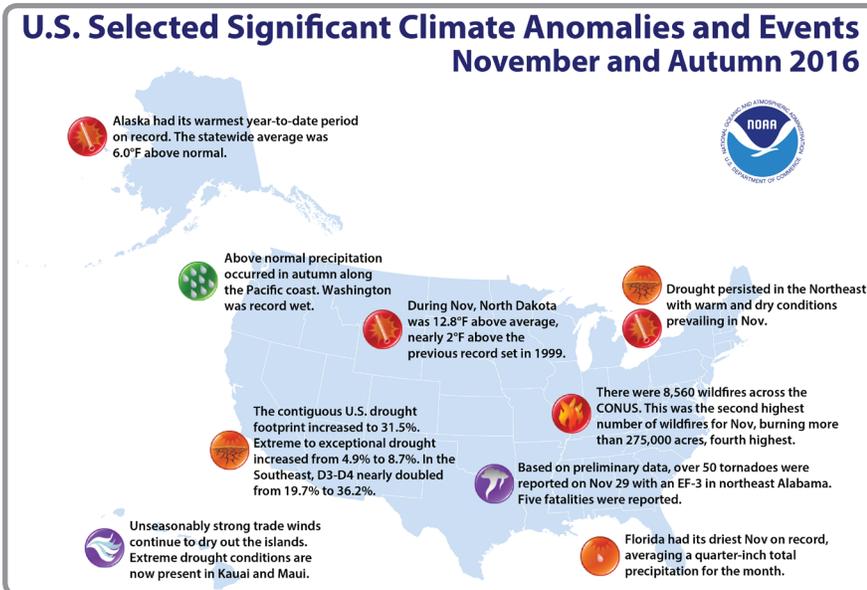


### National – Significant Events for November and Autumn 2016

#### U.S. Selected Significant Climate Anomalies and Events November and Autumn 2016



#### Highlights for the Region

- Generally speaking, it was a warmer than normal autumn for the Southern Region. Temperatures were consistently 4°F to 6°F above normal in the northern half of the region, and typically 2°F to 4°F above normal in the southern half of the region.
- Unlike summer, which was associated with abundant precipitation and historic flooding in August, autumn in the Southern Region was very dry with a majority of stations reporting only two thirds of normal precipitation or less.
- Hurricane season drew to an end on November 30, and the final storm counts are in. Though the number of storms was above normal, none of the storms impacted the Southern Region.

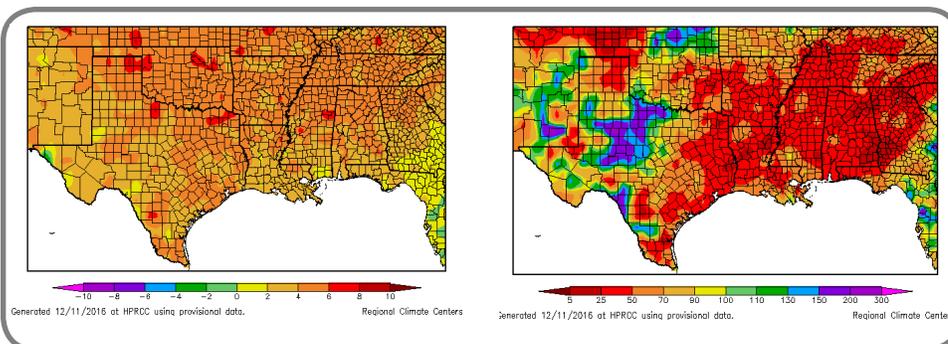
The average U.S. temperature during November was 48.0°F, 6.3°F above average and the second warmest on record. The autumn U.S. temperature was 57.6°F, 4.1°F above average and the warmest on record. The November precipitation total was 1.73 inches, 0.5 inches below the average. The autumn precipitation total was 6.88 inches, which is average for the period. Material provided in this map was compiled from NOAA's State of the Climate Reports. For more information please visit: <http://www.ncdc.noaa.gov/sotc>.

### Regional – Climate Overview for September–November 2016

#### Temperature and Precipitation Anomalies

Departure from Normal Temperature (°F)  
September 1 – November 30, 2016

Percent of Normal Precipitation (%)  
September 1 – November 30, 2016

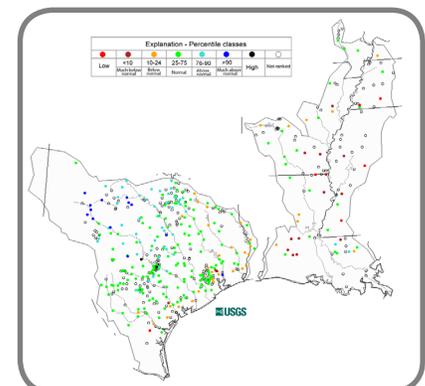


Autumn temperatures in the Southern Region were consistently above normal throughout the season. Almost every station in the region averaged at least 2°F above normal. In the northern half of the region, temperatures averaged between 4°F–6°F above normal, while the southern counties observed slightly smaller anomalies ranging from 2°F–4°F above normal. The region-wide average temperature for September to November was 68.50°F, making it the second warmest on record (1895–2016).

After a very wet summer, autumn precipitation was very hard to come by in the Southern Region. Only a small area of west central Texas saw precipitation totals for autumn exceed expected normals. Conditions were extremely dry throughout Arkansas, Louisiana, Mississippi, and Tennessee. Many locations experienced weeks at a time without a drop of rainfall. A bulk of the stations in this part of the region reported less than half of normal precipitation.

#### Streamflows

November average streamflow compared to historical streamflow.

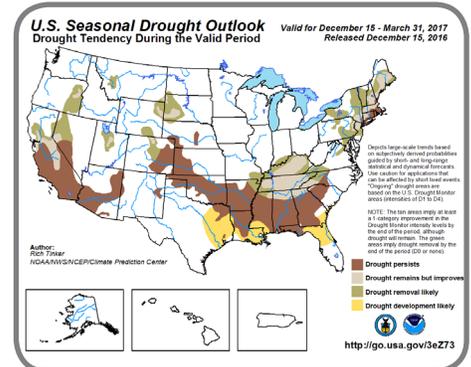
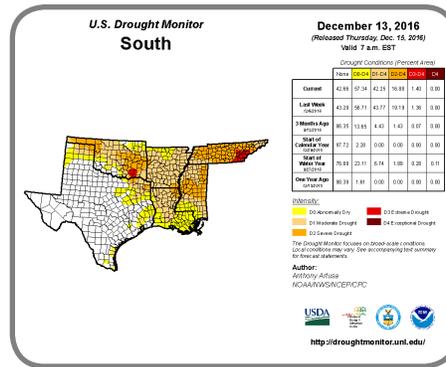
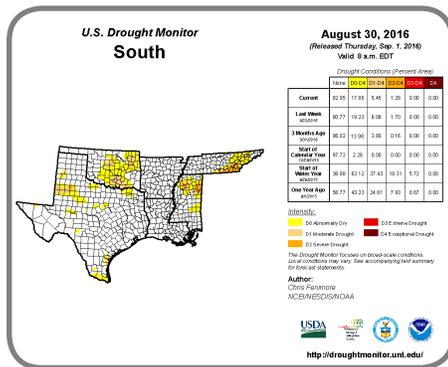


The above figure illustrates the November average streamflow in the Texas Gulf and lower Mississippi basins as compared to historical streamflow. Below normal precipitation in the central and eastern counties of the Southern Region resulted in below normal streamflows. In Texas, streamflows remained in the normal range, while closer to the coast, some rivers were still reporting below normal discharges.

# Regional – Impacts for September–November 2016

## Autumn Drought

The primary impacts story for this past quarter in the Southern Region is drought and the subsequent impacts. As of August 30, 2016, the Southern Region was almost drought-free. But lack of precipitation, however, combined with above normal temperatures to create a recipe for drought. What is most remarkable about this drought, is that in August, south central and east central Louisiana experienced a one thousand year flooding event, only to find itself under drought conditions by mid-October. By the end of November, conditions deteriorated with approximately 50 percent of the region experiencing drought conditions. Louisiana and Arkansas, which were drought-free at the end of the summer, were completely blanketed by drought at the end of autumn. Mississippi and Tennessee were also showing 100 percent drought coverage at the end of November. According to the November 29, 2016 drought map produced by the National Drought Mitigation Center, 13.67 percent of the region was experiencing D3 drought conditions or worse, most of which was concentrated in central Tennessee, Mississippi, and northeastern Louisiana. By late October, the Tennessee Division of Forestry issued a statewide ban on open burning. In addition, they also refrained from issuing burn permits. On October 11, Governor Phil Bryant issued a statewide burn ban in Mississippi. Precipitation in the south has helped alleviate the severity of drought in the region and some of the impacts as well. As of December 13, 2016, 42.25 percent of the Southern Region remains under drought conditions, though the amount of D3 and D4 drought has been reduced to just over one percent of areal coverage. On December 15, 2016, the Climate Prediction Center issued its U.S. Seasonal Drought Outlooks, which predicts that drought should persist through the winter months and into March. Some additional winter drought development is possible in southeastern Texas.



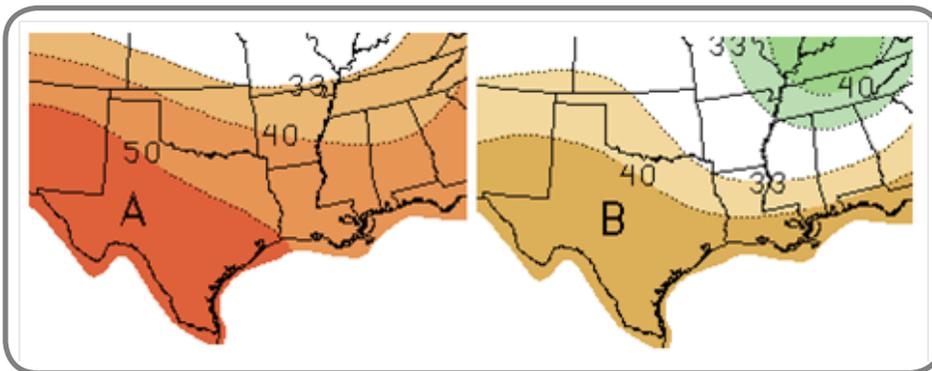
Above: The U.S. Drought Monitor map for August 30, 2016 (left), November 29, 2016 (middle), and the U.S. Seasonal Drought Outlook (right). Sources for the drought maps are the National Drought Mitigation Center [www.droughtmonitor.unl.edu](http://www.droughtmonitor.unl.edu). Source of the drought outlook map: The Climate Prediction Center, [www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov).

## CPC Three-Month Outlook

### Temperature

### Precipitation

Outlook for October–December 2016



A = Above normal temperatures  
B = Below normal rainfall

According to the Climate Prediction Center, winter (December to March) temperatures for the Southern Region are expected to be above normal in all six states. Winter precipitation totals are expected to be lower than normal, across much of Texas, Oklahoma, Louisiana, and southern Mississippi. Tennessee could see above normal precipitation, particularly in the north central counties of the state.

## 2016 Hurricane Season

As of November 30, the 2016 Atlantic hurricane season officially ended. In total, there were 15 named storms, of which 7 achieved hurricane strength and three reached Category 3 or higher. None of the storms impacted the Southern Region.

## Gulf Region Partners

- Earth Scan Lab at Louisiana State University [www.esl.lsu.edu](http://www.esl.lsu.edu)
- NOAA/NWS Climate Prediction Center [www.cpc.noaa.gov](http://www.cpc.noaa.gov)
- NOAA/NOS Gulf of Mexico Coastal Services Center [www.csc.noaa.gov](http://www.csc.noaa.gov)
- NOAA Gulf of Mexico Collaboration Team [www.regions.noaa.gov](http://www.regions.noaa.gov)
- NOAA/NESDIS National Centers for Environmental Information [www.ncei.noaa.gov](http://www.ncei.noaa.gov)
- NOAA/NWS Southern Region [www.srh.noaa.gov](http://www.srh.noaa.gov)
- Southern Climate Impacts Planning Program [www.southernclimate.org](http://www.southernclimate.org)
- Southern Regional Climate Center [www.srcc.lsu.edu](http://www.srcc.lsu.edu)

