

National Drought Summary for May 31, 2022

Summary

Heavy precipitation fell across much of the contiguous U.S. over the past week, particularly in the Great Plains, Northwest (especially the northern Rocky Mountains), and the Southeast. Much of this fell as rain, though some mountain snows occurred as well. Meanwhile, the Southwest remained dry, along with northern Montana and most of the Texas Panhandle. Improvements to drought conditions were widespread in the Great Plains, with parts of central Kansas seeing two-category improvements to conditions. Despite the widespread precipitation, drought remained in most of the western Great Plains and western U.S., though it lessened in severity in some areas. A mix of worsening and improving drought conditions occurred in the Southeast and Mid-Atlantic states. Long-term drought improved in northern Maine along the Canadian border, while short-term drought expanded in coverage in southern New England. Short-term abnormal dryness and moderate drought developed in south-central and southwest Alaska. Heavy rains in Puerto Rico led to localized improvements there.

Northeast

After a wet week in northern Maine, long-term moderate drought lessened in coverage, as did the surrounding abnormal dryness area. Here, long-term precipitation deficits continued to lessen, leading to the improvements, as some areas near the Canadian border saw over 2 inches of rain. Farther south in New England, short-term moderate drought and abnormal dryness expanded in coverage in Massachusetts, southeast New Hampshire, eastern Connecticut, and Rhode Island. Here, short-term precipitation deficits continued to mount, alongside lowering streamflow and soil moisture values, leading to the worsening conditions. Moderate short-term drought was also removed from southern West Virginia after recent rainfall improved conditions there.

Southeast

Widespread heavy rain fell over parts of the Southeast region this week. The Florida Panhandle and Alabama saw some of the highest totals, with much of Alabama receiving 2 or more inches of rain, and the western Florida Panhandle receiving 2 to 6 inches. Heavy rain amounts also fell in western North Carolina and surrounding areas, leading to widespread removal of abnormal dryness. After recent rainfall improved conditions, moderate short-term drought was removed from western Virginia. Moderate and severe drought continued in coastal parts of North Carolina, South Carolina, and parts of the Georgia coast, which did not receive as much rainfall. Changes to drought status were mixed in the Florida Peninsula, with areas that received heavier rain seeing

improvements, while east-central Florida saw an increase in moderate drought coverage as short-term precipitation deficits and soil-moisture deficits mounted.

South

Widespread drought conditions continued in western portions of Oklahoma, Texas, southern Texas, and southern Louisiana this week, though some improvements were noted in Texas and Oklahoma. Recent heavy rainfall from far northern Oklahoma into parts of south-central Oklahoma and west-central and central Texas lessened precipitation deficits enough to allow for improved drought conditions. The ongoing drought area over western Oklahoma and the eastern Texas Panhandle is now long-term, reflecting the impact of recent rain events. Tuesday night's thunderstorms in the Southern Plains was not accounted for on this week's map, as it fell after the Tuesday morning cutoff. This will be considered for next week's map. Despite recent rainfall, problems continued with winter wheat and cotton growth in the southern Great Plains. Finally, a small area of short-term drought in southeast Tennessee was removed after heavy rain this week.

Midwest

The Midwest region remained mostly free of drought this week, aside from northwest Iowa, though some pockets of abnormal dryness saw changes. Severe thunderstorms in western Iowa and Minnesota dropped enough rain to lead to improvements to some areas of abnormal dryness along the western Iowa/Minnesota border. Heavy rain in northern Illinois and southern Wisconsin lessened long-term precipitation deficits, which allowed for the ongoing abnormal dryness area to be trimmed on its north and south edges. Short-term precipitation deficits mounted in southeast Illinois, where abnormal dryness increased slightly. Short-term abnormal dryness also developed in northwest Indiana, where short-term precipitation deficits mounted alongside groundwater concerns. Abnormally dry conditions generally stayed the same or improved in Kentucky after rainfall this week in parts of the state.

High Plains

Large-scale improvements to drought conditions and abnormal dryness took place in the High Plains region this week, where widespread rain and mountain snow fell as several storm systems moved through the region. Extreme drought was removed from central Kansas and northeast Nebraska, where soil moisture improved and short- and long-term precipitation deficits lessened. Widespread improvements were also made in South Dakota, where precipitation deficits improved. Rain and mountain snow was also

widespread in Colorado recently, leading to improving conditions in both the Rocky Mountains and high plains. Heavy precipitation amounts fell in northern Wyoming and southern Montana, leading to a large swath of improved conditions. Lingering long-term abnormal dryness in western North Dakota also continued to wane, while moderate drought was removed entirely from the west end of the state after precipitation this week. Despite the improving drought conditions, agricultural problems continued in the region. Winter wheat harvest potential in Kansas was reduced by over 25%, while conditions are too wet in parts of Montana and the Dakotas for planting spring wheat.

West

Localized heavy precipitation fell across mainly the northern half of the West region this week, leading to a few areas of improvements. Drought areas in southwest and northeast Oregon, central Idaho, northern Nevada, and northern Utah saw some local improvements as drought indices responded to recent precipitation. As mentioned in the High Plains section, widespread improvements were made in southern Montana after heavy precipitation fell there, with localized amounts of 5 inches or more. Recent precipitation also allowed for some improvements in northeast Montana. Despite these improvements, widespread severe, extreme, and some exceptional drought continued across the West. Impacts from the widespread drought include reduced grazing for cattle in New Mexico due to wildfire closures in national forests and hydropower production concerns at reservoirs in Nevada and California due to very low water levels.

Caribbean

Widespread short- and long-term abnormal dryness and moderate drought continued this week in Puerto Rico, though some minor improvements were made in the western half of the island, where widespread heavy rain fell.

The U.S. Virgin Islands have been in a pattern of prevailingly subnormal rainfall since at least August 2021. After a very dry September-December 2021 throughout the Virgin Islands, rainfall totals increased, especially across the northern tier, including St. Thomas and St. Croix. February-April ended up a few inches wetter than normal, but dryness returned with a vengeance in May 2022. All three sites received less than an inch of rain. St. Thomas received about 0.88 inch, or about 30 percent of normal, making it the driest month since January 2021 (0.75 inch). Even so, they fared better than St. John and St. Croix, which only got 0.45 and 0.35 inch, respectively (both about 10 percent of normal). Overall, St. John and St. Thomas were severely dry for the last 4 months of 2021, but experienced significant improvement with slightly above-normal rainfall prevailing in 2022 until things dried out in May. As a result, conditions generally improved, though with September – December 2021 being much drier than normal and January-April only modestly wetter than average, these locations could see quick

drought intensification if rainfall doesn't pick up significantly through the summer. At this point, the exceedingly dry May following a modestly wet January-April has left St. Thomas and St. John in moderate drought (D1) but with the potential for drought impacts to ramp up quickly.

Farther south in St. Croix, however, conditions are markedly worse. Only February 2021 brought substantially above normal rainfall, and while it remained damp farther north, monthly totals in St. Croix were under an inch in March, and remained that low in April and May. These months typically bring about 7.5 inches of rain to St. Croix, but this year only 1.7 inches were reported, less than 25 percent of normal.

Looking back farther, long (multi-month) periods of well below normal precipitation have been common since well before the last four months of 2021, when severely dry conditions were widespread across the Virgin Islands. Looking back to September 2019, . . . and date back before August 2021 unlike in other parts of the Virgin Islands. prevailed more frequently and for longer periods of time. Of the 33 months from September 2019 through May 2022, only 6 ended up wetter than normal. St. Croix received about 66 inches of rain during this period, which is 38 inches less than normal. So in the past approximately 2.5 years, St. Croix has missed out on a normal year's worth of precipitation. If you look back farther, to March 2018, a span of 51 months, only 7 were wetter than normal, and the accumulated shortfall from normal is almost 54 inches. The island is classified as extremely dry (D3) now, and may drop to our most intense drought classification (exceptional drought (D4)) soon if rainfall doesn't increase significantly.

Pacific

Moderate drought was introduced and abnormal dryness expanded in south-central and southwest Alaska this week, where snowmelt has occurred early amid warmer temperatures, which combined with short-term precipitation deficits to worsen conditions. The worsened conditions may also lead to increasing wildfire threat and increasing need for watering vegetation.

Due to above-normal rainfall for May, abnormal dryness was removed from Kauai and Niihau. Meanwhile, short-term extreme drought expanded on Maui, where pastures have become completely de-stocked.

Abnormal dryness continues in all the reporting locations in the Mariana Islands (Guam, Rota, and Saipan). But farther south, broad stretch of islands reaching from Palau eastward across Micronesia and the Marshall Islands are predominantly free of impactful dryness. The only exceptions are in the south and east fringes of this area.

Moderate drought (D1) covers Kapingamarangi, which is well south of the other islands across Micronesia. Acutely dry conditions have prevailed for the last 3 weeks, and they

may be primed to deteriorate quickly if rainfall doesn't markedly increase soon. Meanwhile, Wotje – on the eastern edge of the U.S.-affiliated territories – is also in moderate drought (D1). But unlike Kapingamarangi, Wotje is slowly improving. Impacts are slowly easing, prompting the improvement from severe drought (D2) last week.

Palau has a very wet climatology, with an annual average rainfall near 150 inches. Even so, they've managed to top their normal in each of the last 6 months. With over 24 inches falling in May, their 6-month total increased to over 97 inches, compared to a normal of about 67 inches. Dryness is not even remotely a concern at this time.

The same as last week, all 3 locations reporting locations in the Marianas Islands (Guam, Saipan, and Rota) are experiencing some degree of abnormal dryness (D0). These islands need approximately an inch of rainfall a week (4 inches per month) to keep pace with human and natural demand. After 3 months of suboptimal rainfall, totals picked up significantly in April, seemingly ending the dry spell. But conditions got drier again in May. The roughly 1.5 to 3.0 inches reported for the month was even lower than the monthly totals for January-March.

With the dramatic exception of Kapingamarangi, rainfall has been sufficient to meet needs across the central and northern tiers of Micronesia. At some point, most sites experienced a few weeks to a couple months of suboptimal rainfall, but these tended to be short-lived, and impact – if any – were mild and of short duration. February 2022 was one of the drier months recently, with about half of the reporting sites falling short of the optimal rainfall total (about 8 inches). In contrast, April brought an abundance of widespread rainfall. None of the observing sites received less than the preferred 8 inches, including even Kapingamarangi.

But sufficient rainfall has been far less common in Kapingamarangi than in islands farther north. The mean annual rainfall is about 128 inches, and of the 17 locations for which we have reliable historic monthly data in Micronesia, this puts Kapingamarangi near the middle of the pack. But for a few years now, extended periods of significantly below normal (and suboptimal) rainfall have affected the island, including May-December 2020, when each of the 9 months brought less than 45 percent of normal rainfall, which is well below the amount needed to keep pace with demand. In September 2020, only 9 percent of normal fell. Rainfall has been up and down since then with periods of adequate precipitation interspersed with periods of acute dryness. August – November 2021 was another period where each month brought well under half of normal rainfall, and at best half of the amount needed to keep pace with demand. Rainfall significantly increased over the ensuing 3 months, with monthly precipitation totals more than enough to meet demand. But in March a drier pattern again began to prevail. Most weeks have brought less than the 2 inches needed to keep pace with the water budget. And conditions have taken a sharp downturn since early May. Rainfall was just 10 percent of normal for the month, and the last 3 weeks have been almost bone dry. If rainfall doesn't increase significantly soon, conditions could go downhill quickly.

The frequency and duration of periods with suboptimal rainfall (below 8 inches) started to occur more frequently in the Marshall Islands starting near the beginning of 2021. But as in Micronesia, these were not extreme and did not last long enough to raise significant concerns. The only exceptions were on the eastern fringes of the region – in Maduro and especially Wotje. As May 2022 ended, increasing precipitation ended impactful dryness on Maduro, with reservoir levels returning to near normal after a few months of low stores. But Wotje is still experiencing the effects of significantly suboptimal rainfall. Even under the best circumstances, Wotje is more vulnerable than most other U.S.-affiliated islands because the normal rainfall is relatively low (about 58 inches), so significant impacts can develop and worsen more quickly than most areas, where rainfall is in greater abundance. This was noted during a spell of substantially below normal precipitation during December 2021 – March 2022. A total of 5.15 inches of rain was measured when normally almost 10 inches would fall. Drought was most severe during January-February 2022. Normal rainfall for the 2 month period is about 4 inches, but this year, a grand total of 0.05 inches fell. Precipitation increased significantly during April and May, but were still dry enough to engender only slow improvement. However, each week since May 4-10 brought the preferred amount of rain to keep pace with demand, and slow improvement is continuing.

For the last 3 months, below normal rainfall has prevailed over American Samoa. March – May typically bring about 33 inches of rain, but only 20 inches was measured in 2022. So far, optimal rainfall totals have been observed for enough weeks to stem any significant impacts, and May saw an uptick in rainfall totals, though amounts weren't quite as much as they'd like.

Looking Ahead

Through the evening of Monday, June 6, the National Weather Service Weather Prediction Center is forecasting moderate precipitation amounts in parts of the Northwest, with some mountainous areas forecasted to see over an inch of precipitation. Dry conditions are expected to continue in the Southwest. Widespread rain exceeding one-half inch is expected to have fallen across northern Texas, including parts of the Panhandle, and much of Oklahoma. Elsewhere in the Great Plains, some precipitation is forecast to fall from southwest North Dakota southward, with amounts generally varying between 0.25 and 0.75 inches. Heavier amounts are possible along the Minnesota/Iowa border. In the eastern U.S., generally drier conditions are expected, though some parts of the Ohio Valley and Northeast and the Appalachians are expected to receive at least a half-inch of rain. Finally, a tropical disturbance is forecast to move across southern Florida, which may deliver rain amounts from 3 to 10 inches, especially across the southern half of the Florida Peninsula. For the latest on this system, please refer to forecasts from your local National Weather Service office and any advisories from the National Hurricane Center.

Author(s)

Richard Tinker, NOAA/NWS/NCEP/CPC

Curtis Riganti, National Drought Mitigation Center