NWS Climate Services

October PEAC Audio Conference Call Summary

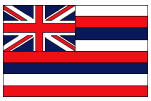
12 October, 1430 HST (13 October 2023, 0030 GMT)

September 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	September	Inches	inches	JAS
Airai	15.26	91	16.83	-1.57	110
Yap	9.46	70	13.50	-4.04	129
Chuuk	13.07	112	11.71	1.36	120
Pohnpei	19.57	156	12.55	7.02	174
Kosrae	17.52	123	14.22	3.30	120
Kwajalein	6.60	61	10.74	-4.14	62
Majuro	6.27	56	11.17	-4.90	74
Guam NAS	12.46	98	12.66	-0.20	108
Saipan	11.03	109	10.09	0.94	105
Pago Pago	10.18	156	6.53	3.65	104
Lihue	0.92	47	1.94	-1.02	57
Honolulu	0.10	17	0.60	-0.50	36
Kahului	0.08	42	0.19	-0.11	60
Hilo	5.67	61	9.31	-3.64	59

Reports from around the Region



Hawaii (Kevin Kodama)

Precipitation Summaries for HI can also be found:

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

Kauai

All of the gages on Kauaʻi recorded below average rainfall for the month of September, with more than half of the totals at 30 to 60 percent of average. The U.S. Geological Survey's (USGS) gage on Mount Waiʻaleʻale had the highest monthly total of 20.99 inches (69 percent of average), and the highest daily total of 3.66 inches on September 18. The Kapahi gage had its lowest September total since 2012.

Rainfall totals for 2023 through the end of September remained above average for most of the gages on Kauaʻi, despite the recent dryness. The Mount Waiʻaleʻale gage had the highest year-to-date total of 284.16 inches (97 percent of average).

Oahu

Most of the gages on Oʻahu posted below average rainfall totals for the month of September. The slopes of the Waiʻanae Range had driest overall conditions with most of the gages having monthly totals at less than 20 percent of average. The USGS' Poamoho Rain Gage No. 1 had the highest September total of 8.09 inches (44 percent of average), and their Hālawa Tunnel gage had the highest daily total of 1.43 inches on September 14. The Waipiʻo gage posted its lowest September total on record, and the Ewa Beach gage had its lowest September total since 2009.

Oʻahu rainfall totals for 2023 through the end of September were near average at most of the gages. The Poamoho Rain Gage No. 1 had the highest year-to-date total of 122.45 inches (74 percent of average).

Maui

Overall dry conditions prevailed across Maui County with most gages observing September rainfall totals below 50 percent of average. Monthly totals from sites along the lower leeward slopes of Maui were mostly below 20 percent of average. The USGS' rain gage on top of Puʻu Kukui had the highest monthly total of 15.89 inches (72 percent of average), and the highest daily total of 2.13 inches on September 21. Hāna Airport and ʻUlupalakua Ranch had their lowest September totals since 1995 and 1997, respectively.

Most of the rainfall totals across Maui County for 2023 through the end of September were near average. The USGS' rain gage at West Wailuaiki Stream had the highest year-to-date total of 159.20 inches (93 percent of average).

Big Island

Rainfall totals for the month of September were below average at most of the gages on the Big Island. The Kaʻū District was especially dry, with several monthly totals below 10 percent of average. The Kapāpala Ranch gage had its lowest September total on record, and the Pali 2 and South Point gages had their lowest September totals since 2010. The USGS' rain gage at Honoliʻi Stream had the Big Island's highest monthly total of 9.77 inches (53 percent of average). The highest daily total of 1.49 inches was recorded manually on September 18 by the Wainaku observer for the CoCoRaHS observation network. The highest daily total among the automated real-time sites was 1.31 inches at the Waiākea Experiment Station on September 28.

Big Island rainfall totals for 2023 through the end of September were near to above average at most of the gages. The Honoliʻi Stream rain gage had the highest year-to-date total of 150.97 inches (88 percent of average).

Current State of ENSO and predictions

Issued 12 October 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 September, equatorial sea surface temperatures (SSTs) were above average, though positive anomalies weakened in the eastern Pacific. All of the latest weekly Niño index values remained in excess of +1.0°C: Niño-4 was +1.2°C, Niño-3.4 was +1.5°C, Niño-3 was +1.9°C, and Niño1+2 was +2.6°C. Area-averaged subsurface temperatures anomalies decreased, but remained above-average, consistent with elevated subsurface temperatures across the central and eastern equatorial Pacific Ocean. Tropical atmospheric anomalies were consistent with El Niño. In areas of the central Pacific, low-level winds were anomalously westerly, while upper-level winds were anomalously easterly. Convection was enhanced around the International Date Line, stretching into the eastern Pacific, just north of the equator. Convection was suppressed near 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 favors El Niño to continue through the Northern Hemisphere spring 2024. Also considering recent observations and the NMME, the team favors at least a "strong" event with a 75-85% chance through November-January (≥ 1.5°C for the seasonal average in Niño-3.4). There is a 3 in 10 chance of a "historically strong" event that rivals 2015-16 and 1997-98 (seasonal average ≥ 2.0°C). Stronger El Niño events increase the likelihood of El Niño-related climate anomalies, but do not necessarily equate to strong impacts locally. Consider consulting CPC seasonal outlooks for probabilities of temperature and precipitation in the coming seasons. In summary, El Niño is anticipated to continue through the Northern Hemisphere spring (with an 80% chance during March-May 2024).

6. Rainfall Verification JAS-July, August, September(Josie)

The verification result of **JAS** rainfall forecasts was 10 hits and 4 misses (Heidke score: 0.5607).

July, August, September JAS 2023 Verification

Updated 10/12/2023 JAS

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	Below	Above	Avg-above	Avg-below	Avg.	Above	Above	Above	30:30:40	110	58.93	Above		
FSM														
Yap 9° 29' N, 138° 05' E	Clim.	Above	Above	Avg.	Avg-above	Above	Above	Above	25:35:40	129	56.14	Above		
Chuuk 7° 28'N, 151° 51'E	Above	Above	Above	Above	Above	Above	Above	Above	20:30:50	120	43.86	Avg.		
Pohnpei 6° 59'N, 158° 12'E	Above	Above	Above	Above	Above	Above	Above	Avg-above	30:30:40	174	73.54	Above		
Kosrae 5° 21'N, 162° 57'E	Above	Above	Above	Avg-above	Above	Above	Above	Avg-above	30:30:40	120	51.91	Above		
RMI														
Kwajalein 8° 43'N, 167° 44'E	Above	Below	Avg-above	Avg-below	Above	Above	Above	Above	30:40:30	62	18.91	Below		
Majuro 7° 04' N, 171° 17'E	Above	Above	Avg-above	Avg-above	Above	Above	Above	Avg-above	30:30:40	74	25.21	Below		
Guam and CNMI														
Guam 13° 29'N, 144° 48' E	Above	Below	Avg-above	Avg.	Avg-above	Above	Above	Avg-above	30:35:35	108	40.62	Avg.		
Saipan 15° 06'N, 145° 48' E	Above	Below	Avg-below	Avg.	Avg.	Below	Avg.	Avg-below	35:35:30	105	33.78	Avg.		
American Samoa														
Pago Pago 14° 20'S, 170° 43'W	Avg.	Below	Avg-below	Avg-below	Avg.	Below	Below	Below	40:35:25	104	18.08	Avg.		
State of Hawaii														
19.7° - 21.0' N, 155.0° - 159.5' W														
Lihue	Below	Below	Avg-below	Avg-below	Avg.	Below	Below	Below	45:30:25	57	3.12	Below		
Honolulu	Below	Below	Avg-below	Avg-below	Avg.	Below	Below	Below	45:30:25	36	0.41	Below		
Kahului	Below	Below	Avg-below	Avg-below	Avg.	Below	Below	Below	45:30:25	60	0.63	Below		
Hilo	Below	Below	Avg-below	Avg-below	Avg.	Below	Below	Below	45:30:25	59	15.99	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 JAS season Indicates a **30%** chance (probability) for occurrence of **excess rainfall** during the JAS season, **35%** chance for occurrence of rainfall within a pattern considered **normal** during the JAS season, and **35%** chance for occurrence of **deficit** rainfall during the JAS season.

Also note that excess and deficit limit for each of the stations are different.

	Hit	10
	Miss	4

	Hit
	Miss
Heidke:	0.5607
RPSS:	-0.1209

	Hit
11	
3	Miss
Heidke:	0.5607
RPSS:	-0.1209

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%	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 (>)						

6. Rainfall Outlook OND– October, November, December

OND Forecast Location	Rainfall Outlook	Probability Pre-Conference	Final Outlook	Final Probability
Palau				
Airai 7º 22' N, 134º 32' E	Avg.	35:40:25	Avg-Below	35:35:30
FSM				
Yap 9º 29' N, 138º 05' E	Avg-Below	35:35:30	-	-
Chuuk 7º 28'N, 151º 51'E	Avg-Above	30:35:35	-	-
Pohnpei 6º 59'N, 158º 12'E	Avg-Above	30:35:35	-	-
Kosrae 5º 21'N, 162º 57'E	Above	25:30:45	Avg-Above	30:35:35
	-	-		
RMI				
Kwajalein 8º 43'N, 167º 44'E	Below	40:30;30	-	-
Majuro 7º 04' N, 171º 17'E	Below	40:30:30	Avg-Below	35:35:30
Guam and CNMI				
Guam 13º 29'N, 144º 48' E	Avg-Above	30:35:35	-	-
Saipan 15º 06'N, 145º 48' E	Avg-Below	30:35:35	Avg.	30:40:30
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	40:30:30	-	-
Honolulu	Below	40:30:30	-	-
Kahului	Below	40:30:30	-	-
Hilo	Below	40:30:30	-	-

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%	31.24	27.44	30.88	43.58	24.01	20.13	35.14	29.07
near								
66.66%	38.99	32.32	38.67	49.78	29.41	23.26	41.82	31.88
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	9.18	4.36	4.18	28.26	31.15	39.86
near						
66.66%	15.56	8.52	8.05	41.99	41.56	44.83
above (>)						

Drought Monitoring Updates: (Richard Heim)

Drought monitoring updates.

A. A. End-of-September Monthly Drought Assessment:

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

ii. September was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) at in the Marshalls (Ailinglaplap, Kwajalein, Majuro, and Wotje); it was wet everywhere else. September was drier than normal in the Marshall Islands, Guam, and Yap (FSM), but near to wetter than normal in most other areas.

iii. The end-of-September monthly analysis (September 30) is consistent with the weekly analyses for September 26 and October 3, and is the October 3 analysis.

a. End-of-September drought conditions:

1. D0 ended at Pingelap, continued at Kwajalein, & developed at Ailinglaplap.
2. D1 improved to D0 at Wotje.
3. D1 continued at Tutuila.
4. D-Nothing at all other locations.
5. Utirik was plotted as missing due to missing data for the month.

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

1. Drought continued at Tutuila & improved to D0 at Wotje.
2.
3. Some September 2023 precipitation ranks:

a. **Ailinglaplap:** second driest September (in a 40-year record) and seventh driest July-September.

b. **Majuro:** third driest September (70 years) and July-September, eighth driest May-September.

c. **Wotje:** fourth driest September (40 years), fifth driest August-September, and eighth driest July-September.

d. **Kwajalein:** sixth driest September (72 years) and August-September, but second driest July-September and fifth driest June-September.

e. **Lukunor:** 25th driest September (40 years) but eighth driest July-September, June-September, and April-September, fifth driest December-September and November-September, and sixth driest October-September.

f. **Pingelap:** 20th driest September (40 years) but seventh driest August-September and eighth driest June-September.

g. **Jaluit:** 20th driest September (40 years) but sixth driest April-September and February-September, and seventh driest October-September.

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

1. Kapingamarangi had the wettest September (32 years) and July-September through January-September.
2. Pohnpei had the wettest June-September (72 years) and April-September.
3. Guam had the wettest December-September (66 years) and April-September.
4. Mili had the wettest July-September (38 years) through May-September and January-September through October-September.

i Current (Weekly) Drought Conditions: The discussion above is the monthly (end of September) analysis. The latest weekly USAPI USDM assessment may show different USDM classifications. The latest weekly USAPI USDM assessment is for October 10 (https://droughtmonitor.unl.edu/data/png/20231010/20231010_usdm_pg2.png).

i. The October 10 weekly analysis is the same as the September monthly analysis except Ailinglaplap and Majuro improved to D-Nothing.

C. September 2023 NCEI State of the Climate Drought Report: The September 2023 NCEI SotC Drought report will go online tomorrow.

i. The web page url for the September report will be:
   a. https://www.ncei.noaa.gov/access/monitoring/monthly-report/drought/202309#regional-usapi

D. Possible Government Shutdown:

Next month's PEAC conference call will be on November 9 (I think). This is before November 17. I am not an essential employee, so if the federal government shuts down on November 17 and a budget resolution does not happen soon after that, I won't be able to do any work until the shutdown is resolved.