NWS Climate Services

September PEAC Audio Conference Call Summary

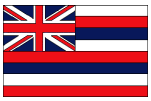
10 September, 1430 HST (11 September 2020, 0030 GMT)

August 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	August	Inches	inches	JJA
Airai	22.13	149	14.85	7.29	46.47
Yap	10.61	72	14.82	-4.21	36.88
Chuuk	12.20	95	12.86	-0.66	31.42
Pohnpei	14.08	99	14.26	-0.18	35.31
Kosrae	11.64	82	14.22	-2.58	49.54
Kwajalein	5.24	54	9.74	-4.50	20.15
Majuro	9.97	85	11.69	-1.72	35.65
Guam NAS	12.68	86	14.74	-2.06	24.34
Saipan	8.88	68	13.13	-4.25	15.95
Pago Pago	9.63	179	5.38	4.25	41.56
Lihue	1.28	70	1.84	-0.56	6.92
Honolulu	0.13	68	0.19	-0.06	1.00
Kahului	0.03	6	0.48	-0.45	0.32
Hilo	4.25	51	8.37	-4.12	13.98

Reports from around the Region



Hawaii (Kevin Kodama)

Precipitation Summaries for HI can also be found:

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

Kauai

Most of the August rainfall totals on Kauai were below average. The U.S. Geological Survey's (USGS) rain gage on Mount Waialeale had the highest monthly total of 27.24 inches (78 percent of average) and the highest daily total of 2.18 inches on August 7. While the August totals were mostly below average, Kauai overall has managed to avoid the significant dryness being observed in other parts of the state this summer.

Despite the recent dryness, all of the rain gages on Kauai continued to have near to above average rainfall totals for 2020 through the end of August. The Mount Waialeale gage had the highest year-to-date total of 306.88 inches (117 percent of average).

Oahu

August rainfall totals were below average at most of the gages on Oahu. The only exceptions were in central Oahu where a cluster of sites reported near to above average monthly totals due to enhanced rainfall associated with the above-mentioned upper level disturbance on August 6 and 7. The slopes of the Waianae Range were especially dry, with several totals at less than 10 percent of the August average. Records for the lowest August total were broken at Ahuimanu Loop and Kahuku, and tied at Poamoho. Waimanalo reported its lowest August total since 1993, and Aloha Tower had its lowest total since 2005. The highest monthly total of 7.64 inches (59 percent of average) came from the Manoa Lyon Arboretum gage. This site also had the highest daily total of 1.15 inches on August 9.

Rainfall totals for 2020 through the end of August remained at near to above average levels at most of the rain gages on Oahu. The USGS' Poamoho Rain Gage No. 1 had the highest year-to-date total of 107.49 inches (73 percent of average).

Maui

Overall, Maui County had the driest conditions in the state during August. Nearly all of the gages across the county had below average rainfall, with several sites along the lower leeward areas of Maui recording no measurable rainfall the entire month. The USGS' rain gage at West Wailuaiki Stream had the highest monthly total of 13.64 inches (80 percent of average) and the highest daily total of 2.29 inches on August 6. Another USGS site, on Puu Kukui, posted its lowest August total since 1985. Kahului Airport had its lowest August total since 2002.

Although conditions across Maui County were dry, rainfall totals for 2020 through the end of August remained near to above average at most sites due to wet conditions early in the year. The Puu Kukui rain gage had the highest year-to-date total of 154.39 inches (60 percent of average).

Big Island

Gages across the Big Island logged mostly below average rainfall totals for the month of August. There were pockets of near to above normal amounts, most notably along the slopes of the North and South Kona Districts, and the windward slopes of the Kohala Mountains. The USGS' rain gage at Kawainui Stream posted the highest monthly total of 13.45 inches (151 percent of average) and the highest daily total of 2.19 inches on August 6. Hilo Airport reported its lowest August total since 2008.

Big Island rainfall totals for 2020 through the end of August remained near to above average at most locations. The rain gage at Kawainui Stream had the highest year-to-date total of 128.32 inches (128 percent of average).

American Samoa (Chip Guard)

Pago Pago continued to receive lots of rain (9.63 inches) for August.

Reports from around the Region CON'T

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

ENSO Alert System Status: Final La Niña Advisory
Issued 10 September 2020

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/

Synopsis: La Niña conditions are present and are likely to continue through the Northern Hemisphere winter (~75% chance).

In August, La Niña conditions were present, with below-average sea surface temperatures (SSTs) extending across the central and eastern equatorial Pacific Ocean. In the last week, all Niño indices were negative, with the Niño-3.4 index at -0.9ºC and the Niño-1+2 and Niño-3 indices cooler than -1.0ºC. Equatorial subsurface temperature anomalies averaged across 180°-100°W were negative, with the largest departures observed in the east-central Pacific from the surface to 200m depth. Atmospheric circulation anomalies over the tropical Pacific were also generally consistent with La Niña, despite sub-seasonal variability during the month. The low-level and upper-level winds were near average for the month as a whole, but enhanced low-level easterly winds were prominent across the equatorial Pacific Ocean during early and late August. Tropical convection remained suppressed over the western and central Pacific, and was near average over Indonesia. Both the Southern Oscillation and Equatorial Southern Oscillation indices were positive. Overall, the coupled ocean-atmosphere system was consistent with La Niña conditions.

A majority of the models in the IRI/CPC plume predict the continuation of La Niña (Niño-3.4 index less than -0.5°C) through the Northern Hemisphere winter 2020-21. The forecaster consensus supports that view, and favors a borderline moderate event (Niño-3.4 index near -1.0ºC) during the peak November-January season. In summary, La Niña conditions are present and are likely to continue through the Northern Hemisphere winter (~75% chance; click CPC/IRI consensus forecast for the chance of each outcome for each 3-month period).

6. Rainfall Verification JJA– June, July, August (Sony)

The verification result of **JJA** rainfall forecasts was 9 hits and 5 misses (Heidke score: 0.3435). The stations that hit the forecasts were: Airai, Yap, Chuuk, Majuro, Guam, Saipan, Pago, Pago Honolulu, Kahului, and Hilo. The 4 missed stations were Pohnpei, Kosrae, Kwajalein, Lihue.

AMJ Verification Location	Rainfall Outlook	Final Probs	3 month Verification		
			% norm	Total (in)	Tercile
Palau					
Airai 7º 22' N, 134º 32' E	Avg-below	**40:40:20**	89	46.47	**Avg.**
FSM					
Yap 9º 29' N, 138º 05' E	Avg-below	**35:35:30**	88	36.88	**Below**
Chuuk 7º 28'N, 151º 51'E	Avg-below	**35:35:30**	86	31.42	**Below**
Pohnpei 6º 59'N, 158º 12'E	Avg.	**30:40:30**	79	35.31	**Below**
Kosrae 5º 21'N, 162º 57'E	Avg.	**30:40:30**	113	49.54	**Above**
RMI					
Kwajalein 8º 43'N, 167º 44'E	Avg.	**30:40:30**	76	20.15	**Below**
Majuro 7º 04' N, 171º 17'E	Avg-above	**30:35:35**	105	35.65	**Above**
Guam and CNMI					
Guam 13º 29'N, 144º 48' E	Avg-below	**35:35:30**	78	24.34	**Below**
Saipan 15º 06'N, 145º 48' E	Avg-below	**35:35:30**	62	15.95	**Below**
American Samoa					
Pago Pago 14º 20'S, 170º 43'W	Avg-above	**30:35:35**	**256**	41.56	**Above**
State of Hawaii					
19.7º - 21.0' N, 155.0º - 159.5' W					
Lihue	Avg-below	**35:35:30**	**144**	6.92	**Above**
Honolulu	Avg-below	**35:35:30**	137	1.00	**Avg.**
Kahului	Avg-below	**35:35:30**	**34**	0.32	**Below**
Hilo	Avg-below	**35:35:30**	**58**	13.98	**Below**

10	Hit
4	Miss
Heidke:	0.3435
RPSS:	0.0097

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

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwaj
below (<)								
33.33%	47.11	40.34	33.35	40.21	29.26	21.38	31.08	24.49
near								
66.66%	55.07	45.79	43.35	50	36.54	30.82	35.58	28.47
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	4.39	0.71	0.74	19.45	14.32	43.42
near						
66.66%	6.88	1.3	1.51	31.4	21.74	46.35
above (>)						

6. Rainfall Outlook SON- September, October, November (Sony)

SON Forecast Location	Rainfall Outlook	Probability Pre-Conference	Final Outlook	Final Probability
Palau				
Airai 7º 22' N, 134º 32' E	**Above**	**25:35:40**	-	**20:35:45**
FSM				
Yap 9º 29' N, 138º 05' E	Avg-above	**30:35:35**	Avg.	**30:40:30**
Chuuk 7º 28'N, 151º 51'E	Avg-above	**30:35:35**	-	-
Pohnpei 6º 59'N, 158º 12'E	Avg-below	**35:35:30**	-	-
Kosrae 5º 21'N, 162º 57'E	Avg-below	**35:35:30**	-	-
RMI				
Kwajalein 8º 43'N, 167º 44'E	Avg.	**30:40:30**	Avg-below	**35:35:30**
Majuro 7º 04' N, 171º 17'E	Avg-above	**30:35:35**	-	-
Guam and CNMI				
Guam 13º 29'N, 144º 48' E	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	Avg-above	**30:35:35**	-	-
State of Hawaii				
19.7º - 21.0' N, 155.0º - 159.5' W				
Lihue	Avg.	**30:40:30**	Avg-below	**35:35:30**
Honolulu	Avg.	**30:40:30**	Avg-below	**35:35:30**
Kahului	Avg.	**30:40:30**	Avg-below	**35:35:30**
Hilo	Avg-below	**35:35:30**	-	-

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

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwaj
below (<)								
33.33%	30.65	32.05	32.73	41.51	30.44	26.19	34.74	30.69
near								
66.66%	41.38	38.09	38.35	47.07	33.78	29.77	42.55	34.83
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	9.17	2.52	2.08	24.29	26.91	38.3
near						
66.66%	11.22	5.59	4.76	40.81	31.48	43.49
above (>)						

7. Drought Monitoring Updates: (Richard Heim)

A. End-of-August Monthly Drought Assessment:

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

August was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) at Kapingamarangi (FSM) and Ailinglapalap, Kwajalein, and Jaluit (RMI). It was wet across the rest of Micronesia and American Samoa. But most stations were below normal because the normals are above the monthly minimum needed to meet most water needs. The end-of-August monthly analysis (August 31) is consistent with the weekly analyses for August 25 and September 1, and is the same as the September 1 analysis. Compared to the end-of-July monthly analysis:

The USDM status improved in the Marianas and northern RMI:

Rota and Saipan went to D0-SL; Wotje went to D2-SL.

The USDM status worsened at Ailinglapalap (went to D0-S).

The USDM status stayed the same at the other stations:

D2-S at Kapingamarangi; D0-SL at Kwajalein; D-Nothing at Palau, Yap, Ulithi, Guam, Woleai, Fananu, Chuuk, Pohnpei, Pingelap, Kosrae, Lukonor, Nukuoro, Jaluit, Mili, Majuro, & Pago Pago.

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

Some August 2020 precipitation ranks:

Kapingamarangi: 3rd driest August in their 30-year record; 3rd driest Jul-Aug and Jun-Aug; **driest May-August** (23 yrs); 2nd driest April-August (23 yrs); 5th driest Sep-Aug (18 yrs)

Impacts (thank you Wallace): household water tanks at 10% or empty, community tanks being used, vegetation yellowing.

Kwajalein: driest August (69 yrs); 6th driest May-August (69 yrs)

Jaluit: 2nd driest August (37 yrs); 9th driest Sep-Aug (34 yrs)

Ailinglapalap: 3rd driest August (36 yrs); 6th driest Jul-Aug (36 yrs)

Saipan: 12th driest August (40 yrs); 6th driest Jul-Aug (40 yrs); 3rd driest Jun-Aug (40 yrs); **2nd driest May-Aug, Apr-Aug, Mar-Aug, Feb-Aug, & Jan-Aug**

Wotje: 2nd wettest August (37 yrs)

Impacts (thank you Nover): public school water catchments half full and dropping, vegetation yellowing.

A. Current (Weekly) Drought Conditions: The discussion above is the monthly (end of August) analysis. The latest weekly USAPI USDM assessment may show different USDM classifications. The latest weekly USAPI USDM assessment is for September 8.

The September 8 analysis has mostly the same status as end of August, except Rota and Kwajalein were improved to D-Nothing.

B. August 2020 NCEI State of the Climate Drought Report: The August 2020 NCEI SotC Drought report will go online Monday, September 14.

The web page url will be:

https://www.ncdc.noaa.gov/sotc/drought/202008#det-reg-pacis-usapi

C. Use of SPI and Percent of Normal Precipitation in USAPI Drought Monitoring: -- NO CHANGE IN STATUS

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

i. Percent of Normal Precipitation is also used to identify areas to look at. If below normal, location is a candidate for drought.

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.

B. 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.

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.

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).

A. 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.

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).

B. 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.