



# NWS Climate Services

## May PEAC Audio Conference Call Summary

### 13 May, 1430 HST (14 May 2021, 0030 GMT)



NOAA



UOG/WERI



UH/SOEST

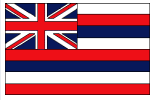


### April rainfall totals reported

% 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	April	Inches	inches	FMA
Airai	21.03	223	9.43	11.61	44.10
Yap	17.78	316	5.63	12.15	33.65
Chuuk	6.86	55	12.47	-5.61	36.70
Pohnpei	14.18	77	18.41	-4.23	48.92
Kosrae	18.63	106	17.51	1.12	68.11
Kwajalein	9.17	174	5.26	3.91	17.35
Majuro	12.71	135	9.42	3.29	31.60
Guam NAS	3.02	119	2.53	0.49	6.73
Saipan	2.02	77	2.63	-0.61	6.03
Pago Pago	7.14	76	9.39	-2.25	33.45
Lihue	1.52	78	1.94	-0.42	17.51
Honolulu	0.44	85	0.52	-0.08	6.19
Kahului	0.60	67	0.89	-0.29	10.94
Hilo	7.80	87	8.95	-1.15	45.92

## 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

April rainfall totals on Kauai were mostly below average. The monthly totals were mainly 40 to 70 percent of average. The U.S. Geological Survey's (USGS) rain gage on Mount Waialeale had the highest monthly total of 25.80 inches (68 percent of average) and the highest daily total of 4.06 inches on April 3.

Although conditions have been a bit dry recently, rainfall totals for 2021 through the end of April were above average across the entire island due to a wet February and March. Mount Waialeale had the highest year-to-date total of 216.83 inches (174 percent of average).

### Oahu

Oahu had a rather dry April with more than half of the gages logging below 50 percent of average rainfall for the month. There were isolated areas of above average rainfall totals in east Oahu and Kunia. The USGS' Halawa Tunnel rain gage had the highest monthly total of 11.32 inches (94 percent of average). The Maunawili gage had the highest daily total of 4.21 inches on April 28 due to rainfall associated with the above mentioned dissipating cold front. Records for the lowest April rainfall were broken at the Palisades and Waiawa Correctional Facility gages. Poamoho, Punaluu Pump, and Mililani had their lowest April totals since 1993, 1997, and 1998, respectively.

Despite the April dryness, rainfall totals for 2021 through the end of April were near to above average at all of the gages on Oahu. The USGS' Poamoho Rain Gage No. 1 had the highest year-to-date total of 91.35 inches (119 percent of average).

### Maui

Across Maui County, April rainfall totals indicated a wide range of conditions. The windward slopes of Haleakala, the West Maui Mountains, and Molokai had near to above average monthly totals. A portion of the leeward Haleakala slopes, from the Kula Forest Reserve to Ulupalakua and south Kihei, also had above average rainfall. Most of this was due to heavy rainfall from the upper level trough on April 11. Other leeward areas in Maui County had mostly below average rainfall, including Lahainaluna, which had its lowest April total since 2006. The USGS' rain gage at West Wailuaiki Stream had the highest monthly total of 25.62 inches (102 percent of average) and the highest daily total of 4.40 inches on April 4.

Rainfall totals for 2021 through the end of April were near to above average across Maui County. The West Wailuaiki Stream rain gage had the highest year-to-date total of 127.68 inches (143 percent of average). This was followed closely by the USGS gage on Puu Kukui, which had 126.57 inches (94 percent of average).

### Big Island

Most of the April rainfall totals across the Big Island were near to below average. The only above average totals were along the Kona slopes and in the Kahuku portion of the Kau District. Many of the sites had monthly totals in the range of 40 to 70 percent of average. Several sites in the South Kohala District and the leeward side of the North Kohala District had totals below 40 percent of average. The Piihonua gage had the highest monthly total of 14.58 inches (80 percent of average) and the highest daily total of 5.51 inches on April 5.

Although the past month was drier than average across most of the Big Island, rainfall totals for 2021 through the end of April were near to above average at most sites. The notable exceptions were along the slopes of the Kohala Mountains. This region did not receive the drenching that affected other parts of the state in March. The highest year-to-date total was 90.20 inches (142 percent of average) at Piihonua.

## Current State of ENSO and predictions

Issued: May 13, 2021

Final [La Niña Advisory](#)

**Synopsis: La Niña has ended, with ENSO-neutral likely to continue through the Northern Hemisphere summer (67% chance in June-August 2021).**

During April, the tropical Pacific Ocean returned to ENSO-neutral conditions as the coupling between the atmosphere and ocean weakened. Sea surface temperatures were near-to-below average across most of the equatorial Pacific Ocean in the past month. The Niño indices have generally trended toward normal during the last several months, except for the easternmost Niño-1+2 region, which was  $-0.7^{\circ}\text{C}$  in the past week. Subsurface temperature anomalies continued to increase due to a downwelling Kelvin wave, which reinforced the positive temperature anomalies along the thermocline. Low-level easterly wind anomalies were weakly present in the east-central Pacific, but were westerly in the far western Pacific Ocean, while upper-level wind anomalies remained westerly across the central and east-central tropical Pacific. Tropical convection became near average around the Date Line in the past month, with suppressed convection evident over Indonesia. Overall, the ocean and atmosphere system reflected a return to ENSO-neutral.

Most of the models in the IRI/CPC plume predict a continuation of ENSO-neutral through the Northern Hemisphere summer 2021. The forecaster consensus agrees with this set of models through the summer, and then begins hedging toward cooler conditions as the Northern Hemisphere fall approaches. La Niña chances are around 50-55% during the late fall and winter, which is in alignment with forecasts from the NCEP Climate Forecast System and North American Multi-model Ensemble. However, there is typically large uncertainty with forecasts made in the spring, so confidence in ENSO-neutral for the coming seasons is highest. In summary, La Niña has ended, with ENSO-neutral likely to continue through the Northern Hemisphere summer (67% chance in June-August 2021; click [CPC/IRI consensus forecast](#) for the chances in each 3-month period).

This discussion is a consolidated effort of the National Oceanic and Atmospheric Administration (NOAA), NOAA's National Weather Service, and their funded institutions. Oceanic and atmospheric conditions are updated weekly on the Climate Prediction Center web site ([El Niño/La Niña Current Conditions and Expert Discussions](#)). Additional perspectives and analysis are also available in an [ENSO blog](#). A probabilistic strength forecast is [available here](#). The next ENSO Diagnostics Discussion is scheduled for 10 June 2021.

## 6. Rainfall Verification FMA– February, March, April (Sony)

The verification result of **FMA** rainfall forecasts was 12 hits and 2 misses (Heidke score: 0.5544). All but two stations missed the forecast. The 2 missed stations were Guam and Saipan.

DJF Verification Location	Rainfall Outlook	Final Probs	3 month Verification		
			% norm	Total (in)	Tercile
<b>Palau</b>					
Airai 7° 22' N, 134° 32' E	Above	20:30:50	164	44.10	Above
<b>FSM</b>					
Yap 9° 29' N, 138° 05' E	Above	25:35:40	219	33.65	Above
Chuuk 7° 28' N, 151° 51' E	Avg-above	30:35:35	131	36.70	Above
Pohnpei 6° 59' N, 158° 12' E	Avg-above	30:35:35	119	48.92	Above
Kosrae 5° 21' N, 162° 57' E	Avg-above	30:35:35	146	68.11	Above
<b>RMI</b>					
Kwajalein 8° 43' N, 167° 44' E	Avg-above	30:35:35	169	17.35	Above
Majuro 7° 04' N, 171° 17' E	Avg-above	30:35:35	138	31.60	Above
<b>Guam and CNMI</b>					
Guam 13° 29' N, 144° 48' E	Avg-above	30:35:35	88	6.73	Below
Saipan 15° 06' N, 145° 48' E	Avg-above	30:35:35	85	6.03	Below
<b>American Samoa</b>					
Pago Pago 14° 20' S, 170° 43' W	Avg.	30:40:30	104	33.45	Avg.
<b>State of Hawaii</b>					
19.7° - 21.0' N, 155.0° - 159.5'					
Lihue	Avg-above	30:35:35	275	17.53	Above
Honolulu	Avg-above	30:35:35	269	6.19	Above
Kahului	Avg-above	30:35:35	285	10.94	Above
Hilo	Avg-above	30:35:35	163	45.92	Above

Heidke:	0.5202
RPSS:	0.1436

### 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%	22.53	14.18	25.26	38.32	6.88	6.15	21.03	8.63
near								
66.66%	31.23	19.83	31.4	48.92	10.04	8.74	28.4	16.52

above (>)

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	5.78	1.88	3.25	24.59	32.29	45.07
near						
66.66%	9.92	4.7	6.41	45.54	36.83	52.02

above (>)

## 6. Rainfall Outlook MAM– March, April, May (Sony)

(-) means no changes were made to original rainfall outlook/probability

MAM Forecast	Rainfall	Probability	Final	Final
Location	Outlook	Pre-Conference	Outlook	Probability
<b>Palau</b>				
Airai 7° 22' N, 134° 32' E	Avg-above	30:35:35	Above	25:35:40
<b>FSM</b>				
Yap 9° 29' N, 138° 05' E	Avg-above	30:35:35	-	-
Chuuk 7° 28' N, 151° 51' E	Avg-above	30:35:35	-	-
Pohnpei 6° 59' N, 158° 12' E	Above	25:35:40	-	-
Kosrae 5° 21' N, 162° 57' E	Avg-above	30:35:35	-	-
<b>RMI</b>				
Kwajalein 8° 43' N, 167° 44' E	Avg-above	30:35:35	-	-
Majuro 7° 04' N, 171° 17' E	Above	30:30:40	-	-
<b>Guam and CNMI</b>				
Guam 13° 29' N, 144° 48' E	Avg-above	30:35:35	-	-
Saipan 15° 06' N, 145° 48' E	Avg-above	30:35:35	-	-
<b>American Samoa</b>				
Pago Pago 14° 20' S, 170° 43' W	Avg-below	35:35:30	-	-
<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 MAM Season based on 1981-2010 Pacific Rainfall Climatologies (Luke He)

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwai
below (<)								
33.33%	42.33	31.95	34.01	45.79	18.47	13.58	30.51	20.99
near								
66.66%	55.62	39.5	37.92	54.28	25.81	18.53	33.4	26.52

above (>)

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	4.87	0.84	0.7	20.19	18.47	45.01
near						
66.66%	5.93	1.62	1.83	29.13	26.83	50.14

above (>)

A. End-of-April Monthly Drought Assessment:

- i. With WxCoder III data, we have 23 stations in the monthly analysis.
- ii. April was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) in the Marianas, northern (Wotje) & southern (Jaluit) Marshalls, Chuuk & Fananu in the FSM, and American Samoa (Pago Pago); it was wet elsewhere. April was drier than normal at Saipan, Chuuk, Pohnpei, and Pago Pago, and wetter than normal elsewhere. The end-of-April monthly analysis (April 30) is consistent with the weekly analyses for April 27 and May 4, and is the same as the May 4 analysis. Compared to the end-of-March monthly analysis:
  - a. The USDM status worsened at Guam and Rota (D0 to D1).
  - b. The USDM status improved at Kapingamarangi (D2 to D1).
  - c. The USDM status changed from S to SL (but stayed D3) at Wotje.
  - d. The USDM status stayed the same at the other stations:
    1. D1 at Saipan and Kwajalein.
    2. D-Nothing everywhere else.
  - e. Utirik was plotted as missing due to missing data for the month.
- iii. Some April 2021 precipitation ranks:
  - a. **Kapingamarangi:** 3<sup>rd</sup> wettest April improved long-term ranks: May-Apr (12-month period) is still driest in 16 years, but Aug-Apr, Jul-Apr, & Jun-Apr (last 9, 10, 11 months) are now 2<sup>nd</sup> driest instead of driest.
  - b. **Saipan:** 20<sup>th</sup> driest (22<sup>nd</sup> wettest) April, but 3<sup>rd</sup> driest May-Apr & Jun-Apr (last 11 & 12 months) in a 32-year record.
  - c. **Jaluit:** 9<sup>th</sup> driest April (38 years), & 7<sup>th</sup> driest May-Apr, Jun-Apr, & Jul-Apr (last 10, 11, 12 months) out of 35 or 36 years.
  - d. **Wotje:** even though Wotje hasn't been getting much rain, their worst rank is 10<sup>th</sup> driest Dec-Apr (out of 35 years); April was 15<sup>th</sup> wettest (38 years).
  - e. On wet side: 2<sup>nd</sup> wettest April at Yap & Palau IAP; Ailinglaplap was wettest on record for several time periods (Mar-Apr and Oct-Apr back through May-Apr); and Yap wettest on record for several time periods (Dec-Apr back through Aug-Apr).

B. Current (Weekly) Drought Conditions: The discussion above is the monthly (end of April) analysis. The latest weekly USAPI USDM assessment may show different USDM classifications. The latest weekly USAPI USDM assessment is for May 11.

- i. The May 11 analysis has Guam, Rota, Saipan, and Kapingamarangi improved to D0; Wotje improved to D2; and Kwajalein still at D1.

C. April 2021 NCEI State of the Climate Drought Report: The April 2021 NCEI SotC Drought report went online yesterday (Wednesday, May 12).

[View web page online](#)

## 7. Drought monitoring updates (Continue).

- ii. Percent of Normal Precipitation is also used to identify areas to look at. If below normal, location is a candidate for drought.
- iii. It's not that straightforward for the USAPI.
  - a. The monthly normal precipitation amount can vary significantly from month to month due to the strong seasonality of equatorial Pacific precipitation resulting from the seasonal migration of the Inter-Tropical Convergence Zone (ITCZ) and occurrence of tropical cyclones.
  - b. During the wet season, the monthly normal can be well above the monthly minimum precipitation needed to meet most water needs.
    - 1. In these cases, the station can be below normal and have a negative SPI, yet still have plenty of rain and not be in any danger of being in drought.
    - 2. This is one reason why the monthly and weekly minimum rainfall criteria are so important.

### E. Automated Ingest of Daily Rainfall Data: -- NO CHANGE IN STATUS

- i. Automated Program: -- NCEI changed servers in June 2020, so the automated program is now running on climon-prod instead of cmb-us. It is also running in parallel on climon-dev. The automated program that ingests the USAPI station daily data has been modified to send out a master file of the current data to the authors, in case NCEI's web pages go down because of a future government shut down or for other reasons.
  - ii. Updates and Fixes
    - a. **Kwajalein is getting into the automated data system now, but Pago Pago still is not getting in on a regular basis. Efforts are being made to get Pago Pago in there.**
    - b. *Find out why Saipan's ASOS data are being transmitted and getting into our automated process instead of the manual gauge WxCoder III data.*
    - c. *Add new stations to the automated process (Capital Hill 1, Nimitz Hill, Koror COOP, Mwoak'illoa). I need to identify the WxCoder I.D. call sign and the COOP station numbers for these stations, then find them in our (NCEI) metadata base, then determine if they are being captured from the NOAAPort feed.*
  - iii. Web interface: url is:
    - a. <https://www.ncdc.noaa.gov/temp-and-precip/drought/usapi-pcp/>
    - b. The "All Indicators" tab is the most used tab by USDM authors:
      - 1. <https://www.ncdc.noaa.gov/temp-and-precip/drought/usapi-pcp/all>
    - c. The "Weekly", "Monthly", and "Seasonal" tabs have data tables as well as maps plotting the values.
    - d. The web page is updated automatically every day by a computer program that automates the ingest and processing of the data. The program runs every morning at 10 a.m. EST; it also sends out an email every day containing daily and weekly rainfall totals for several USAPI stations.
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## 7. Drought monitoring updates (Continue).

- e. Some data on the web page are color coded to indicate wet or dry conditions (weekly and monthly precipitation totals), missing days (grey), and USDM categories (monthly and seasonal rank percentiles).
- f. The web page is for internal use by NWS Pacific Island personnel and USDM author personnel. It is not for public release (NCEI does not have the staff to answer questions from the public and media and other users about why there is missing data).

### F. USAPI USDM Authors: -- NO CHANGE IN STATUS

- i. The OCONUS (USAPI) USDM became an operational product at the beginning of March, with authorship rotating amongst the NCEI, NDMC, USDA, & CPC authors.
- ii. There are 7 USAPI USDM (OCONUS) authors: Ahira Sanchez-Lugo and myself (Richard Heim) from NCEI; Curtis Riganti, Claire Shield, and Deb Bathke from NDMC; Brad Rippey (from USDA); Anthony Artusa (from CPC).
  - a. Claire, Curtis, & Brad have authored besides Ahira & me.
- iii. With the June 4, 2019 map, the U.S. Virgin Islands have been added to the USDM product suite. The USDM web site (<https://droughtmonitor.unl.edu/>) has been revised so that two USDM products (sets of maps) are produced each week: a CONUS USDM and an OCONUS USDM. The OCONUS USDM includes the USAPI and the US Virgin Islands (dots), while the CONUS USDM is what has been done for years (50 States & Puerto Rico) (polygon shapefiles).

### G. USAPI Listserv: -- NO CHANGE IN STATUS

- i. NDMC (National Drought Mitigation Center) set up a listserv for communication of the USAPI USDM analyses and discussion, similar to the listservs that were set up for the Mainland and for the U.S. Virgin Islands. **We have been using this for communications, both for sending out the USAPI USDM analyses and it is also for NWS offices to report drought impacts to the authors and rest of the group.**
- ii. If others want to be added to the listserv, let me (Richard Heim) or Brian Fuchs know and Brian will get them added.
- iii. There is also a DMUpdate Listserv for those who just want to know when the new USDM maps are released.

Discussion: I mentioned that, if I depart before we get to normals (Part 8) discussion, I should be able to switch to the 1991-2020 monthly normal median precip values easily (since Mike Palecki computes them), but if he doesn't compute the normal median multi-month periods, then it may take me some time to generate those median normals myself.