National Drought Summary for January 31, 2023

Summary

Winter storms brought heavy rain and snow much of the eastern U.S. and from the Pacific Northwest to the central Rockies this week with above-normal precipitation observed from the southern Plains to the Southeast and along the East Coast. Precipitation led to abnormal dryness and drought improvements in the central Plains, Midwest, Southeast and Northeast. Conversely, conditions worsened over dryer areas including Idaho/Montana, southern Texas and the Florida Panhandle. In the eastern United States, temperatures have been above-normal resulting in rain falling over many areas instead of snow. Many cities including New York, Baltimore, Philadelphia and Washington D.C. remain snowless for the season. New York City recently set a new latest first measurable snowfall previously set on Jan 29, 1973. In California, a series of atmospheric rivers brought significant amounts of rain which gave reservoirs a much-needed boost, but California lacks infrastructure to make use of such a massive rainfall. Despite the deluge, the winter storms may not have eased the state's drought. In Hawaii, a strong low pressure system aloft combined with a low pressure trough at the surface to produce conditions favorable for heavy rainfall and flash flooding over portions of the main islands.

Northeast

A winter storm brought snow and rain to the region this week. A half of an inch or more of rain fell across much of the Northeast with two inches or more falling over small parts of southern New England and Maine. Above-normal precipitation and improving streamflow and soil moisture conditions were enough to remove abnormal dryness (D0) conditions from New Jersey and improve abnormal dryness in southeast New York. Much of the Northeast remains drought-free except for lingering long-term moderate (D1) drought across eastern Long Island, New York.

Southeast

Another week of heavy precipitation led to drought improvements in the Southeast. A half of an inch or more of rain fell across much of the region while parts of Alabama and Georgia received up to five inches (around 300% above normal). The excess rainfall improved areas of moderate and severe (D1-D2) drought and abnormal dryness (D0) in Florida; and moderate (D1) and abnormal dryness (D0) in Alabama, Georgia, South Carolina and North Carolina.

South

A half an inch or more of precipitation fell across much of the South with the heaviest amounts falling across the eastern part of the region. Two inches of more of rainfall fell across parts of eastern Texas, Arkansas, Louisiana and Mississippi, which resulted in moderate to exceptional (D1-D4) drought and abnormal dryness (D0) improvements in Oklahoma; moderate to extreme (D1-D3) and abnormal dryness improvements in eastern Texas; and abnormal dryness improvements in Arkansas, Louisiana and Mississippi. Conversely, drought and abnormal dryness was expanded in western Texas due to lack of rain, precipitation deficits, drying soils and degrading streamflow in the area.

Midwest

Precipitation fell over much of the Midwest but departures were near-normal for much of the region. A combination of above-normal precipitation and observed improving soil moisture and streamflow conditions led to improvements to Moderate (D1) drought and abnormal dryness (D0) in Illinois and Missouri and abnormal dryness was improved in parts of Indiana and Ohio.

High Plains

A half an inch or more of precipitation fell across parts of Colorado and Wyoming, mainly in the higher elevations, resulting in improvements to moderate to severe (D1-D3) drought and abnormal dryness (D0) in eastern Wyoming and improvements to abnormal dryness western Colorado. Much of the High Plains remains in a holding pattern as areas that received abundant snowfall over the Water Year are slow to make improvements due to the long-term nature of drought in the region.

West

Precipitation was below-normal across the region, especially along the West Coast. Due to weeks of heavy precipitation, from a series of atmospheric rivers, halted most degradations or improvements this week despite the deluge, placing much of the region on a holding pattern. The rain did give reservoirs a much-needed boost, but California’s infrastructure is not set up to make use of such a massive rainfall. Because of California’s system of dams and levees, which try to control surface water flow, underground aquifers are not always able to recharge their overpumped supplies during heavy rain events. When rivers are restricted, less water comes into contact with soil surfaces and less water is therefore able to seep down into aquifers. In the drier areas

of the West, moderate (D1) drought expanded into parts of northern Idaho and northwestern Montana due to continued degrading conditions that can be observed in soil moisture, streamflow, and precipitation deficits (up to five inches) for this area. In Utah, much of the state has above normal snowpack but no improvements were made this week based on the current issues with groundwater and depleted reservoirs.

Caribbean

In Puerto Rico, no changes were made to the map this week.

Rather typical weather for late January prevailed in the U.S. Virgin Islands. During the drought-monitoring period, rainfall at volunteer (CoCoRaHS) sites ranged from 0.26 to 0.59 inch on St. John; from 0.34 to 0.62 inch on St. Thomas; and from 0.52 to 0.98 inch on St. Croix.

At the territory's major aviation sites, January rainfall totaled 1.31 inches (50% of normal) at King Airport on St. Thomas and 1.85 inches (95%) at Rohlsen Airport on St. Croix. Looking at the 2-month period from December 1 – January 31, totals of 2.13 inches (38% of normal) at King Airport and 2.45 inches (47%) at Rohlsen Airport justified the continuation of short-term dryness (D0-S). Meanwhile on St. John, where there is neither dryness nor drought, January rainfall at Windswept Beach totaled at least 4.69 inches, well above the 1984-2022 mean of 2.9 inches.

Depth to water at the U.S. Virgin Islands' three federally monitored wells – one per major island – has only slightly increased during the 2-month dry spell, following substantial improvement during the wet autumn of 2022.

Pacific

In Alaska, no changes were made to the map this week.

In Hawaii, a strong low pressure brought heavy rainfall and flash flooding to many areas this past week. The islands of Maui and Molokai received the greatest amount of rainfall during this time, reporting up to 20-30+ inches of rain. Kauai reported up to 13-18 inches, Oahu peaked at around 16 inches while the Big Island received the least amount of rainfall with 2-5 inches. As a result of this drenching, improvements to drought and abnormal dryness were made over the main Hawaiian Islands.

Most of the U.S.-Affiliated Pacific Islands continued to receive ample rain in late January, leading to no changes in the map depiction. In fact, only Kapingamarangi - southernmost atoll in the Federated States of Micronesia (FSM) - retained a drought designation (of D1-L, or long-term moderate drought), despite experiencing a wet

January. However, January rainfall of more than 15 inches (with 4 days missing) in Kapingamarangi followed an extended period (August-December 2022) with monthly rainfall totaling less than 6 inches.

Elsewhere in the FSM, there are no dryness-related concerns. Enough data has been received from Pingelap in recent weeks to resume drought-monitoring activities. Meanwhile, generally wet conditions exist throughout American Samoa and the Republic of Palau. American Samoa's Pago Pago International Airport reported January rainfall totaling 15.19 inches. Some locations in the Republic of Palau received more than 18 inches of January rainfall.

Farther north, drier weather prevailed in the Mariana Islands and northern sections of the Republic of the Marshall Islands. Despite the 2-week drying trend in the Marianas, January rainfall totals were among the highest on record. Guam International Airport noted a January rainfall sum of 14.02 inches (263% of normal), behind only 18.09 inches in 1976 and 16.89 inches in 2014. Finally, dry weather also developed in parts of the Marshall Islands, following a wet start to January. For example, Kwajalein reported 6.39 inches during the first half of January, but received just 0.69 inch from January 17-31. Wotje, a typically drier northern atoll, is teetering on the brink of abnormal dryness, despite receiving above-normal January rainfall of 3.38 inches. Much (2.00 inches) of Wotje's recent rain occurred during the first full week of January, with no precipitation reported in the last 7 days.

Looking Ahead

The National Weather Service Weather Prediction Center has forecasted a significant ice storm (valid January 30 – February 2) is forecasted to bring freezing rain, sleet, and ice accumulations over portions of the Southern Plains and Mid-South. The storm is expected to bring prolonged power outages and cause treacherous travel conditions. Moving into next week (valid February 4 – February 8), very chilly conditions are expected across the Northeast as cold air and gusty winds settle in under upper-level troughing. Dangerous wind chills and possibly new daily temperature records are in store for much of the Northeast region. Temperatures could stay below zero all day in parts of Maine and in the single digits in much of northern New England. This cold airmass is expected to sink further south along the Eastern Seaboard leading to temperatures 10-20F below normal. Temperatures are expected to rebound across the East as warmer temperatures over the central U.S. migrate eastward after the weekend. The West however could stay around 5-10F below average especially in terms of highs underneath upper troughing. A frontal system could spread some light snow to the Midwest/Great Lakes regions and Northeast this weekend, and amounts could be enhanced downwind of the Great Lakes. Light precipitation is possible along the Eastern Seaboard while the West could expect generally light to moderate precipitation in the form of lower elevation rain and higher elevation snow. At 8 – 14 days, the Climate Prediction Center Outlook (valid February 9 – February 15) calls for below-

normal temperatures across much of the West, from the Pacific Northwest to the Southwest, and much of Alaska. Near-normal temperatures are expected in parts of the Northwest, northern and central Rockies and southern Plains, including southwest and eastern Alaska, while the eastern half of the contiguous U.S. and the Alaska Panhandle have the greatest probability of warmer-than-normal temperatures. Most of the U.S. can expect above-normal precipitation with the probability of near-normal precipitation occurring in much of the Northwest, the Florida Peninsula and northern Alaska and in parts of southern Texas.

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