

National Drought Summary for October 12, 2021

Summary

A long wave trough resulted in seasonal to below-normal temperatures across the western third of the contiguous U.S. (CONUS). A ridge of high pressure dominated the eastern two-thirds of the CONUS leading to above-normal temperatures, with the highest positive anomalies across the Northern Plains and Midwest. Despite the amplified ridge in the East, early in the week an upper level low pressure system drifted slowly northward from the Southeast to the Great Lakes bringing unsettled weather and keeping many areas across the Southeast and Ohio Valley wet. A coastal low pressure system along the coastal Carolinas brought some additional precipitation to coastal and inland areas of the Carolinas, leading to mixed reductions and expansion in coverage of abnormal dryness across the Carolinas and Virginia. In the Northeast, little to no precipitation fell and above-normal temperatures, coupled with long-term deficits, led to degradation and expansion of abnormally dry and severe drought areas across Upstate New York and New England. The Northern Plains and Upper Midwest experienced some of the largest positive temperature anomalies (8-10°F above normal) this week. However, a strong surface low pressure system brought heavy rainfall across the Dakotas and northern Minnesota, leading to broad 1-category improvements. In the wake of this storm system, a surface low pressure system developed in the lee of the Rockies over the Southern Plains dropping several inches of rainfall, further improving drought conditions (1-category improvements) in areas affected by the recent rapid onset and intensification of drought during September. As this low pressure system moved across the Midwest later in the week, it led to further improvements across portions of the western Corn Belt, due to heavy rainfall. Areas that missed out on the rainfall over the Great Plains experienced worsening conditions due to above-normal temperatures and high winds increasing evaporation and leading to increased soil moisture loss. An active storm track in the West, associated with a long wave trough, resulted in improving conditions along fringe drought areas in the Pacific Northwest and the Four Corners, where antecedent wetness leading up to this week resulted in more immediate improvements. Given the intensity and duration of drought across the remainder of the West, more precipitation will be needed to warrant more meaningful improvements.

Northeast

The Northeast received little to no rainfall this week and areas where rain did fall were already drought-free. Luckily, antecedent conditions across much of the Northeast are wet. However, parts of northern New York and New England have battled longer-term dryness and drought conditions for much of this year. Given the above-normal temperatures this past week coupled with the widespread lack of rainfall in the areas with drier antecedent conditions, expansion of D0 (abnormal dryness) was warranted across portions of northern New York and southward along the Green Mountains in

Vermont. A localized area of D0 was also introduced in southwestern Maine, where short-term dryness (2-4 inch 30-day deficits) have resulted in meaningful losses to topsoil moisture and nearby USGS 7-day average stream flows falling below the 10 percentile of the historical average. D0 was also expanded in central West Virginia for similar reasoning; warm conditions, below-normal precipitation, and average stream flows falling below normal (below the 24th percentile of the historical average). Additionally, some northward D2 (severe drought) expansion along the Canadian border was warranted in western Maine where long-term dryness was further exacerbated by the lack of rainfall and above-normal temperatures this week.

Southeast

Short-term, 30-90 day dryness is prominent across portions of the Carolinas and Virginia. Some heavy rainfall associated with a coastal low pressure system was enough to eliminate some antecedent D0 (abnormally dry) areas across the eastern Carolinas. Conversely, adjacent areas missing out on the heaviest rainfall saw expansion of D0 coverage – the Delmarva Peninsula, southern North Carolina, and eastern South Carolina. Much of the remainder of the Southeast is mostly wetter than normal all at time scales going back to 90 days. However, some dry pockets are starting to pop up across southeastern Georgia and portions of the Florida Peninsula that will need to be monitored going forward. Despite the areas of abnormal dryness, the Southeast remained drought-free this week.

South

Ahead of a long-wave trough across the western U.S., an area of low pressure developed over the Southern Plains, bringing with it much needed precipitation to areas affected by the rapid onset of drought conditions in recent weeks. This has helped to improve conditions, mainly across parts of Oklahoma, where many locations received 2-3 inches of rainfall (greater than 1 inch positive weekly anomalies). Unfortunately, many locations outside of Oklahoma in the Southern Region continued to see further degradation and expansion of drought conditions in, and adjacent to, areas where the rains did not fall or was insufficient. Worsening conditions were observed across Texas and the Ark-La-Tex region were exacerbated by above-normal temperatures and high winds leading to increased evaporation and evapotranspiration rates.

Midwest

With the exception of the expansion of D0 (abnormally dry) conditions in western Iowa due to low soil moisture, above-normal temperatures, and the area missing out on

precipitation this week, the remainder of the Midwest was the beneficiary of two storm systems that moved across the region. The first storm system brought heavy rainfall across the Upper Midwest, warranting 1-category improvements to the drought depiction in areas that received more than 1.5 inches of rainfall. This was also the case farther south across parts of eastern Iowa, extending eastward into southern Wisconsin and northern Illinois and southwestward into northern Missouri, where a second low pressure system dropped similar rainfall amounts. Central Wisconsin is an area to watch given the short-term dryness and above-normal temperatures. SPIs there have trended drier over the past 30-90 days (positive SPIs at 90 days, but D1-D3 equivalent at 30 days) and precipitation deficits are starting to mount.

High Plains

Similar to the Southern Plains, much of the High Plains region is susceptible to extended periods of above-normal temperatures and high winds. In areas where little to no rain fell, these conditions helped to further degrade ongoing drought east of the Front Range across portions of Colorado, Wyoming, Kansas, and Nebraska, where many areas have seen drastic deterioration in topsoil moisture in recent weeks (widespread D1-D4 equivalent NASA SPoRT soil moisture percentiles down to 10 cm). Farther north over the Dakotas, a strong low pressure system brought widespread heavy rainfall over the weekend, where several areas received more than 2 inches of rain, with some localized areas of more than 4 inches. This warranted 1-category improvements across large portions of the Dakotas. However, improvements were targeted in nature due to the longer-term deficits and above-normal temperatures increasing the evaporative demand and slowing soil recharge. Farther south in the High Plains Region, surface low pressure developed late in the period in the wake of the system farther north and moved north-northeastward across the central U.S. Rainfall from this system mainly fell over drought-free areas of eastern Kansas before moving into the Midwest and Great Lakes. However, some locations did receive meaningful rainfall; enough to warrant 1-category improvements in northeastern and southeastern corners of the state. Another storm system began propagating across the western U.S. on the final day of the period (Monday-Tuesday), bringing precipitation in various forms to the eastern Rockies. However, given the intensity of drought in the higher-terrain areas of the High Plains Region, the late arrival of precipitation did little to warrant any improvements this week, given the duration and intensity of drought in those areas.

West

An active storm track across the western U.S. this week brought seasonal to cooler than normal temperatures and beneficial precipitation to much of the region. Improvements were mainly limited to portions of the Pacific Northwest and Four Corners due to improving soil moisture conditions. For the Four Corners region, this precipitation was

on the heels of an active Southwest Monsoon season, so reduced evaporative demand coupled with above-normal precipitation led to immediate improvements. For much of the remainder of the West, more precipitation is needed to recharge soil moisture and increase groundwater levels, stream flows, and reservoir levels. The only minor degradations of drought in the Western Region was in southeastern New Mexico and western Montana, where above-normal temperatures and high evaporative demand warranted expansion of D0 (abnormally dry) and D3 (extreme drought) areas, respectively.

Caribbean

Heavy rains fell across portions of eastern and western Puerto Rico this week, but mainly in drought-free areas. However, in southeastern Puerto Rico, D0 (abnormally dry) and D1 (moderate drought) areas were reduced in coverage where more than 3.5 inches of rain fell, eliminating short-term deficits. D0 coverage was also reduced on Vieques Island, where more than 1.5 inches of rain fell. A localized area of D0 was degraded to D1 in extreme southwest Puerto Rico, where short-term dryness has added to deficits (5-10 inch deficits in the last 90 days).

The U.S. Virgin Islands received some rain, but not enough to alter the drought status of any islands, which all remained the same as last week. The 7-day precipitation estimates (QPE) indicated that St. Thomas received 0.50 to 1.5 inch over the island. St. John received 0.25 to 0.50 inch. St. Croix received 0.50 to 1.5 inches over the western two-thirds of the island, and 0.10 to 0.50 on the eastern end of the island.

St. John remained at D0-L. The Windswept Beach CoCoRaHS station reported 0.65 inches for the week and 0.92 inches since the start of October. Other CoCoRaHS stations reported 0.66 and 0.67 inches. The year-to-date rainfall was 75.4% of normal. The Susannaberg DPW 3 Well was 18.41 feet below land surface, the lowest point since late 2017.

St. Croix remained at D1-SL. Precipitation at Henry Rohlsen AP amounted to 0.81 inches for the week and 1.48 inches since the start of October. The CoCoRaHS stations reported from 0.51 to 1.40 inches. The year-to-date rainfall was 64.8% of normal. The Adventure 28 Well was 27.36 feet below land surface and at the lowest point since late 2016.

St. Thomas remained free of dryness, but could use some rain. Precipitation at Cyril E. King AP was 0.93 inches for the week and 1.14 inches since the start of the month. The CoCoRaHS stations reported up to 0.94 inches. The year-to-date rainfall was 81.6% of normal. The Grade School 3 Well was 11.98 feet below land surface, which is an improvement from several months ago when it was 15 feet below land surface, but it is still a low level for the well.

Pacific

Alaska has remained wetter than normal in recent weeks due to an active storm track. Time of year and antecedent wetness warrant a status quo, drought-free depiction for Alaska. In Hawaii, persistent trade winds have kept rainfall focused mainly on the east-facing slopes, which are mainly drought-free. As a result, some additional degradations were warranted along the leeward slopes, supported by NDVI data and ground reports indicating increased dryness.

The Republic of Palau received deluges totaling 17.78 inches of rain at Palau IAP (Airai) and 18.77 inches for Koror COOP, keeping the area free of dryness.

The Mariana Islands need an inch of rain to meet minimum water needs and received more than that at all locations. Guam received 9.52 inches, Rota reported 5.31 inches, while Saipan received 2.29, 2.51 and 3.18 inches.

The Federal States of Micronesia were largely free of drought, apart from Kapingamarangi which remained at D1-SL and received just 0.29 inches for the week. Rainfall did not meet the weekly minimum for a few locations, like Chuuk, Lukunor, Nukuoro and Pingelap, but rainfall in previous weeks was ample. Precipitation exceeded the weekly minimum of 2 inches to meet minimum water needs for Kosrae, Pohnpei, Ulithi, Woleai and Yap.

In the Marshall Islands, Ailinglaplap was abnormally dry, but with plentiful rainfall, transitioned to being free of dryness this week. All other islands were free of dryness and drought also. Rainfall for the week was 1.46 inches for Jaluit and 1.50 for Kwajalein. All other locations exceeded the weekly minimum of 2 inches.

American Samoa remained free of drought as Pago Pago received 2.91 inches. Siufaga Ridge and Toa Ridge received 0.57 inches and 1.31 inches.

Looking Ahead

During the next 5 days (October 14 – 18, 2021), a strong surface low pressure system will track across the Northern Plains and Upper Midwest, bringing the potential for heavy rainfall. Along the tail end of the trailing frontal boundary associated with this low pressure system, the remnants of Tropical Depression Pamela from the East Pacific are expected to bring a surge of moisture to the south-central U.S. Surface low pressure is expected to develop along the remnant frontal boundary and move quickly northeastward bringing increased chances of rainfall from the Middle Mississippi Valley to the Northeast. Despite the active pattern across the central and eastern U.S., temperatures are likely to moderate across the Northern Plains and Midwest by the end

of the week, while in the East temperatures will likely be more variable due to the passage of frontal boundaries. In the West, temperatures are expected to be relatively seasonal during the next 5 days, with an abrupt cool down toward Tuesday.

The CPC 6-10 day extended range outlook (October 19 – 23, 2021) favors below-normal rainfall from the eastern Rockies to the East Coast, with weak tilts in the odds toward above-normal precipitation across portions of the Southern Plains and the Florida Peninsula. Enhanced chances of above-normal precipitation are favored along the West Coast inland to the western Great Basin. Above-normal temperatures are favored across much of the CONUS, with the exception of portions of southern and central California, where near to below-normal temperatures favored.

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