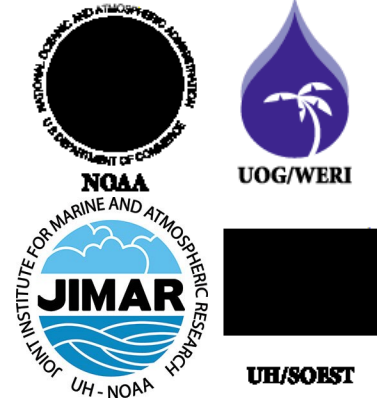




# NWS Climate Services

## May PEAC Audio Conference Call Summary

### 11 May, 1430 HST (12 May 2023, 0030 GMT)

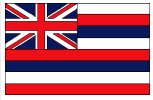


#### April rainfall totals reported

% 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	April	Inches	inches	FMA
Airai	5.60	59	9.43	-3.83	105
Yap	5.86	104	5.63	0.23	119
Chuuk	17.14	137	12.47	4.67	142
Pohnpei	25.90	141	18.41	7.49	132
Kosrae	21.08	120	17.51	3.57	113
Kwajalein	9.87	188	5.26	4.61	152
Majuro	14.23	151	9.42	4.81	152
Guam NAS	5.01	198	2.53	2.48	212
Saipan	5.05	192	2.63	2.42	151
Pago Pago	14.25	152	9.39	4.86	121
Lihue	4.79	247	1.94	2.85	307
Honolulu	2.17	417	0.52	1.65	347
Kahului	1.37	154	0.89	0.48	99
Hilo	9.10	102	8.95	0.15	194

## 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

Kaua'i rainfall totals for the month of April were near to above average at all of the gages on the island. Several of the monthly totals from the leeward side of the island were 2 to 4 times greater than the long term April average. The U.S. Geological Survey's (USGS) rain gage on Mount Wai'ale'ale had the highest monthly total of 35.05 inches (93 percent of average), and the highest daily total of 5.18 inches on April 18. The 'Ōma'o gage had its highest April rainfall on record, breaking the previous record set in 2018 by more than half an inch. The Kalāheo gage posted its highest April total since 2003.

All of the gages on Kaua'i had above average rainfall totals for 2023 through the end of April. The Mount Wai'ale'ale gage had the highest year-to-date total of 144.20 inches (116 percent of average). Kalāheo, Lihū'e Variety Station, and 'Ōma'o had their highest January through April totals since 2006.

### Oahu

It was an unusually wet April on O'ahu, with all sites having near to above average monthly totals. The USGS' Poamoho Rain Gage No. 1 had the highest monthly total of 26.15 inches (119 percent of average), and the highest daily total of 5.77 inches on April 29. Records for the highest April rainfall totals were broken at the 'Āhuimanu Loop, Hakipu'u Mauka, Kahuku, Luluku, Mililani, Olomana Fire Station, Palisades, Poamoho Experiment Farm, Punalu'u Pump, and Waiawa Correctional Facility gages.

Most of the rain gages on O'ahu had above average rainfall totals for 2023 through the end of April. The USGS' Poamoho Rain Gage No. 1 had the highest year-to-date total of 80.01 inches (104 percent of average).

### Maui

Maui County received some needed rainfall following overall dry conditions in March. April rainfall totals were near to above average at most of the gages across the county. The USGS' rain gage on top of Pu'u Kukui had the highest monthly total of 21.38 inches (56 percent of average), and the highest daily total of 6.37 inches on April 2. The 13.60 inches at 'Ulupalakua Ranch marked a new record for the highest April rainfall.

Nearly all of the gages in Maui County had near to above average rainfall totals for 2023 through the end of April. The USGS' rain gage at West Wailuaiki Stream had the highest year-to-date total of 91.24 inches (102 percent of average).

### Big Island

Windward Big Island rainfall totals for the month of April were mostly near to below average, whereas most leeward gages had above average totals. The National Park Service's Pali 2 rain gage had the highest monthly total of 17.95 inches (239 percent of average), and the highest daily total of 12.38 inches on April 18. The Mauna Loa Observatory rain gage had its highest April total since 1986. The Kealakekua and Pāhala gages had their highest April totals since 2004.

Most of the Big Island rainfall totals were near to above average for 2023 through the end of April. Below average totals were mostly in the North Kohala and South Kohala Districts, with a few others in the Hāmākua District. The USGS' rain gage at Honoli'i Stream had the highest year-to-date total 90.56 inches (114 percent of average).

## Current State of ENSO and predictions

Issued 11 May 2023

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

**Synopsis: A transition from ENSO-neutral is expected in the next couple of months, with a greater than 90% chance of El Niño persisting into the Northern Hemisphere winter.**

During April, above-average sea surface temperatures (SSTs) expanded slightly westward to the east-central equatorial Pacific Ocean. The latest weekly Niño-3.4 index value was +0.4°C, with the easternmost Niño-3 and Niño1+2 regions at +0.8°C and +2.7°C, respectively. Area-averaged subsurface temperatures anomalies continued to increase, reflecting widespread positive temperature anomalies below the surface of the equatorial Pacific Ocean. Low-level wind anomalies were westerly during mid-April before switching back to easterly by the end of the month. Upper-level wind anomalies were westerly across most of the Pacific Ocean. Suppressed convection was observed over parts of Indonesia and anomalies weakened near the Date Line. While the warming near coastal South America remains striking, the basin-wide coupled ocean-atmosphere system remained consistent with ENSO-neutral.

The most recent IRI plume also indicates El Niño is likely to form during the May-July season and persist into the winter. The combination of a forecasted third westerly wind event in mid-late May, and high levels of above-average oceanic heat content, means that a potentially significant El Niño is on the horizon. While at least a weak El Niño is likely, the range of possibilities at the end of the year (November-January) include a 80% chance of at least a moderate El Niño (Niño-3.4  $\geq 1.0^\circ\text{C}$ ) to a ~55% chance of a strong El Niño (Niño-3.4  $\geq 1.5^\circ\text{C}$ ). It is still possible the tropical atmosphere does not couple with the ocean, and El Niño fails to materialize (5-10% chance). In summary, a transition from ENSO-neutral is expected in the next couple of months, with a greater than 90% chance of El Niño persisting into the Northern Hemisphere winter.

## 6. Rainfall Verification (FMA)- February, March, April

The verification result of FMA rainfall forecasts was 9 hits and 5 misses (Heidke score: 0.6248).

February, March, April (FMA) 2023 Verification														
Updated 5/24/2023 FMA														
Location	UKMO	ECMWF	CA	NASA	NCEP	IRI	APCC	Initial:	Initial:	3 mo Verification			Post Conference	Post Conference
								Rainfall Outlook	Final Probs	% norm	Total (in)	Tercile	PEAC Forecast Final	PEAC Probs Final
<b>Palau</b>														
Airai 7° 22' N, 134° 32' E	Above	Above	Avg-above	Avg-below	Above	Avg-above	Above	Above	25:30:45	105	28.08	Avg.		
<b>FSM</b>														
Yap 9° 29' N, 138° 05' E	Above	Above	Above	Avg-below	Above	Above	Above	Above	20:30:50	119	18.23	Avg.		
Chuuk 7° 28' N, 151° 51' E	Above	Above	Above	Avg-below	Above	Above	Above	Above	20:30:50	142	39.83	Above		
Pohnpei 8° 53' N, 158° 12' E	Above	Above	Above	Avg.	Above	Above	Above	Above	20:30:50	132	54.16	Above		
Kosrae 5° 21' N, 162° 57' E	Above	Above	Above	Above	Above	Above	Above	Above	20:35:45	113	52.67	Above		
<b>RMI</b>														
Kwajalein 8° 43' N, 167° 44' E	Above	Avg-above	Above	Avg-above	Avg.	Above	Above	Above	25:35:40	152	15.62	Avg.		
Majuro 7° 04' N, 171° 17' E	Avg-above	Avg.	Above	Above	Avg-above	Above	Above	Above	25:35:40	152	34.86	Above		
<b>Guam and CNMI</b>														
Guam 13° 29' N, 144° 48' E	Above	Above	Above	Avg-below	Avg-above	Above	Above	Above	25:30:45	212	16.15	Above		
Saipan 15° 06' N, 145° 48' E	Above	Above	Avg-above	Avg-below	Avg.	Above	Above	Above	25:30:45	151	10.71	Above		
<b>American Samoa</b>														
Pago Pago 14° 20' S, 170° 43' W	Above	Below	Below	Below	Avg.	Clim.	Below	Avg-below	35:35:30	121	38.78	Above		
<b>State of Hawaii</b>														
19.7° - 21.0° N, 155.0° - 159.5° W														
Lihue	Above	Above	Above	Avg-above	Avg.	Above	Above	Above	25:30:45	307	19.58	Above		
Honolulu	Above	Above	Above	Avg-above	Avg.	Above	Above	Above	25:30:45	347	7.98	Above		
Kahului	Above	Above	Above	Avg-above	Avg.	Above	Above	Above	25:30:45	99	3.80	Avg.		
Hilo	Above	Above	Above	Avg-above	Avg.	Above	Above	Above	25:30:45	194	54.45	Above		

9	Hit
5	Miss
Heidke:	0.6248
RPSS:	0.1785

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

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwai
below (<)								
33.33%	22.53	14.18	25.26	38.32	6.88	6.15	21.03	8.63
near								
66.66%	31.23	19.83	31.4	48.92	10.04	8.74	28.4	16.52
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	5.78	1.88	3.25	24.59	32.29	45.07
near						
66.66%	9.92	4.7	6.41	45.54	36.83	52.02
above (>)						

## 6. Rainfall Outlook MJJ– May, June, July

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

### 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%	42.33	31.95	34.01	45.79	18.47	13.58	30.51	20.99
near								
66.66%	55.62	39.5	37.92	54.28	25.81	18.53	33.4	26.52
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	4.87	0.84	0.7	20.19	18.47	45.01
near						
66.66%	5.93	1.62	1.83	29.13	26.83	50.14
above (>)						

### 3. Drought monitoring updates.

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

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

April was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) in Palau, the western FSM, & Jaluit; it was wet in the Marianas, the rest of the FSM & RMI, and American Samoa. April was drier than normal at Airai & Lukunor, and near or wetter than normal elsewhere.

The end-of-April monthly analysis (April 30) is consistent with the weekly analyses for April 25 and May 2.

a. End-of-April drought conditions:

Abnormal dryness at Ulithi, Jaluit, & Wotje.

D-Nothing at the other locations

Utirik & Fananu were plotted as missing due to missing data for the month.

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

D2 improved to D0 at Wotje.

D1 ended (improved to D-Nothing) at Kwajalein.

D0 ended (improved to D-Nothing) on Kapingamarangi.

D0 continued at Jaluit.

D0 began at Ulithi.

Some April 2023 precipitation ranks:

a. **Kapingamarangi:** 4<sup>th</sup> wettest April (in a 31-year record), but 2<sup>nd</sup> driest rank for May-April and 3<sup>rd</sup> driest rank for June-April.

b. **Lukunor:** 12<sup>th</sup> driest April (39 years), and driest July-April through May-April.

c. **Jaluit:** 15<sup>th</sup> driest April (40 years) and 6<sup>th</sup> driest August-April and May-April.

d. Ulithi: 14<sup>th</sup> driest April (41 years) and 8<sup>th</sup> driest June-April.

e. At the wet end of the scale:

Mili had the wettest rank for October-April through June-April.

Woleai had the wettest rank for May-April.

Current (Weekly) Drought Conditions: The discussion above is the monthly (end of April) analysis. The latest weekly USA-PI USDM assessment may show different USDM classifications. The latest weekly USAPI USDM assessment is for May 9.

The May 9 analysis has D0 at Saipan and D-Nothing at Wotje, with Woleai, Fananu, and Lukunor missing, but is otherwise the same as the April monthly analysis.

April 2023 NCEI State of the Climate Drought Report: The April 2023 NCEI SotC Drought report went online today.

The web page url for the April report is:

<https://www.ncei.noaa.gov/access/monitoring/monthly-report/drought/202303#regional-usapi>

#### D. USAPI USDM Authors:

CPC's Anthony Artusa is returning as a USAPI USDM author. There are now 9 USAPI USDM (OCONUS) authors and one backup: Ahira Sanchez-Lugo, Rocky Bilotta, and myself (Richard Heim) from NCEI; Curtis Riganti, Denise Gutzmer, Tsegaye Tadesse, and Deb Bathke (backup) from NDMC; Brad Rippey (from USDA); Rich Tinker (from CPC).