



# NWS Climate Services

## February PEAC Audio Conference Call Summary

### 13 February, 1430 HST (14 February 2020, 0030 GMT)



**January rainfall totals reported (Sony)**  
 % Normal: **blue** above normal & **red** below normal. Departure from normal: **blue**-above & **red**-below

	Rainfall	% Normal	Normal	Departure	3 mon
	Inches	January	Inches	inches	NDJ
Koror	2.02	20	10.18	-8.16	23.17
Yap	1.46	23	6.39	-4.93	20.65
Chuuk	8.20	81	10.10	-1.90	37.37
Pohnpei	7.52	57	13.18	-5.66	53.60
Kosrae	8.50	51	16.67	-8.17	32.11
Kwajalein	3.53	112	3.16	0.37	22.67
Majuro	6.93	90	7.74	-0.81	34.79
Guam NAS	2.99	75	4.01	-1.02	20.21
Saipan	1.53	60	2.53	-1.00	12.23
Pago Pago	21.77	163	13.34	8.43	47.18
Lihue	1.60	72	2.22	-0.62	13.60
Honolulu	1.13	98	1.15	-0.02	5.40
Kahului	2.86	124	2.30	0.56	5.27
Hilo	15.89	179	8.87	7.02	37.36

## Reports from around the Region

**Hawaii:** January 2020 can be split between a wet first half and a much drier second half. The first half of the month featured a very dynamic weather pattern over the main Hawaiian Islands. During this period, the windward slopes of the state received numerous showers that were embedded within the strong trade winds or developed over the slopes from air being forced upward by the mountainous terrain. Showers became enhanced over the Big Island and Maui from January 7 through January 10 as an upper atmospheric low pressure system east of the state created unstable conditions. The rainfall arrived in fast-moving bands with intensities of 1 to 2 inches per hour. Due to the gaps between the bands, runoff from the rainfall had some time to drain and did not produce significant flooding problems. On January 11, another upper atmospheric disturbance arrived over the island chain from the west. This new system had more jet stream support and greatly enhanced rainfall production over the east half of the Big Island. Instead of bands of rainfall, the rainfall became anchored over the already saturated terrain with fewer breaks for runoff to drain away. There were numerous road closures, especially in the South Hilo, Puna, and Kau Districts. At one point, access between the east and west sides of the Big Island was cut, with highways closed near Honokaa in the north, Kawa Flats in the south, and Saddle Road through the center. One rescue occurred when a vehicle became swamped in a flooded road in the Eden Rock area of Puna. Rainfall tapered off as the upper atmospheric disturbance lifted northward and conditions stabilized on January 12.

Rainfall totals for the 72 hours ending at noon, January 13 included several readings of 10 to 20 inches over the South Hilo and Puna Districts of the Big Island, with a peak of over 32 inches at the U.S. Geological Survey's (USGS) Saddle Road Quarry rain gage. While the totals were not as high as during Hurricane Lane in August 2018, the runoff it produced was still very impressive. The preliminary peak flow value at the USGS' Wailuku River gage in Hilo was 52,500 cubic feet per second (cfs) at a stage value of 21.61 feet. This was the second highest flow value in the last 30 years. Peak flow from Hurricane Lane's rainfall was 82,300 cfs (24.40 ft stage). At the USGS' Honolii Stream gage just north of Hilo, peak flow on the night of January 11 had a preliminary value of 14,200 cfs (17.32 ft stage), the fourth highest in the last 30 years. By comparison, peak flow at this site from Hurricane Lane was 19,900 cfs (19.9 ft stage). For the Kau District, this was one of the biggest rain events to affect the area since the record-breaking rainfall event on November 1 and 2, 2000. Event rainfall totals were 10 to 15 inches from Pahala to Kapapala, which exceeded the totals that occurred from the impact of Tropical Storm Iselle in 2014.

Following the wet first half of the month, the large scale weather pattern across the North Pacific changed significantly and resulted in much more stable conditions across the main Hawaiian Islands. During the last 10 days of the month, a surface high pressure ridge became established over or just north of the state, resulting in generally light winds and little rainfall overall. A brief break in the ridge occurred when a weak cold front reached Kauai on January 24. The frontal cloud band produced nearly an inch of rainfall over Wainiha, but not much anywhere else. The front dissipated shortly afterward and did not reach Oahu.

**Island of Kauai:** January 2020 rainfall totals were near to above average at most of the gages across Kauai. The USGS' gage on Mount Waialeale had the highest monthly total of 48.22 inches (195 percent of average) and the highest daily total of 6.64 inches on January 12. This peak amount was part of the 18.01 inches recorded during the 72-hour period ending at noon, January 13. The gages at Hanalei and Wainiha posted their highest January totals since 1997. Leeward sites were considerably drier with low elevation gages from Hanapepe to Mana recording less than an inch of rain for the entire month.

**Island of Oahu:** Most of the gages on Oahu recorded near to above average monthly rainfall totals. The main exceptions were lower elevation leeward sites. The USGS' Poamoho Rain Gage No. 1 had the highest monthly total of 20.32 inches (112 percent of average). However, the highest daily total came from the Waiawa Correctional Facility gage with 4.05 inches on January 4. Records for the highest January rainfall total were broken at the Moanalua, Pacific Palisades, and Waiawa Correctional Facility sites. Mililani and Wheeler Army Airfield had their highest January totals since 2004.

**Maui County:** Locations typically exposed to trade wind rainfall posted near to above average January totals. Most of the other areas had below average totals. The USGS' rain gage on Puu Kukui had the highest monthly total of 43.87 inches (141 percent of average) and the highest daily total of 7.80 inches on January 9. This daily total was part of a 5-day accumulation of 24.44 inches from January 8 through January 12. A record for the highest January total was broken at the Haiku site, and Pukalani and Mahinahina had their highest January totals in over 15 years.

**Island of Hawaii:** Above average rainfall totals occurred at most of the gages on the Big Island for the month of January. The USGS' Saddle Road Quarry rain gage had the highest monthly total of 56.41 inches (539 percent of average) and the highest daily total 19.40 inches on January 11. This total was part of the 32.59 inches of rain recorded during the 72-hour period ending at noon, January 13. Records for the highest January rainfall were broken at Glenwood, Kahua Ranch, Laupahoehoe, Mountain View, Piihonua, and Waiakea Uka. What makes these record totals impressive is that they were set mainly with just half a month of rainfall since the latter half of the month was so dry. Hilo Airport and Pahala had their highest January totals since 2002. The Hakalau total of 46.09 inches was its second highest total of any month from a data record going back to 2004. The highest monthly total for all months at this site is 47.83 inches in August 2018, in large part due to rainfall from Hurricane Lane. For 2019 through the end of November, most of the rainfall totals across the Big Island remained near to above average. The Saddle Road Quarry rain gage had the highest year-to-date total of 157.87 inches (123 percent of average).

## Reports around the Region Cont.

### **American Samoa:** (not present)

Chip– Looks like Pago Pago is in active monsoon with wet pattern.

Brandon– Looking forward, seems that Pago Pago will be receiving descent rainfall.

### **Kwajalein:** (not present)

N/A

### **Majuro:** (Nover)

Most of the stations in the Marshall Islands including Majuro were dry on January except for Mili. As a result, Mili is okay in terms of water with no complaints, but people on the other stations already started complaining about rain-waters and are now wondering how long the dryness will last for them. One station (Jaluit) reported vegetation on the island just started not growing healthy, especially the crops they planted on their gardens due to the lack of rain they have received so far.

People on Majuro also have started wondering about the long period of having little rain on the island. The water reservoirs have been decreasing from the last two months. As of February 12<sup>th</sup> the water reservoirs total has reached 22 million gallons just about 61% full and it's been decreasing from 30 million gals about 83% full as of December 31<sup>st</sup>. Due to the declining of the water reservoirs on Majuro, the water company reduced the number days of distributing the water to the households from 3 days a week to only Fridays of every week. Vegetation on Majuro still look green and healthy.

There were some advisories issued by WFO Guam for the northern swells, high surfs, and possible inundations for the northern and eastern part of Majuro but no major inundations occurred. The last inundation recorded we had on Majuro was on November 27<sup>th</sup> 2019.

### **Pohnpei:** (absent)

Mark– Getting less than 10 inches is pretty low for Pohnpei in January. They have been wet for a long time but this was a dry period for them.

### **Kosrae:** (absent)

Similar condition as Pohnpei, but they have been dry previously for the last 3-4 months.

## **Reports around the Region Cont.**

**Chuuk:** (Boyd Mackenzie's written report) Sanchez present for conference

The month of January 2020 for WSO Chuuk was mostly dominated by easterly trade winds with exception to a few features that gave us our more significant rain. During the beginning of the month on the 8<sup>th</sup> a weak circulation SE of Chuuk along with trade wind convergence close by was responsible for giving the WSO that 2 inches of rain. A near equatorial trough that was present around the 17<sup>th</sup> gave a little over half an inch of rain (0.68 inches) while a surface trough that turned into a trade wind disturbance situated SW of Chuuk produced about an inch and a half of rain (1.53 inches) towards the end of the month around the 29<sup>th</sup>. The weather was quite fair the rest of the month with daily totals ranging from about 0.1 - 0.3 inches. The outer island stations were missing some data so most might not even be useful except for maybe Polowat and Lukunoch. Data for those 2 showed that they received much less rain than WSO.

No tropical cyclone activity was present in our AOR during the month. A Small Craft advisory was issued for the 8<sup>th</sup> but that quickly subsided to hover just below hazardous levels and stayed there for the next few days after that. High Surf and Small Craft advisories were issued again for the 23<sup>rd</sup> to the 28<sup>th</sup> mostly due to some strong NE trade winds. No reports received of any inundation nor damages due to wind or rain. Just a quiet, drier than normal month.

**Yap:** (Justin)

Conditions have been very dry and windy. 3 wildfires occurred in January. Dusty conditions with browning conditions near beaches. No water complaints as of yet. Water reservoir levels is about halfway compared to December's water reservoir level.

**Palau:** (Kikuko's written report)

The Trade-winds have been generally dry for the month of January. Rainfall has been variable in terms of distribution, duration and intensity. Based on my understanding of the rainfall trend for Palau during an El Nino year, Palau may start a drying trend at the end of the El Nino Year, becoming drier in the following year during Palau's dry season (Jan-Apr) and may become Normal by August of the post El Nino year. A drying pattern began in December of 2019 and has continued into the new year making January 2020 as the driest month on record since 1973 at 2.11 inches or 53.6 mm (Based on Koror data since 1952). Since the second week of January, US Drought Monitor for United States Affiliated Pacific Islands (USAPI), in agreement with WSO Palau and other climate scientists, has categorized Palau's conditions as Abnormally Dry. Fortunately, there are no fire disasters or droughts to report at this time.

In late January, Palau National Emergency Committee (NEC) discussed the current climate conditions and the drying trend. NEC has requested Palau Public Utilities Corporation (PPUC) to monitor closely the water levels of the dams and to generate daily reports of observations. Assessments of these reports will be completed by PPUC at the end of February and presented to the NEC for further action if necessary.

**Guam/CMNI:** (Chip, Mark, Brandon)

Pretty windy out of North/North East. A circulation sat south of Guam and that teamed up with a shear light from North West which provided a solid rainfall distribution (3-4 inches a day at Anderson Airforce Base). Things have calmed after the teaming with the shear line. Late February tends to be the beginning of drier trend. Clint mentioned that things are clearly drier in the mountains. Mark noted that the stream levels are down. A few small reported fires but not serious damage. Saipan is still relatively green. Water temperatures around Guam are still cooler than expected for the month of January.

**Tropical Cylone:** (Mark)

Through January, no cyclones reported but a weak circulation near Kwajalein took place. No typhoon intensity. We are about average for the season 14-15 this time of the season. So far each system has been relatively weak systems.

## Current State of ENSO and predictions: (Anthony Artusa) ENSO Alert System Status: *Not Active*

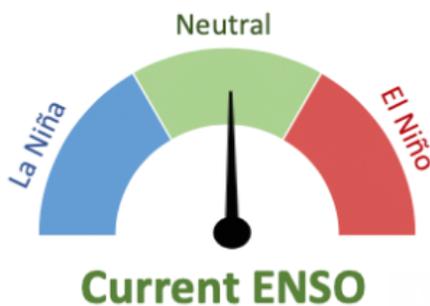
February 13, 2020

**Synopsis: ENSO-neutral is favored through Northern Hemisphere spring 2020 (~60% chance), continuing through summer 2020 (~50% chance).**

During January 2020, near- to above-average sea surface temperatures (SSTs) were evident across most of the equatorial Pacific Ocean. The latest weekly Niño-3.4 and Niño-3 indices were near average (+0.2°C to 0.0°C), while the Niño-4 and Niño-1+2 indices were warmer at +1.2°C and +0.8°C, respectively. After decreasing in early to mid January, positive equatorial subsurface temperature anomalies (averaged across 180°-100°W) slightly increased during the latter part of the month. Temperatures remained above average across most of the subsurface ocean, reaching ~150m depth in the central Pacific. During the month, westerly wind anomalies persisted over the western equatorial Pacific Ocean, while upper-level winds were mostly westerly over the east-central and eastern equatorial Pacific. Tropical convection remained suppressed over Indonesia and was enhanced around the Date Line. The traditional and equatorial Southern Oscillation indices were near zero. Overall, the combined oceanic and atmospheric system remained consistent with ENSO-neutral.

The majority of models in the IRI/CPC plume continue to mostly favor ENSO-neutral (Niño-3.4 index between -0.5°C and +0.5°C) through the Northern Hemisphere summer. The forecaster consensus predicts the Niño-3.4 index will be at or slightly above +0.5°C for the January - March 2020 season, but then slightly favors ENSO-neutral for the February - April 2020 season. While it is expected that oceanic temperatures will remain elevated in the near term, particularly in the western and central equatorial Pacific Ocean, most models predict a gradual decrease in Niño-3.4 SST anomalies into the spring and summer. In summary, ENSO-neutral is favored through Northern Hemisphere spring 2020 (~60% chance), continuing through summer 2020 (~50% chance; click [CPC/IRI consensus forecast](#) for the chance of each outcome for each 3-month period).

### El Niño-Southern Oscillation Watch

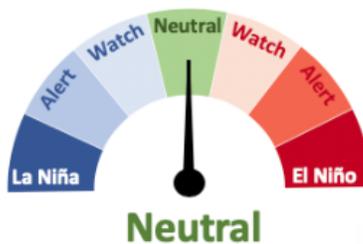


Current situation

ENSO-neutral conditions continued in January 2020.

Sea surface temperatures in the central equatorial Pacific were above average during January but still in the neutral range.

The Southern Oscillation Index during January was +0.2 (in ENSO-neutral territory).



Forecast situation

**68% chance** for ENSO-neutral conditions persisting during February-April 2020.

**64% chance** for ENSO-neutral conditions during May-July 2020.

Source: NIWA Island Climate Update:

February 2020



## Rainfall Outlook for February, March, April (FMA 2020)

<i>Location</i>	<i>Rainfall Outlook</i>	<i>Final Probabilities</i>
<b>Palau</b>		
Airai	<b>Below</b>	<b>45:35:20</b>
<b>FSM</b>		
Yap	<b>Below</b>	40:35:25
Chuuk	<b>Average-Below</b>	35:35:30
Pohnpei	Average	<b>30:40:30</b>
Kosrae	Average	<b>30:40:30</b>
<b>RMI</b>		
Kwajalein	Average	<b>30:40:30</b>
Majuro	<b>Average-Above</b>	<b>30:35:35</b>
<b>Guam and CNMI</b>		
Guam	<b>Below</b>	<b>40:35:25</b>
Saipan	<b>Below</b>	<b>40:35:25</b>
<b>American Samoa</b>		
Pago Pago	Avg.	<b>30:40:30</b>
<b>State of Hawaii</b>		
Lihue	<b>Average-Above</b>	<b>30:35:35</b>
Honolulu	<b>Average-Above</b>	<b>30:35:35</b>
Kahului	<b>Average-Above</b>	<b>30:35:35</b>
Hilo	<b>Average-Above</b>	<b>30:35:35</b>

### Note:

Interpretation of tercile probability Example: The **Avg-above** probability, **30:35:35** forecasts in **FMA** season means there is a **35%** chance (probability) for occurrence of excess rainfall during the **FMA** season, **35%** chance for occurrence of rainfall within a pattern considered normal during the **FMA** season, and **30%** chance for occurrence of deficit rainfall during the **FMA** season. Also note that excess and deficit limit for each of the stations are b different

## Drought monitoring updates.

### A. End-of-January Monthly Drought Assessment:

- i. With WxCoder III data, we have 23 stations in the monthly analysis.
- ii. January was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) across most of the USAPI; only Ulithi, Chuuk, Nukuoro, Kosrae, Mili, & Pago Pago were above the monthly minimums. The end-of-January monthly analysis (January 31) is consistent with the weekly analyses for January 28 and February 4 and is the same as the weekly analysis for January 28. Compared to the end-of-December monthly analysis:
  - A. The USDM status went from D-Nothing to D0-S at Palau, Yap, Saipan, Rota, Woleai, Lukonor, Kwajalein, Ailinglapalap, Jaluit, Wotje, and Utirik.
  - B. The USDM status went from D-Nothing to D1-S at Guam.
  - C. The USDM status stayed the same on January 31 as on December 31 (D0-S) at Majuro and (D-Nothing) at the rest of the stations
  - D. Fananu was plotted as missing (could not be analyzed) due to missing data for the last 4 months.
- iii. Some January 2020 precipitation ranks:
  - A. Koror: driest January in 69 years of data, 3<sup>rd</sup> driest Feb-Jan (67 yrs)
  - B. Yap: 2<sup>nd</sup> driest January (69 yrs), 2<sup>nd</sup> driest Feb-Jan (68 yrs)
  - C. Lukonor: 2<sup>nd</sup> driest January (36 yrs); driest Nov-Jan & Oct-Jan thru May-Jan; 3<sup>rd</sup> driest Feb-Jan (23 yrs)
  - D. Woleai: 3<sup>rd</sup> driest January (38 yrs), 2<sup>nd</sup> driest Feb-Jan (24 yrs)
  - E. Guam: 21<sup>st</sup> driest January (63 yrs) but 2<sup>nd</sup> driest Dec-Jan (63 yrs)
  - F. Kapingamarangi: 4<sup>th</sup> driest Dec-Jan (26 yrs)
  - G. Kosrae: 4<sup>th</sup> driest Dec-Jan (45 yrs), 3<sup>rd</sup> driest Jul-Jan (35 yrs)
  - H. wet: 4<sup>th</sup> wettest January at Mili (36 yrs) and Wotje (37 yrs)

### B. Current (Weekly) Drought Conditions: The discussion above is the monthly (end of January) analysis. The latest weekly USAPI USDM assessment may show different USDM classifications. The latest weekly USAPI USDM assessment is [for February 4 \(11\)](#).

- i. The February 4 analysis shows D1-S for Palau, Kwajalein, and Utirik; and D0-S for Guam and Kapingamarangi; otherwise it is the same as the January 31 analysis.
- ii. **The February 11 analysis shows no change from the February 4 analysis, except for Saipan which went from D0 (S) to D1(S) this week.**

### C. January 2020 NCEI State of the Climate Drought Report: The January 2020 NCEI SotC Drought report went online February 11.

- i. The web page url is: <https://www.ncdc.noaa.gov/sotc/drought/202001#det-reg-pacis-usapi>

### D. North America Commission for Environmental Cooperation Survey: As part of a project to improve drought indices, drought monitoring, and drought products in the US, Canada, & Mexico, a group of us are working with a contractor to run a survey on drought indices used in the 3 countries. We plan to have the contractor send the survey request to you for USAPI input, so please do participate in the survey! **We (Richard & others) have reviewed the web-based format for the survey. The contractor (Ernest Cooper Environmental Consulting) expects to have the survey ready by the end of this month.**

## Drought monitoring updates (CON'T).

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

- i. Automated Program: -- NO CHANGE IN STATUS—I modified the automated program that ingests the USAPI station daily data 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. **Follow up on why Kwajalein & Palau are not getting into the automated process.**
    1. **Thank you, Chip, for getting the metadata for Jaluit and Woleai changed so they are getting into the automated system!**
    2. **Chip: Kwajalein is in the Super Form in WxCoder III, but it is not in the regular station list. Question: Can Kwajalein's data be automatically transmitted daily from WxCoder III into the NOAAPort data feed? (need to find out station I.D. and other info to get it in to the NOAAPort feed)**
    3. **Chip: C/would you send me the COOP station i.d. number and NWSLI code for Palau International Airport, so we can get that station into the automated data base.**
  - 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, Palau International Airport, 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.**
  - D. **I had a good meeting with Bill Ward (when I was in Honolulu in July 2019) about getting automated observations set up.**

### i. 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:  
<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.
- 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).

### 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.

**Participants:**

**NWS Climate Services Program Managers (CSPMs):**

**WSO Climate Service Focal Points (CSFPs):**

Nover (Majuro)	(Chuuk)	(Pohnpei)
Wilfred (Kosrae)	Justin (Yap)	(Pago Pago)
(Palau)	(Kwajalein)	
Chip, Brandon, Mark, Clint, (Guam & CNMI)		

**PEAC Principal Research Scientist:** Rashed Chowdhury

**WERI Scientist:**

**CPC Forecaster:** Anthony Artusa (stand in for drought monitor as well)

**WFO Guam :** Brandon, Chip, Clint

**NWS MIC, Honolulu:** Christopher Brenchley

**NCEI:** Richard Heim (absent)

**Pacific RISA:**

**NWS Hydrologist:** Kevin Kodama

**Additional Attendees:**

John Marra

**\*\* Next Call– 12 March 2020, 1430 HST (13 March 2020, 0030 GMT)\*\***