

# National Drought Summary for December 20, 2022

## Summary

This week, moderate to heavy precipitation fell over the northern Great Plains, parts of the Upper Midwest and much of the south-central and northeast U.S. This led to widespread improvements in drought conditions and abnormal dryness in these areas, as precipitation deficits lessened and soil moisture and groundwater and streamflow improved. Meanwhile, the West region was much drier this week than the last few, so few changes were made there, and mostly long-term drought and abnormal dryness continued across much of the region. A Kona low affected the Hawaiian islands this week, dumping heavy amounts of precipitation in the form of thunderstorms and high mountain snows on the Big Island, which led to improvements over most of the islands.

## Northeast

Wet weather occurred in parts of the Northeast this week, especially in southern parts of New England. Areas suffering from long-term drought in Massachusetts and Rhode Island saw some reprieve, as the precipitation improved groundwater and streamflow conditions in the area. Long-term drought also improved in a few small areas of southeast New York. Elsewhere, the region remained mostly free of drought.

## Southeast

Moderate to heavy rain amounts were common in the Southeast this week, especially in Alabama and the western Florida Panhandle. Areas of moderate and severe short-term drought in Alabama and the Florida Panhandle shrank in coverage due to recent heavy rains and improving soil moisture conditions. Drought and abnormal dryness coverage also decreased in the northern half of Georgia due to recent heavier rains. However, moderate drought coverage increased in southeast Georgia, where increasing short-term precipitation and soil moisture deficits resulted in worsening conditions.

## South

Moderate to heavy rain fell this week across the eastern half of the south region, roughly to the east of Interstate 35 in Texas and Oklahoma. Due to increasing streamflow and soil moisture, and decreasing precipitation deficits, improvements were made across much of the eastern half of the region, including a small part of eastern Oklahoma, much of Arkansas, east Texas, Louisiana, Mississippi and Tennessee. In

parts of Texas that missed out on the rains, degradations were made in a few spots where precipitation deficits, and in some cases streamflow deficits, mounted. Widespread severe, extreme and exceptional drought continued across much of central and western Oklahoma and the Texas Panhandle.

## **Midwest**

Weather conditions varied widely in the Midwest region this week. In the western half of the region, conditions mostly stayed the same or improved after widespread precipitation over the past couple weeks, including much of Missouri and Illinois. Extreme drought was removed from southern Illinois after recent heavy rains improved conditions there. Improvements due to the last couple weeks of rain were also common across most of Kentucky, where drought coverage saw another drop this week. Small-scale improvements were made in parts of Iowa this week due to recent heavy rain and snow and improved conditions. Large-scale improvements were made in Minnesota this week after heavy precipitation occurred in the last couple of weeks. Drier conditions continued along the central Indiana/Ohio border this week, where short-term severe drought developed due to worsening precipitation deficits, streamflow and growing soil moisture deficits.

## **High Plains**

Widespread moderate to heavy rain and snow fell over parts of the High Plains region, especially the Dakotas and northern Nebraska. Due to the growing snowpack and lessened precipitation deficits, improvements were made across much of South Dakota and North Dakota, as well as in north-central and northwest Nebraska and the northeast corner of Colorado. Improvements were also made due to recent precipitation in the Kansas City metro area. Farther west in Kansas, dry weather continued this week, and long-term precipitation deficits and soil moisture deficits continued to grow, leading to a small expansion of extreme drought to the east.

## **West**

Compared to the last several weeks, this week was generally quieter across the West region, with the exception of snowfall in the eastern plains of Montana from the same system that impacted the Dakotas. Some improvements were made in eastern Montana, as this snowpack helped to further alleviate long-term precipitation deficits. Elsewhere across the West, mostly long-term drought and abnormal dryness continued in most parts of the region.

## **Caribbean**

Drier conditions continued this week in Puerto Rico, except for the northeast corner of the island. Despite generally drier conditions over the last month in eastern Puerto Rico, medium- and long-term precipitation was sufficient to keep conditions away from abnormal dryness.

The U.S. Virgin Islands have trended drier in recent weeks as this is the dry season. Both satellite data (i.e., National Weather Service's seven-day quantitative precipitation estimates) and station observations show that the rainfall amount received over most parts of the islands was less than 0.25 inches. The one-month Standardized Precipitation Index (SPI) showed that conditions have been significantly dry. However, the 3-, 6-, 9- and 12-month SPI showed wet or normal conditions over the U.S. Virgin Islands. If the current drier-than-normal conditions continue, the islands could deteriorate to abnormally dry conditions.

Specifically, St. Croix (Henry Rohlsen AP) reported 0.16 inches of rain this week. Despite recent dry conditions, the depth to water level at Adventure 28 Well (St. Croix, USVI) on December 20, 2022 was less than 26 ft below land surface. Even though an increase in depth to water is observed due to less rainfall this week, St. Croix remains free from dryness due to plentiful rainfall in fall.

Similarly, on St. Thomas (Cyril E. King Airport), 0.11 inches of rain was observed this week. The depth to water level at Grade School 3 well (St. Thomas, USVI) on December 20, 2022 was 7.26 ft below land surface. A slight increase (about 1.3 ft) of depth to water level from last week was observed due to the lower amount of rain that was received this week. However, there is enough moisture to remain drought free for this week.

On St. John, at Rafe Boulon (Windswept Beach), 0.14 inches of rain was reported this week. The depth to water level at Susannaberg DPW 3 well (St. John, USVI) on December 20, 2022 was 8.66 ft below land surface. Despite trending drier this week, the observation at Susannaberg DPW 3 well showed the depth to water level was shallow enough (less than 9 ft) to remain drought free. Thus, St. John continues to be drought free this week.

## **Pacific**

Alaska remained free of drought or abnormal dryness this week.

Drought conditions improved by a full category in most locations in Hawaii this week, due to precipitation associated with a Kona low. The one exception was on the

southeast slopes of Kilauea, where December precipitation continued to be below normal, and abnormal dryness continued.

Kwajalein received only 0.46 inches of rain this week with two days missing. This week is the fourth consecutive week with less than one inch of rainfall. Thus, Kwajalein deteriorated to abnormally dry conditions. Similarly, Ailinglapalap received only 0.30 inches of rain this week with two days missing. Ailinglapalap also had below-normal rainfall in the past two weeks (i.e., 0.88 and 0.38 inches of rain each week), initiating a short-term drought (abnormally dry). Jaluit observed 1.44 inches of rain this week with one day missing. Jaluit also observed drier conditions in the past two weeks (i.e., 1.11 and 1.38 inches of rain in the past two weeks, respectively). However, because of the significant wet conditions in the past two months, Jaluit remained drought free. On Majuro, 4.75 inches of rain was reported this week with one day missing, so the island remains free of drought. Similarly, Mili and Wotje reported 3.82 (two days missing) and 2.00 inches of rain, respectively. Thus, Mili and Wotje are free of dryness or drought. No depiction was made for Utirik due to missing data.

Pago Pago reported 3.86 inches of rain this week. In addition, Siufaga Ridge (NPS in American Samoa) and Toa Ridge (NPS in American Samoa) reported 4.92 and 4.16 inches of rain, respectively. Thus, American Samoa remained free of drought conditions. Palau IAP (Airai) reported 2.78 inches this week. Koror COOP station also reported 2.30 inches of rain (with one day missing), resulting in drought-free conditions.

This week, 2.34 inches of rain was reported on Yap. Last week, 2.51 inches of rain was reported. However, below-normal rains were reported in the previous four weeks. Thus, Yap remained in short-term abnormal dryness for this week. On Ulithi, only 0.59 inches of rain was reported this week with one day missing. In addition, Ulithi had experienced below-normal rainfall for the past three weeks, so it remained in short-term abnormally dry conditions. On Kapingamarangi, only 0.17 inches of rain was reported this week. In addition, Kapingamarangi has been dry in the past several weeks, and therefore it remains in short- and long-term severe drought. On Lukunor, only 0.49 inches of rainfall was reported this week (with four days missing). Thus, Lukunor remains in abnormally dry conditions. No data was reported this week at Pohnpei. However, wet conditions prevailed in the past three weeks and previous months, so Pohnpei remained free of dryness. On Woleai, 2.01 inches of rain was reported this week, with one day missing. So, Woleai remained drought free. At Chuuk, only 0.45 inches of rain was reported this week with one day unaccounted for, but it remained free of dryness due to wet conditions in the previous weeks. On Fananu, 1.51 inches of rain was reported this week, allowing the island to remain free of drought or abnormal dryness because of the significant amounts of rain in October and November (i.e., 16.45 and 10.91 inches of rain, respectively). On Nukuoro, 3.90 inches of rain was reported this week, allowing the island to be free of drought or abnormal dryness. No data was reported for Pingelap in the past three weeks to make a depiction.

The drought-free conditions have continued across the Mariana Islands this week. Rainfall reported on Guam was 0.89 inches, allowing the island to remain free of

dryness or drought. Wet conditions continued at Rota, which received 1.28 inches of rain this week. In addition, the amounts of rainfall observed on Saipan (IAP, manual gauge), Saipan (ASOS) and Saipan (NPS) were 0.48, 0.46 (one day missing) and 0.26 inches, respectively. Thus, Saipan remains drought free this week.

## ***Looking Ahead***

As the current week leading up to Christmas Day comes to a close, a powerful storm system will drag a strong Arctic cold front through much of the central and eastern U.S. to the east of the Rocky Mountains. Light to moderate precipitation amounts, much of it in the form of snow in the central Great Plains and Midwest, will transition to heavier precipitation as the storm system strengthens in the Great Lakes region late in the week. Moderate to heavy precipitation accumulations are likelier in the eastern Great Lakes, Northeast and Mid-Atlantic. Into early next week (the week of Monday, December 26), heavier precipitation is also likely in northern Idaho and in far northwest California, western Oregon and western Washington.

Looking ahead to December 27 through New Year's Eve, the National Weather Service Climate Prediction Center's outlook favors warmer-than-normal temperatures in most of the Lower 48, with the exception of most of the Southeast region. Above-normal precipitation is strongly favored in much of the West, moderately favored from the Great Lakes south to the Gulf Coast and slightly favored in the Central and Northern Great Plains. Below-normal precipitation is favored in central and southern Texas and in New England. In Alaska, above-normal precipitation is favored in the southern half of the state, above-normal temperatures are favored in southeast Alaska and below-normal temperatures are favored in the northwest half of Alaska. For the period spanning December 29 through January 4, above-normal temperatures are favored over the entire Lower 48, and above-normal precipitation is favored over most of the Lower 48 as well. Above-normal precipitation is favored in southern Alaska, while temperatures are likely to vary from warmer than normal in the southeast to colder than normal in the Northwest.

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