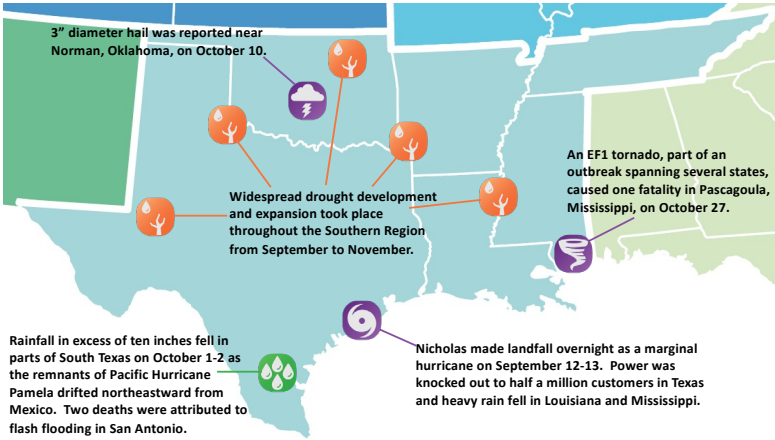


Southern Region Significant Events — Fall 2021



Fall 2021 featured both drought development and heavy rain. Much of the heavy rain was associated with the remnants of tropical cyclones. Over ten inches were observed near Brownsville, Texas, in early October, partly in association with the remnants of Hurricane Pamela, and in Bunkie, Louisiana in mid-September, from the remnants of Hurricane Nicholas.

Overview

With La Niña conditions developing in the tropical Pacific, the odds ordinarily favor dry conditions across the southern United States from late fall to early spring. Unfortunately, dry conditions got a head start. Both Texas and Oklahoma recorded roughly the tenth driest September on record, while also featuring temperatures that were among the fifteen warmest historically. October had rainfall above average, but temperatures throughout the region ranked fifth warmest overall. November was dry just about everywhere, ranking among the ten driest Novembers in Mississippi, Tennessee, and Louisiana. Near-normal temperatures meant that the drought degradation in November was entirely due to reduced precipitation. Overall, unusually low precipitation, unusually high temperatures, or both, contributed to substantial drought expansion across the region.

Regional Climate Overview — Fall 2021

Temperature and Precipitation

Surface Water

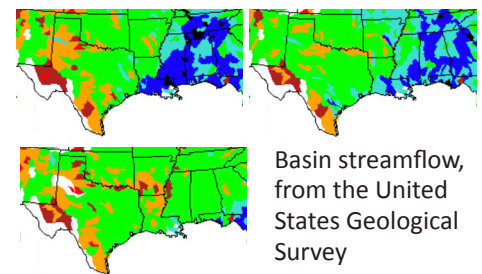
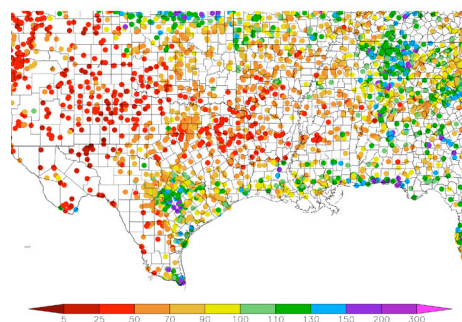
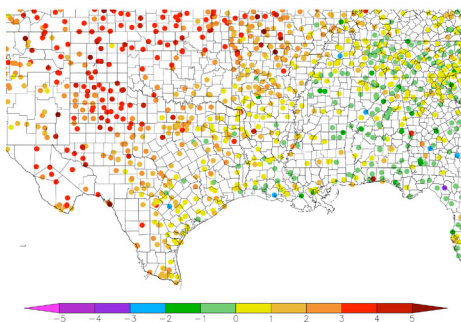
Departure from Normal Temperature °F

9/1/2021 – 11/30/2021

Percent of Normal Precipitation (%)

9/1/2021 – 11/30/2021

Monthly Average Streamflow



Fall 2021 temperatures were near normal across Tennessee, Mississippi, and most of Louisiana. Farther west and away from the coast, temperature anomalies progressively increased, so that average fall temperatures in western Texas and northern Oklahoma were 3 °F to 5 °F warmer than normal. Despite the warmth, most of the region continues to be about 1 °F cooler than normal for the year to date.

Precipitation in fall 2021 was above normal in many coastal and near-coastal areas, as well as central Tennessee. Elsewhere, dry conditions predominated. One broad swath of precipitation totals less than 50% of normal extended from near Dallas eastward to Jackson and northeastward to Little Rock, while many stations in western Texas and experienced less than 25% of normal precipitation.

Streamflow in southern Louisiana, Mississippi, and Tennessee, initially well above normal in response to Hurricane Ida, Hurricane Nicholas, and other rain events, eventually tapered off to near normal by the end of November. Elsewhere, below-normal streamflow was prevalent along the Red River in Texas, Oklahoma, and Mississippi, as well as the Pecos and Rio Grande in Texas.

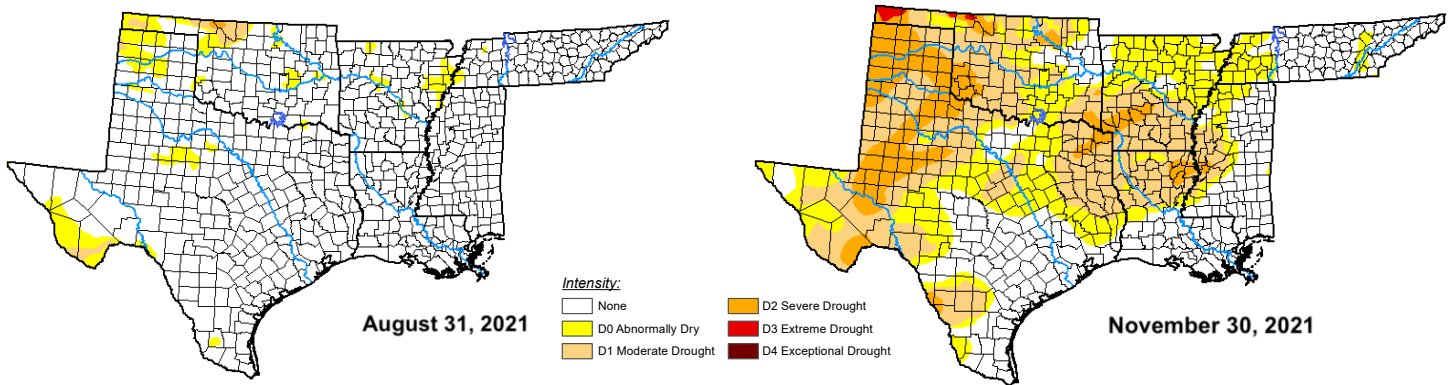
Southern Regional Impacts

Drought, Agriculture, and Water Supply

Drought conditions gradually developed and spread across the Southern Region during Fall 2021. At the end of August, only 8% of the region was at least abnormally dry, and only 1% was in drought, according to the US Drought Monitor. By the end of September, 66% of the region was at least abnormally dry, and 41% was in drought, including 12% in severe drought.

The primary driver of drought conditions was below-normal rainfall across much of the region; region-wide rainfall totals were near-normal only because the climatologically wettest parts of the region were even wetter. Temperatures also tended to be above-normal.

Because the drought has been new in developing, water supply impacts have been minimal. Primary agricultural impacts are to winter wheat and winter forage, along with an elevated wildfire risk. In parts of western Texas and Oklahoma, the short-term drought comes on top of a multi-year dry period, exacerbating the short-term impacts.



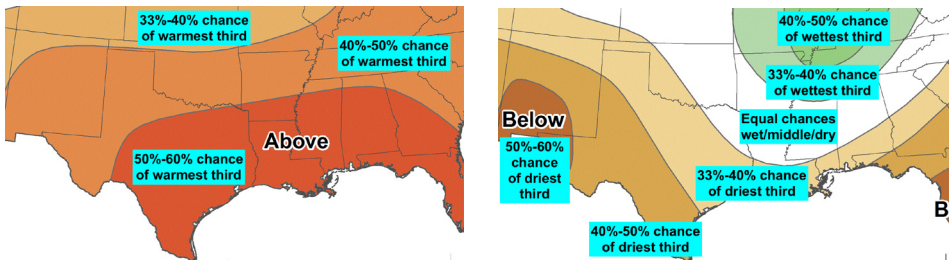
US Drought Monitor depiction of the Southern Region. The US Drought Monitor is produced by the National Drought Mitigation Center, the USDA, and NOAA.

Seasonal Outlook

Temperature

Precipitation

Outlook for January-March 2022



Chances of the average January-March temperature or precipitation ending up within the top, middle, or bottom third of recent historical values

The seasonal temperature outlook from NOAA's Climate Prediction Center calls for enhanced chances of above-normal temperatures throughout the Southern Region, with the greatest likelihood of above-normal temperatures extending from west-central Texas to eastern Mississippi.

Western Oklahoma, most of Texas, and coastal areas are all predicted to have enhanced chances of below-normal precipitation during January through March. Meanwhile, the seasonal outlook for Tennessee, Arkansas, and northern Mississippi favors above-normal precipitation.

Extreme Cold

A repeat this year of the extreme cold of February 2021 is unlikely but not impossible. The chances of extreme cold are somewhat enhanced in winters with weak to moderate La Niñas, such as this year, despite the tendency for average temperatures during La Niñas to be above normal.

Southern Partners

- NOAA/NWS Climate Prediction Center (cpc.ncep.noaa.gov)
- NOAA National Centers for Coastal Ocean Science (coastalscience.noaa.gov)
- NOAA Gulf of Mexico Collaboration Team (regions.noaa.gov/gulf-mexico)
- NOAA/NESDIS National Centers for Environmental Information (ncei.noaa.gov)
- NOAA/NWS Southern Region (weather.gov/srh)
- Southern Climate Impacts Planning Program (southernclimate.org)
- Southern Regional Climate Center (srcc.tamu.edu)

