NWS Climate Services

August PEAC Audio Conference Call Summary

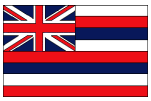
13 August, 1430 HST (14 August 2020, 0030 GMT)

July 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	July	Inches	inches	MJJ
Airai	10.13	51	19.87	-9.74	48.58
Yap	7.71	51	15.08	-7.37	34.49
Chuuk	7.77	65	11.98	-4.21	32.31
Pohnpei	9.53	62	15.43	-5.90	46.14
Kosrae	14.26	96	14.91	-0.65	66.97
Kwajalein	8.82	89	9.87	-1.05	21.06
Majuro	12.85	115	11.17	1.68	41.46
Guam NAS	8.26	81	10.14	-1.88	19.82
Saipan	5.11	57	8.91	-3.80	8.17
Pago Pago	11.17	201	5.55	5.62	38.89
Lihue	4.66	276	1.69	2.97	7.52
Honolulu	0.77	214	0.36	0.41	1.42
Kahului	0.29	76	0.38	-0.09	1.03
Hilo	5.27	55	9.53	-4.26	13.18

Reports from around the Region



Hawaii (Kevin Kodama)

Precipitation Summaries for HI can also be found:

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

Kauai

Kauai rainfall totals for the month of July were mostly above average. The USGS' rain gage on Mount Waialeale had the highest monthly total of 48.08 inches (124 percent of average) and the highest daily total of 4.18 inches on July 27 from Hurricane Douglas. This daily total was part of Mount Waialeale's event total of 6.35 inches. Records for the highest July rainfall total were broken at Anahola, Kalaheo, Kapahi, Lihue Variety Station, Omao, and the Wailua UH Experiment Station. The Hanalei total was short of the record set in 2018 by 0.01 inches. Lihue Airport's 4.66 inches marked the highest July total since 1989.

All of the rain gages on Kauai had near to above average rainfall totals for 2020 through the end of July. Mount Waialeale had the highest year-to-date total of 279.64 inches (123 percent of average).

Oahu

Most of the July rainfall totals on Oahu were near to above average. The Manoa Lyon Arboretum gage had the highest monthly total of 11.75 inches (77 percent of average). The USGS' Moanalua Rain Gage No. 1 had the highest daily total of 2.71 inches on July 4. The Lualualei gage posted its highest July total on record, with its monthly total of 3.95 inches being about 5 times its average value.

Rainfall totals for 2020 through the end of July were near to above average at most of the rain gages across Oahu. The USGS' Poamoho Rain Gage No. 1 had the highest year-to-date total of 102.63 inches (79 percent of average).

Maui

As is often the case, monthly rainfall totals across Maui County covered a wide range, from below average to well above average. Many of the July totals from the windward slopes were actually below average despite having a near miss from Hurricane Douglas. Leeward Maui sites, which normally receive only small amounts of rainfall during the summer, ended up with totals well above average from one day of rain associated with the passage of the hurricane. The Kealia Pond National Wildlife Refuge gage is a prime example where all of its July rainfall, 0.42 inches, occurred on July 26. This is more than 10 times its July average of 0.04 inches. The USGS' rain gage on Puu Kukui had the highest monthly total of 13.89 inches (42 percent of average) and the highest daily total of 5.14 inches on July 26. The Molokai 1 gage had its highest July total in more than 10 years.

Maui County rainfall totals for 2020 through the end of July were mostly near to above average. The USGS' rain gage on Puu Kukui had the highest year-to-date total of 143.50 inches (64 percent of average).

Big Island

While monthly totals of 5 to 9 inches is a decent amount of rainfall for many areas, this range is solidly below average for July in the Hilo and Puna areas of the Big Island. On the other hand, the Kona slopes continued to have a wet summer with mostly above average monthly totals. The Hamakua and Kohala areas of the Big Island posted mostly near to above average totals due to the impact of Hurricane Douglas' outer rain bands on July 25 and 26. The USGS' rain gage at Kawainui Stream had the highest monthly total of 18.98 inches (141 percent of average) and the highest daily total of 2.92 inches on July 26. The Honaunau gage in the South Kona District had its highest July total on record, and the nearby Kealakekua gage had its highest July total since 1992.

Big Island rainfall totals for 2020 through the end of July remained in near to above average territory at most of the gages. The USGS' rain gage at Kawainui Stream had the highest year-to-date total of 114.87 inches (126 percent of average).

American Samoa (Chip Guard):

Plenty of rainfall for American Samoa during July. American Samoa experienced large variations in observed rainfall this week. Pago Pago had 11.17 inches of rain. Two National Park Service sites, Siufaga Ridge and Toa Ridge, reported 1.51 inches and 4.26 inches of rain so far this week, respectively.

Reports from around the Region CON'T

Kwajalein (Jason Selzler):

July had over 8 inches of precipitation. Things are slowly getting out of drought and dry conditions with greener foliage. Westerly winds have begun some what late in the season. No significant weather impacts to report or inundation.

Majuro (Nover Juria):

Main weather features for month of July included trade winds coming in. On July 16th Majuro received 3.72 inches of rain which was good for the island. Water reservoir levels are at 84% full. Wotje is the only island with some drought conditions, all other islands are currently doing fine.

Pohnpei (Wallace Jacob)

The month of July was a dry month for the Pohnpei, Kosrae and the outer islands, but especially for Kapingamarangi which is located right above the equator. It was dry the first half of the month for all the stations with less than an inch of precipitation. Most of the rainfall was in the latter half of the month and are mainly produced convergences and troughs that were situated right between 4 and 10 N. Pohnpei WSO station recorded 9.54 inches. For the Southern outer islands, Kapinga recorded 5.59 inches. A special weather statement for dry conditions was issued for the island of Kapingamarangi on the 18th of June and was extended towards the whole month of July. Nukuoro rainfall was at 10.43 inches. The Eastern outer islands of Mwoakillao and Pingelap recorded 11.09 and 12.86 inches in the month of July, which falls just short of normal July rainfall.

WEATHER STATEMENTS:

- No flood statements were issued for the month of July.
- High seas advisories were issued out in the month of July for both the states of Pohnpei and Kosrae. Two persons were reported capsized at sea while fishing on the first week of July, one person made it to shore and the other person drowned. In Pohnpei, one person was lost at sea and after 7 days of search and rescue, coastguard called off the search.

Kosrae (Wallace Jacob):

Kosrae recorded 14.26 inches at the airport, 13.57 at Nautilus Hotel, 17.79 inches at Tofol and 14.45 inches at Utwa. Kosrae's rainfall was evenly distributed throughout the month of July throughout the whole island, with the highest daily rainfall of just over 2 inches in all stations on the island.

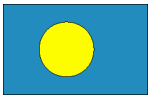
Chuuk (Sanchez Salle):

No significant weather impacts to report. Widespread variations in rainfall were also observed across the FSM (Federated States of Micronesia) this week.

Yap ():

Surface troughs, trade-wind convergence and tropical disturbances migrated across Micronesia and were especially active in two regions: Palau and Yap State in the west, and Kosrae State to the southern Marshall Islands (RMI) in the east.

Palau (Kikuko Mochimaru):



The main weather features for the month of July were weak troughs, weak circulations, convergence associated with these features and at times surface features would interact with upper level troughs and lows. All stations except for Peleliu met the "monthly average of 8 inches of rainfall needed for most water needs". Airai and Koror rainfall totals were below normal at 46% and 60% of the Normal (Median), respectively. Average mean temperatures across Palau were in the lower 80s with exception to Peleliu State at 87.2°F. The highest temperatures across Palau ranged from the upper 80s to the mid-90s with Aimeliik State recording the highest at 95.0°F on Day 31. The lowest temperatures for Palau ranged from the lower 70s to the lower 80s with the lowest temperature recorded in Airai at 72.0°F on Day 24.

Reports from around the Region CON'T

Guam and CNMI (Mark Landers):

Typhoons are at record lows with only two so far and with the current track, it may be a record of low typhoon counts. Saipan is receiving low amounts of precipitation. The situation is showing La Nina like conditions but also very quiet at the same time making it very odd.

Tropical Cyclones (Mark Landers):

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

EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

issued by

CLIMATE PREDICTION CENTER/NCEP/NWS
and the International Research Institute for Climate and Society
13 August 2020

ENSO Alert System Status: La Niña Watch

Synopsis: There is a ~60% chance of La Niña development during Northern Hemisphere fall 2020 and continuing through winter 2020-21 (~55% chance).

By early August 2020, sea surface temperatures (SSTs) were below average in the equatorial Pacific from the Date Line to the west coast of South America (Fig. 1). The four Niño indices were negative during the latest week, with the Niño-3.4 and Niño-3 indices at -0.6 ºC (Fig. 2). Negative equatorial subsurface temperature anomalies (averaged across 180°-100°W), which had weakened during June and early July, began re-strengthening in mid-July (Fig. 3) as below-average subsurface temperatures re-emerged in the east-central equatorial Pacific (Fig. 4). During July, low-level wind anomalies were easterly across most of the equatorial Pacific, while upper-level wind anomalies were westerly over portions of the far western, central, and eastern Pacific. Tropical convection was suppressed over the western and central Pacific, and was near average over Indonesia (Fig. 5). Overall, the combined oceanic and atmospheric system remained consistent with ENSO-neutral.

The models in the IRI/CPC plume (Fig. 6) are split between La Niña and ENSO-neutral (Niño-3.4 index between -0.5°C and +0.5°C) during the fall and winter, but slightly favor La Niña from the August-October through the November-January seasons. Based largely on dynamical model guidance, the forecaster consensus favors La Niña development during the August-October season, lasting through winter 2020-21. In summary, there is a ~60% chance of La Niña development during Northern Hemisphere fall 2020 and continuing through winter 2020-21 (~55% chance; click CPC/IRI consensus forecast for the chance of each outcome for 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). Forecasts are also updated monthly in the Forecast Forum of CPC's Climate Diagnostics Bulletin. Additional perspectives and analysis are also available in an ENSO blog. The next ENSO Diagnostics Discussion is scheduled for 10 September 2020. To receive an e-mail notification when the monthly ENSO Diagnostic Discussions are released, please send an e-mail message to: ncep.list.enso-update@noaa.gov.

Climate Prediction Center
National Centers for Environmental Prediction
NOAA/National Weather Service
College Park, MD 20740

6. Rainfall Verification MJJ– May, June, July (Sony)

The verification result of **MJJ** rainfall forecasts was 10 hits and 4 misses (Heidke score: 0.4476). The stations that hit the forecasts were: Airai, Yap, Pohnpei, Kosrae, Kwajalein, Guam, Saipan, Honolulu, Kahului, and Hilo. The 4 missed stations were Chuuk, Majuro, Pago Pago, and Lihue.

AMJ Verification Location	Rainfall Outlook	Final Probs	3 month Verification		
			% norm	Total (in)	Tercile
Palau					
Airai 7º 22' N, 134º 32' E	Avg-above	**30:35:35**	95	48.58	**Avg.**
FSM					
Yap 9º 29' N, 138º 05' E	Avg-below	**35:35:30**	99	34.49	**Avg.**
Chuuk 7º 28'N, 151º 51'E	Avg.	**30:40:30**	92	32.31	**Below**
Pohnpei 6º 59'N, 158º 12'E	Avg.	**30:40:30**	92	46.14	**Avg.**
Kosrae 5º 21'N, 162º 57'E	Avg-above	**30:35:35**	**142**	66.97	**Above**
RMI					
Kwajalein 8º 43'N, 167º 44'E	Avg.	**30:40:30**	90	21.06	**Avg.**
Majuro 7º 04' N, 171º 17'E	Avg.	**30:40:30**	128	41.46	**Above**
Guam and CNMI					
Guam 13º 29'N, 144º 48' E	Avg.	**30:40:30**	101	19.82	**Avg.**
Saipan 15º 06'N, 145º 48' E	Avg-below	**35:35:30**	**55**	8.17	**Below**
American Samoa					
Pago Pago 14º 20'S, 170º 43'W	Avg.	**30:40:30**	**189**	38.89	**Above**
State of Hawaii					
19.7º - 21.0' N, 155.0º - 159.5' W					
Lihue	Avg-below	**35:35:30**	**169**	7.52	**Above**
Honolulu	Avg-below	**35:35:30**	**151**	1.42	**Avg.**
Kahului	Avg-below	**35:35:30**	107	1.03	**Avg.**
Hilo	Avg-below	**35:35:30**	**57**	13.18	**Below**

10	Hit
4	Miss
Heidke:	0.4476
RPSS:	0.1196

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

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwaj
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 (>)						

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

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

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 (>)						

7. Drought monitoring updates.

A. End-of-July Monthly Drought Assessment:

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

ii. July was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) at Yap (barely), Chuuk (barely), & Kapingamarangi (FSM), and in the northern RMI (Wotje). It was wet across the rest of Micronesia and American Samoa. The end-of-July monthly analysis (July 31) is consistent with the weekly analyses for July 28 and August 4, and is the same as both since there was no change from July 28 to August 4. Compared to the end-of-June monthly analysis:

The USDM status improved in the central to western FSM, Marianas, and Kwajalein (RMI):

Ulithi, Woleai, Fananu, & Guam went to D-Nothing; Kwajalein went to D0-SL; Saipan went to D3-SL.

The USDM status stayed the same at the other stations:

D3-SL at Rota & Wotje; D2-S at Kapingamarangi; D-Nothing at Palau, Yap, Chuuk, Pohnpei, Pingelap, Kosrae, Lukonor, Nukuoro, Jaluit, Mili, Ailinglapalap, Majuro, & Pago Pago.

Utirik was plotted as missing due to missing data for most of May & all of June & July.

iii. Some July 2020 precipitation ranks:

Kapingamarangi: 5th driest July in their 31-year record**; driest May-July** (24 yrs); 6th driest Aug-Jul (17 yrs)

Pohnpei: 5th driest July (70 yrs); **driest Jun-Jul** (69 yrs)

Yap: 5th driest July (70 yrs); 7th driest Aug-Jul (69 yrs)

Chuuk: 7th driest July (70 yrs); 6th driest Jun-Jul (69 yrs); 11th driest Aug-Jul (69 yrs)

Jaluit: 9th driest July (37 yrs); 7th driest Jun-Jul (36 yrs); 9th driest Aug-Jul (34 yrs)

Wotje: 7th driest July (36 yrs)

Saipan: 11th driest July (40 yrs); **driest Mar-Jul** (39 yrs); but 4th wettest Aug-Jul (31 yrs)

Lukonor: 13th driest July (36 yrs); but **2nd driest Aug-Jul** (23 yrs)

At the other extreme:

Mili: 2nd wettest June-July (35 yrs) & wettest Dec-Jul thru Aug-Jul (33 yrs)

Pago Pago: wettest June-July (55 yrs) & other time periods; 2nd wettest Aug-Jul (54 yrs)

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

i. The August 11 analysis has mostly the same status as end of July, except Saipan and Rota were improved to D2-SL

C. July 2020 NCEI State of the Climate Drought Report: The July 2020 NCEI SotC Drought report went online Tuesday, August 11.

i. The web page url is:

https://www.ncdc.noaa.gov/sotc/drought/202007#det-reg-pacis-usapi

D. Use of SPI and Percent of Normal Precipitation in USAPI Drought Monitoring:

i. The SPI is used to determine Dx levels for the Mainland US.

D0: SPI between -0.5 & -0.8

D1: SPI between -0.8 & -1.3

D2: SPI between -1.3 & -1.6

D3: SPI between -1.6 & -2.0

D4: SPI -2.0 or less

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.

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.

During the wet season, the monthly normal can be well above the monthly minimum precipitation needed to meet most water needs.

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.

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**

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.

Find out why Saipan's ASOS data are being transmitted and getting into our automated process instead of the manual gauge WxCoder III data.

Add new stations to the automated process (Capital Hill 1, Nimitz Hill, Koror COOP, Mwoakilloa). 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:

https://www.ncdc.noaa.gov/temp-and-precip/drought/usapi-pcp/

The "All Indicators" tab is the most used tab by USDM authors:

https://www.ncdc.noaa.gov/temp-and-precip/drought/usapi-pcp/all

The "Weekly", "Monthly", and "Seasonal" tabs have data tables as well as maps plotting the values.

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.

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).

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).

Claire, Curtis, & Brad have authored besides Ahira & me.

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.

There is also a DMUpdate Listserver for those who just want to know when the new USDM maps are released.

Discussion: **Kapingamarangi D1 (they are needing to conserve water, but vegetation good, crops are good, vegetation green) and Guam D0. Wotje has had 4.32" of rain so far, 2" yesterday, can improve to D2, they are not concerned about water (RO unit). Maybe getting an Utirik observer next month.**