33%	34.28	21	32.97	49.71	13.05	8.14	25.63	15.41
near								
66.66%	42.1	32.89	39.15	56.96	15.95	11.06	34.51	26.35
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	4.74	1.23	1.25	21.42	22.42	47.62
near						
66.66%	5.97	1.77	2.17	29.01	33.53	51.87
above (>)						

## 6. Rainfall Outlook JAS– July, August, September

JAS Forecast	Rainfall	Probability	Final	Final
Location	Outlook	Pre-Conference	Outlook	Probability
<b>Palau</b>				
Airai 7° 22' N, 134° 32' E	Above	30:30:40	-	-
<b>FSM</b>				
Yap 9° 29' N, 138° 05' E	Above	25:35:40	-	-
Chuuk 7° 28' N, 151° 51' E	Above	20:30:50	-	-
Pohnpei 6° 59' N, 158° 12' E	Avg-Above	30:30:40	-	-
Kosrae 5° 21' N, 162° 57' E	Avg-Above	30:30:40	-	-
<b>RMI</b>				
Kwajalein 8° 43' N, 167° 44' E	Above	30:40:30	-	-
Majuro 7° 04' N, 171° 17' E	Avg-Above	20:30:40	-	-
<b>Guam and CNMI</b>				
Guam 13° 29' N, 144° 48' E	Avg-Above	30:35:35	-	-
Saipan 15° 06' N, 145° 48' E	Avg-Below	35:35:30	-	-
<b>American Samoa</b>				
Pago Pago 14° 20' S, 170° 43' W	Below	40:35:25	-	-
<b>State of Hawaii</b>				
19.7° - 21.0° N, 155.0° - 159.5° W				
Lihue	Below	45:30:25	-	-
Honolulu	Below	45:30:25	-	-
Kahului	Below	45:30:25	-	-
Hilo	Below	45:30:25	-	-

### Tercile Cut-offs for FMA Season based on 1981-2010 Pacific Rainfall Climatologies (Luke He)

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwaj
below (<)								
33.33%	39.25	41.9	34.86	40.06	37.2	29.48	31.17	28.97
near								
66.66%	50.04	46.11	44.29	50.76	44.54	35.85	38.16	33.09
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	5.27	1.02	0.84	25.17	15.04	41.49
near						
66.66%	7.79	1.67	1.64	33.44	23.4	47.32
above (>)						

### 3. Drought monitoring updates.

#### End-of-June Monthly Drought Assessment:

With WxCoder III data, we have 23 stations in the monthly analysis.

June was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) at Fananu (FSM), Wotje (RMI), Rota & Saipan (Marianas); it was wet everywhere else. June was drier than normal at Airai & Saipan, and near or wetter than normal elsewhere.

The end-of-June monthly analysis (June 30) is consistent with the weekly analyses for June 27 and July 4, and is the same as the analyses for June 27 and July 4.

a. End-of-June drought conditions:

D-Nothing at all locations.

Utirik was plotted as missing due to missing data for the month.

b. Compared to the end-of-May monthly analysis:

No change, since there was no drought or abnormal dryness everywhere at the end of May.

Some June 2023 precipitation ranks:

a. **Lukunor:** 11th wettest June (in a 39-year record), but driest July-June and second driest August-June.

b. **Jaluit:** 14th driest June (39 years) and seventh driest August-June and eighth driest July-June.

c. **Kapingamarangi:** 5th wettest June (33 years), but seventh driest rank for July-June.

d. At the wet end of the scale:

Guam had the eighth wettest June (67 years) but wettest May-June through October-June.

Mili had the wettest rank for June (39 years) and January-June through July-June.

Saipan had the wettest January-June (42 years) through October-June.

Current (Weekly) Drought Conditions: The discussion above is the monthly (end of June) analysis. The latest weekly USAPI USDM assessment may show different USDM classifications. The latest weekly USAPI USDM assessment is for July 18 ([https://droughtmonitor.unl.edu/data/png/20230718/20230718\\_usdm\\_pg2.png](https://droughtmonitor.unl.edu/data/png/20230718/20230718_usdm_pg2.png)).

The July 18 analysis is the same as the June monthly analysis except Kwajalein and Wotje have D0-S.

June 2023 NCEI State of the Climate Drought Report: The June 2023 NCEI SotC Drought report went online last week.

The web page url for the June report is:

a. <https://www.ncei.noaa.gov/access/monitoring/monthly-report/drought/202306#regional-usapi>