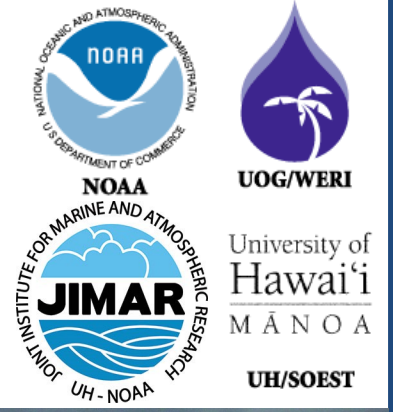




# NWS Climate Services

## July PEAC Audio Conference Call Summary

### 10 July, 1430 HST (11 July 2021, 0030 GMT)

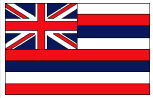


#### June rainfall totals reported

% 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     | 9.87     | <b>58</b>  | 17.01  | <b>-7.14</b> | 51.96   |
| Yap       | 10.35    | 86         | 12.04  | <b>-1.69</b> | 36.72   |
| Chuuk     | 7.00     | 60         | 11.66  | <b>-4.66</b> | 41.39   |
| Pohnpei   | 20.95    | <b>141</b> | 14.81  | <b>6.14</b>  | 65.51   |
| Kosrae    | 28.33    | <b>194</b> | 14.64  | <b>13.69</b> | 74.33   |
| Kwajalein | 4.61     | 67         | 6.93   | <b>-2.32</b> | 22.23   |
| Majuro    | 9.28     | 84         | 11.01  | <b>-1.73</b> | 50.80   |
| Guam NAS  | 5.08     | 82         | 6.18   | <b>-1.10</b> | 15.24   |
| Saipan    | 5.71     | <b>158</b> | 3.62   | <b>2.09</b>  | 10.58   |
| Pago Pago | 11.32    | <b>212</b> | 5.33   | <b>5.99</b>  | 26.17   |
| Lihue     | 1.01     | 79         | 1.28   | <b>-0.27</b> | 3.02    |
| Honolulu  | 0.06     | <b>33</b>  | 0.18   | <b>-0.12</b> | 0.53    |
| Kahului   | 0.00     |            | 0.09   | <b>-0.09</b> | 0.74    |
| Hilo      | 2.26     | <b>36</b>  | 6.33   | <b>-4.07</b> | 16.23   |

## 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

June rainfall totals across Kauai were mostly near to below average. Several leeward sites west of Hanapepe had well above average totals. However, the averages for this time of the year are less than half an inch, so even monthly totals of just one-half to an inch of rainfall will produce very high percent of average values. The U.S. Geological Survey's (USGS) rain gage on Mount Waialeale had the highest monthly total of 26.57 inches (81 percent of average), and the highest daily total of 4.63 inches on June 3. The rain gage at Wainiha posted its lowest June total since 2009.

Despite the recent dryness, rainfall totals for 2021 through the end of June were still above average across Kauai due to wet conditions in February and March. Mount Waialeale had the highest year-to-date total of 270.43 inches (143 percent of average).

### Oahu

Oahu rain gages recorded mostly below average June totals, with many below 50 percent of average. The Manoa Lyon Arboretum gage had the highest monthly total of 7.54 inches (64 percent of average). The USGS' Halawa Tunnel Rain Gage had the highest daily total of 1.88 inches on June 11. Along the windward slopes of the Koolau Range, the Ahuimanu Loop, Punaluu Pump, and Waihee Pump rain gages had their lowest June totals since 2004. On the leeward side of the island, Lualualei and Honolulu Airport had their lowest June totals since 2007 and 2009, respectively.

The rainfall totals for 2021 through the end of June were near to above average at most of the gages across Oahu, despite the recent dryness. The USGS' Poamoho Rain Gage No. 1 had the highest year-to-date total of 106.40 inches (96 percent of average).

### Maui

All of the gages across Maui County had below average June rainfall totals. The USGS' rain gage at West Wailuaiki Stream had the highest monthly total of 5.82 inches, but this was just 44 percent of average. The USGS' Puu Kukui rain gage had the highest daily total of 1.18 inches on June 7. On the island of Maui, the Mahinahina gage tied its record low June rainfall total of 0.38 inches set in 2013. The Haiku and Kula Branch Station rain gages had their lowest June totals since 1991 and 1999, respectively. Elsewhere in Maui County, the Molokai Airport and Lanai 1 rain gages had their lowest June totals since 2007.

While some areas had their lowest June totals in over a decade, most of the Maui County rainfall totals for 2021 through the end of June were still near to above average due to wet conditions early in the year. The Puu Kukui rain gage had the highest year-to-date total of 150.48 inches (79 percent of average).

### Big Island

Although the trade winds persisted throughout the month of June, most of the highest rainfall totals came from the leeward side of the island instead of the windward side. Many of the totals from the windward districts of South Hilo and Puna were in the range of 2 to 6 inches. Several totals from the Kona slopes region were from 6 inches to more than 10 inches. Among the automated rain gages, the USGS' rain gage at Kawainui Stream had the highest monthly total of 11.02 inches (112 percent of average). However, a manually read CoCoRaHS volunteer network gage at Holualoa in the North Kona District had a higher June total of 11.22 inches, including the highest daily total of 3.73 inches logged on the morning of June 20. Most of this rainfall likely occurred on the afternoon and evening of June 19. This is the second consecutive month where this site had the highest monthly rainfall total on the Big Island. The unusual June rainfall conditions also resulted in a highest and lowest monthly rainfall record broken in the same month on one island. On the high side, the Kealakekua rain gage posted its highest June rainfall total in a data record going back to 1991. In contrast, Upolu Airport, on the north tip of the Big Island, reported its lowest June rainfall total. The data record for this site also goes back to 1991.

Rainfall totals for 2021 through the end of June were near to above average at most of the Big Island gages. The main exceptions were along the slopes of the Kohala Mountains and in the Pohakuloa region of the island. The Piihonua gage had the highest year-to-date total of 107.23 inches (120 percent of average).



**American Samoa** : (Joseph Laplante)

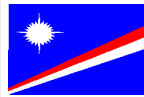
Things have been very quiet. A flash flooding warning issued in the beginning of the month with high winds and some erosion that took place. Strong trade winds with shear line going over the territory that stalled temporarily which dumped a lot of rain.

## Reports from around the Region CON'T



**Kwajalein** (Nick Mirsky):

June was quiet and not exciting month. June highlights include some lightning and thunderstorms on 4th and 5th. No reports of inundation. Vegetation is a little dry but not quite bad yet.



**Majuro** (Brandon):

The ITCZ favored the southern Marshals and they received 9.28 inches.



**Pohnpei** (Eden Skilling)

Pohnpei received a good amount of rain (20.95 inches). Several flood statements were issued but no reports of inundation.



**Kosrae** (Eden Skilling):

Kosrae issued several flood statements (28.83 inches) in June but no reports of inundation.



**Chuuk** (Sanchez Salle):

One missing boat incident with 4 missing and search still in progress. Update on Fenanu and they have not been reporting due to radio issues.



**Yap** (N/A)



**Palau** (Kikuko Mochimaru):

It was somewhat dry into the third week of June with mainly island heating and weak trade wind troughs producing most of the rain. Majority of the stations measured below the 3-week minimum (~2.00 inches/week). By the end of the month, most stations recorded more than 8 inches of rainfall with Peleliu falling very short at 0.46 inches. Palau Public Utility Corporation (PPUC) reported water levels of 4.58 ft. for Peleliu with Maximum capacity at 5.4 ft. Overall Airai and Koror measured below average rainfall totals for the month of June. Temperatures and departures across Palau, with exception to Peleliu, were below normal.

## Reports from around the Region CON'T



### Guam and CNMI (Chip & Landon):

Guam received 0.49 inches for the past week, less than half of the weekly minimum of 1 inch needed. Saipan ASOS received 0.72 inches, the Saipan manual gauge registered 1.15 inches, and Saipan (NPS) received 0.42 inches. Rota remained dry again, receiving just 0.11 inches for the week, on the heels of two dry weeks with rainfall amounting to 0.17 and 0.38 for the weeks ending June 23 and June 30.

### Tropical Cyclones (Mark Landers):

Quiet T.C. period so far with what seems to be a strong La Nina season.

## 5. Current State of ENSO and predictions

Issued 8 July 2021

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

**Synopsis:** **ENSO-neutral is favored through the Northern Hemisphere summer and into the fall (51% chance for the August-October season), with La Niña potentially emerging during the September-November season and lasting through the 2021-22 winter (66% chance during November-January).**

Near-average sea surface temperatures, consistent with ENSO-neutral conditions, were observed across most of the equatorial Pacific Ocean during June. In the last week, most Niño indices were near zero except for the Niño-1+2 index, which was +0.3°C. Subsurface temperature anomalies were slightly positive (averaged from 180-100°W) and remained steady during the month. However, in parts of the eastern Pacific, below-average subsurface temperature anomalies returned near the thermocline. For the month, the low-level and upper-level winds were near average across most of the equatorial Pacific Ocean. Tropical convection was suppressed near the Date Line, while remaining mostly near average elsewhere. Overall, the ocean and atmosphere system reflected ENSO-neutral conditions.

A majority of the models in the IRI/CPC plume predict ENSO-neutral to continue through the fall and winter 2021-22. However, the latest forecast model runs from the NCEP CFSv2, many of the models from the North American Multi-Model Ensemble, and some models from our international partners indicate the onset of La Niña during the Northern Hemisphere fall, continuing into winter 2021-22. The forecaster consensus favors these model ensembles, while also noting the historical tendency for a second winter of La Niña to follow the first. In summary, ENSO-neutral is favored through the Northern Hemisphere summer and into the fall (51% chance for the August-October season), with La Niña potentially emerging during the September-November season and lasting through the 2021-22 winter (66% chance during November-January; click [CPC/IRI consensus forecast](#) for the chances in each 3-month period).

## 6. Rainfall Verification AMJ– April, May, June (Sony)

The verification result of AMJ rainfall forecasts was 10 hits and 4 misses (Heidke score: 0.4503). The stations that hit the forecasts were: Airai, Yap, Chuuk, Pohnpei, Kosrae, Kwajalein, Majuro, Guam, Saipan, and Pago Pago. The 5 missed stations were Lihue, Honolulu, Kahului, and Hilo.

| Location                           | UKMO      | ECMWF     | CA        | NASA      | NCEP      | IRI       | APCC      | Rainfall Outlook | Final Probs | 3 mo Verification |            |         | PEAC AMJ  | PEAC AMJ |
|------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------------|-------------|-------------------|------------|---------|-----------|----------|
|                                    |           |           |           |           |           |           |           |                  |             | % norm            | Total (in) | Tercile | Forecast  | Probs    |
| <b>Palau</b>                       |           |           |           |           |           |           |           |                  |             |                   |            |         |           |          |
| Airai 7° 22' N, 134° 32' E         | Avg.      | Above     | Above     | Avg-above | Avg.      | Above     | Above     | Above            | 25:35:40    | 123               | 51.96      | Above   | Avg-above | 20:40:40 |
| <b>FSM</b>                         |           |           |           |           |           |           |           |                  |             |                   |            |         |           |          |
| Yap 9° 29' N, 138° 05' E           | Avg-above | Above     | Above     | Avg.      | Avg.      | Above     | Above     | Above            | 25:35:40    | 144               | 36.72      | Above   |           |          |
| Chuuk 7° 28' N, 151° 51' E         | Avg-above | Above     | Above     | Avg-above | Avg-above | Above     | Above     | Above            | 25:35:40    | 117               | 41.39      | Above   |           |          |
| Pohnpei 6° 59' N, 158° 12' E       | Avg-above | Above     | Above     | Avg-above | Avg-above | Above     | Above     | Above            | 25:35:40    | 123               | 65.51      | Above   |           |          |
| Kosrae 5° 21' N, 162° 57' E        | Avg-above | Avg.      | Above     | Below     | Above     | Above     | Above     | Avg-above        | 30:35:35    | 148               | 73.74      | Above   |           |          |
| <b>RMI</b>                         |           |           |           |           |           |           |           |                  |             |                   |            |         |           |          |
| Kwajalein 8° 43' N, 167° 44' E     | Avg-above | Above     | Avg.      | Avg-above | Avg.      | Avg.      | Avg-above | Avg-above        | 30:35:35    | 118               | 22.23      | Avg.    |           |          |
| Majuro 7° 04' N, 171° 17' E        | Avg-above | Avg.      | Avg-above | Avg.      | Avg.      | Above     | Avg-above | Avg-above        | 30:35:35    | 166               | 50.80      | Above   |           |          |
| <b>Guam and CNMI</b>               |           |           |           |           |           |           |           |                  |             |                   |            |         |           |          |
| Guam 13° 29' N, 144° 48' E         | Above     | Above     | Above     | Avg.      | Avg.      | Above     | Avg-above | Above            | 25:35:40    | 126               | 15.24      | Avg.    | Avg-above | 30:35:35 |
| Saipan 15° 06' N, 145° 48' E       | Above     | Above     | Above     | Avg-above | Avg-above | Above     | Above     | Above            | 25:30:45    | 123               | 10.58      | Avg.    | Avg-above | 30:35:35 |
| <b>American Samoa</b>              |           |           |           |           |           |           |           |                  |             |                   |            |         |           |          |
| Pago Pago 14° 20' S, 170° 43' W    | Clim.     | Below     | Avg-below | Avg.      | Avg.      | Below     | Avg-below | Avg-below        | 35:35:30    | 107               | 26.17      | Avg.    |           |          |
| <b>State of Hawaii</b>             |           |           |           |           |           |           |           |                  |             |                   |            |         |           |          |
| 19.7° - 21.0° N, 155.0° - 159.5° W |           |           |           |           |           |           |           |                  |             |                   |            |         |           |          |
| Lihue                              | Above     | Avg-above | Avg.      | Avg-above | Avg.      | Avg-above | Avg-above | Avg-above        | 30:35:35    | 64                | 3.02       | Below   |           |          |
| Honolulu                           | Above     | Avg.      | Avg.      | Avg-above | Avg.      | Clim.     | Avg-above | Avg-above        | 30:35:35    | 48                | 0.53       | Below   |           |          |
| Kahului                            | Avg.      | Avg.      | Avg.      | Avg.      | Avg.      | Avg-below | Avg-above | Avg.             | 30:40:30    | 50                | 0.71       | Below   |           |          |
| Hilo                               | Avg.      | Avg.      | Avg.      | Avg-above | Avg.      | Below     | Avg.      | Avg.             | 30:40:30    | 72                | 16.23      | Below   |           |          |

|         |        |
|---------|--------|
| 10      | Hit    |
| 4       | Miss   |
| Heidke: | 0.4503 |
| RPSS:   | 0.0775 |

### 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%    | 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 (Sony)

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

### Tercile Cut-offs for JAS 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 (>)

A. End-of-June Monthly Drought Assessment:

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) in the Marianas at Rota; in the Marshalls at Ailinglaplap, Kwajalein, & Wotje; and at a few places in the FSM (Chuuk & Woleai); it was wet elsewhere. June was drier than normal at about half of the stations (Guam, Yap, Airai, Chuuk, Kapingamarangi, Kwajalein, & Majuro) and wetter than normal at the other half (Saipan, Lukunor, Pohnpei, Kosrae, Pago Pago). The end-of-June monthly analysis (June 30) is consistent with the weekly analyses for June 29 and July 6, and is the same as the June 29 analysis. Compared to the end-of-May monthly analysis:

A. The USDM status improved at Kapingamarangi (D0 to D-Nothing).

B. The USDM status improved at Wotje (D1 to D0).

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

D. Utirik, Ulithi, & Fananu were plotted as missing due to missing data for the month.

iii. Some June 2021 precipitation ranks:

A. **Kapingamarangi:** 16<sup>th</sup> driest (16<sup>th</sup> wettest) June (out of a 31-year record), but still 2<sup>nd</sup> driest Aug-June & July-June (last 11 & 12 months) (18-19 year record).

B. **Saipan:** ninth wettest June, but 5<sup>th</sup> driest July-June in a 32-year record.

C. **Chuuk:** 3<sup>rd</sup> driest June (in 70 years)

D. **Woleai:** 5<sup>th</sup> driest June (39 years)

E. **Ailinglaplap:** 5<sup>th</sup> driest June and 2<sup>nd</sup> driest May-June (38 years), but 2<sup>nd</sup> wettest July-June thru Oct-Jun (last 9 thru 12 months).

F. **Kwajalein:** 6<sup>th</sup> driest June (70 years)

G. **Wotje:** 8<sup>th</sup> driest June & 7<sup>th</sup> driest May-June (37 years).

H. On wet side: 3<sup>rd</sup> wettest June at Kosrae (54 years), Nukuoro (39 years), Pingelap (39 years).

B. Current (Weekly) Drought Conditions: The discussion above is the monthly (end of June) analysis. The latest weekly USAPI USDM assessment may show different USDM classifications. The latest weekly USAPI USDM assessment is for July 6.

i. The July 6 analysis has D0-S at Ailinglaplap & Kwajalein.

C. June 2021 NCEI State of the Climate Drought Report: The June 2021 NCEI SotC Drought report will go online next week (Wednesday, July 14).

The web page url will be:

i. <https://www.ncdc.noaa.gov/sotc/drought/202106#regional-usapi>