

National Drought Summary for January 10, 2023

Summary

A series of atmospheric rivers (AR) led to heavy rain and high-elevation snow across parts of the West, especially across California. Precipitation totals exceeding 4 inches (liquid-equivalent) were widespread, and several areas in and near the Sierra Nevada, Cascades, and coastal ranges recorded over one foot of precipitation. Moderate to heavy precipitation was also common along the coast and in the higher elevations of the Pacific Northwest, some higher elevations in the central and northern Rockies, part of the upper Midwest, portions of the lower Mississippi Valley, the interior Southeast, and scattered locales across the Ohio Valley and the Northeast. Precipitation totals generally exceeded 1.5 inches, and topped 4 inches in parts of the Southeast, central Utah, and the higher elevations in the Pacific Northwest. Much of the precipitation fell on areas experiencing dryness and drought, so across the country, improvement was much more common than deterioration. Mild temperatures prevailed across the country except where significant precipitation was observed in the northern Plains and Far West. Daily high temperatures averaged more than 12 deg. F above normal in central and southern Texas while daily low temperatures averaged 10 to 13 deg. F above normal across the Great Lakes, the Southeast, and the southern Plains.

Northeast

Much of the Northeast remains drought-free except for lingering long-term moderate (D1) drought across eastern Long Island. Light to locally moderate precipitation fell across most of the region, engendering the removal of some D0 in New York and New England. Despite recent precipitation, USGS groundwater levels remain below the 25th percentile where abnormal dryness (D0) was maintained.

Southeast

Heavy precipitation fell on a swath stretching from Louisiana and adjacent Texas northeastward across the interior Southeast to the western Carolinas and southern Appalachians. Scattered areas from southern Mississippi through northern Georgia and the adjacent Carolinas recorded 3 to locally 5 inches of precipitation. In contrast, areas in the coastal plains of the Southeast and across much of Florida, only light precipitation was observed. This pattern created several areas of notable improvement in D0 and D1 areas from central and southern Alabama through extreme southern Virginia, with severe (D2) drought improving to moderate (D1) in the central Florida Panhandle and adjacent areas. Farther east, where much less precipitation fell, some deterioration occurred in a swath from southern Georgia through the eastern Carolinas. Moderate

drought was introduced in parts of eastern South Carolina, and severe (D2) drought expanded eastward in northern Florida and adjacent Georgia.

South

Moderate to locally heavy rain in Tennessee and Mississippi kept those states free from drought. The small area of D0 remaining in Tennessee was removed, and D0 areas in Mississippi contracted slightly. Moderate to locally heavy rain also fell on most of Louisiana and eastern Texas, reducing the extent of D0 in northern Louisiana and improving the west side of the D0 and D1 areas in the Bayou. Farther west, little or no precipitation fell. Exacerbated by much above normal temperatures, conditions deteriorated in portions of Texas and Oklahoma, although most locations were unchanged by the week's dryness. Much of Oklahoma remained in extreme drought (D3), and similarly dry conditions existed across scattered areas in central and northern Texas. Exceptional drought (D4) now covers part of central Texas, scattered areas across Oklahoma, along with the northern tier of the state. 90-day precipitation amounts were only 10 to 25 percent of normal through the Oklahoma Panhandle, part of adjacent Texas, and in far western Texas from Big Bend National Park northwestward for a few hundred miles along the Rio Grande. Locations in and near the central Texas D4 region recorded 3 to 5 inches less precipitation than normal during this period.

Midwest

It was a wet week across most of Kentucky, with many locations from east of the Ohio/Mississippi Rivers' confluence to the Appalachians receiving 1 to locally 4 inches. Meanwhile, light to locally moderate precipitation fell on portions of Minnesota and the Great Lakes Region, much of it in the form of snow. Most areas recorded several tenths of an inch of precipitation (liquid-equivalent), but a few swaths from southeastern Minnesota through the Upper Peninsula of Michigan reported 1 to 2 inches. A fairly deep snowpack now covers most areas across the northern tier of the Midwest Region. As a result, improvements were introduced there, particularly from the Upper Peninsula of Michigan through southern Minnesota. Most areas from eastern Missouri northeastward through much of the Lower Peninsula of Michigan recorded 2 to 6 inches less than normal precipitation over the last 3 months, with the largest deficits observed near the Ohio River; however, most of the Midwest Region has seen near- to above-normal precipitation during the past 30 days, with totals about 2 inches above normal through much of the northern tier of the Region. Currently, northwestern Iowa is the driest part of the Region. Much of this area is in extreme drought (D3) with a small area of D4 assessed near the Nebraska border.

High Plains

Most of the Region was much drier than the prior week, with a few tenths of an inch of precipitation restricted to southeastern South Dakota and adjacent portions of Nebraska, as well as isolated sites in the higher elevations of Colorado and southern Wyoming. Other areas recorded little if any precipitation. Most of the region remained unchanged from last week, but some improvement occurred in southeastern South Dakota and adjacent Nebraska. No areas appeared to deteriorate significantly due to the heavy precipitation of the previous week and seasonably cold temperatures reducing human and natural water demand. But most of the region remained in at least moderate drought (D1), with extreme to exceptional drought (D3-D4) stretching from southeastern Wyoming eastward across most of Nebraska into adjacent Iowa, and southward from western Nebraska through most of southern and western Kansas. A broad swath covering the southwestern half of Kansas and much of northeastern Nebraska remained in exceptional drought (D4).

West

A long-term drought, dating back to the 2019-2020 winter, continues across California, the Great Basin, and parts of the Pacific Northwest. However, the intense precipitation in California the past few weeks – particularly late December and early January – has significantly reduced drought intensity in California. Most of the state saw a 1-category improvement this week. The D3 across interior northern and central California that covered over 35 percent of the state two weeks ago, is now confined to a small area adjacent to Oregon. But Despite the record and near-record precipitation over the past 6 weeks, large parts of the state remain in D1-D2 since moisture deficits have been entrenched across some areas for the last 2-3 years. At least one-third of the state has been in drought (D1+) since February 2020.

On January 9, Bishop CA reported 3.02 inches of rain, which was the fourth wettest day in at least 71 years. Their water-year total of 6.8 inches is more than 4 times normal. In the 41 days since December 1, 2022, downtown Sacramento reported 14.25 inches of precipitation where the normal is only 4.76 inches. The 16.10 inches received by Oakland during this period is more than 11 inches above normal (over 3 times normal). Farther south, Santa Maria reported 10.61” for the 41-day period, compared to a normal of 2.96 inches (over 3.5 times normal). Amounts in a few spots where precipitation is normally enhanced by orography have reported 30 to 48 inches of precipitation (liquid-equivalent) since December 1. Flooding and strong winds have been widespread during the stormiest periods.

The precipitation has provided a generous boost to reservoir stores, but most are still below the long-term average for this time of year. The Shasta Dam reservoir water stores rose from less than 1.4 million acre-feet (af) on November 30 to over 1.9 million af on January 10, with an increase of over a quarter-million af in the last 3 days of this

week; however, the reservoir is still considerably below the long-term average for this time of year (2.5 million af) having risen from 57 percent of the long-term average to 70 percent. The sum of the state's 6 largest reservoir stores increased from 5 million af on November 30, 2022 to 7.3 million af on January 10, 2023 (from 54 percent of long-term average to 74 percent of long-term average). Only one of the 6 largest reservoirs is near its long-term average, and 3 of them hold only 43 to 61 percent of their long-term averages as of January 10.

Caribbean

A few inches of rain removed D0 conditions in northeastern Puerto Rico, but lesser amounts fell farther to the south and west, leaving other D0 areas on the island unchanged.

Short-term abnormal dryness was removed from St. John this week, after rain totaled 1.61 inches at Windswept Beach, improving 1-month precipitation statistics enough to go out of the abnormal dryness category. More variable but overall lesser rainfall fell on St. Thomas and St. Croix this week, and short-term abnormal dryness continued on both islands.

Pacific

Alaska remains drought-free.

In Hawaii, producers on Maui and the Big Island report improved rangeland conditions following heavy precipitation from a mid-December storm, prompting some improvement on parts of these islands. But the past few weeks have been unfavorably dry, leading to the introduction of abnormal dryness (D0) across areas not in any dryness the prior week, including most of Kauai and portions of Oahu, Molokai, Lanai, Maui, plus the east side of the Big Island.

Drought is not currently a concern in American Samoa, with weekly rainfall amounts of 3.61 inches at Siufaga Ridge, 4.4 inches at Toa Ridge and 8.4 inches at Pago Pago.

Drought is not currently a concern in Palau, as rainfall totaled 2.24 inches at Koror and 3.6 inches at Palau.

Drought and abnormal dryness have not been a concern this week in the Mariana Islands, as rainfall amounts on Guam, Rota and two of the three observing sites on Saipan topped 4 inches.

Wet weather continued on Yap and Woleai this week, where rain totaled 2.51 and 3.97 inches, respectively. Rainfall totaled at least 1.96 inches on Ulithi this week; however, given drier weather beforehand, short-term abnormal dryness continued there. Conditions on Fananu and Lukunor improved out of short-term abnormal dryness this week after rainfall totaled 5.82 and 2.84 inches, respectively. Rain on Chuuk this week was a little lighter, totaling only 1.14 inches after a string of wetter weeks. Nukuoro received 1.95 inches of rain this week, and conditions there remained free of drought or abnormal dryness. Wetter weather occurred on Kapingamarangi this week, with over 2.6 inches of rain falling, but given the long-term dryness there, short- and long-term severe drought continued. Both Pohnpei and Kosrae reported less than an inch of rain (though with a couple days missing). Both islands remained free of abnormal dryness, though, due to wetter preceding conditions. No depiction was made for Pingelap, given missing data.

Conditions on Kwajalein and Ailinglapalap, where rain totaled 3.96 and 4.33 inches, respectively, improved out of abnormal dryness. Wotje and Jaluit received 2 and 2.75 inches this week, and both islands remained free of drought or abnormal dryness. Heavy rain fell on Majuro and Mili this week, with 4.53 and 9.39 inches of rainfall accumulation. No drought depiction was made for Utirik, given missing data.

Looking Ahead

During the next five days (January 12-16) more heavy precipitation is expected across California, with parts of the Sierra Nevada, Cascades and northwestern California expected to receive another 4 to 7 inches of rain. Similar amounts are forecast for parts of the immediate Oregon coastline, the Washington Cascades, and northwestern Washington, where normal amounts are much higher than across most of California. From the Great Basin and Intermountain West to the Mississippi River, conditions should be much more tranquil, with 0.5 to 1.5 inch restricted to some higher elevations in the central and southern Rockies and the Middle Mississippi Valley. Little or no precipitation is anticipated throughout the Plains. Meanwhile, a swath from the Ohio/Mississippi Confluence and the interior Southeast northeastward through New England is expected to receive at least 0.5 inch, with totals topping 1.5 inches in parts of Upstate New York and New England. Light amounts are expected in the Great Lakes Region, the upper Midwest, the South Atlantic coastal plains, and most of Florida. Temperatures throughout the contiguous states are expected to be near- or above-normal.

The Climate Prediction Center's 6-10 day outlook (valid Jan 17-21) shows above-normal precipitation favored over the vast majority of the contiguous states, and in southeastern Alaska. Chances exceed 60 percent that amounts will be in the wettest one-third of the historical distribution from northern California and adjacent Oregon eastward across northern Utah, and across the middle Mississippi, lower Ohio, and Tennessee River Valleys. Subnormal precipitation is only favored in a small strip along

the Rio Grande in southwestern Texas, and no tilt of the odds in either direction were identified in the northern High Plains, the southwestern half of Texas, and southern Florida. Above-normal temperatures are expected across the central and eastern parts of the country, with the highest odds (over 80 percent) in the Northeast, the mid-Atlantic Region, the eastern Great Lakes, the Ohio Valley, southern Appalachia, the Carolinas, and northern Georgia. Meanwhile, below-normal temperatures are expected from the Great Basin and central Rockies southward to the Mexican border, with the best chances (over 60 percent) in the desert Southwest and adjacent southern Rockies.

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