NWS Climate Services

December PEAC Audio Conference Call Summary

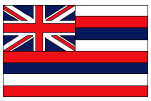
14 December, 1430 HST (15 December 2023, 0030 GMT)

November 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	November	Inches	inches	SON
Airai	9.65	75	12.79	-3.14	92
Yap	6.95	79	8.83	-1.88	79
Chuuk	14.93	141	10.61	4.32	120
Pohnpei	26.39	178	14.83	11.56	138
Kosrae	22.60	163	13.83	8.77	163
Kwajalein	17.65	156	11.28	6.37	100
Majuro	13.51	101	13.44	0.07	65
Guam NAS	6.18	84	7.38	-1.20	114
Saipan	7.44	133	5.61	1.38	133
Pago Pago	3.69	36	10.14	-6.45	86
Lihue	5.18	147	3.53	1.65	83
Honolulu	2.14	157	1.36	0.78	88
Kahului	0.90	49	1.84	-0.94	41
Hilo	11.17	98	11.38	-0.21	62

Reports from around the Region



Hawaii (Kevin Kodama)

Precipitation Summaries for HI can also be found:

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

Kauai

ll of the rain gages on Kauaʻi had near to above average rainfall totals for the month of November. The U.S. Geological Survey's (USGS) Mount Waiʻaleʻale rain gage had the highest monthly total of 46.65 inches (124 percent of average). This gage also had the highest daily total of 5.46 inches on November 21, and recorded more than an inch of rain on 18 days during the month. Hanapēpē had its highest November total since 2007, and Kalāheo and ʻŌmaʻo had their highest November totals since 2009.

Rainfall totals for 2023 through the end of November were near to above average at all of the gages on Kauaʻi. The Mount Waiʻaleʻale gage had the highest year-to-date total of 347.77 inches (96 percent of average).

Oahu

After an October where a dozen sites had record low rainfall, the month of November produced near to above average rainfall at most of the gages across Oʻahu. The lower leeward sections of the Waiʻanae Range were the only areas with below average rainfall totals. The USGS' Hālawa Tunnel gage had the highest monthly total of 31.36 inches (235 percent of average), and the highest daily total of 10.52 inches on November 22. Maunawili had its highest November total on record, which was quite a change following its second driest October on record. Luluku and the USGS' Poamoho Rain Gage No. 1 had their highest November totals since 1996 and 2004, respectively.

Most of Oʻahu's rainfall totals for 2023 through the end of November were near average. The Poamoho Rain Gage No. 1 had the highest year-to-date total of 153.44 inches (74 percent of average).

Maui

Despite having a kona low producing over 20 inches of rainfall across portions of east Maui, most of the gages across Maui County posted below average rainfall totals for the month of November. The USGS' rain gage at West Wailuaiki Stream had the highest monthly total of 23.89 inches (120 percent of average), and the highest daily total of 9.83 inches on November 30. While this is a rather high daily total, bias-corrected radar rainfall estimates indicated nearly 21 inches of rain fell over the slopes of east Maui above the town of Hāna during the November 30 kona low flash flood event. Elsewhere in Maui County, the Lahainaluna gage had its highest November total since 2006. Kīhei, Lānaʻi Airport, and Lānaʻi 1 had their highest November totals since 2007.

Maui County rainfall totals for 2023 through the end of November were near average at most of the gages. The rain gage at West Wailuaiki Stream had the highest year-to-date total of 184.82 inches (88 percent of average).

Big Island

Even with the impact of a kona low rainband and flash flooding at the end of the month, most of the gages on the east side of the Big Island had near to below average November rainfall totals. The rainy conditions at the end of the month could not completely make up for the drier than normal days in the first half of what should be one of the wettest months of the year. The interior and western sections of the Big Island had mostly near to above average monthly totals. November totals from the slopes of the Kohala Mountains were mostly below average. The Pāhoa Beacon rain gage had the highest monthly total of 20.68 inches (129 percent of average). This site had the highest daily total among the automated gages, with 12.51 inches logged on November 30. The highest overall daily total was 14.32 inches, also on November 30, from a manually read CoCoRaHS observer network gage a few miles southeast of Pāhoa. There were no November records broken, but the Waikiʻi and Pōhakuloa West gages had their highest November totals since 2002 and 2004, respectively.

Rainfall totals for 2023 through the end of November were near to below 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 170.56 inches (80 percent of average).

Current State of ENSO and predictions

Issued 14 December 2023

ENSO Alert System Status: El Niño Advisory

Synopsis: **El Niño is expected to continue through the Northern Hemisphere winter, with a transition to ENSO-neutral favored during April-June 2024 (60% chance).**

Sea surface temperatures (SST) were above average across the equatorial Pacific Ocean, increasing in the central and east-central Pacific during November. The growth in SST anomalies, however, abated in early December, with the latest weekly Niño index values at +1.4°C in Niño-4, +1.9°C in Niño-3.4, +2.0°C in Niño-3, and +1.3°C in Niño-1+2. Area-averaged positive subsurface temperature anomalies increased significantly during November, reflecting the strengthening of above-average subsurface temperatures in the central and eastern Pacific associated with a downwelling oceanic Kelvin wave. Low-level wind anomalies were westerly in the central and eastern Pacific, while upper-level wind anomalies were easterly across the Pacific. Convection/rainfall remained enhanced at the Date Line and was suppressed around Indonesia. The equatorial Southern Oscillation Index (SOI) and the station-based SOI were negative. Collectively, the coupled ocean-atmosphere system reflected a strong El Niño.

The most recent IRI plume favors El Niño to continue through the Northern Hemisphere winter 2023-24. Based on the latest forecasts, there is now a 54% chance of a "historically strong" El Niño during the November-January season (≥ 2.0°C in Niño-3.4). An event of this strength would potentially be in the top 5 of El Niño events since 1950. While stronger El Niño events increase the likelihood of El Niño-related climate anomalies, it does not imply expected impacts will emerge in all locations or be of strong intensity (see CPC seasonal outlooks for probabilities of temperature and precipitation). In summary, El Niño is expected to continue through the Northern Hemisphere winter, with a transition to ENSO-neutral favored during April-June 2024 (60% chance).

6. Rainfall Verification SON– September, October, November (Josie)

The verification result of **SON** rainfall forecasts was 11 hits and 3 misses (Heidke score: 0.6703).

								Outlook	Probs	% norm	Total (in)	Tercile	Forecast Final	Probs Final
Palau														
Airai 7° 22' N, 134° 32' E	Avg-below	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	30:40:30	92	37.71	Avg.		
FSM														
Yap 9° 29' N, 138° 05' E	Avg.	Above	Avg-above	Avg-above	Avg.	Above	Avg.	Avg-above	30:35:35	79	27.15	Below		
Chuuk 7° 28'N, 151° 51'E	Above	Above	Above	Avg-above	Above	Above	Above	Above	20:30:50	120	40.70	Above		
Pohnpei 6° 59'N, 158° 12'E	Above	Above	Above	Avg-above	Above	Clim.	Above	Above	25:30:45	138	58.67	Above		
Kosrae 5° 21'N, 162° 57'E	Above	Above	Above	Above	Above	Above	Above	Above	20:30:50	163	49.56	Above		
RMI														
Kwajalein 8° 43'N, 167° 44'E	Above	Below	Avg-above	Avg.	Above	Below	Above	Above	30:30:40	100	35.71	Above		
Majuro 7° 04' N, 171° 17'E	Above	Above	Avg-above	Above	Above	Above	Above	Above	20:30:50	65	30.76	Below		
Guam and CNMI														
Guam 13° 29'N, 144° 48' E	Above	Avg-below	Avg-above	Above	Avg.	Above	Avg.	Avg-above	30:35:35	114	36.04	Above		
Saipan 15° 06'N, 145° 48' E	Above	Below	Avg.	Avg-above	Avg.	Clim.	Avg.	Avg-above	30:35:35	133	28.27	Avg.		
American Samoa														
Pago Pago 14° 20'S, 170° 43'W	Avg-above	Below	Avg-below	Avg-below	Avg.	Below	Below	Avg-below	35:35:30	86	22.32	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	45:30:25	83	7.32	Below		
Honolulu	Below	Below	Avg-below	Avg-below	Avg.	Below	Below	Below	45:30:25	88	2.82	Avg.		
Kahului	Below	Below	Avg-below	Avg-below	Avg.	Below	Below	Below	45:30:25	41	1.06	Below		
Hilo	Below	Below	Avg-below	Avg-below	Avg.	Below	Below	Below	45:30:25	62	18.20	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**

11	Hit
3	Miss
Heidke:	0.6703
RPSS:	0.1435

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%	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 (>)						

6. Rainfall Outlook NDJ– November, December, January

NDJ Forecast Location	Rainfall Outlook	Probability Pre-Conference	Final Outlook	Final Probability
Palau				
Airai 7º 22' N, 134º 32' E	Below	50:30:20	-	-
FSM				
Yap 9º 29' N, 138º 05' E	Below	40:35:25	-	-
Chuuk 7º 28'N, 151º 51'E	Below	45:30:25	-	-
Pohnpei 6º 59'N, 158º 12'E	Below	50:30:20	-	-
Kosrae 5º 21'N, 162º 57'E	Below	40:35:25	-	-
	-	-		
RMI				
Kwajalein 8º 43'N, 167º 44'E	Avg-Below	40:35:25	-	-
Majuro 7º 04' N, 171º 17'E	Avg-Below	40:35:25	-	-
Guam and CNMI				
Guam 13º 29'N, 144º 48' E	Avg-Below	40:35:25	-	-
Saipan 15º 06'N, 145º 48' E	Avg-Below	40:35:25	-	-
American Samoa				
Pago Pago 14º 20'S, 170º 43'W	Avg-Below	40:35:25	-	-
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%	26.42	17.47	25.39	34.23	11.41	8.66	24.24	11.78
near								
66.66%	37.21	25.53	32.01	45.42	16.49	11.56	30.01	16.47
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	7.45	3.68	4.64	19.58	35.2	43.72
near						
66.66%	13.98	8.62	8.68	33.29	46.65	53.68
above (>)						

Drought Monitoring Updates: (Richard Heim)

Drought monitoring updates.

A. End-of-November Monthly Drought Assessment:

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

ii. November was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) in American Samoa, parts of the FSM (Lukunor, Ulithi, Yap), and northern Marshalls (Wotje); it was wet everywhere else. November was drier than normal in American Samoa, Palau, and parts of the Marianas and FSM, but near to wetter than normal in most other areas.

The end-of-November monthly analysis (November 30) is consistent with the weekly analyses for November 28 and December 5.

End-of-November drought conditions:

D0 ended at Kwajalein, but continued at Wotje.
D0 began at Pago Pago/Tutuila, Lukunor, and Ulithi.
D-Nothing at all other locations.
Utirik was plotted as missing due to missing data for the month.

Compared to the end-of-October monthly analysis:

4 stations were D0 in November.
2 stations were D0 in October.

Some November 2023 precipitation ranks:

Pago Pago: second driest November (in a 58-year record) and seventh driest October-November.
Pingelap: seventh driest November (39 years) and June-November, fifth driest August-November, and sixth driest July-November and May-November.
Ulithi: sixth driest November (41 years) but fifth wettest December-November.
Wotje: ninth driest November (39 years) and June-November, fifth driest August-November, and sixth driest September-November and July-November.
Lukunor: tenth driest November (40 years), seventh driest April-November, and eighth driest December-November.
Jaluit: 26th driest (15th wettest) November (40 years) but fifth driest May-November and sixth driest April-November and December-November.

Some stations at the wet end of the scale:

Mili had the wettest November (40 years), June-November, May-November, January-November, and December-November.
Pohnpei had the second wettest November (73 years) and wettest May-November and April-November.
Guam had the 25th driest November (67 years) but wettest May-November through December-November.

B. Current (Weekly) Drought Conditions: The discussion above is the monthly (end of November) analysis. The latest weekly USAPI USDM assessment may show different USDM classifications. The latest weekly USAPI USDM assessment is for December 12 (https://droughtmonitor.unl.edu/data/png/20231212/20231212_usdm_pg2.png).

The December 12 weekly analysis has D0 ending at Lukunor but continuing at Tutuila, and D0 worsening to D1 at Ulithi and Wotje, with all other locations having no drought or abnormal dryness (D-Nothing).

C. November 2023 NCEI State of the Climate Drought Report: The November 2023 NCEI SotC Drought report went online yesterday.

The web page url for the November report is:

https://www.ncei.noaa.gov/access/monitoring/monthly-report/drought/202311#regional-usapi

D. Next Authors:

i. I will be OCONUS USDM author the next 3 weeks.