NWS Climate Services

June PEAC Audio Conference Call Summary

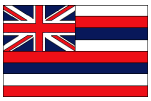
8 June, 1430 HST (9 June 2023, 0030 GMT)

May 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	May	Inches	inches	MAM
Airai	19.53	124	15.72	3.81	118
Yap	10.28	131	7.85	2.43	124
Chuuk	21.57	191	11.30	10.27	143
Pohnpei	29.00	145	19.96	9.04	134
Kosrae	15.41	87	17.75	-2.34	85
Kwajalein	23.18	345	6.72	16.46	262
Majuro	10.35	102	10.11	0.24	137
Guam NAS	31.15	916	3.40	27.75	520
Saipan	5.35	225	2.38	2.97	189
Pago Pago	16.19	168	9.66	6.53	141
Lihue	3.90	262	1.49	2.41	246
Honolulu	0.67	168	0.40	0.27	321
Kahului	0.23	47	0.49	-0.26	93
Hilo	5.46	74	7.36	-1.90	81

Reports from around the Region



Hawaii (Kevin Kodama)

Precipitation Summaries for HI can also be found:

https://www.weather.gov/hfo/hydro_summary

Kauai

May rainfall totals were above average at most of the gages across Kauaʻi. The highest percent of average values were from the Waimea and Mānā areas where the observed May totals were around 3 times higher than the long term average. The U.S. Geological Survey's (USGS) gage at Mount Waiʻaleʻale had the highest monthly total of 35.16 inches (114 percent of average) and the highest daily total of 3.70 inches on May 18. The Līhuʻe Airport, Kalāheo, Kapahi, Princeville Airport, North Wailua Ditch, and Wailua UH Experiment Station had their highest May totals since 2011.

Rainfall totals for 2023 through the end of May were above average at most of the gages on Kauaʻi. The Mount Waiʻaleʻale gage had the highest year-to-date total of 179.36 inches (115 percent of average).

Oahu

There was a wide range of rainfall conditions on Oʻahu with most of the sites having near average totals for the month of May. Above average monthly totals were mainly from the central and leeward Oʻahu sites. Sites along the windward slopes of the Koʻolau Range had most of the below average totals. The USGS' Hālawa Tunnel rain gage had the highest monthly total of 13.22 inches (132 percent of average), and the highest daily total of 3.21 inches on May 11. The USGS' Poamoho Rain Gage No. 1 was not too far back at 13.00 inches (75 percent of average) for the month. The Waiʻanae Kawiwi gage (2.94 inches, 288 percent of average) posted its highest May total on record.

Nearly all of the Oʻahu rainfall totals for 2023 through the end of May were near to above average. The Poamoho Rain Gage No. 1 had the highest year-to-date total of 93.01 inches (99 percent of average).

Maui

While most of the state, including Molokaʻi and Lānaʻi, received near to above average rainfall for the month of May, the island of Maui was an outlier as most of its gages posted below average monthly totals. The USGS' gage on Puʻu Kukui had the highest monthly total of 17.14 inches (62 percent of average), and the highest daily total of 5.43 inches on May 31. The Kamalō gage on Molokaʻi had its highest May total on record. ʻUlupalakua Ranch, on the southwest flank of Haleakalā, had its lowest May total since 2012.

Most of the gages in Maui County had near to above average rainfall totals for 2023 through the end of May. The USGS' rain gage at West Wailuaiki Stream had the highest year-to-date total of 106.22 inches (99 percent of average).

Big Island

May rainfall totals were near to above average at most of the gages on the Big Island. Below average totals were mainly from the Hāmākua slopes and in the Waimea area. The USGS' rain gage at Honoliʻi Stream had the highest monthly total of 14.45 inches (88 percent of average). The highest daily total was 2.67 inches on May 25 at the Kealakekua gage. Kapāpala Ranch and Mauna Loa Observatory had their highest May totals since 2002. The Puʻuanahulu and Kohala Ranch gages had their highest totals since these sites began operating in 2003 and 2005, respectively.

Big Island rainfall totals were near to above average for 2023 through the end of May at most of the gages. The Honoliʻi Stream rain gage had the highest year-to-date total of 105.01 inches (110 percent of average).

Current State of ENSO and predictions

Issued 8 June 2023

ENSO Alert System Status: El Niño Advisory

Synopsis: **El Niño conditions are present and are expected to gradually strengthen into the Northern Hemisphere winter 2023-24.**

In May, weak El Niño conditions emerged as above-average sea surface temperatures (SSTs) strengthened across the equatorial Pacific Ocean. All of the latest weekly Niño indices were more than +0.5°C: Niño-3.4 was +0.8°C, Niño-3 was +1.1°C, and Niño1+2 was +2.3°C. Area-averaged subsurface temperatures anomalies remained positive, reflecting the continuation of widespread anomalous warmth below the surface of the equatorial Pacific Ocean. For the May average, low-level wind anomalies were westerly over the western equatorial Pacific Ocean, while upper-level wind anomalies were westerly over the eastern Pacific Ocean. Convection was enhanced along the equator and was suppressed over Indonesia. Both the equatorial SOI and traditional SOI were significantly negative. Collectively, the coupled ocean-atmosphere system reflected the emergence of El Niño conditions.

The most recent IRI plume indicates the continuation of El Niño through the Northern Hemisphere winter 2023-24. Confidence in the occurrence of El Niño increases into the fall, reflecting the expectation that seasonally averaged Niño-3.4 index values will continue to increase. Another downwelling Kelvin wave is emerging in the western Pacific Ocean, and westerly wind anomalies are forecasted to recur over the western Pacific. At its peak, the chance of a strong El Niño is nearly the same as it was last month (56% chance of November-January Niño-3.4 ≥ 1.5°C), with an 84% chance of exceeding moderate strength (Niño-3.4 ≥ 1.0°C). In summary, El Niño conditions are present and are expected to gradually strengthen into the Northern Hemisphere winter 2023-24.

6. Rainfall Verification (MAM)- March, April, May

The verification result of **MAM** rainfall forecasts was 7 hits and 7 misses (Heidke score: 0.3338).

March, April, May (MAM) 2023 Verification

Updated 6/14/2023 MAM

Location	UKMO	ECMWF	CA	NASA	NCEP	IRI	APCC	Initial: Rainfall Outlook	Initial: Final Probs	3 mo Verification % norm	3 mo Verification Total (in)	3 mo Verification Tercile	Post Conference PEAC Forecast Final	Post Confere PEAC Probs Final
Palau														
Airai 7° 22' N, 134° 32' E	Avg-above	**Above**	Avg-above	Avg.	Avg.	Avg-above	**Above**	**Above**	**25:35:40**	118	38.87	**Above**		
FSM														
Yap 9° 29' N, 138° 05' E	Avg-above	**Above**	**Above**	Avg.	Avg.	**Above**	**Above**	**Above**	**25:35:40**	124	22.40	**Avg.**		
Chuuk 7° 28'N, 151° 51'E	Avg-above	Avg.	Avg-above	Avg-below	Avg.	**Above**	**Above**	Avg-above	**30:35:35**	**143**	45.80	**Above**		
Pohnpei 6° 59'N, 158° 12'E	**Above**	Avg-above	Avg-above	Avg-below	Avg.	Avg-above	**Above**	Avg-above	**1.274711**	134	69.19	**Above**		
Kosrae 5° 21'N, 162° 57'E	**Above**	Avg-above	Avg-above	Avg.	Avg.	**Above**	**Above**	Avg-above	**30:35:35**	85	43.83	**Below**		
RMI														
Kwajalein 8° 43'N, 167° 44'E	Avg-above	Avg.	Avg.	Avg-below	Avg.	Avg.	Avg.	Avg.	**30:40:30**	**262**	37.48	**Above**		
Majuro 7° 04' N, 171° 17'E	**Above**	Avg-above	Avg-above	Avg-below	Avg.	Avg.	Avg.	Avg.	**25:40:35**	137	35.70	**Above**		
Guam and CNMI														
Guam 13° 29'N, 144° 48' E	**Above**	Avg-above	Avg-above	Avg-above	Avg.	**Above**	**Above**	Avg-above	**25:35:40**	**520**	41.61	**Above**		
Saipan 15° 06'N, 145° 48' E	Avg-above	Avg-above	Avg-above	Avg-above	Avg.	**Above**	**Above**	Avg-above	**30:35:35**	**189**	13.01	**Above**		
American Samoa														
Pago Pago 14° 20'S, 170° 43'W	Avg-below	**Below**	**Below**	Avg-below	Avg.	Clim.	**Below**	Avg-below	**35:35:30**	**141**	41.78	**Above**		
State of Hawaii														
19.7° - 21.0' N, 155.0° - 159.5' W														
Lihue	**Above**	**Above**	Avg-above	Avg-above	Avg-above	Avg-above	**Above**	**Above**	**25:35:40**	**246**	14.81	**Above**		
Honolulu	**Above**	**Above**	Avg-above	Avg-above	Avg-above	Avg-above	**Above**	**Above**	**25:35:40**	**321**	5.49	**Above**		
Kahului	**Above**	**Above**	Avg-above	Avg-above	Avg-above	Avg-above	**Above**	**Above**	**25:35:40**	93	3.02	**Avg.**		
Hilo	**Above**	**Above**	Avg-above	Avg-above	Avg-above	Avg-above	**Above**	**Above**	**25:35:40**	81	21.96	**Below**		

7	Hit
7	Miss
Heidke:	0.3338
RPSS:	-0.0072

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%	26.86	14.74	30.3	46.13	7.61	5.88	21.02	9.74
near								
66.66%	33.44	22.41	36.94	58.61	11.51	8.02	32.44	21.13
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	5.32	1.83	2.45	22.5	27.97	51
near						
66.66%	7.98	3.05	4.64	34	38.33	55.49
above (>)						

6. Rainfall Outlook JJA– June, July, August

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

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%	47.11	40.34	33.35	40.21	29.26	21.38	31.08	24.49
near								
66.66%	55.07	45.79	43.35	50	36.54	30.82	35.58	28.47
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	5.32	1.83	2.45	22.5	27.97	51
near						
66.66%	7.98	3.05	4.64	34	38.33	55.49
above (>)						

Drought Monitoring Updates: (Richard Heim)

3. Drought monitoring updates.

A. End-of-May Monthly Drought Assessment:

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

ii. May was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) at Lukunor (FSM) and Wotje (RMI); it was wet everywhere else. May was drier than normal at Kosrae, Lukunor, & Jaluit, and near or wetter than normal elsewhere.

iii. The end-of-May monthly analysis (May 31) is consistent with the weekly analyses for May 30 and June 6, and is the same as the analyses for May 30 & June 6.

a. End-of-June drought conditions:
   1. D-Nothing at all locations.
   2. Utirik was plotted as missing due to missing data for the month.
   3. Woleai was plotted as D-Nothing even though they had insufficient data for the month because the last 2 weeks were wet.

b. Compared to the end-of-April monthly analysis:
   1. D0 ended (improved to D-Nothing) at Ulithi, Jaluit, & Wotje.

iv. Some May 2023 precipitation ranks:

a. **Lukunor**: 5th driest May (in a 39-year record), and driest July-May and June-May.
b. **Jaluit:** 13th driest May (40 years) and 6th driest June-May.
c. **Kapingamarangi:** 5th wettest May (29 years), but 5th driest rank for June-May.
d. At the wet end of the scale:
   1. Guam had the wettest May (67 years), April-May through December-May, and October-May
   2. Mili had the wettest rank for January-May (39 years), and October-May through June-May**.**
   3. Saipan had the wettest January-May (42 years) through October-May.

B. Current (Weekly) Drought Conditions: The discussion above is the monthly (end of May) analysis. The latest weekly USAPI USDM assessment may show different USDM classifications. The latest weekly USAPI USDM assessment is for June 6.

i. The June 6 analysis is the same as the May monthly analysis.

C. May 2023 NCEI State of the Climate Drought Report: The May 2023 NCEI SotC Drought report will go online next week on Tuesday.

i. The web page url for the May report will be:

a. https://www.ncei.noaa.gov/access/monitoring/monthly-report/drought/202305#regional-usapi