NWS Climate Services

October PEAC Audio Conference Call Summary

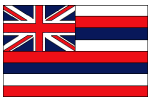
8 October, 1430 HST (9 October 2020, 0030 GMT)

September 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	September	Inches	inches	JAS
Airai	7.28	43	16.83	-9.55	39.54
Yap	10.98	81	13.50	-2.52	29.30
Chuuk	19.61	167	11.71	7.90	39.58
Pohnpei	15.02	120	12.55	2.47	38.54
Kosrae	16.16	114	14.22	1.94	42.83
Kwajalein	15.51	144	10.74	4.77	29.57
Majuro	11.25	101	11.17	0.08	34.07
Guam NAS	10.96	87	12.66	-1.70	31.90
Saipan	7.46	74	10.09	-2.63	21.45
Pago Pago	14.90	228	6.53	8.37	35.70
Lihue	1.27	65	1.94	-0.67	7.21
Honolulu	0.07	12	0.60	-0.53	0.97
Kahului	0.27	142	0.19	0.08	0.59
Hilo	8.79	94	9.31	-0.52	18.31

Reports from around the Region



Hawaii (Kevin Kodama)

Precipitation Summaries for HI can also be found:

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

Kauai

September rainfall totals on Kauai were below average at most of the rain gages. The U.S. Geological Survey's (USGS) rain gage on Mount Waialeale posted the highest monthly total of 19.50 inches (64 percent of average) and the highest daily total of 4.00 inches on September 24. While there were no monthly rainfall records broken, many of the September totals from across the island were below 50 percent of average.

Although the percent of average values have been decreasing over the past several months, all of the rainfall totals across Kauai for 2020 through the end of September remained near to above average. The Mount Waialeale gage had the highest year-to-date total of 326.38 inches (112 percent of average).

Oahu

All of the gages across Oahu posted below average totals for the month of September. Records for the lowest September rainfall were broken at Hawaii Kai Golf Course, Kahuku, Lualualei, Luluku, Pacific Palisades, Poamoho Experiment Farm, Waianae, Waimanalo, and Waipio. Mililani had its lowest September total since 1998. The USGS' Poamoho Rain Gage No. 1 had the highest monthly total of 7.27 inches, but this was just 40 percent of the September average. This site also had the highest daily total of 2.13 inches, recorded on September 28.

Most of the rainfall totals on Oahu were near average for 2020 through the end of September. The Poamoho Rain Gage No. 1 had the highest year-to-date total of 114.76 inches (69 percent of average).

Maui

September rainfall totals were near to below average at all of the gages across Maui County. Leeward Maui and most of the totals from Molokai and Lanai were below 50 percent of average. The USGS' rain gage at West Wailuaiki Stream had the highest monthly total of 12.84 inches (90 percent of average) and the highest daily total of 4.70 inches on September 23.

Most of the rainfall totals for 2020 through the end of September were near average across Maui County. The West Wailuaiki rain gage had the highest year-to-date total of 164.73 inches (96 percent of average), and passed the Puu Kukui total by just a tenth of an inch.

Big Island

Rainfall totals on the Big Island were mostly near average for the month of September. The September 23 heavy rain event helped push windward totals into near average territory following a generally dry middle of the month. The gage at Piihonua had the highest monthly total of 15.14 inches (103 percent of average) and the highest daily total of 9.79 inches from the September 23 event.

Big Island rainfall totals for 2020 through the end of September remained near to above average at most of the gages. The USGS' rain gage at Kawainui Stream had the highest year-to-date total of 138.47 inches (129 percent of average).

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 8 October 2020

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

Synopsis: La Niña is likely to continue through the Northern Hemisphere winter 2020-21 (~85% chance) and into spring 2021 (~60% chance during February-April).

La Niña continued during September, as evidenced by below-average sea surface temperatures (SSTs) extending from the Date Line to the eastern Pacific Ocean. The SST indices in the two westernmost Niño regions, Niño-4 and Niño-3.4, cooled throughout the month, and the Niño-3.4 index was -1.1ºC in the past week. The equatorial subsurface temperature anomalies (averaged from 180°-100°W) remained substantially unchanged, and continued to reflect below-average temperatures from the surface to 200m depth in the eastern Pacific Ocean. The atmospheric circulation anomalies over the tropical Pacific Ocean remained consistent with La Niña. Low-level wind anomalies were easterly across most of the tropical Pacific, and upper-level wind anomalies were westerly over the east-central Pacific. Tropical convection continued to be suppressed from the western Pacific to the Date Line, and a slight enhancement of convection emerged over Indonesia. Also, both the Southern Oscillation and Equatorial Southern Oscillation indices remained positive. Overall, the coupled ocean-atmosphere system indicates the continuation of La Niña.

A majority of the models in the IRI/CPC plume predict La Niña (Niño-3.4 index less than -0.5°C) to persist through the Northern Hemisphere winter 2020-21 and to weaken during the spring. The latest forecasts from several models, including the NCEP CFSv2, suggest the likelihood of a moderate or even strong La Niña (Niño-3.4 index values < -1.0ºC) during the peak November-January season. The forecaster consensus supports that view in light of significant atmosphere-ocean coupling already in place. In summary, La Niña is likely to continue through the Northern Hemisphere winter 2020-21 (~85% chance) and into spring 2021 (~60% chance during February-April; click CPC/IRI consensus forecast for the chances in each 3-month period).

6. Rainfall Verification JAS– July, August, September (Sony)

The verification result of **JAS** rainfall forecasts was 12 hits and 2 misses (Heidke score: 0.5948). The stations that hit the forecasts were: Airai, Chuuk, Kosrae, Kwajalein, Majuro, Guam, Saipan, Pago Pago, Lihue, Honolulu, Kahului, and Hilo. The 2 missed stations were Yap and Pohnpei.

JAS Verification Location	Rainfall Outlook	Final Probs	3 month Verification		
			% norm	Total (in)	Tercile
Palau					
Airai 7º 22' N, 134º 32' E	Avg-below	**35:35:30**	74	39.54	**Avg.**
FSM					
Yap 9º 29' N, 138º 05' E	Avg.	**30:40:30**	68	29.30	**Below**
Chuuk 7º 28'N, 151º 51'E	Avg-below	**35:35:30**	108	39.58	**Avg.**
Pohnpei 6º 59'N, 158º 12'E	Avg.	**30:40:30**	91	38.54	**Below**
Kosrae 5º 21'N, 162º 57'E	Avg.	**30:40:30**	99	42.83	**Avg.**
RMI					
Kwajalein 8º 43'N, 167º 44'E	Avg.	**30:40:30**	97	29.57	**Avg.**
Majuro 7º 04' N, 171º 17'E	Avg.	**30:40:30**	100	34.07	**Avg.**
Guam and CNMI					
Guam 13º 29'N, 144º 48' E	Avg-below	**40:30:30**	85	31.90	**Below**
Saipan 15º 06'N, 145º 48' E	**Below**	**40:35:25**	67	21.45	**Below**
American Samoa					
Pago Pago 14º 20'S, 170º 43'W	**Above**	**25:35:40**	**204**	35.70	**Above**
State of Hawaii					
19.7º - 21.0' N, 155.0º - 159.5' W					
Lihue	Avg-below	**35:35:30**	132	7.20	**Avg.**
Honolulu	Avg-below	**35:35:30**	84	0.97	**Below**
Kahului	Avg-below	**35:35:30**	**56**	0.59	**Below**
Hilo	Avg-below	**35:35:30**	67	18.31	**Below**

12	**Hit**
2	**Miss**
Heidke:	**0.5948**
RPSS:	**0.0112**

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%	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 (>)						

6. Rainfall Outlook OND- October, November, December (Sony)

OND Forecast Location	Rainfall Outlook	Probability Pre-Conference	Final Outlook	Final Probability
Palau				
Airai 7º 22' N, 134º 32' E	**Above**	**25:30:45**	-	**20:30:50**
FSM				
Yap 9º 29' N, 138º 05' E	**Above**	**25:35:40**	Avg-above	**30:35:35**
Chuuk 7º 28'N, 151º 51'E	Avg-above	**30:35:35**	-	-
Pohnpei 6º 59'N, 158º 12'E	Avg-above	**30:35:35**	-	-
Kosrae 5º 21'N, 162º 57'E	Avg.	**30:40:30**	-	-
RMI				
Kwajalein 8º 43'N, 167º 44'E	Avg-above	**30:35:35**	-	-
Majuro 7º 04' N, 171º 17'E	Avg.	**30:40:30**	-	-
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	Avg-above	**30:35:35**	-	-
State of Hawaii				
19.7º - 21.0' N, 155.0º - 159.5' W				
Lihue	Avg.	**30:40:30**	-	-
Honolulu	Avg.	**30:40:30**	-	-
Kahului	Avg.	**30:40:30**	-	-
Hilo	Avg.	**30:40:30**	-	-

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

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwaj
below (<)								
33.33%	31.24	27.44	30.88	43.58	24.01	20.13	35.14	29.07
near								
66.66%	38.99	32.32	38.67	49.78	29.41	23.26	41.82	31.88
above (>)								

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	9.18	4.36	4.18	28.26	31.15	39.86
near						
66.66%	15.56	8.52	8.05	41.99	41.56	44.83
above (>)						

7. Drought Monitoring Updates (Richard Heim)

A. End-of-September Monthly Drought Assessment:

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

September was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) in the southern FSM (Kapingamarangi & Nukuoro) and Pingelap (FSM), Palau IAP, Saipan (Marianas), and Jaluit & Wotje (RMI). It was wet across the rest of Micronesia and American Samoa. The western & southern stations (Marianas, Palau, Yap, Kapingamarangi) were drier than normal. The end-of-September monthly analysis (September 30) is consistent with the weekly analyses for September 29 and October 6, and is the same as the September 29 analysis. Compared to the end-of-August monthly analysis:

The USDM status improved in the Marianas and RMI:

Rota and Saipan went to D-Nothing; Ailinglaplap and Kwajalein went to D-Nothing.

The USDM status worsened at Kapingamarangi (went to D3-S) and Jaluit (went to D0-S).

The USDM status stayed the same at the other stations:

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

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

Some September 2020 precipitation ranks:

Kapingamarangi: 4th driest September in their 29-year record; **driest Aug-Sep, May-Sep, Apr-Sep, Mar-Sep, Feb-Sep, Jan-Sep, Dec-Sep** (20 to 26 yrs); 2nd driest Jul-Sep, Jun-Sep, Nov-Sep (20-24 yrs); 3rd driest Oct-Sep (19 yrs)

Impacts (thank you Wallace): 2 community water tanks empty, 1 in use with ¼ water left, 3 tanks full; most of vegetation is brown; bananas are down, no more breadfruits, but taros still there.

Nukuoro: 4th driest September (38 yrs); **driest July-Sept** (37 yrs)

Pingelap: 5th driest Sept (37 yrs); **3rd driest Aug-Sept (36 yrs)**

Ulithi: 3rd driest Jun-Sept (36 yrs)

Saipan: 4th driest Sept (40 yrs); but **2nd driest Jun-Sep thru Nov-Sept** (31-40 yrs)

Jaluit: 3rd driest Aug-Sept (37 yrs)

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

The October 6 analysis has mostly the same status as end of September, except Wotje was improved to D1-SL.

B. September 2020 NCEI State of the Climate Drought Report: The September 2020 NCEI SotC Drought report will go online Tuesday, October 13.

The web page url will be:

https://www.ncdc.noaa.gov/sotc/drought/202009#det-reg-pacis-usapi

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A. 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

ii. 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.

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

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.

7. Drought Monitoring Updates (Richard Heim)

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).

7. Drought Monitoring Updates (Richard Heim)

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.