National Drought Summary – May 4, 2021

The discussion in the Looking Ahead section is a description of what the official national guidance from the National Weather Service (NWS) National Centers for Environmental Prediction is depicting for current areas of dryness and drought. The utilized NWS forecast products include the WPC 5-day QPF and 5-day Mean Temperature progs, the 6–10 Day Outlooks of Temperature and Precipitation Probability, and the 8–14 Day Outlooks of Temperature and Precipitation Probability—valid as of late Wednesday afternoon of the USDM release week. The NWS forecast Web page used for this section is http://www.cpc.ncep.noaa.gov/products/forecasts/.

This U.S. Drought Monitor (USDM) week saw an active weather pattern with severe weather observed across portions of the central and southern Plains, Texas, mid-South, Midwest, and the Northeast. In Texas, 7-day rainfall accumulations ranged from 2 to 10+ inches leading to significant improvement in drought-related conditions across the state. Likewise, areas of northeastern Colorado and portions of the central Plains received much-needed rainfall (2-to-4-inch accumulations) leading to improvements on the map. Out West, 83% of the region is currently in moderate-to-exceptional drought with the most severe conditions centered on the Four Corners states, California, and Nevada. In California, conditions deteriorated on this week's map in response to a combination of factors including back-to-back dry water years, above-normal temperatures, below-normal snowpack, and drought impacts (agricultural, ecosystem health, water supply, recreation).

The Northeast: On this week's map, areas of the region—including western and northern New York, and southern portions of New Hampshire and Vermont—saw improvements in areas of Moderate Drought (D1) in response to precipitation (~2 inches) during the past week. Likewise, this week's rainfall led to reduction of areas of Abnormally Dry (D0) in Maine, Massachusetts, and Rhode Island. For the week, average temperatures were above normal across the southern part of the region with the greatest positive anomalies (6 to 8 deg F) observed in southern Pennsylvania, southern New Jersey, and Delaware. Further to the north, slightly cooler-than-normal temperatures (1 to 4 deg F) were observed across much of New York, as well as northern portions of New Hampshire and Vermont. According to the U.S. Department of Agriculture (USDA) for the week ending on May 2, the percentage of topsoil moisture in Maine rated short to very short was 61%, whereas all other states in the region ranged from 0 to 29% short to very short. However, the NASA Crop-CASMA (Crop Condition and Soil Moisture Analytics), a remotely sensed geospatial soil moisture and vegetation index mapping application, is showing negative soil moisture anomalies (May 1) across parts of eastern Pennsylvania where 7-day average streamflow percentiles are ranging from the 1st to the 24th percentile.

The Southeast: During the past week, scattered precipitation was observed across the region with rainfall accumulations generally ranging from 1 inch to 3+ inches in northern Alabama, whereas other states in the region—including Georgia, South Carolina, and Florida—logged

lesser accumulations. However, after the 8:00 a.m. ET USDM data cutoff on Tuesday (May 4), a severe storm outbreak impacted portions of Alabama and Georgia with areas of very heavy rainfall, hail, flash flooding, high winds, and power outages. On this week's map, rainfall during the past week helped to alleviate short-term precipitation deficits, which led to reductions in areas of Abnormally Dry (D0) in Georgia and South Carolina, as well as slight improvements in an area of Moderate Drought (D1) in southwestern Florida. According to the USDA, the percentage of topsoil moisture in South Carolina rated short to very short was 73%, whereas both Florida and North Carolina were 38% short to very short. Across most of the region, 7-day average streamflows were running at normal levels or above, with the exception of areas of eastern North Carolina where flows have dipped below normal. Average temperatures for the week were above normal across the entire region with the greatest anomalies observed in eastern portions of Virginia and North Carolina where temperatures were 6 to 10 deg F above normal.

The South: On this week's map, widespread improvements in areas of drought were made across Texas (and southern and eastern Oklahoma) in response to significant precipitation accumulations (ranging from 2 to 10+ inches) with areas along the Texas Gulf Coast and the Hill Country receiving the heaviest accumulations. The slow-moving front that entered the region last week brought severe storms with frequent lighting, tornados, and softball-sized hail that caused extensive property damage with damage estimates expected to exceed $3 billion. This week's rainfall significantly improved soil moisture levels across much of Texas, but negative soil moisture anomalies remained across the Trans-Pecos and the Texas Panhandle regions according to the NASA Crop-CASMA. According to Water Data for Texas (May 4), monitored water supply reservoirs are currently 83.6% full, with most of the reservoirs in the eastern half of the state ~80% to 100% full and reservoirs in the western half of the state generally <50% full. Average temperatures for the week were below normal (2 to 10 deg F) in the Trans-Pecos, Edwards Plateau, and southern High Plains regions of Texas, whereas the rest of the region was above normal with the greatest anomalies (5 to 15+ deg F) observed in eastern Texas.

The Midwest: On this week's map, some minor improvements were made in areas of Moderate Drought (D1) and Abnormally Dry (D0) in portions of Ohio, Indiana, and Wisconsin, where areas of isolated heavy rainfall (2 to 3 inches) were observed this week. Elsewhere in the region, mounting precipitation deficits (2 to 4+ inches) during the past 60 days led to an expansion of areas of Moderate Drought (D1) in northern Illinois, as well as new areas of Abnormally Dry (D0) in southern Iowa and northwestern Missouri where conditions have been dry during the past 30 days. According to NASA Crop-CASMA, very dry soils (compared with historical averages for the date) are being observed in northeastern Illinois in Boone, DeKalb, Kane, and McHenry Counties. Average temperatures for the week were above normal (2 to 12+ deg F) across the region with the greatest departures observed in northern Illinois, eastern Iowa, northern Missouri, and southern Wisconsin.

The High Plains: On this week's map, areas of the region—including Kansas, Nebraska, Colorado, and Wyoming—saw improvements, including a reduction in areas of Severe Drought (D2) in southwestern Nebraska and northwestern Kansas as well as in areas of Moderate Drought (D1) in northeastern Colorado and southeastern Wyoming. In northeastern Colorado, 2 to 4+ inches of rainfall were observed during the past week, which provided a timely boost in soil moisture conditions for recently planted crops. Elsewhere, areas of Extreme Drought (D3) expanded in northern South Dakota and southern North Dakota. In northwestern South Dakota, the town of Lemmon saw its driest January through April period on record with only 0.71 inches of precipitation observed. The South Dakota State Extension and the North Dakota State Climate Office are both reporting drought-related impacts in their respective states, including poor water quality for livestock and dry stock ponds. In western North Dakota, dry conditions and strong winds have been exacerbating fire-related conditions as firefighters are battling two wildfires in the Dakota Prairie Grasslands. Average temperatures for the week were above normal across the region with positive temperature anomalies ranging from 2 to 9 deg F above normal.

The West: On this week's maps, areas of drought expanded across California, Oregon, and Washington following a very dry April. In California, areas of Extreme Drought (D3) expanded across the northern and central Sierra Nevada, as well as in areas of the San Joaquin Valley where water deliveries have been severely reduced due to the poor snowpack conditions across the Sierra (59% of normal on April 1 statewide) and below normal reservoir conditions. For the Water Year (since October 1), precipitation across most of California has been much below normal (bottom 10th percentile) with some locations—including areas of southeastern California, and the greater Bay Area—experiencing record or near-record dryness. In Marin County, the Marin Water District declared a water shortage emergency on April 20 in response to Marin's total reservoir storage level dipping to 50% of capacity, whereas average storage for the date (May 4) is normally 90% of capacity. California's two largest reservoirs, Lake Shasta and Lake Oroville, were at 50% and 42% of normal, respectively, on May 4. Across the region, statewide reservoir storage levels were below normal in Arizona, California, Colorado, Idaho, Nevada, New Mexico, and Washington according to the NRCS on April 1. On the Colorado River system, the U.S. Bureau of Reclamation (May 5) is reporting Lake Mead at 38% of capacity while upstream Lake Powell is 35% full. In Oregon, drought-related conditions continue to deteriorate in western Oregon after a dry April. On the map, areas of D1 to D4 expanded in Oregon this week in response to a rapid decline of the mountain snowpack across the Cascades in addition to anomalously dry soils and well-below-normal streamflow levels. For the week, average temperatures were above normal (2 to 10 deg F) across most of the West, with the exception of areas of southeastern Arizona and southern New Mexico where temperatures were 2 to 9 deg F below normal.

Hawaii, Alaska, and Puerto Rico: On this week's map, no changes were made in Alaska. In the Hawaiian Islands, generally dry conditions prevailed across the island chain during the past week. On the map, an area of Severe Drought (D2) was introduced in the lower South Kohala

District where rangelands are in poor condition. On the windward side of Maui, areas of Abnormally Dry (D0) were removed from the map because of improving streamflow conditions and recent rainfall, whereas D0 was added on Kauai and Niihau because of downward trending streamflow conditions and below-normal rainfall. In Puerto Rico, rainfall was light-to-moderate (generally <2 inch) across the southeastern part of the island while areas in the western half received some higher totals (2 to 6 inches).

Looking Ahead: The NWS WPC 7-Day Quantitative Precipitation Forecast (QPF) calls for moderate-to-heavy liquid accumulations ranging from 2 to 4+ inches across the mid-South and lower Midwest while portions of the Plains, Northeast, Mid-Atlantic, and the Southeast are expected to receive <1-inch accumulations. In the Intermountain West and Pacific Northwest, light precipitation (<1-inch accumulations) is forecasted for areas of the central and northern Rockies, and portions of the Cascades. The CPC 6-10-day Outlook calls for a moderate-to-high probability of above-normal temperatures in the Far West, Southwest, Great Basin, and Florida while a high probability of below-normal temperatures is forecasted across most of the Eastern Tier. In terms of precipitation, there is a moderate probability of above-normal precipitation across areas of the central and southern Plains, as well as the southeastern tier of the U.S. Below-normal precipitation is expected across the Pacific Northwest, Great Plains, and areas of the Intermountain West.

Author: David Simeral, Western Regional Climate Center

Dryness Categories

D0 ... Abnormally Dry ... used for areas showing dryness but not yet in drought or for areas recovering from drought.

Drought Intensity Categories
D1 ... Moderate Drought
D2 ... Severe Drought
D3 ... Extreme Drought
D4 ... Exceptional Drought

Drought or Dryness Types
S ... Short-term
L ... Long-term

Updated May 4, 2021