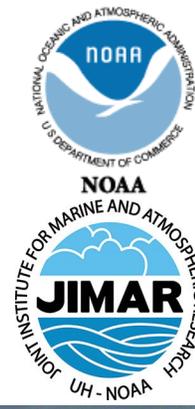




# NWS Climate Services

## January PEAC Audio Conference Call Summary

### 13 January, 1430 HST (14 January 2022, 0030 GMT)

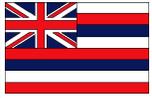


### December rainfall totals reported

% 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	December	Inches	inches	OND
Airai	17.35	127	13.62	3.74	52.88
Yap	12.31	145	8.51	3.80	30.99
Chuuk	16.79	149	11.25	5.54	44.54
Pohnpei	15.49	96	16.08	-0.59	55.88
Kosrae	23.54	146	16.11	7.43	54.50
Kwajalein	3.74	56	6.66	-2.92	29.18
Majuro	8.76	77	11.39	-2.63	41.30
Guam NAS	4.47	87	5.11	-0.64	41.02
Saipan	5.41	141	3.85	1.56	23.80
Pago Pago	7.83	61	12.84	-5.01	24.79
Lihue	7.94	250	3.17	4.77	10.48
Honolulu	11.02	835	1.32	9.70	11.16
Kahului	7.45	280	2.66	4.79	8.17
Hilo	24.99	244	10.24	14.75	40.35

## 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

Most of the rain gages on Kauai recorded near to above average rainfall totals for the month of December. The U.S. Geological Survey's (USGS) rain gage on Mount Waialeale had the highest monthly total of 70.81 inches (235 percent of average), which was the highest December total at this site since 1992. The Mount Waialeale gage also had the highest daily total of 8.69 inches on December 30. The Hanalei rain gage had its highest December total since 1992, and the Omao and Princeville gages had their highest December totals since 2008.

All of the gages on Kauai ended 2021 with near to above average rainfall. Mount Waialeale had the highest total for the year at 491.13 inches (125 percent of average). The Kalaheo and Omao gages posted their highest annual totals on record.

### Oahu

December rainfall totals were above average at all of the gages on Oahu. The USGS' Halawa Tunnel rain gage had the highest monthly total of 38.11 inches (317 percent of average). The highest daily total came from the Poamoho Experiment Farm gage which logged 10.52 inches on December 6. Records for the highest December rainfall were broken at the Ahuimanu Loop, Aloha Tower, Kahuku, Kamehame, Kunia, Lualualei, Luluku, Maunawili, Manoa Lyon Arboretum, Niu Valley, Nuuanu Upper, Waipio, Palolo Fire Station, Poamoho Experiment Farm, Waimanalo, and Waihee Pump gages. Several other sites had their highest December totals since 2008. Honolulu Airport's 11.02 inches registered as the fourth highest December total on record.

Annual rainfall totals were near to above average at all of the rain gages across Oahu. The USGS' Poamoho Rain Gage No. 1 had the highest total for 2021 at 187.37 inches (83 percent of average). The Moanalua Stream, Palolo Fire Station, and Poamoho Experiment Station sites had their highest annual totals on record. The 2021 totals for Kunia, Lualualei, and Wheeler Army Airfield were the highest since 2004.

### Maui

Most of the Maui County rainfall totals were above average for the month of December. The USGS' rain gage on top of Puu Kukui had the highest monthly total of 52.10 inches (175 percent of average). The highest daily total of 7.56 inches on December 22 came from the USGS' rain gage at West Wailuaiki Stream. Records for the highest December rainfall total were broken at Haiku and Lahainaluna. Molokai Airport had its highest December total since 1996. Kaunakakai Mauka, Kula Branch Station, Kihei No. 2, Mahinahina, Makapalapai, Puu Kukui, and Ulupalakua Ranch had their highest December totals since 2007.

Rainfall totals for 2021 were mostly near to above average across Maui County. The rain gage at West Wailuaiki Stream had the highest annual total of 287.55 inches (128 percent of average). This was closely followed by Puu Kukui's 281.01 inches (77 percent of average).

### Big Island

Most of the rain gages on the Big Island posted above average rainfall totals for the month of December. The highest monthly total among the automated gages was 30.26 inches (195 percent of average) from the Papaikou Well gage. However, the highest overall total came from the Wainaku CoCoRaHS site with a manually recorded December total of 33.00 inches). The highest daily total of 6.60 inches was logged at the Kulani NOAA Weather Radio site on December 5. The Pahoa rain gage had its highest December total on record, and the Pali 2 gage had its highest December total since 2007. Hilo Airport's 24.99 inches (207 percent of average) marked its highest December total since 2008 and its sixth highest December total on record.

Annual rainfall totals for 2021 were near to above average at most of the gages on the Big Island. The Piihonua rain gage finished the year with the highest annual total of 201.88 inches (109 percent of average). The Honaunau gage had its highest annual total on record.

## Current State of ENSO and predictions

Issued 13 January 2022

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

**Synopsis: La Niña is likely to continue into the Northern Hemisphere spring (67% chance during March-May 2022) and then transition to ENSO-neutral (51% chance during April-June 2022).**

In December 2021, below-average sea surface temperatures (SSTs) across the central and eastern equatorial Pacific Ocean were consistent with a mature La Niña. With the exception of the westernmost Niño-4 region, which warmed to  $-0.4^{\circ}\text{C}$  at the end of the December, the other Niño indices were between  $-0.9^{\circ}\text{C}$  and  $-1.4^{\circ}\text{C}$  during the last week. Below-average subsurface temperatures weakened east of the Date Line, reflecting the slow eastward movement of positive temperature anomalies, at depth, from the western into the central Pacific Ocean. However, below-average subsurface temperatures still dominated the eastern Pacific from  $\sim 200\text{m}$  to the surface. Low-level easterly wind anomalies and upper-level westerly wind anomalies prevailed over the east-central and eastern Pacific Ocean. Enhanced convection persisted near Indonesia and the western Pacific, while suppressed convection remained over the Date Line. Overall, the coupled ocean-atmosphere system reflected a mature La Niña.

The IRI/CPC plume average for the Niño-3.4 SST index continues to forecast a transition to ENSO-neutral during the Northern Hemisphere spring. The forecaster consensus this month favors the continuation of La Niña through March-May 2022, with a transition to ENSO-neutral occurring in April-June 2022 (51% chance). ENSO-neutral is then expected to persist through the Northern Hemisphere summer, though chances do not exceed 57% (for May-July 2022), which is consistent with the generally lower confidence forecasts made through the spring. In summary, La Niña is likely to continue into the Northern Hemisphere spring (67% chance during March-May 2022) and then transition to ENSO-neutral (51% chance during April-June; click [CPC/IRI consensus forecast](#) for the chances in each 3-month period).

La Niña is anticipated to affect temperature and precipitation across the United States during the upcoming months (the [3-month seasonal temperature and precipitation outlooks](#) will be updated on Thurs. Jan. 20th).

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

The verification result of OND rainfall forecasts was 6 hits and 8 misses (Heidke score: 0.2715). The 8 missed stations were Yap, Pohnpei, Kosrae, Guam, Saipan, Pago Pago, Honolulu, and Kahului.

Location	UKMO	ECMWF	CA	NASA	NCEP	IRI	APCC	Rainfall Outlook	Final Probs	3 mo Verification			PEAC SON	PEAC SON
										% norm	Total (in)	Tercile	Forecast Final	Probs Final
<b>Palau</b>														
Airai 7° 22' N, 134° 32' E	Above	Above	Avg-above	Avg-above	Above	Above	Avg-above	Above	25:30:45	139	52.88	Above		
<b>FSM</b>														
Yap 9° 29' N, 138° 05' E	Above	Above	Avg-above	Avg-above	Above	Above	Avg-above	Above	25:30:45	105	30.99	Avg.		
Chuuk 7° 28' N, 151° 51' E	Avg-above	Avg.	Avg-above	Above	Avg-above	Above	Avg-above	Avg-above	30:35:35	133	44.54	Above		
Pohnpei 6° 59' N, 158° 12' E	Avg.	Avg.	Avg-above	Avg-above	Avg.	Above	Avg-above	Avg.	30:40:30	121	55.88	Above		
Kosrae 5° 21' N, 162° 57' E	Below	Avg.	Avg-above	Avg.	Below	Clim.	Avg-below	Avg-below	35:35:30	133	54.5	Above		
<b>RMI</b>														
Kwajalein 8° 43' N, 167° 44' E	Avg.	Avg-below	Avg.	Avg-above	Avg.	Clim.	Avg-above	Avg-above	30:35:35	100	29.18	Avg.		
Majuro 7° 04' N, 171° 17' E	Avg.	Avg-below	Avg-above	Avg.	Avg-below	Above	Avg.	Avg.	30:40:30	110	41.30	Avg.		
<b>Guam and CNMI</b>														
Guam 13° 29' N, 144° 48' E	Avg.	Below	Avg-below	Avg.	Avg.	Avg-below	Avg.	Avg-below	30:40:30	171	41.02	Above	Avg.	30:40:30
Saipan 15° 06' N, 145° 48' E	Avg.	Below	Avg-below	Avg-above	Avg.	Avg-below	Avg.	Avg-below	30:40:30	119	23.80	Above	Avg.	30:40:30
<b>American Samoa</b>														
Pago Pago 14° 20' S, 170° 43' W	Avg-above	Above	Avg-above	Avg-above	Avg.	Below	Avg-above	Avg-above	30:35:35	77	24.79	Below		
<b>State of Hawaii</b>														
19.7° - 21.0° N, 155.0° - 159.5° W														
Lihue	Avg-below	Below	Avg-below	Avg.	Avg.	Avg-below	Avg.	Avg-below	35:35:30	105	10.48	Avg.		
Honolulu	Avg-below	Below	Avg-below	Avg.	Avg.	Below	Avg.	Avg-below	35:35:30	283	11.16	Above		
Kahului	Avg-below	Below	Avg-below	Avg.	Avg.	Avg-below	Avg-below	Avg-below	35:35:30	162	8.17	Above		
Hilo	Avg-below	Below	Avg.	Avg.	Avg.	Clim.	Avg-below	Avg-below	35:35:30	133	40.35	Avg.		

6	Hit
8	Miss
Heidke:	0.2715
RPSS:	-0.0109

### 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 (>)						

## 6. Rainfall Outlook JFM– January, February, March (Sony)

JFM Forecast Location	Rainfall Outlook	Probability Pre-Conference	Final Outlook	Final Probability
<b>Palau</b>				
Airai 7° 22' N, 134° 32' E	Above	25:35:40	-	-
<b>FSM</b>				
Yap 9° 29' N, 138° 05' E	Above	25:35:40	-	-
Chuuk 7° 28' N, 151° 51' E	Above	30:30:40	-	-
Pohnpei 6° 59' N, 158° 12' E	Avg-above	30:35:35	-	-
Kosrae 5° 21' N, 162° 57' E	Avg-above	30:35:35	-	-
<b>RMI</b>				
Kwajalein 8° 43' N, 167° 44' E	Avg-above	30:35:35	-	-
Majuro 7° 04' N, 171° 17' E	Avg-above	30:35:35	-	-
<b>Guam and CNMI</b>				
Guam 13° 29' N, 144° 48' E	Avg-above	30:35:35	-	-
Saipan 15° 06' N, 145° 48' E	Avg-above	30:35:35	-	-
<b>American Samoa</b>				
Pago Pago 14° 20' S, 170° 43' W	Avg-below	35:35:30	-	-
<b>State of Hawaii</b>				
19.7° - 21.0' N, 155.0° - 159.5' W				
Lihue	Above	25:30:45	-	-
Honolulu	Above	25:30:45	-	-
Kahului	Above	25:30:45	-	-
Hilo	Above	25:30:45	-	-

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

	Koror	Yap	Chuuk	Pohnpei	Guam	Saipan	Majuro	Kwai
below (<)								
33.33%	23.9	14.98	22.35	34.4	8.52	6.98	20.29	11.78
near								
66.66%	32.43	21.91	31.31	43.28	11.35	9.47	24.26	16.47

above (>)

	Lihue	Honolulu	Kahului	Hilo	Pago Pago	Kosrae
below (<)						
33.33%	6.52	2.08	4.24	22	35.08	43.67
near						
66.66%	13.75	7.8	8.23	44.53	42.92	53.33

above (>)

## Drought monitoring updates.

Notes for USAPI USDM authors -- Highlights from Reports from Around the Region and drought discussion:

- Kwajalein – no reported impacts from dryness yet.
- Majuro -- Majuro reservoir dropping fast last several days, and water utility company stopped serving water on Wednesday (usually do MWF), but not too much concern at this time at Majuro. Brandon will seek clarification from Majuro.
- Nukuoro – no reported impacts but they have a wet pattern over them now. Nukuoro rain has probably been enough for their population.
- Kapingamarangi -- Vegetation may not be back to normal on Kapingamarangi, may take 8 months for it to recover. Wet pattern expected for Kapingamarangi too in next couple weeks. D0-L may be appropriate for Kapingamarangi to reflect wetter pattern but lingering impacts on vegetation.

Guam -- Guam really dried out in December, but Rota & Saipan continued getting the rain. Guam turning a little brown, but still having dew in the morning (indicates vegetation getting enough water), and no real impacts.

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

- i. With WxCoder III data, we have 23 stations in the monthly analysis.
- ii. December was dry (less than the 4- or 8-inch monthly minimum needed to meet most water needs) in northern parts of the RMI (Kwajalein, Wotje) and Nukuoro in the FSM; it was wet elsewhere. December was drier than normal at Kwajalein & Majuro (RMI), Pohnpei (FSM), Guam (Marianas), and Pago Pago (American Samoa); December was wetter than normal at the rest of the stations.
- iii. The end-of-December monthly analysis (December 31) is consistent with the weekly analyses for December 28 and January 4. Compared to the end-of-November monthly analysis:
  - a. D3 improved to D1 at Kapingamarangi.
  - b. D1 developed at Wotje.
  - c. D0 developed at Kwajalein and Guam.
  - d. The USDM status stayed the same (D-Nothing) at the other stations.
  - e. Utirik and Woleai were plotted as missing due to missing data for the month.
- iv. Some December 2021 precipitation ranks:
  - a. **Kwajalein:** 9<sup>th</sup> driest December, 4<sup>th</sup> driest June-December, & 5<sup>th</sup> driest May-December (in 70 years of data).
  - b. **Nukuoro:** 9<sup>th</sup> driest December, 6<sup>th</sup> driest October-December & September-December (38 or 39 years).
  - c. **Pago Pago:** 7<sup>th</sup> driest December & September-December, 8<sup>th</sup> driest August-December & July-December (56 years).
  - d. **Kapingamarangi:** third wettest December (31 years) but 4<sup>th</sup> driest August-December (22 years) & 5<sup>th</sup> driest July-December & May-December (21 years).
  - e. **Lukunor:** third wettest December (38 years) but 6<sup>th</sup> driest July-December (in 25 years of data).
  - f. **Pingelap:** 9<sup>th</sup> driest August-December (36 years).
  - g. **Ailinglaplap:** 5<sup>th</sup> driest May-December (37 years).