



# NWS Climate Services

## October PEAC Audio Conference Call Summary

### 14 October, 1430 HST (15 October 2021, 0030 GMT)



University of  
Hawai'i  
M Ā N O A  
UH/SOEST

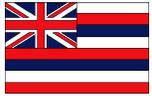


### September rainfall totals reported

% 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	19.33	115	16.83	2.51	46.54
Yap	12.55	93	13.50	-0.95	35.52
Chuuk	16.70	143	11.71	4.99	39.03
Pohnpei	13.18	105	12.55	0.63	36.83
Kosrae	16.28	114	14.22	2.06	50.53
Kwajalein	11.30	105	10.74	0.56	22.78
Majuro	12.41	111	11.17	1.24	32.43
Guam NAS	11.61	92	12.66	-1.05	35.81
Saipan	8.62	85	10.09	-1.47	30.51
Pago Pago	3.33	51	6.53	-3.20	15.79
Lihue	1.97	102	1.94	0.03	5.13
Honolulu	0.12	20	0.60	-0.48	0.49
Kahului	0.13	68	0.19	-0.06	0.79
Hilo	8.94	96	9.31	-0.37	25.80

## 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

September rainfall totals were near to above average at most of the gages across Kauai. Below average totals were mainly along the lower leeward slopes from Hanapepe to Waimea. The U.S. Geological Survey's (USGS) rain gage on Mount Waialeale had the highest monthly total of 29.87 inches (99 percent of average). This gage also recorded the highest daily total of 3.52 inches on September 26 as an upper level low moved into the area.

All of the gages on Kauai had near to above average rainfall for 2021 through the end of September. Mount Waialeale had the highest year-to-date total of 372.49 inches (127 percent of average).

### Oahu

Rain gages along the slopes of the Koolau Range had mostly near to above average rainfall totals for the month of September. A few pockets of below average totals were over the north end of the Koolaus near Kahuku, and in Waimanalo near the east end of the range. Many of the lower elevation leeward sites had below average totals with several sites at less than 30 percent of the September average. The USGS' Halawa Tunnel rain gage had the highest monthly total of 15.03 inches (172 percent of average), and the highest daily total of 2.43 inches on September 12.

Nearly all of the Oahu gages continued to have near to above average rainfall for 2021 through the end of September. The USGS' Poamoho Rain Gage No. 1 had the highest year-to-date total of 135.86 inches (82 percent of average).

### Maui

Most of the Maui County rain gages posted near to below average rainfall totals for the month of September. Central Maui, already suffering from significant drought, remained very dry. The USGS' rain gage at West Wailuaiki Stream had the highest monthly total of 15.99 inches (113 percent of average), and the highest daily total of 2.56 inches on September 30. Molokai Airport's 0.09 inches (9 percent of average) tied the record for the lowest September rainfall total set just last year. Elsewhere in the county, the Lanai 1 and Pukalani rain gages had their lowest September totals since 2007 and 2009, respectively.

Despite the recent dryness, most of the gages in Maui County had near to above average rainfall totals for 2021 through the end of September. The rain gage at West Wailuaiki Stream had the highest year-to-date total of 206.89 inches (120 percent of average).

### Big Island

Rainfall totals from the Hamakua, North Hilo, South Hilo, Puna, and South Kona Districts were mostly near to above average for the month of September. The rest of the districts on the Big Island had mostly below average totals. The USGS' rain gage at Kawainui Stream had the highest monthly total of 14.51 inches (196 percent of average), followed closely by the 14.01 inches (88 percent of average) recorded at Papaikou Well. The highest daily total was 4.08 inches at the Honaunau gage on September 27.

Big Island rainfall totals for 2021 through the end of September were near to above average at most of the gages. The Piihonua rain gage had the highest year-to-date total of 149.62 inches (109 percent of average). The year-to-date totals from Kawainui Stream (147.85 inches, 137 percent of average) and Glenwood (146.94 inches, 85 percent of average) were not far behind.

## 5. Current State of ENSO and predictions

Issued 14 October 2021

### ENSO Alert System Status: [La Niña Advisory](#)

**Synopsis:** [La Niña conditions have developed and are expected to continue with an 87% chance of La Niña in December 2021- February 2022.](#)

In the past month, La Niña conditions emerged, as indicated by below-average sea surface temperatures (SSTs) across the central and east-central equatorial Pacific. In the last week, the Niño-3.4 and Niño-4 index values were  $-0.6^{\circ}\text{C}$  and  $-0.7^{\circ}\text{C}$ , respectively. The Niño-3 and Niño-1+2 indices were not as cool, with values at  $-0.3^{\circ}\text{C}$  and  $0.1^{\circ}\text{C}$ . Below-average subsurface temperatures (averaged from 180-100°W) strengthened significantly in the past month, as negative anomalies were observed at depth across most of the central and eastern Pacific Ocean. Low-level easterly wind anomalies and upper-level westerly wind anomalies were observed over most of the equatorial Pacific. Tropical convection was suppressed near and west of the Date Line and enhanced over Indonesia, while the Southern Oscillation Index and Equatorial Southern Oscillation Index were both positive. Overall, the coupled ocean-atmosphere system was consistent with La Niña conditions.

The [IRI/CPC plume](#) average of forecasts for the Niño-3.4 SST index favors La Niña to continue through the fall and winter 2021-22. The forecaster consensus also anticipates La Niña to continue through the winter, with ENSO-neutral predicted to return during March-May 2022. Because of the recent oceanic cooling and coupling to the atmosphere, forecasters now anticipate a 57% chance of one season ([November-January](#)) reaching  $-1.0^{\circ}\text{C}$  or less in the Niño-3.4 index. Thus, at its peak, a moderate-strength La Niña is favored. In summary, La Niña conditions have developed and are expected to continue with an 87% chance of La Niña in December 2021- February 2022 (click [CPC/IRI consensus forecast](#) for the chances in each 3-month period).

La Niña is anticipated to affect temperature and precipitation across the United States during the upcoming months (the [3-month seasonal temperature and precipitation outlooks](#) will be updated on Thurs. October 21<sup>st</sup>).

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

The verification result of JAS rainfall forecasts was 12 hits and 2 misses (Heidke score: 0.4503). The 2 missed stations were Kosrae and Hilo.

Location	UKMO	ECMWF	CA	NASA	NCEP	IRI	APCC	Rainfall Outlook	Final Probs	3 mo Verification			PEAC JAS Forecast Final	PEAC JAS Probs Final
										% norm	Total (in)	Tercile		
<b>Palau</b>														
Airai 7° 22' N, 134° 32' E	Avg-above	Below	Avg-below	Below	Avg-above	Avg.	Avg.	Avg-below	35:35:30	87	46.54	Avg.		
<b>FSM</b>														
Yap 9° 29' N, 138° 05' E	Avg.	Below	Below	Avg-below	Avg.	Avg-below	Below	Avg-below	35:35:30	82	35.52	Below		
Chuuk 7° 28' N, 151° 51' E	Avg-below	Below	Avg.	Avg.	Avg.	Avg-below	Avg-below	Avg-below	35:35:30	107	39.03	Avg.		
Pohnpei 6° 59' N, 158° 12' E	Avg-below	Below	Avg.	Avg.	Avg.	Avg-below	Avg.	Avg-below	35:35:30	87	36.83	Below		
Kosrae 5° 21' N, 162° 57' E	Avg.	Below	Avg-above	Below	Avg.	Avg.	Avg.	Avg-below	35:35:30	117	50.53	Above		
<b>RMI</b>														
Kwajalein 8° 43' N, 167° 44' E	Below	Below	Avg.	Avg-above	Avg.	Avg-below	Avg-below	Avg-below	35:35:30	75	22.78	Below		
Majuro 7° 04' N, 171° 17' E	Avg.	Avg-below	Avg-above	Avg.	Avg.	Avg-below	Avg.	Avg.	30:40:30	95	32.43	Avg.		
<b>Guam and CNMI</b>														
Guam 13° 29' N, 144° 48' E	Below	Below	Below	Avg-below	Avg.	Avg.	Avg-below	Avg-below	35:35:30	95	35.81	Below		
Saipan 15° 06' N, 145° 48' E	Below	Below	Below	Avg-below	Avg.	Avg.	Avg-below	Avg-below	35:35:30	95	30.51	Avg.		
<b>American Samoa</b>														
Pago Pago 14° 20' S, 170° 43' W	Clim.	Below	Avg.	Avg.	Avg.	Avg.	Avg-below	Avg-below	40:35:25	90	15.79	Below	Avg.	30:30:40
<b>State of Hawaii</b>														
19.7° - 21.0° N, 155.0° - 159.5° W														
Lihue	Below	Below	Avg-below	Avg-below	Avg.	Below	Avg-below	Below	40:35:25	94	5.12	Below		
Honolulu	Below	Below	Avg-below	Avg-below	Avg.	Below	Avg-below	Below	40:35:25	43	0.49	Below		
Kahului	Below	Below	Avg-below	Avg-below	Avg.	Below	Avg-below	Below	40:35:25	75	0.79	Below		
Hilo	Below	Below	Avg-below	Avg-below	Avg-below	Below	Avg-below	Below	40:35:25	95	25.80	Avg.		

12	Hit
2	Miss
Heidke:	0.5216
RPSS:	0.1461

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

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwai
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 (Sony)

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

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

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwai
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 (>)

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 Kapingamarangi (in the FSM), Wotje (in the RMI), and Pago Pago (American Samoa); it was wet elsewhere. September was drier than normal at these stations and also Lukunor and Yap (FSM), and Guam and Saipan (Marianas), because their normals during the wet season are higher than the monthly minimum); September was wetter than normal at the rest of the stations. The end-of-September monthly analysis (September 30) is consistent with the weekly analyses for September 28 and October 5, and is the same as the October 5 weekly analysis. Compared to the end-of-August monthly analysis:

A. D0 worsened to D1 at Kapingamarangi.

B. D1 improved to D0 at Ailinglaplap.

C. D0 ended at Chuuk, Jaluit, Kwajalein, & Wotje.

D. The USDM status stayed the same (D-Nothing) at the other stations.

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

iii. Some September 2021 precipitation ranks:

A. **Ailinglaplap:** Sep 2021 10<sup>th</sup> wettest September in the 38-year record, but Jun-Sep and May-Sep ranked as the driest such periods on record, with July-Sep and Apr-Sep 3<sup>rd</sup> driest, and Aug-Sept 5<sup>th</sup> driest.

B. **Kwajalein:** 30th wettest September out of 70 years of data, but 3<sup>rd</sup> driest June-Sep, 6<sup>th</sup> driest July-Sep and May-Sep, and 7<sup>th</sup> driest Aug-Sep.

C. **Jaluit:** July-Sep 2021 was 3<sup>rd</sup> driest (38 years of data).

D. **Lukunor:** 17th driest September (38 years), but 2<sup>nd</sup> driest July-Sep, 3<sup>rd</sup> driest June-Sep, and 4<sup>th</sup> driest Aug-Sep (25 years).

E. **Kapingamarangi:** 9<sup>th</sup> driest September (30 years), with drier ranks at longer time scales, including 5<sup>th</sup> driest Aug-Sep and 3<sup>rd</sup> driest Oct-Sep.

F. **Pohnpei:** 29th driest September (71 years), with 7<sup>th</sup> driest July-Sep and Aug-Sep, but 5<sup>th</sup> wettest Oct-Sep.

G. **Pingelap:** 13th driest September in a 38-year record with the 4<sup>th</sup> driest Aug-Sep.

B..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 12.

i. The October 12 analysis has D-Nothing at Ailinglaplap; otherwise, it is the same as the end of September analysis.

B. September 2021 NCEI State of the Climate Drought Report: The September 2021 NCEI SotC Drought report went online Wednesday.

i. The web page url is:

<https://www.ncdc.noaa.gov/sotc/drought/202109#regional-usapi>