Summary: Three tropical systems drenched three separate drought areas this past week, with Hurricane Florence affecting the Carolinas with record rainfall, a low pressure system in the western Gulf of Mexico bringing rain to parts of Texas and Louisiana, and Tropical Storm Olivia bringing yet more rain to Hawaii. Drought conditions improved or were alleviated across these regions. Some showers and thunderstorms were seen across the Plains, but not enough to improve drought conditions. Unfortunately, many areas experiencing severe to exceptional drought saw little to no rainfall, with the dryness often accompanied by warmer-than-normal temperatures for this time of year, exacerbating conditions. Notably, eastern Oregon, northern Utah, and western Colorado all saw expansion of extreme or exceptional drought.

Northeast: There was a sharp gradient in rainfall this past week over the Northeast. Much of the region received adequate to excess rainfall, except for most of northern New England into central New York, which was dry and hot, with temperatures 6 to 12 degrees F above average. Although no changes were made this week to the depictions in the Northeast, we continue to keep an eye on this area of dryness.

Southeast: Hurricane Florence brought record rainfall to both North and South Carolina during this drought week. In addition to the record rainfall over and near the coastal areas that could be measured in feet, the very slow moving storm dropped several inches of rain over the abnormally dry (D0) and moderate (D1) drought areas far inland, effectively alleviating all dryness from the affected regions. The system did not bring much rainfall farther south or west, however, and with little precipitation and temperatures in the 90s, parts of northern and northeastern Alabama and much of Georgia continued to dry. Moderate drought was expanded in Alabama and D0 was expanded to the south and eastward into northwestern Georgia. Abnormal dryness grew slightly in east central Georgia, with two small areas of D1 introduced in that area. Abnormal dryness was also introduced to southeastern South Carolina and northeastern Georgia, which missed the rains from Florence and have been drying out over the past two months or so due to the lack of rain and heat. With a continuation of adequate to wet conditions, no changes were made this week to the depictions in Virginia and Florida.

South: An area of low pressure over the western Gulf of Mexico brought some heavy rainfall and drought relief across portions of Texas and Louisiana. In Texas widespread 1-category improvements were made across the south and east. The rain did not reach the western and northern part of the state, however, where abnormal dryness (D0) and moderate drought (D1) expanded slightly. In southern Louisiana, the Lake Arthur station in northeastern Cameron Parish measured 11 inches of rain since August 25th. Abnormal dryness was eliminated here and to the north (Evangeline Parish) and northeast (Feliciana Parish). Moderate and severe (D2) drought conditions were reduced across much of northwestern Louisiana. Extreme drought (D3) was eliminated altogether in this region as well. To the east, D0 was reduced across a few counties in the north central part of Mississippi, while D1 expanded slightly in the northeast. In the southwestern corner of the state, D0 was also reduced. Aside from the eastern part of Tennessee, which received some precipitation from Florence, much of the rest of the state was dry and warm this past week. Abnormal dryness was expanded in part of southwestern Tennessee and northward into the central region around Marshall, Williamson, and Rutherford Counties. In Arkansas, D1 was expanded north over much of Miller County. Texarkana Airport has received only 39 percent of its normal rain over the last five weeks, with above-normal temperatures. This dryness was seen in eastern Oklahoma as well, where a
large swath of D0 was added in eastern Oklahoma, stretching northward to nearly connect to the dry region in northern Adair County, which was also extended slightly southward.

**Midwest**: Spotty rain fell over the Midwest this past week. The rain was enough to keep conditions from degrading, but not enough to warrant any improvements to the 20 percent of the region experiencing abnormal dryness or drought. Thus, no changes were made this week to the depictions in this region.

**High Plains**: Dry conditions continued in northwestern North Dakota, where precipitation over the past two months has been less than 30 percent of normal. Moderate (D1) and severe (D2) drought were expanded westward in this area. In the southwest, D1 was expanded slightly in Hettinger County, where precipitation has been just 20 percent of normal for the same period. However, conditions were better to the east, and normal conditions returned to northern Brant and much of western Morton Counties. In western South Dakota, an area of severe drought was introduced area in Haakon County. Local reports indicate that many crops have been cut for feed due to drought and winter wheat planting is starting out dry. The fields left standing have low expected yields. Moderate drought was expanded where rainfall has been less than 25 percent of normal over the past two months. Additionally, both moderate and severe drought were expanded in north central and northeastern part of the state. Impacts here include early chopping of corn for silage instead of growing for grain harvest, low corn and soybean yields and test weights, and early harvest due to drought. Abnormal dryness and moderate drought were also expanded in central South Dakota. Pierre has received less than 25 percent of its average rainfall over the past two months. With little to no rain and temperatures reaching into the upper 80s, drought conditions deteriorated toward the south/southwest in eastern Kansas. Conversely, the small patch of D0 from west central Kansas farther west into eastern Colorado improved to normal, where rainfall has been average to above average over the past 1 to 3 months. In east central Colorado, D1 was extended into northern Elbert County, where virtually all crops in this county were rated very poor this year. Additionally, D0 was expanded slightly eastward in southern Wyoming and eastern Colorado. Exceptional drought (D4) was added to southeast and central Mesa County, and Delta County in western Colorado. Record low snowpack this winter and near-record high evaporative demand this summer have led to rapidly depleting water supplies. Moderate drought was expanded to central Sweetwater County, Wyoming, where hot, dry conditions have prevailed through much of the warm season and precipitation for the water-year-to-date is below normal. No changes were made this week to the depictions in Nebraska as agricultural conditions in the state are good as the season ends and maturation is ahead of schedule.

**West**: According to the most recent USDA statistics released on September 16, the extent of topsoil and subsoil rated short or very short of moisture (poor or very poor conditions) was 93 and 92 percent, respectively, for Oregon. Extreme drought (D3) conditions were extended southward in Malheur and Harney Counties in the eastern part of the state. Streamflow along the Owyhee River in this area is near the historical low. Additionally, the area of moderate drought (D1) was expanded northward over most of eastern Morrow, Umatilla, and Union Counties, and severe drought (D2) northward over most of western Morrow, Gilliam, and Sherman Counties. In the latter area, several wildland fires burned extensive acreage in July and August due to extreme dry and hot conditions. In Utah, D3 was introduced to an area
east of the Great Salt Lake, encompassing part of the Wasatch-Cache National Forest. There has been little to no rainfall in this region over the past week with temperatures reaching the upper 80s and 90 degrees. No changes were made this week across the remainder of the west.

**Alaska, Hawaii, and Puerto Rico:** Tropical Storm Olivia was the newest rainmaker for Hawaii in this active tropical cyclone season, alleviating more of the dry conditions across the islands. Conditions improved to normal in Oahu while a small area of abnormal dryness (D0) remains this week on Molokai. Over Maui, severe drought (D2) was reduced to the lower elevations of west Maui near Lahaina. Category 1 improvements were made in the southwest slopes of Haleakala. Severe drought was also reduced to the lower elevations of the northwest side on the Big Island, along with moderate drought (D1) and D0 on the south and southwest sides.

With another week of wetting rains across Puerto Rico, the D0 area was reduced across the southern slopes where up to 2 inches of rain fell. It was also reduced toward the eastern interior of the island, where the heavier rains fell.

No changes were made to the depictions in Alaska this week.

**Looking Ahead:** Over the week beginning Tuesday September 18, areas from the Southern Plains to the Upper Midwest are expected receive the highest precipitation. Up to four inches, or more in localized regions, could fall over Oklahoma, northern Missouri, southern Minnesota, and northern Iowa. Up to two inches of precipitation is also forecast for northwestern Washington state. Wisconsin and Texas may also see some heavy rainfall. Most of Oregon, southern Idaho, California, Nevada, Utah will remain dry. Temperatures are forecast to reach mostly into the 60s and 70s across the northern U.S., with some 50s around Montana. Additionally, some scattered shower activity early in the period may allow the southwest to see highs in the 80s. The heat continues across much of the central U.S. into the Southeast, where upper 80s and 90s will be prevalent. Looking further ahead at NOAA’s Climate Prediction Center (CPC) 6-10 day Outlook (September 23-27), the probability of dry conditions is highest in the Southwest, namely Utah, Colorado, New Mexico, and Arizona, exactly over the area where drought conditions are currently among the worst in the country, while wet conditions are most likely across eastern Texas, an area that has in recent weeks received excess rainfall. Most of the north central and southern U.S., with the exception of most of the states along the Atlantic Seaboard, may also see wetter-than-normal conditions. Much of interior Alaska is also forecast to see above-average precipitation, while the panhandle -- the region currently experiencing dry conditions -- is projected to stay dry. During this period, below-average temperatures may be seen over central California and the Northwest eastward to northern Minnesota, and central and northern New England, while above-average temperatures are forecast for most of the rest of the contiguous U.S. and all of Alaska. Looking two weeks out (September 25 - October 1), the likelihood of above-average temperatures is highest in the Southeast and Alaska. The probability of below-average temperatures is highest across Montana. The probability of above-average precipitation is highest over the northern U.S. from Oregon to Michigan and through the Plains into the deep South.
Author: Jessica Blunden, NOAA/NESDIS/NCEI