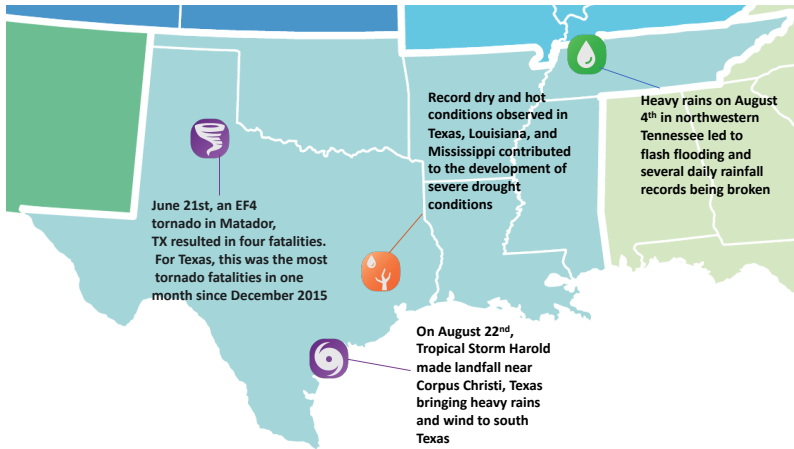


Southern Region Significant Events — Summer 2023



Overview

Summer began in June with above normal temperatures for southern and western portions of the region and below normal temperatures in the north and east, a pattern that would stick with the region for much of the summer. Precipitation was below normal in the southern and northeastern portions of the region in June and was much above normal for western Oklahoma, the Texas Panhandle, bringing much needed rain to these areas. In Texas, June saw the most fatalities (8) since December 2015.

The heat that began in June continued in July for much of the region, stretching from far west Texas to the Gulf Coast of Mississippi and ranging from 2 to six degrees above normal. Precipitation was well below normal across the southern portions of the region and generally above normal in the north. Northern portions of the region saw marked improvement in drought conditions, while the southern portions largely saw degradation in drought conditions during July.

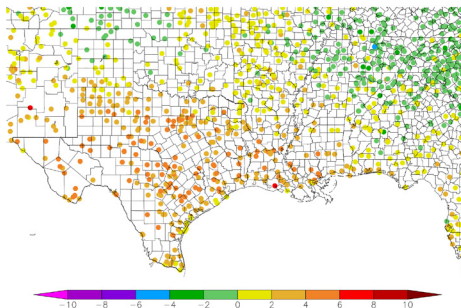
During August the heat continued across the Southern Region, with Tennessee being the only state with below average temperatures. Mississippi and Louisiana saw their hottest summers on record, with Texas experiencing its second hottest on record. Precipitation was well above normal in Tennessee with the statewide average being 6.20 inches compared to the normal of 3.84 inches. The rest of the region was generally below normal, with three states having top-ten Augusts: Louisiana (1st driest), Mississippi (5th driest), and Texas (8th driest).

A heat wave that affected the southern half of the Region for much of the summer began in June, with record setting temperatures across wide swaths of the region. In addition to the hot temperatures, precipitation was much below normal across much of Texas, Louisiana, and Mississippi heavily impacting agriculture, water resources, and infrastructure in affected areas.

Regional Climate Overview — Summer 2023

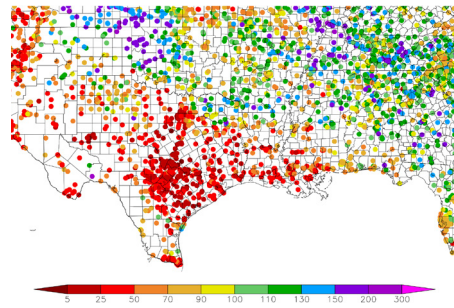
Temperature and Precipitation

Departure from Normal Temperature °F
6/1/2023 – 8/31/2023



Summer 2023 temperatures were well above normal for southern portions of the Southern Region, with most stations in Texas, Louisiana, and Mississippi averaging 2F to 6F above normal. Across much of Oklahoma and Arkansas temperatures were near-normal, while Tennessee saw below normal temperatures with most stations averaging 2F to 4F below normal.

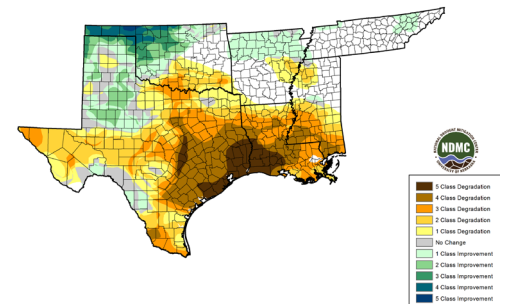
Percent of Normal Precipitation (%)
6/1/2023 – 8/31/2023



Record dry conditions in Louisiana and well below normal precipitation was common in Texas and southern Mississippi during Summer 2023, with many stations receiving 25 percent of normal precipitation or less. Above average precipitation was common in western Oklahoma, northern Mississippi, and Tennessee. Tropical Storm Harold brought much needed rain to areas of deep South Texas on August 22nd.

Drought

Overall Change
5/30/2023 – 8/29/2023



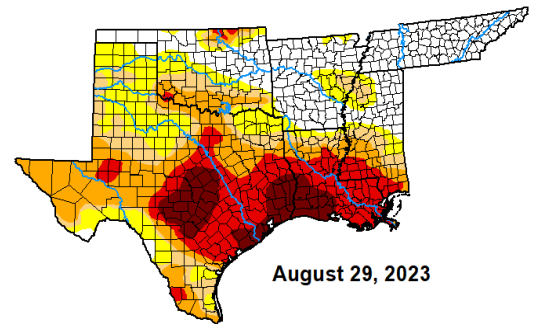
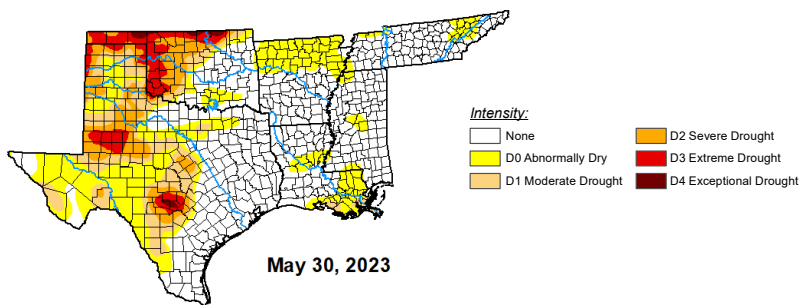
Large areas of Texas, Louisiana, and Mississippi saw degradations in drought conditions, which were accompanied by record hot and dry conditions in affected areas. The northern portions of the Southern Region, most notably Oklahoma which saw up to 5 categories of improvement according to the US Drought Monitor in some areas, saw above normal precipitation and improvement in drought impacted areas.

Southern Regional Impacts

Drought, Agriculture, and Water Supply

Summer 2023 saw an increase in the total areas experiencing drought, particularly in the percentage of areas experiencing Extreme or Exceptional drought, in south Texas extending eastward along the Gulf Coast to Mississippi. Areas of persistent drought in western and central Oklahoma saw substantial improvements due to above average rainfall throughout the summer. Eastern and northern portions of the region largely remained drought free. The percentage of the Southern Region experiencing Extreme or Exceptional drought increased from two percent as of June 6th to 25 percent on August 29th, while the total experiencing moderate drought or worse drought increased from 22 percent to 56 percent over the same time period. Accompanying hot and dry conditions across Texas, Louisiana, and Mississippi low stream flows were observed across the region. Record low reservoir storage was reported in reservoirs along the Rio Grande and in central Texas.

Agricultural crops were negatively impacted by the 2023 drought and continuing impacts from the 2022 drought. In two of the largest cotton producing states in the United States, Texas and Oklahoma, only eleven percent of the cotton crop was rated as Good to Excellent at the end of August. In contrast, heavy rains during August in northwestern Tennessee led to reports of isolated flooding and set several daily precipitation records in that area of the state.

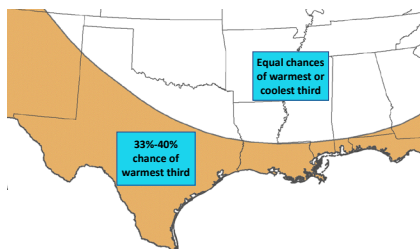


US Drought Monitor depiction of the Southern Region. The US Drought Monitor is produced by the National Drought Mitigation Center, the USDA, and NOAA.

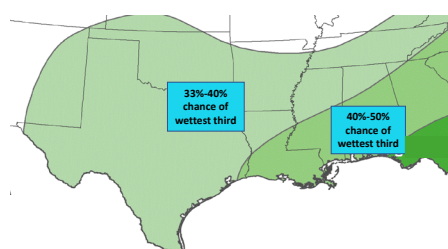
Seasonal Outlook

Temperature

Outlook for October-December 2023



Precipitation



The seasonal temperature outlook from NOAA's Climate Prediction Center calls for higher probabilities for above average temperatures across west, central, and southern Texas, southern Louisiana, and far southern Mississippi. The Texas Panhandle, northeast Texas, Oklahoma, Arkansas, Tennessee, northern Louisiana, and much of Mississippi show equal chances for above or below normal temperatures. This is primarily supported by computer model forecasts and decadal trends in the region.

The precipitation outlook for October through December reflects the ongoing El Niño conditions and calls for higher probabilities for above normal precipitation across much of the Southern Region. The highest probabilities for above normal precipitation are in extreme southeast Texas, across southern Louisiana, and southern Mississippi. Only portions of northeastern Oklahoma, northern Arkansas, and northwest Tennessee show equal chances for above or below normal precipitation.

ENSO Outlook

El Niño conditions persisted through the summer and are expected to persist into the spring months. El Niño conditions are associated with reduced tropical cyclone activity in the Gulf of Mexico, due to increased vertical wind shear, trade winds, and increased atmospheric stability. Across the Southern Region, during El Niño winters above normal precipitation is common.

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)

