NWS Climate Services

September PEAC Audio Conference Call Summary

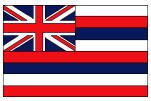
14 September, 1430 HST (15 September 2023, 0030 GMT)

August 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	December	Inches	inches	JJA
Airai	16.86	114	14.85	2.02	106
Yap	21.43	145	14.82	6.61	146
Chuuk	15.23	118	12.86	2.37	122
Pohnpei	31.21	219	14.26	16.95	162
Kosrae	14.72	105	14.22	0.74	135
Kwajalein	7.86	81	9.74	-1.88	84
Majuro	11.07	95	11.69	-0.62	90
Guam NAS	19.47	132	14.74	4.73	120
Saipan	18.62	142	13.13	5.49	102
Pago Pago	2.26	42	5.38	-3.12	84
Lihue	0.89	48	1.84	-0.95	67
Honolulu	0.11	58	0.19	-0.08	96
Kahului	0.19	40	0.48	-0.29	71
Hilo	5.35	64	8.37	-3.02	61

Reports from around the Region



Hawaii (Kevin Kodama)

Precipitation Summaries for HI can also be found:

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

Kauai

Most of the rain gages on Kauaʻi recorded below average totals for the month of August. The U.S. Geological Survey's (USGS) gage on Mount Waiʻaleʻale had the highest monthly total of 14.10 inches (41 percent of average), and the highest daily total of 1.98 inches on August 16. The Anahola gage had its lowest August total since 2000, and Mount Waiʻaleʻale and Wainiha had their lowest August totals since 2005. Several other gages posted their lowest August totals since 2013.

Despite the recent dryness, most of the gages on Kauaʻi still had above average rainfall for 2023 through the end of August. The Mount Waiʻaleʻale gage had the highest year-to-date total of 263.17 inches (100 percent of average).

Oahu

August rainfall totals were below average at most of the gages on Oʻahu. Conditions on the slopes of the Waiʻanae Range were especially dry with most of the monthly totals at less than 30 percent of average. The Mānoa Lyon Arboretum gage had the highest monthly total of 6.41 inches (51 percent of average). The USGS' Poamoho Rain Gage No. 1 had the highest daily total of 1.57 inches on August 16. The gages at Maunawili and Waiheʻe Pump both posted their lowest August rainfall totals on record. Wheeler Army Airfield and St. Stephen's Seminary had their lowest August totals since 2006.

Oʻahu rainfall totals for 2023 through the end of August were near to above average at most of the gages. The Poamoho Rain Gage No. 1 had the highest year-to-date total of 114.36 inches (78 percent of average).

Maui

Nearly all of the gages in Maui County posted below average totals for the month of August. The USGS' rain gage at West Wailuaiki Stream had the highest monthly total of 12.18 inches (71 percent of average), and the highest daily total of 2.70 inches on August 21 associated with the passage of former Tropical Cyclone Fernanda's remnant moisture. The Pukalani gage had its lowest August total on record, and the Hāna Airport gage had its lowest August total since 1998.

Most of the rainfall totals across Maui County for 2023 through the end of August were near average. The rain gage at West Wailuaiki Stream had the highest year-to-date total of 145.50 inches (92 percent of average).

Big Island

August rainfall totals were below average at most of the gages on the Big Island, with many of the totals between 40 and 70 percent of average. The USGS' rain gage at Kawainui Stream had the highest monthly total of 14.00 inches (157 percent of average). The highest daily total was 4.37 inches on August 21 at the USGS' Saddle Road Quarry rain gage associated with the passage of former Tropical Cyclone Fernanda's remnant moisture. The Ahumoa and PTA West gages had their lowest August totals since 2011. Hilo Airport had measurable rainfall (greater than or equal to 0.01 inches) on 28 out of 31 days in August, which was just above the long term August average. However, the daily average rainfall was just 0.17 inches, or 47 percent of the long term August average of 0.36 inches per day.

Rainfall totals for 2023 through the end of August were near to above average at most of the gages on the Big Island. The USGS' rain gage at Honoliʻi Stream had the highest year-to-date total of 141.20 inches (93 percent of average).

Current State of ENSO and predictions

Issued 14 September 2023

ENSO Alert System Status: El Niño Advisory

Synopsis: **El Niño is anticipated to continue through the Northern Hemisphere winter (with greater than 95% chance through January - March 2024).**

In August, sea surface temperatures (SSTs) were above average across the equatorial Pacific Ocean, with strengthening in the central and east-central Pacific. All of the latest weekly Niño indices were in excess of +1.0°C: Niño-4 was +1.1°C, Niño-3.4 was +1.6°C, Niño-3 was +2.2°C, and Niño1+2 was +2.9°C. Area-averaged subsurface temperatures anomalies increased compared to July in association with anomalous warmth in the central and eastern equatorial Pacific Ocean. Tropical atmospheric anomalies were also consistent with El Niño. Over the east-central Pacific, low-level winds were anomalously westerly, while upper-level winds were anomalously easterly. Convection was slightly enhanced around the International Date Line, stretching into the eastern Pacific, just north of the equator. Convection was mostly suppressed around Indonesia. The equatorial Southern Oscillation Index (SOI) and the traditional station-based SOI were both significantly negative. Collectively, the coupled ocean-atmosphere system reflected El Niño.

The most recent IRI plume indicates El Niño will persist through the Northern Hemisphere winter 2023-24. Despite nearly the same ensemble mean amplitude as last month, the shorter forecast horizon means that the odds of at least a "strong" El Niño (≥1.5°C for the November-January seasonal average in Niño-3.4) have increased to 71%. However, a strong El Niño does not necessarily equate to strong impacts locally, with the odds of related climate anomalies often lower than the chances of El Niño itself (e.g., CPC's seasonal outlooks). In summary, El Niño is anticipated to continue through the Northern Hemisphere winter (with greater than 95% chance through January - March 2024).

6. Rainfall Verification JJA-June, July, August (Josie)

The verification result of **JJA** rainfall forecasts was 12 hits and 2 misses (Heidke score: 0.8156).

June, July, August (JJA) 2023 Verification

Updated 9/15/2023 JJA

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 Conference PEAC: Probs Final
Palau														
Airai 7° 22' N, 134° 32' E	Above	Above	Above	Avg-below	Above	Above	Above	Above	30:30:40	106	57.11	Above		
FSM														
Yap 9° 29' N, 138° 05' E	Above	Above	Above	Avg-below	Above	Above	Above	Above	20:30:50	146	61.27	Above		
Chuuk 7° 28'N, 151° 51'E	Above	Above	Above	Above	Above	Above	Above	Above	20:30:50	122	44.52	Above		
Pohnpei 6° 59'N, 158° 12'E	Above	Above	Above	Above	Above	Above	Above	Above	20:30:50	162	71.91	Above		
Kosrae 5° 21'N, 162° 57'E	Above	Above	Above	Avg-above	Above	Above	Above	Above	20:25:55	135	58.93	Above		
RMI														
Kwajalein 8° 43'N, 167° 44'E	Above	Below	Above	Avg-above	Above	Above	Above	Above	30:30:40	84	22.24	Below		
Majuro 7° 04' N, 171° 17'E	Above	Above	Above	Above	Above	Above	Above	Above	25:30:45	90	30.50	Below		
Guam and CNMI														
Guam 13° 29'N, 144° 48' E	Above	Below	Avg-above	Avg.	Avg-above	Above	Above	Above	30:30:40	120	37.16	Above		
Saipan 15° 06'N, 145° 48' E	Above	Below	Avg.	Avg-below	Avg.	Clim.	Above	Avg-above	30:35:35	102	26.09	Avg.		
American Samoa														
Pago Pago 14° 20'S, 170° 43'W	Below	Below	Below	Avg-below	Avg-below	Below	Below	Below	40:30:30	84	13.71	Below		
State of Hawaii														
19.7° - 21.0' N, 155.0° - 159.5' W														
Lihue	Below	Below	Avg-below	Avg-below	Avg.	Below	Below	Below	40:35:25	67	3.22	Below		
Honolulu	Below	Below	Avg-below	Avg-below	Avg.	Below	Below	Below	40:35:25	96	0.70	Below		
Kahului	Below	Below	Avg-below	Avg-below	Avg.	Below	Below	Below	40:35:25	71	0.67	Below		
Hilo	Below	Below	Avg-below	Avg-below	Avg.	Below	Below	Below	40:35:25	61	14.70	Below		

Clim. indicates equal chances of below normal rainfall-average rainfall-and above average rainfall.

Note: Interpretation of tercile probability—What do these **"Final Probability** seasonal forecasts mean? For example, a **35:35:30 probability** forecasts in JJA season Indicates a **30%** chance (probability) for occurrence of **excess rainfall** during the **JJA** season, **35%** chance for occurrence of rainfall within a pattern considered **normal** during the JJA season, and **35%** chance for occurrence of **deficit** rainfall during the JJA season. Also note that excess and deficit limit for each of the stations are different.

Hit	
Miss	
Heidke:	0.8156
RPSS:	0.2158

11	Hit
3	Miss
Heidke:	0.8156
RPSS:	0.2158

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%	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%	4.39	0.71	0.74	19.45	14.32	43.42
near						
66.66%	6.88	1.3	1.51	31.4	21.74	46.35
above (>)						

6. Rainfall Outlook SON– September, October, November

SON Forecast Location	Rainfall Outlook	Probability Pre-Conference	Final Outlook	Final Probability
Palau				
Airai 7º 22' N, 134º 32' E	Avg.	30:40:30	-	-
FSM				
Yap 9º 29' N, 138º 05' E	Avg-Above	30:35:35	-	-
Chuuk 7º 28'N, 151º 51'E	Above	20:30:50	-	-
Pohnpei 6º 59'N, 158º 12'E	Above	25:30:45	-	-
Kosrae 5º 21'N, 162º 57'E	Above	20:30:50	-	-
	-	-		
RMI				
Kwajalein 8º 43'N, 167º 44'E	Above	25:35:40	-	-
Majuro 7º 04' N, 171º 17'E	Above	25:35:40	-	-
Guam and CNMI				
Guam 13º 29'N, 144º 48' E	Avg-Above	30:35:35	-	-
Saipan 15º 06'N, 145º 48' E	Avg-Above	30:35:35	-	-
American Samoa				
Pago Pago 14º 20'S, 170º 43'W	Avg-Below	35:35:30	-	-
State of Hawaii				
19.7º - 21.0' N, 155.0º - 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 JFM Season based on 1981-2010 Pacific Rainfall Climatologies (Luke He)

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwaj
below (<)								
33.33%	30.65	32.05	32.73	41.51	30.44	26.19	34.74	30.69
near								
66.66%	41.38	38.09	38.35	47.07	33.78	29.77	42.55	34.83
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	9.17	2.52	2.08	24.29	26.91	38.3
near						
66.66%	11.22	5.59	4.76	40.81	31.48	43.49
above (>)						

Drought Monitoring Updates: (Richard Heim)

Drought monitoring updates.

A. End-of-August Monthly Drought Assessment:

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

ii. August was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) at Pingelap (FSM), Pago Pago (American Samoa), and Jaluit, Kwajalein, and Wotje (Marshalls); it was wet everywhere else. August was drier than normal in the Marshall Islands, American Samoa, and part of the FSM, but near to wetter than normal in most other areas.

iii. The end-of-August monthly analysis (August 31) is consistent with the weekly analyses for August 29 and September 5.

a. End-of-August drought conditions:

D0 ended at Fananu, continued at Kwajalein, & developed at Pingelap.

D0 worsened to D1 at Wotje.

D1 developed at Tutuila.

D-Nothing at all other locations.

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

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

Drought developed at Tutuila & Wotje.

iv. Some August 2023 precipitation ranks:

a. **Pago Pago:** sixth driest August (in a 58-year record).

b. **Lukunor:** ninth driest August (27 years) and third driest September-August.

c. **Pingelap:** seventh driest August (39 years) and sixth driest July-August and June-August.

d. **Kwajalein:** 27th driest August (72 years) but fifth driest July-August.

e. **Jaluit:** 14th driest August (40 years) but fourth driest July-August and sixth driest September-August.

f. Some stations at the wet end of the scale:

1. Ulithi had the second wettest August (41 years) and wettest June-August and May-August.
2. Yap ranked ninth wettest for August (73 years) and wettest for July-August and October-August.
3. Pohnpei had the second wettest August (73 years) and wettest July-August and June-August.
4. Mili had the second wettest August (39 years) and wettest July-August through May-August, and wettest January August through September-August.

B. Current (Weekly) Drought Conditions: The discussion above is the monthly (end of August) analysis. The latest weekly USAPI USDM assessment may show different USDM classifications. The latest weekly USAPI USDM assessment is for September 12 (https://droughtmonitor.unl.edu/data/png/20230912/20230912_usdm_pg2.png).

i. The September 12 weekly analysis is the same as the August monthly analysis except Wotje improved to D0 and Kwajalein improved to D-Nothing.

C. August 2023 NCEI State of the Climate Drought Report: The August 2023 NCEI SotC Drought report went online this afternoon.

i.The web page url for the August report is:

a. https://www.ncei.noaa.gov/access/monitoring/monthly-report/drought/202308#regional-usapi