NWS Climate Services

July PEAC Audio Conference Call Summary

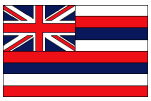
14 July, 1430 HST (15 July 2022, 0030 GMT)

June 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	June	Inches	inches	AMJ
Airai	14.19	83	17.01	-2.82	143
Yap	10.04	83	12.04	-2.00	142
Chuuk	7.93	68	11.66	-3.73	127
Pohnpei	18.02	122	14.81	3.21	130
Kosrae	20.39	139	14.64	5.75	154
Kwajalein	9.78	141	6.93	2.85	165
Majuro	7.78	71	11.01	-3.23	126
Guam NAS	4.88	79	6.18	-1.30	11.97
Saipan	3.84	106	3.62	0.22	11.01
Pago Pago	5.84	110	5.33	0.51	20.58
Lihue	0.47	37	1.28	-0.81	4.70
Honolulu	0.01	6	0.18	-0.17	1.45
Kahului	0.01	11	0.09	-0.08	0.28
Hilo	7.42	117	6.33	1.09	35.74

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 rain gages on Kauaʻi recorded below average totals for the month of June. Most of the totals were in the range of 30 to 60 percent of average. The U.S. Geological Survey's (USGS) rain gage on Mount Waiʻaleʻale had the highest monthly total of 21.40 inches (65 percent of average) and the highest daily total of 3.30 inches on June 8. The gage at ʻŌmaʻo had its lowest June total since 2009, and the gages at Līhuʻe Airport, Hanalei, and Kapahi had their lowest June totals since 2012.

Most of the gages on Kauaʻi had below average rainfall totals for 2022 through the end of June. The Mount Waiʻaleʻale gage had the highest year-to-date total of 144.67 inches (77 percent of average).

Oahu

June rainfall totals were below average at all of the rain gages on Oʻahu. Many of the leeward Oʻahu totals were below 20 percent of average. The USGS' Poamoho Rain Gage No. 1 had the highest monthly total of 6.17 inches (37 percent of average). The Mānoa Lyon Arboretum gage had the highest daily total of 0.86 inches on June 24. Records for the lowest June rainfall total were broken at Hawaiʻi Kai Golf Course, Kamehame, Kunia, Mililani, Waipiʻo, and Waimānalo. Honolulu Airport's 0.01 inches registered as its lowest June total since 1959, the year Hawaiʻi became a state. Less significant, but still noteworthy, Bellows Air Force Station, Luluku, Maunawili, Mānoa Lyon Arboretum, and Waiʻanae Valley had their lowest June totals since 2006.

Oʻahu rainfall totals for 2022 through the end of June were mostly below average. Many of these totals were between 40 and 70 percent of average. The Poamoho Rain Gage No. 1 had the highest year-to-date total of 56.72 inches (51 percent of average). Honolulu Airport's total (8.23 inches) was exactly on its year-to-date average. However, 5.84 inches of this total, or 71 percent, occurred during the first 4 days of the year.

Maui

It was another month of wide-ranging conditions for Maui County, from near to above average June totals along the windward slopes, to well below average totals over the lower leeward slopes. The USGS' rain gage at West Wailuaiki Stream had the highest monthly total of 16.30 inches (125 percent of average). Their rain gage on top of Puʻu Kukui had the highest daily total of 3.58 inches on June 20. Molokaʻi Airport's 0.03 inches (5 percent of average) marked its lowest June total since 2007.

Rainfall totals for 2022 through the end of June were below average at all of the rain gages across Maui County. Most of the year-to-date totals were below 50 percent of average, with Kahului Airport at only 7 percent of average. The Puʻu Kukui rain gage had the highest total of 98.96 inches (52 percent of average).

Big Island

June rainfall totals were near to below average at most of the windward and lower Kaʻū District gages, and at several sites in the North Kohala and South Kohala Districts. Rain gages along the slopes of the North Kona and South Kona Districts had mostly well-above average totals. The Waiʻaha rain gage had the highest monthly total of 17.99 inches (341 percent of average), and the highest daily total of 4.44 inches on June 22. The Honaunau and Pali 2 rain gages had their highest June totals since 1997 and 2004, respectively.

Most of the Big Island gages had near to below average rainfall totals for 2022 through the end of June. The USGS' rain gage at Honoliʻi Stream had the highest year-to-date total of 92.92 inches (84 percent of average). The total from Kawainui Stream was not too far behind at 91.30 inches (117 percent of average).

Kauai and Oahu lower than average rainfall during June. D2 drought on Oahu but far eastern side of Oahu very dry with record breaking low rainfall. Honolulu airport lowest rainfall since 1889. Kauai and central Maui and Molokai extreme drought.

Current State of ENSO and predictions

Issued 14 July 2022

ENSO Alert System Status: La Niña Advisory

Synopsis: **La Niña is favored to continue through 2022 with the odds for La Niña decreasing into the Northern Hemisphere late summer (60% chance in July-September 2022) before increasing through the Northern Hemisphere fall and early winter 2022 (62-66% chance).**

During June, below-average sea surface temperatures (SSTs) weakened across most of the central and eastern equatorial Pacific Ocean with SSTs returning to near-average in the east-central Pacific, as reflected by the Niño indices, which ranged from -0.4°C to -1.2°C during the past week. Subsurface temperatures anomalies averaged between 180°-100°W and 0-300m depth were weakly positive in June. Below-average subsurface temperatures persisted near the surface to ~75m depth in the eastern equatorial Pacific Ocean, with above-average temperatures at depth (~100 to 200m) in the western and central Pacific Ocean. Low-level easterly wind anomalies prevailed in the western and central equatorial Pacific, while upper-level westerly wind anomalies continued over most of the equatorial Pacific. Convection remained suppressed over the western and central Pacific and enhanced over Indonesia. Overall, the coupled ocean-atmosphere system was consistent with La Niña conditions.

The most recent IRI/CPC plume average for the Niño-3.4 SST index now forecasts La Niña to persist into the Northern Hemisphere winter 2022-23. The forecaster consensus also predicts La Niña to persist during the remainder of 2022, with odds for La Niña remaining at 60% or greater through early winter. Lowest odds occur during the next few months with a 60% chance of La Niña and a 39% chance of ENSO-neutral during July-September 2022. Subsequently, chances of La Niña increase slightly during the fall and early winter. In summary, La Niña is favored to continue through 2022 with the odds for La Niña decreasing into the Northern Hemisphere late summer (60% chance in July-September 2022) before increasing through the Northern Hemisphere fall and early winter 2022 (62-66% chance; click CPC/IRI consensus forecast for the chances in each 3-month period).

6. Rainfall Verification AMJ-March, April, May (Josie)

The verification result of **AMJ** rainfall forecasts was 9 hits and 5 misses (Heidke score: 0.4539). The 5 missed stations are Chuuk, Pohnpei, Guam, Pago Pago and Hilo.

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 MAM Forecast Final	Post Conference PEAC MAM Probs Final
Palau														
Airai 7° 22' N, 134° 32' E	Above	Above	Avg.	Avg.	Above	Above	Avg-above	Above	25:35:40	143	60.46	Above		
FSM														
Yap 9° 29' N, 138° 05' E	Above	Above	Avg-below	Avg.	Above	Above	Avg-above	Above	25:35:40	142	36.36	Above		
Chuuk 7° 28'N, 151° 51'E	Avg.	Avg.	Avg-below	Avg.	Avg-above	Clim.	Avg.	Avg.	30:40:30	127	44.99	Above		
Pohnpei 6° 59'N, 158° 12'E	Avg.	Avg.	Avg.	Avg-below	Avg-above	Clim.	Avg.	Avg.	30:40:30	130	69.20	Above		
Kosrae 5° 21'N, 162° 57'E	Avg-below	Avg-below	Avg-above	Below	Avg.	Below	Avg.	Avg.	30:40:30	154	76.60	Above	Avg-above	30:35:35
RMI														
Kwajalein 8° 43'N, 167° 44'E	Above	Above	Avg-above	Avg-above	Avg-above	Above	Above	Avg-above	30:35:35	165	31.16	Above		
Majuro 7° 04' N, 171° 17'E	Above	Avg-above	Avg-above	Avg-above	Avg.	Above	Avg.	Avg-above	30:35:35	126	38.52	Above		
Guam and CNMI														
Guam 13° 29'N, 144° 48' E	Above	Above	Avg.	Avg.	Avg-above	Above	Avg-above	Avg.	30:40:30	99	11.97	Below	Avg.	30:40:30
Saipan 15° 06'N, 145° 48' E	Above	Above	Avg.	Avg.	Avg-above	Above	Avg-above	Avg.	30:40:30	128	11.01	Avg.	Avg.	30:40:30
American Samoa														
Pago Pago 14° 20'S, 170° 43'W	Below	Below	Below	Avg-below	Avg-below	Below	Avg-below	Below	45:30:25	84	20.58	Below	Avg.	30:40:30
State of Hawaii														
19.7° - 21.0' N, 155.0° - 159.5' W														
Lihue	Avg-above	Avg-below	Avg.	Avg-below	Avg-below	Above	Avg.	Avg-below	35:35:30	100	4.70	Below	Avg-below	35:35:30
Honolulu	Avg-above	Avg-below	Avg.	Avg-below	Avg-below	Above	Avg.	Avg-below	35:35:30	132	1.45	Avg.	Avg-below	35:35:30
Kahului	Avg-above	Avg-below	Avg.	Avg-below	Avg-below	Above	Avg.	Avg-below	35:35:30	19	0.28	Below	Avg-below	35:35:30
Hilo	Avg-above	Avg-below	Avg.	Avg-below	Avg-below	Above	Avg.	Avg-below	35:35:30	158	35.74	Above	Avg-below	35:35:30

9	Hit
5	Miss
Heidke:	0.4539
RPSS:	-0.0315

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%	34.28	21	32.97	49.71	13.05	8.14	25.63	15.41
near								
66.66%	42.1	32.89	39.15	56.96	15.95	11.06	34.51	26.35
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	4.74	1.23	1.25	21.42	22.42	47.62
near						
66.66%	5.97	1.77	2.17	29.01	33.53	51.87
above (>)						

6. Rainfall Outlook JAS– July, August, September (Josie)

AMJ Forecast Location	Rainfall Outlook	Probability Pre-Conference	Final Outlook	Final Probability
Palau				
Airai 7º 22' N, 134º 32' E	Below	40:35:25	Avg-below	35:35:30
FSM				
Yap 9º 29' N, 138º 05' E	Below	50:30:20	-	-
Chuuk 7º 28'N, 151º 51'E	Below	40:30:30	Avg-below	35:35:30
Pohnpei 6º 59'N, 158º 12'E	Below	40:30:30	-	-
Kosrae 5º 21'N, 162º 57'E	Below	40:30:30	-	-
	-	-		
RMI				
Kwajalein 8º 43'N, 167º 44'E	Avg.	30:40:30	-	-
Majuro 7º 04' N, 171º 17'E	Below	40:30:30	-	-
Guam and CNMI				
Guam 13º 29'N, 144º 48' E	Below	40:30:30	Avg-below	35:35:30
Saipan 15º 06'N, 145º 48' E	Avg-below	35:35:30	-	-
American Samoa				
Pago Pago 14º 20'S, 170º 43'W	Below	40:35:25	-	-
State of Hawaii				
19.7º - 21.0' N, 155.0º - 159.5' W				
Lihue	Below	40:35:25	-	-
Honolulu	Below	40:30:30	-	-
Kahului	Below	40:30:30	-	-
Hilo	Below	40:30:30	Avg-below	35:35:30

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%	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 (>)						

Drought Monitoring Updates: (Richard Heim)

Drought monitoring updates.

Notes for USAPI USDM authors -- Highlights from Reports from Around the Region and drought discussion:

- Kwajalein: vegetation still pretty brown.
- Wotje: Satellite-derived precip looks dry Wotje & surrounding islands; probably last half of March before it gets better.
- Majuro: Not much crops on Majuro (limited bandana, taro, tree crops) so they focus on reservoir levels as impacts.
- Kapingamarangi & Nukuoro: Possibly could improve Kapinga & Nukuoro to D-Nothing next week if rains continue.
- Chuuk: Wildfires happening on Chuuk, vegetation is drying out. 2 water tanks service downtown area, are half full, in northern part of Chuuk. Guam, Saipan: were some decent fires in south part of Guam. Vegetation still green on Guam, D-nothing good. Saipan drier, but drought concerns are minimal.

Drought monitoring updates.

A. <u>End-of-May Monthly Drought Assessment</u>:

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

Ii. June was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) at Saipan (Marianas), Majuro & Jaluit (RMI), and Chuuk, Lukunor, Kapingamarangi, & Ulithi (FSM); it was wet elsewhere. June was drier than normal at Airai (Palau); Chuuk, Yap, Kapingamarangi & Lukunor (FSM); Majuro (RMI); and Guam (Marianas); June was wetter than normal at the rest of the main stations.

Iii. The end-of-June monthly analysis (June 30) is consistent with the weekly analyses for June 28 and July 5, and is the same as the June 28 analysis. Compared to the end-of-May monthly analysis:

a. Drought & abnormal dryness ended at Wotje.

b. D0 developed on Majuro.

c. D0 ended at Guam, Rota, & Saipan.

d. D1 intensified to D2 on Kapingamarangi.

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

f. Utirik and Fananu were plotted as missing due to missing data for the month.

iv. Some July 2022 precipitation ranks:

a. **Kapingamarangi:** driest May-June, April-June, & March-June (in a 28-year record); 2nd or 3rd driest rank for all other time periods (June and Feb-June thru July-June); last 12 months ranked as the 2nd driest July-June (19 years of data).

b. **Lukunor**: 3rd driest June (38 years).

c. **Ulithi**: 3rd driest June (38 years).

d. **Jaluit**: 5th driest June (38 years).

e. **Chuuk**: 7th driest June (71 years).

f. **Pago Pago:** 28th driest June (57 years of data), but 5th driest March-June & Sep-June.

g. **Pingelap:** 8th driest June (40 years) but 3rd driest May-June.

h. **Majuro:** 5th driest May-Jun (68 years).