NWS Climate Services

April PEAC Audio Conference Call Summary

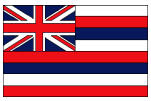
13 April, 1430 HST (14 April 2023, 0030 GMT)

March 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	March	Inches	inches	JFM
Airai	13.74	179	7.67	6.08	151
Yap	6.26	137	4.56	1.70	129
Chuuk	7.09	85	8.32	-1.23	125
Pohnpei	14.27	108	13.17	1.10	129
Kosrae	7.34	46	16.06	-8.72	117
Kwajalein	4.43	189	2.35	2.08	157
Majuro	11.12	169	6.58	4.54	155
Guam NAS	5.45	263	2.07	3.38	276
Saipan	2.61	138	1.89	0.72	240
Pago Pago	11.34	106	10.68	0.66	110
Lihue	6.12	236	2.59	3.53	298
Honolulu	2.65	335	0.79	1.86	213
Kahului	1.42	76	1.88	-0.46	138
Hilo	7.40	69	10.78	-3.38	169

Reports from around the Region



Hawaii (Kevin Kodama)

Precipitation Summaries for HI can also be found:

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

Kauai

March rainfall totals on the island of Kaua‘i were near to above average at most of the gages. The higher than normal frequency of southeasterly winds meant that the Wainiha and Kilohana gages were on the leeward side of the island on multiple days, which contributed to the below average monthly totals at these sites. The U.S. Geological Survey’s (USGS) rain gage on Mount Wai‘ale‘ale had the highest monthly rainfall total of 28.62 inches (76 percent of average), and the highest daily total of 7.49 inches on March 29. The February-March 2023 total of 29.26 inches at Kalāheo registered as the highest 2-month (any consecutive 2-months, not just February-March) total at this site since February-March 2006 (37.02 inches).

All of the gages on Kaua‘i had above average rainfall totals for 2023 through the end of March. The Mount Wai‘ale‘ale gage had the highest year-to-date total of 109.15 inches (125 percent of average).

Oahu

Rainfall totals for the month of March were near to below average at most of the gages on O‘ahu. The above average totals mainly came from the south-central side of the island. The USGS’ Poamoho Rain Gage No. 1 had the highest monthly total of 15.67 inches (74 percent of average), and the highest daily total of 3.85 inches on March 30.

Most of the rain gages on O‘ahu had near to above average rainfall totals for 2023 through the end of March. Below average totals were mostly on the north side of the island. The USGS’ Poamoho Rain Gage No. 1 had the highest year-to-date total of 53.86 inches (98 percent of average).

Maui

Maui County rainfall totals for the month of March were near to below average at most of the gages. Most of the above average totals were on the south side of the island of Maui, with most of the rainfall at these sites occurring during the cold front passages on March 6 and March 8. The USGS’ rain gage on top of Pu‘u Kukui had the highest monthly total of 22.32 inches (58 percent of average), and the highest daily total of 7.90 inches on March 2.

Rainfall totals for 2023 through the end of March were near to above average at most of the gages across Maui County. The USGS’ rain gage at West Wailuaiki Stream had the highest year-to-date total of 72.90 inches (114 percent of average).

Big Island

Big Island rainfall totals for the month of March were near to below average at most of the rain gages. The Glenwood rain gage had the highest monthly total of 20.51 inches (82 percent of average). The highest daily total of 7.26 inches was recorded by the USGS’ Saddle Road Quarry gage on March 1. The Kahuā Ranch and Hakalau gages had their highest March totals since 2005 and 2009, respectively.

Most of the Big Island rainfall totals were near to above average for 2023 through the end of March. Below average totals were mainly in the North Kohala and South Kohala Districts, with a few others in the South Kona District. The USGS’ rain gage at Honoli‘i Stream had the highest year-to-date total of 78.82 inches (140 percent of average).

Current State of ENSO and predictions

Issued 13 April 2023

ENSO Alert System Status: El Niño Watch

Synopsis: **ENSO-neutral conditions are expected to continue through the Northern Hemisphere spring, followed by a 62% chance of El Niño developing during May-July 2023.**

During the last month, above-average sea surface temperatures (SSTs) became more prominent in the western and far eastern equatorial Pacific Ocean. The latest weekly Niño-3.4 index value was 0.0°C, but the Niño1+2 index value was +2.7°C, indicating significant warming along the South American coast. Area-averaged subsurface temperatures also increased over the past month, reflecting the dominance of above-average subsurface temperatures across the equatorial Pacific Ocean. For the monthly average, upper-level and low-level winds were near normal across most of the equatorial Pacific Ocean. However, low-level westerly wind anomalies were evident in the first half of March associated with sub-seasonal activity. Suppressed convection was evident over the central tropical Pacific and over parts of Indonesia. While the warming near coastal South America was striking, the basin-wide coupled ocean-atmosphere system was consistent with ENSO-neutral.

The most recent IRI plume favors a transition to El Niño, beginning June-August 2023 and persisting into the winter. While the lower accuracy of forecasts during the spring can result in surprises, the recent oceanic Kelvin wave plus recurring westerly wind anomalies are anticipated to further warm the tropical Pacific Ocean. The coastal warming in the eastern Pacific may foreshadow changes across the Pacific basin. Therefore, an El Niño Watch has been issued, and the range of possibilities toward the end of the year includes a strong El Niño (4 in 10 chance of Niño-3.4 ≥ 1.5°C) to no El Niño (1 in 10 chance). In summary, ENSO-neutral conditions are expected to continue through the Northern Hemisphere spring, followed by a 62% chance of El Niño developing during May-July 2023.

6. Rainfall Verification (JFM)- January, February, March

The verification result of **JFM** rainfall forecasts was 13 hits and 1 misses (Heidke score: 0.7380).

January, February, March (JFM) 2023 Verification

Updated 4/11/2023 DJF

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	Avg-below	Above	Above	Avg-below	Above	Above	Above	Above	30:30:40	151	41.52	Above		
FSM														
Yap 9° 29' N, 138° 05' E	Below	Avg-above	Above	Avg-below	Above	Above	Above	Above	30:30:40	129	20.88	Avg.		
Chuuk 7° 28'N, 151° 51'E	Below	Avg-above	Above	Above	Above	Above	Above	Avg-above	30:35:35	125	32.03	Above		
Pohnpei 6° 59'N, 158° 12'E	Avg-below	Above	Above	Above	Above	Above	Above	Above	25:30:45	129	46.20	Above		
Kosrae 5° 21'N, 162° 57'E	Avg-below	Above	Above	Avg-below	Above	Avg-above	Above	Above	25:35:40	117	53.46	Above		
RMI														
Kwajalein 8° 43'N, 167° 44'E	Avg-below	Above	Avg-above	Above	Avg-above	Avg-above	Above	Above	25:35:40	157	12.83	Above		
Majuro 7° 04' N, 171° 17'E	Avg.	Above	Above	Above	Above	Above	Above	Above	25:35:40	155	32.77	Above		
Guam and CNMI														
Guam 13° 29'N, 144° 48' E	Below	Above	Avg-above	Avg.	Above	Above	Above	Above	25:35:40	276	25.16	Above		
Saipan 15° 06'N, 145° 48' E	Below	Above	Avg-above	Avg.	Above	Clim.	Above	Above	25:35:40	240	16.82	Above		
American Samoa														
Pago Pago 14° 20'S, 170° 43'W	Above	Below	Avg-below	Below	Avg.	Clim.	Below	Avg.	30:40:30	110	39.72	Avg.		
State of Hawaii														
19.7° - 21.0' N, 155.0° - 159.5' W														
Lihue	Above	Above	Above	Avg-above	Avg.	Clim.	Above	Avg-above	30:35:35	298	19.84	Above		
Honolulu	Above	Above	Above	Avg-above	Avg.	Clim.	Above	Avg-above	30:35:35	213	6.24	Avg.		
Kahului	Above	Above	Above	Avg-above	Avg.	Clim.	Above	Avg-above	30:35:35	138	7.24	Above		
Hilo	Above	Above	Above	Avg-above	Avg.	Clim.	Above	Avg-above	30:35:35	169	47.41	Above		

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 JFM season Indicates a **30%** chance (probability) for occurrence of **excess rainfall** during the **JFM** season, **35%** chance for occurrence of rainfall within a pattern considered **normal** during the JFM season, and **35%** chance for occurrence of **deficit** rainfall during the JFM season.

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

Hit	
Miss	
Heidke:	0.7380
RPSS:	0.1903

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

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwaj	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)														
33.33%	23.9	14.98	22.35	34.4	8.52	6.98	20.29	7.24	6.52	2.08	4.24	22	35.08	43.67
near														
66.66%	32.43	21.91	31.31	43.28	11.35	9.47	24.26	11.19	13.75	7.8	8.23	44.53	42.92	53.33
above (>)														

13	Hit
1	Miss
Heidke:	0.7380
RPSS:	0.1903

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%	23.9	14.98	22.35	34.4	8.52	6.98	20.29	7.24
near								
66.66%	32.43	21.91	31.31	43.28	11.35	9.47	24.26	11.19
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	6.52	2.08	4.24	22	35.08	43.67
near						
66.66%	13.75	7.8	8.23	44.53	42.92	53.33
above (>)						

6. Rainfall Outlook AMJ– April, May, June

FMA Forecast Location	Rainfall Outlook	Probability Pre-Conference	Final Outlook	Final Probability
Palau				
Airai 7º 22' N, 134º 32' E	Above	25:35:40	-	-
FSM				
Yap 9º 29' N, 138º 05' E	Above	25:35:40	-	-
Chuuk 7º 28'N, 151º 51'E	Avg-Above	30:35:35	-	-
Pohnpei 6º 59'N, 158º 12'E	Above	30:30:40	-	-
Kosrae 5º 21'N, 162º 57'E	Above	25:35:40	-	-
	-	-		
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-Above	30:35:35	-	-
Saipan 15º 06'N, 145º 48' E	Avg-Above	30:35:35	-	-
American Samoa				
Pago Pago 14º 20'S, 170º 43'W	Above	30:30:40	-	-
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 FMA Season based on 1981-2010 Pacific Rainfall Climatologies (Luke He)

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwaj
below (<)								
33.33%	26.86	14.74	30.3	46.13	7.61	5.88	21.02	9.74
near								
66.66%	33.44	22.41	36.94	58.61	11.51	8.02	32.44	21.13
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	5.32	1.83	2.45	22.5	27.97	51
near						
66.66%	7.98	3.05	4.64	34	38.33	55.49
above (>)						

Drought Monitoring Updates: (Richard Heim)

3. Drought monitoring updates.

A. End-of-March Monthly Drought Assessment:

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

ii. March was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) in the northern and western RMI, western FSM, parts of the northern and eastern FSM, and northern Marianas (Saipan); it was wet in Palau, American Samoa, and elsewhere in the Marianas, FSM, and RMI (Ailinglaplap, Majuro, and Mili). March was drier than normal at Chuuk, Kosrae, & Lukunor, and near or wetter than normal elsewhere.

iii. The end-of-March monthly analysis (March 31) is consistent with the weekly analyses for March 28 and April 4. Compared to the end-of-February monthly analysis:

A. D1 worsened to D2 at Wotje.

B. D1 continued at Kwajalein.

C. D0 continued on Kapingamarangi.

D. D0 began at Jaluit.

E. D0 ended at Lukunor & Pingelap.

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

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

iv. Some March 2023 precipitation ranks:

H. **Kapingamarangi:** 16th driest (18th wettest) March (in a 33-year record), but 2nd driest rank for May-March and April -March.

I. **Lukunor**: 17th driest March (39 years), and driest July-March through April-March.

J. **Jaluit:** 7th driest June-March through April-March (37 years).

K. At the wet end of the scale:

Mili: wettest rank for January-March through April-March. **Mili had 100 inches more rain than Jaluit over a period Brandon analyzed, so either Jaluit is undercatching or Mili is encouraging rain (due to siting issues).**

B. Current (Weekly) Drought Conditions:

The discussion above is the monthly (end of March) analysis. The latest weekly USAPI USDM assessment may show different USDM classifications. The latest weekly USAPI USDM assessment is for April 11.

The April 11 analysis has D0 at Ulithi, and D-Nothing at Kapingamarangi & Fananu, but is otherwise the same as the March monthly analysis.

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

The web page url for the March report is:

https://www.ncei.noaa.gov/access/monitoring/monthly-report/drought/202303#regional-usapi

D. USAPI USDM Authors:

CPC's Anthony Artusa is returning as a USAPI USDM author. There are now 9 USAPI USDM (OCONUS) authors and one backup: Ahira Sanchez-Lugo, Rocky Bilotta, and myself (Richard Heim) from NCEI; Curtis Riganti, Denise Gutzmer, Tsegaye Tadesse, and Deb Bathke (backup) from NDMC; Brad Rippey (from USDA); Rich Tinker (from CPC).