NWS Climate Services

November PEAC Audio Conference Call Summary

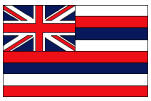
18 November, 1430 HST (19 November 2021, 0030 GMT)

October 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	October	Inches	inches	ASO
Airai	27.58	240	11.51	16.07	60.57
Yap	13.00	107	12.18	0.82	38.39
Chuuk	15.86	138	11.51	4.35	38.76
Pohnpei	14.57	95	15.27	-0.70	37.10
Kosrae	14.15	129	10.94	3.21	39.91
Kwajalein	10.97	98	11.18	-0.21	25.70
Majuro	15.12	119	12.73	2.39	38.13
Guam NAS	26.68	233	11.44	15.24	53.73
Saipan	10.63	100	10.62	0.01	30.20
Pago Pago	4.38	47	9.26	-4.88	15.53
Lihue	1.46	44	3.30	-1.84	4.82
Honolulu	0.05	4	1.26	-1.21	0.46
Kahului	0.51	93	0.55	-0.04	1.30
Hilo	9.47	110	8.61	0.86	25.75

Reports from around the Region



Hawaii (Kevin Kodama)

Precipitation Summaries for HI can also be found:

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

Kauai

Windward rain gages recorded mostly near to above average rainfall for the month of October. The few windward sites that recorded below average totals were along the lower elevations, such as Anahola (37 percent of average) and Lihue Airport (45 percent of average). Leeward gages also posted below average monthly totals with most amounts at less than 50 percent of average. The U.S. Geological Survey's (USGS) rain gage on Mount Waialeale had the highest monthly total of 30.74 inches (91 percent of average) and the highest daily total of 3.96 inches on October 3.

All of the gages on Kauai had near to above average rainfall totals for 2021 through the end of October. Mount Waialeale had the highest year-to-date total of 403.23 inches (124 percent of average).

Oahu

Almost all of the rain gages on Oahu had below average October rainfall totals. The leeward slopes of the Waianae Range were especially dry, with all of the monthly totals in the area at less than 25 percent of average and many at less than 10 percent of average. The USGS' Halawa Tunnel rain gage had the highest monthly total of 9.21 inches (82 percent of average). The highest daily total came from the Nuuanu Upper gage which recorded 1.50 inches on October 15. The monthly totals at Honolulu Airport and Aloha Tower broke records for the lowest October rainfall total. Bellows Air Force Station and Makua Range had their lowest October totals since 2007.

Rainfall totals for 2021 through the end of October were near to above average at most of the gages on Oahu. Most of the below average totals were along the lower leeward slopes of the island. The USGS' Poamoho Rain Gage No. 1 had the highest year-to-date total of 143.63 inches (78 percent of average).

Maui

Most of the Maui County rain gages recorded below average rainfall totals for the month of October. The few near to above average monthly totals were mostly from sites along the windward slopes. Leeward Maui was especially dry with all of the gages from Kihei to Maalaea reporting no measurable rainfall for the month. The USGS' rain gage on Puu Kukui had the highest monthly total of 24.36 inches (93 percent of average). This site also had the highest daily total of 4.97 inches on October 9.

Across Maui County, most of the rainfall totals for 2021 through the end of October remained in near to above average territory, though the percent of average values have been dropping. The USGS' rain gage at West Wailuaiki Stream had the highest year-to-date total of 229.61 inches (121 percent of average).

Big Island

October rainfall totals from the Big Island's windward slopes were near to above average, mostly due to wet conditions in the first half of the month. The rest of the island had mostly below average monthly totals with many at less than 30 percent of average. The Papaikou Well gage had the highest monthly total of 20.66 inches (131 percent of average), followed closely by the USGS' Saddle Road Quarry gage at 20.47 inches (191 percent of average). The Saddle Quarry gage also had the highest 24-hour total of 11.39 inches from noon on October 11 to noon the following day. The heavy rain event on October 11 and 12 also helped push the Hakalau monthly total to its highest October value since records started at this site in 2004. In contrast, the Honaunau and Kealakekua gages had their lowest October totals since 1995.

Rainfall totals for 2021 through the end of October were near to above average at most of the gages on the Big Island. The USGS' rain gage at Kawainui Stream now has the highest year-to-date total of 167.73 inches (147 percent of average), followed closely by Piihonua's 167.44 inches (111 percent of average) and Glenwood's 165.68 inches (87 percent of average).

Current State of ENSO and predictions

Issued 11 November 2021

ENSO Alert System Status: La Niña Advisory

Synopsis: **La Niña is likely to continue through the Northern Hemisphere winter 2021-22 (~90% chance) and into spring 2022 (~50% chance during March-May).**

La Niña strengthened in the last month, with below-average sea surface temperatures (SSTs) evident across most of the equatorial Pacific. In the last week, all of the Niño index values were between -0.7°C and -1.0°C, with the coolest anomalies in the Niño-3.4 region. Below-average subsurface temperatures (averaged from 180-100°W) were roughly the same amplitude at this time last month, and reflected the prevalence of below-average temperatures in the eastern Pacific Ocean. Low-level easterly and upper-level westerly wind anomalies were again observed over parts of the equatorial Pacific, although weaker than last month. Tropical convection was suppressed near and west of the Date Line and was slightly enhanced over Indonesia. The Southern Oscillation Index and Equatorial Southern Oscillation Index remained positive. Overall, the coupled ocean-atmosphere system was consistent with La Niña.

The IRI/CPC plume average of forecasts for the Niño-3.4 SST index favors La Niña to continue through January-March 2022 season. The forecaster consensus anticipates La Niña to persist longer, potentially returning to ENSO-neutral during April-June 2022. The Niño-3.4 index has a 66% chance of reaching a value less than -1.0°C during November 2021 - January 2022, but only a 14% chance of being below -1.5°C. Thus, at its peak, a moderate-strength La Niña is favored. In summary, La Niña is likely to continue through the Northern Hemisphere winter 2021-22 (~90% chance) and into spring 2022 (~50% chance during March-May; 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. Nov. 18th).

6. Rainfall Verification ASO-August, September, October (Sony)

The verification result of **ASO** rainfall forecasts was 11 hits and 3 misses (Heidke score: 0.4116). The 3 missed stations were Guam, Saipan, and Kosrae.

Location	UKMO	ECMWF	CA	NASA	NCEP	IRI	APCC	Rainfall Outlook	Final Probs	3 mo Verification			PEAC ASO	PEAC ASO
										% norm	Total (in)	Tercile	Forecast Final	Probs Final
Palau														
Airai 7° 22' N, 134° 32' E	**Above**	Avg-above	Avg.	Avg-above	Avg-above	**Above**	Avg-above	Avg-above	**30:35:35**	140	60.57	**Above**		
FSM														
Yap 9° 29' N, 138° 05' E	**Above**	**Below**	Avg-below	Avg-above	Avg-above	Clim.	Avg.	Avg-above	**30:35:35**	95	38.39	**Avg.**		
Chuuk 7° 28'N, 151° 51'E	**Below**	**Below**	Avg.	Avg-above	Avg.	**Below**	Avg-below	Avg-below	**35:35:30**	107	38.76	**Avg.**		
Pohnpei 6° 59'N, 158° 12'E	**Below**	**Below**	Avg.	**Above**	Avg-below	**Below**	Avg.	**Below**	**40:30:30**	88	37.10	**Below**		
Kosrae 5° 21'N, 162° 57'E	**Below**	**Below**	Avg-above	Avg-below	Avg-below	Avg-above	Avg-below	**Below**	**40:30:30**	101	39.91	**Avg.**		
RMI														
Kwajalein 8° 43'N, 167° 44'E	**Below**	**Below**	Avg-above	Avg-above	Avg.	**Below**	Avg.	Avg-below	**35:35:30**	81	25.70	**Below**		
Majuro 7° 04' N, 171° 17'E	**Below**	Avg-below	Avg-above	Avg.	Avg.	**Above**	Avg-below	Avg-below	**35:35:30**	107	38.13	**Avg.**		
Guam and CNMI														
Guam 13° 29'N, 144° 48' E	**Below**	Avg-below	**Below**	**Below**	Avg.	Avg-below	Avg-below	~~Avg-below~~	**30:40:30**	138	53.73	**Above**	Avg.	**30:40:30**
Saipan 15° 06'N, 145° 48' E	**Below**	Avg-below	**Below**	**Below**	Avg.	**Below**	Avg-below	~~Avg-below~~	**30:40:30**	89	30.20	**Below**	Avg.	**30:40:30**
American Samoa														
Pago Pago 14° 20'S, 170° 43'W	Avg.	Avg-below	Avg-below	Avg.	Avg.	**Below**	Avg-below	Avg-below	**35:35:30**	73	15.53	**Below**		
State of Hawaii														
19.7° - 21.0' N, 155.0° - 159.5' W														
Lihue	**Below**	**Below**	Avg-below	Avg-below	Avg.	**Below**	Avg-below	Avg-below	**35:35:30**	68	4.82	**Below**		
Honolulu	**Below**	**Below**	Avg-below	Avg-below	Avg.	**Below**	Avg-below	Avg-below	**35:35:30**	**22**	0.46	**Below**		
Kahului	**Below**	**Below**	Avg-below	Avg-below	Avg.	**Below**	Avg-below	Avg-below	**35:35:30**	107	1.30	**Avg.**		
Hilo	**Below**	**Below**	Avg-below	Avg-below	Avg-below	**Below**	**Below**	Avg-below	**35:35:30**	98	25.75	**Below**		

11	Hit
3	Miss
Heidke:	0.4116
RPSS:	-0.1514

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

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwaj
below (<)								
33.33%	35.83	37.61	33.32	40.96	39.08	31.99	32.51	29.26
near								
66.66%	43.49	44.47	42.92	45.22	44.79	36.25	40.5	34.92
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	6.24	1.62	0.84	26.06	19.26	37.76
near						
66.66%	8.43	3.14	2.45	33.29	27.9	40.35
above (>)						

6. Rainfall Outlook NDJ– November, December, January (Sony)

OND Forecast Location	Rainfall Outlook	Probability Pre-Conference	Final Outlook	Final Probability
Palau				
Airai 7º 22' N, 134º 32' E	**Above**	**20:30:50**	-	-
FSM				
Yap 9º 29' N, 138º 05' E	**Above**	**20:35:45**	-	-
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	Avg-above	**35:35:30**	-	-
RMI				
Kwajalein 8º 43'N, 167º 44'E	Avg-above	**30:35:35**	-	-
Majuro 7º 04' N, 171º 17'E	Avg-above	**30:35:35**	-	-
Guam and CNMI				
Guam 13º 29'N, 144º 48' E	Avg.	**30:40:30**	-	-
Saipan 15º 06'N, 145º 48' E	Avg.	**30:40:30**	-	-
American Samoa				
Pago Pago 14º 20'S, 170º 43'W	Avg-above	**30:35:35**	-	-
State of Hawaii				
19.7º - 21.0' N, 155.0º - 159.5' W				
Lihue	Avg-above	**30:35:35**	-	-
Honolulu	Avg-above	**30:35:35**	-	-
Kahului	Avg-above	**30:35:35**	-	-
Hilo	Avg-above	**30:35:35**	-	-

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

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwaj
below (<)								
33.33%	29.21	21.82	30.16	38.94	14.88	11.78	32.31	21.12
near								
66.66%	38.94	28.08	36.49	47.32	21.97	16.53	36.56	25.30
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	8.57	3.89	5.16	26.44	32.98	44.1
near						
66.66%	16.95	8.76	9.46	42.99	47.68	55.78
above (>)						

Drought Monitoring Updates: (Richard Heim)

A. End-of-October Monthly Drought Assessment:

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

Ii. October was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) in the southern FSM (Kapingamarangi, Lukunor, Nukuoro) and parts of the RMI (Jaluit, Wotje), and Pago Pago (American Samoa); it was wet elsewhere. October was drier than normal at these stations and also Pohnpei (FSM) and Kwajalein (RMI) (because their normals during the wet season are higher than the monthly minimum); October was wetter than normal at the rest of the stations.

Iii The end-of-October monthly analysis (October 31) is consistent with the weekly analyses for October 26 and November 2, and is the same as the November 2 weekly analysis. Compared to the end-of-September monthly analysis:

A. D1 worsened to D2 at Kapingamarangi.

B. D0 began at Jaluit and Nukuoro.

C. D0 ended at Ailinglaplap.

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.

Iv. Some October 2021 precipitation ranks:

A. **Nukuoro**: October 2021 was the driest October in the 39-year record, with August-October fifth driest.

B. **Lukunor**: sixth driest October (in 37 years of data) and second driest August-October, but driest July-October and June-October.

C. **Kapingamarangi**: seventh driest October (32 years) and September-October, and fifth driest August-October, July-October, January-October, December-October, and November-October.

D. **Pago Pago**: seventh driest October (56 years) and fifth driest September-October.

E. **Pingelap**: eighth driest October (38 years) and September-October, but third driest August-October.

F. **Ailinglaplap**: ninth driest October (38 years), but May-October was driest on record, June-October second driest, and July-October and April-October third driest.

G. **Jaluit**: October 2021 was the ninth driest October in the 38-year record, but July-October ranked third driest, June-October fourth driest, and several other time scales ranked seventh driest including the last 12 months (November-October).

H. **Kwajalein**: 32nd driest October out of 70 years of data, but fifth driest June-October and sixth driest July-October and May-October.

I. **Pohnpei**: 28th driest October (71 years), but sixth driest August-October and seventh driest July-October; however, wet for the last 12 months with sixth wettest November-October.

J. **Airai**: wettest Oct & Sep-Oct (71 years), 2nd wettest 12 months (Nov-Oct).

K. **Guam**: wettest Oct (65 years).

Drought Monitoring Updates: (Richard Heim)- Continue

B. Current (Weekly) Drought Conditions: The discussion above is the monthly (end of October) analysis. The latest weekly USAPI USDM assessment may show different USDM classifications. The latest weekly USAPI USDM assessment is for November 16.

i. The November 16 analysis has D-Nothing at Jaluit and Nukuoro; otherwise, it is the same as the end of October analysis.

C. October 2021 NCEI State of the Climate Drought Report: The October 2021 NCEI SotC Drought report went online Friday last week.

i. The web page url is:

A. https://www.ncdc.noaa.gov/sotc/drought/202110#regional-usapi

D. USAPI USDM Authors: -- UPDATED AUTHORS

i. There are 7 USAPI USDM (OCONUS) authors and one backup: Ahira Sanchez-Lugo and myself (Richard Heim) from NCEI; Curtis Riganti, Denise Gutzmer, Tsegaye Tadesse (new), and Deb Bathke (backup) from NDMC; Brad Rippey (from USDA); Rich Tinker (from CPC).