

On average, October is Alabama's driest of all the months. This October was no exception. The state received a mere 1.40 inches of rainfall, which is 1.43 inches less than the 20<sup>th</sup> century normal of 2.83 inches. With such little rainfall in October, drought conditions continue to degrade throughout the month.

A drier than average October translates to a very dry month. Of the 231 stations with rain gauges and no missing days of recorded observations, 133 stations reported less than 1 inch of rainfall. The driest location for this October was the Harvest 3.9 SE station recording a measly 0.19 inch of rainfall. Drier than average conditions also contributed to almost 96% of the state being placed in some level of drought by the end of October. There were, however, a few stations that reported adequate rainfall amounts. The Auburn No.2 station had the highest rainfall total reported for the month at 4.07 inches, most of which occurred between the 11<sup>th</sup> and 12<sup>th</sup> of October.

From a temperature perspective, Alabama was 1.3°F warmer than normal statewide. Since October is a transition month, there were bouts of colder and warmer than normal weather throughout the month. The first few days of the month were particularly hot, where many stations across Alabama recorded temperatures in the upper 80s and low 90s. Six stations (Mobile Regional Airport, Muscle Shoals Airport, Selma, Northport 2 S, Bon Secour, and Open Pond) recorded the warmest locations of the month with a high temperature of 92°F. In contrast, the coldest daily extreme of the month was recorded at the Auburn No. 2 station at 30°F on the 31<sup>st</sup>.

The dry weather has helped the progress of fall harvests. As of Oct 30, Corn has finished harvest, nearly all the cotton bolls have opened, with half the planted acreage harvested. Peanuts and soybeans are roughly ¾ harvested. Now that we have a better picture, the damage of the drought is especially seen in the peanuts, where the current forecast has Peanut predicted to be the lowest since 2010. While the impact of the drought on row crops is coming to an end as the season wraps up, there are still major impacts being felt by the cattle producers around the state. Many producers are still buying supplemental hay for feed as pasture conditions continue to plummet.

Many farmers are comparing this drought to that of 2016, where again we had a rapid onset of conditions in the late summer and fall. Figure 1 below shows the percentage of each Drought Category that covers the state, and compares the past two fall droughts to the current (2023) drought. It can be seen that indeed, it's easy to see the similarities. The rapid intensification in Sept and Oct was similar to 2019, but the level of dryness is approaching that of 2016. This time of year, Alabama is susceptible to these rapid intensifying conditions, as we enter our dry season.

Looking ahead into winter (December, January, February), the Climate Prediction Center (CPC) forecasts the entire state is likely to experience equal chances of below, near, and above-normal seasonal average temperatures. For precipitation, there is a sharp gradient from equal chances of below, near, and above-normal precipitation in the counties that border Tennessee to 60-70% chance of above-normal precipitation in Southern Alabama. The CPC forecast is strongly influenced by the ongoing El Niño (the warm phase of the El Niño/Southern Oscillation mode) in the central Pacific Ocean.

However, we examined past El Niños (1957-58, 1972-73, 1965-66, and 1997-98) that initiated around the same time as the current El Niño to serve as analogs for predicting how this winter may unfold. Figures 3 & 4 display composite temperature and precipitation anomalies from December to January based on these analogs. Figure 3 shows a colder-than-average winter across the state, while Figure 4 depicts a drier northern half of Alabama and a wetter southern half. It's important to note that while these analogs provide valuable insights, they represent averages, and the week-to-week weather can be highly variability in winter.

Monthly summaries are provided by Drs. Rob Junod, Lee Ellenburg, and John Christy

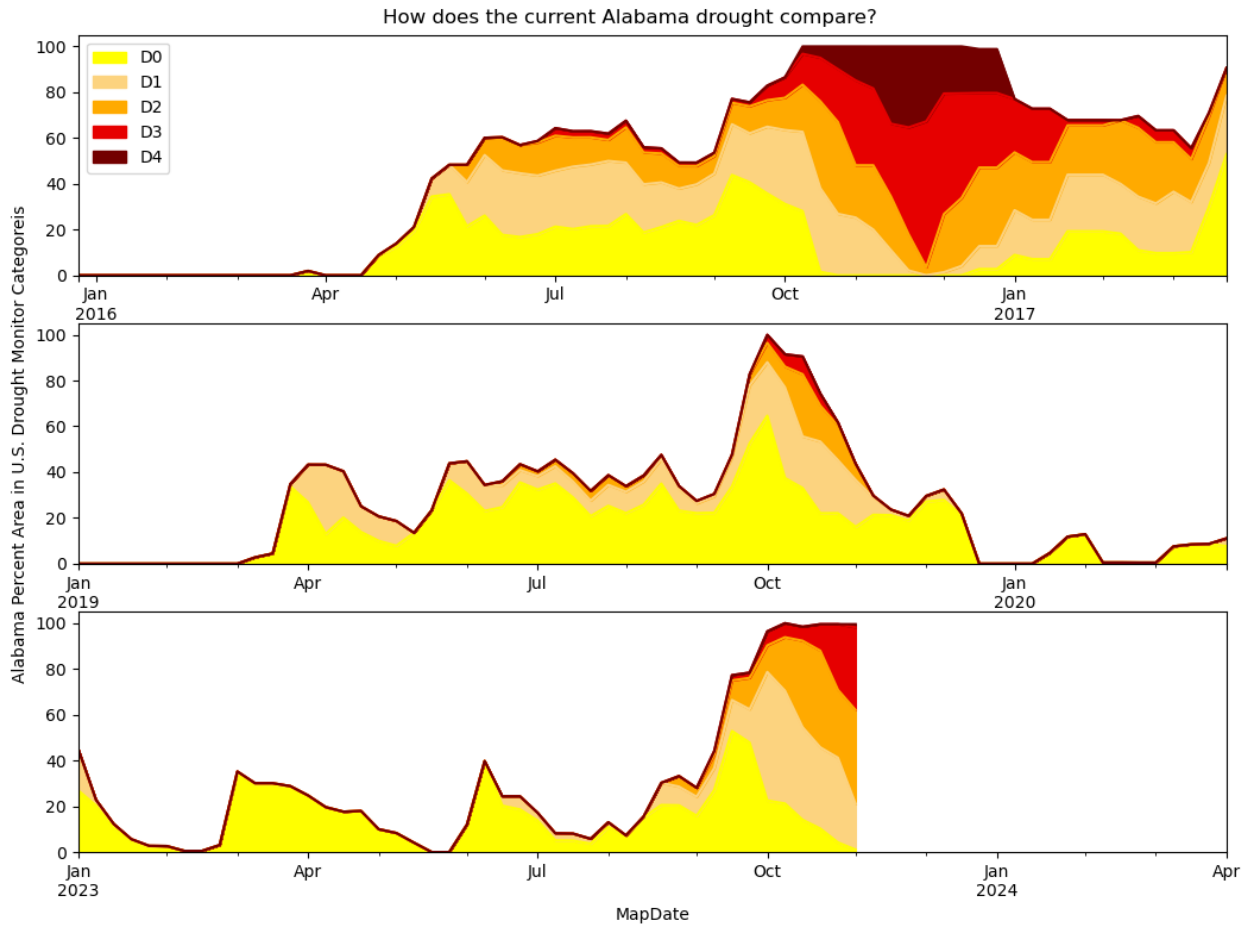


Figure 1. Drought Monitor categories for 2016, 2019, & current (2023).

# Precipitation Percent of Normal October 2023

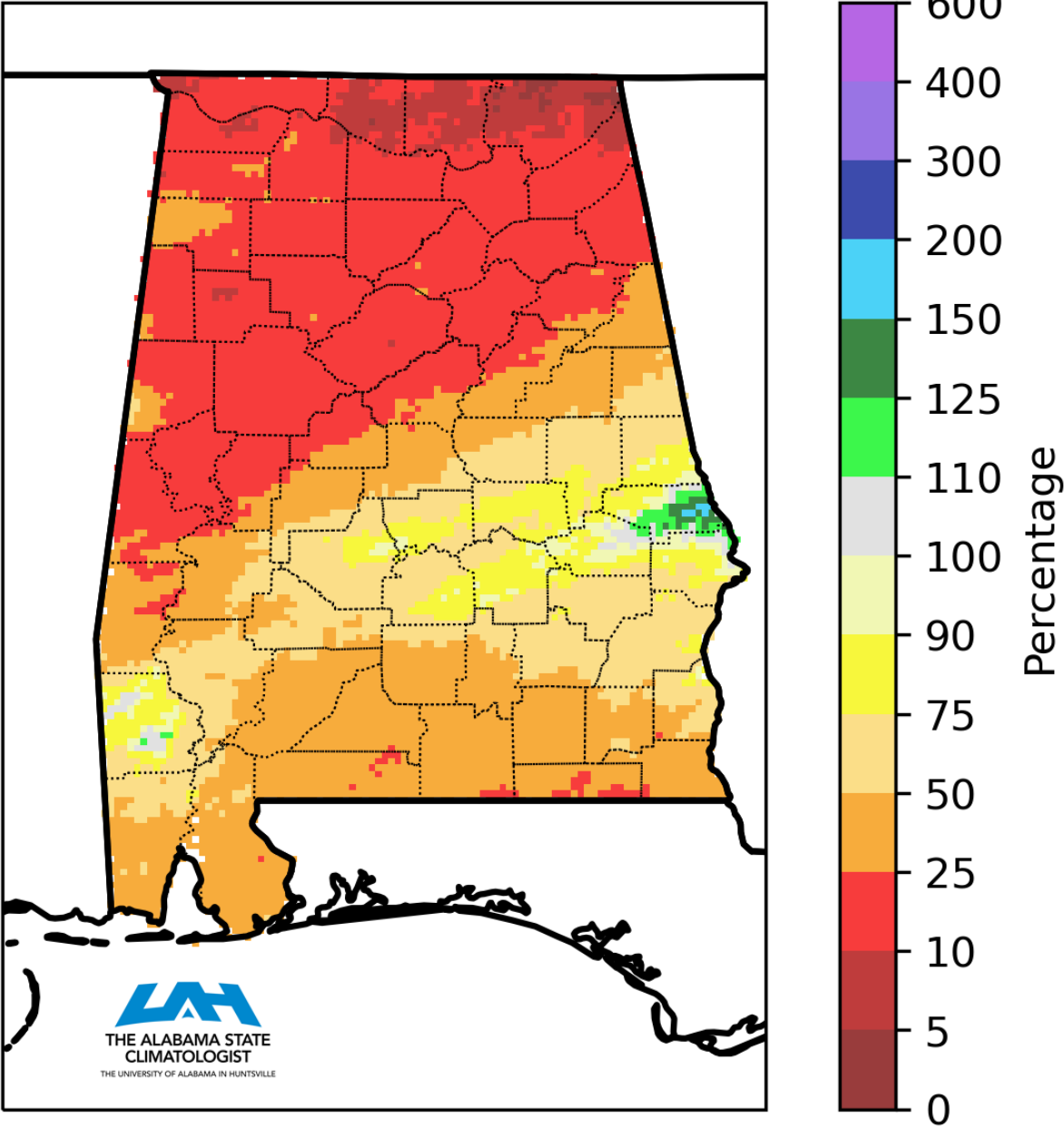


Figure 2: Data source: NCEP Stage IV Quantitative Precipitation Estimates

# Dec to Feb Temperature Composite Anomalies w.r.t. 1991-2020 Reference period

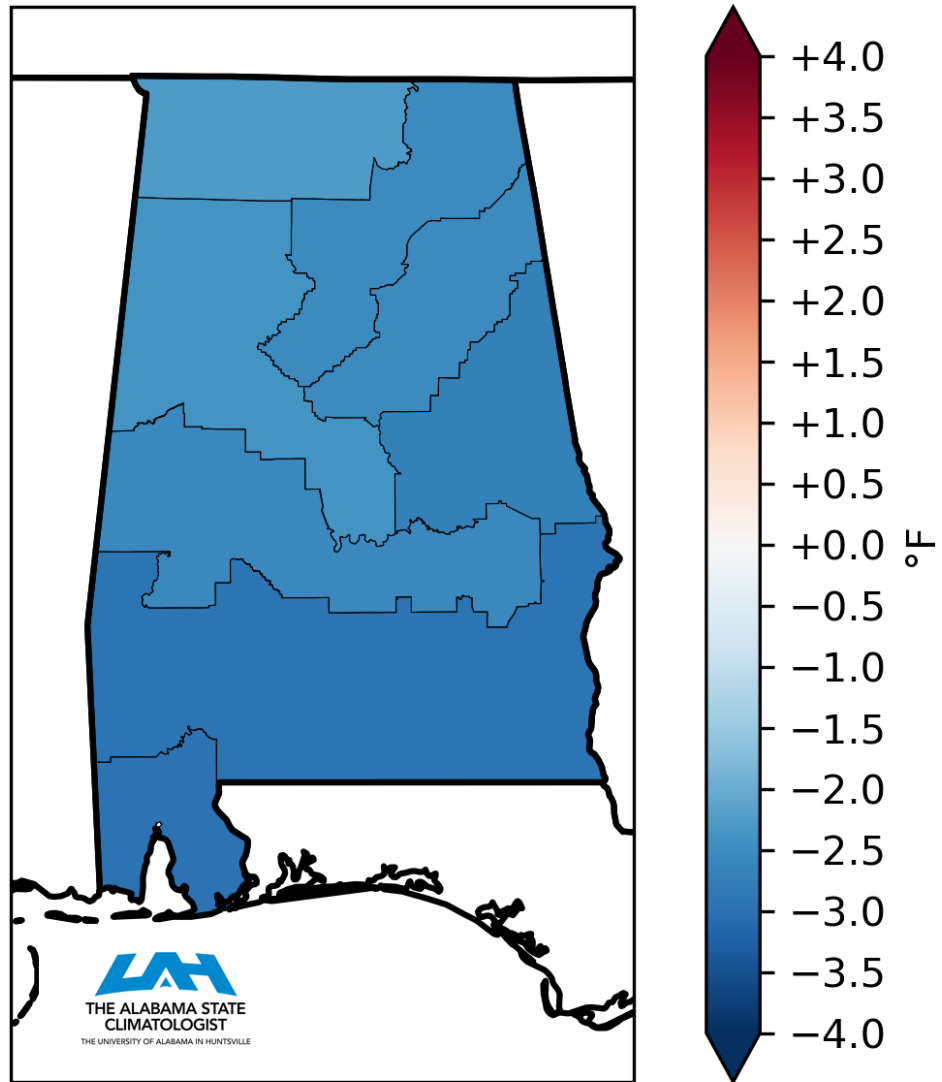


Figure 3. 1957-58,1972-73,1965-66, & 1997-98 composite temperature anomalies. (Data source: NOAA/NCEI)

## Dec to Feb Precipitation Composite Anomalies w.r.t. 1991-2020 Reference period

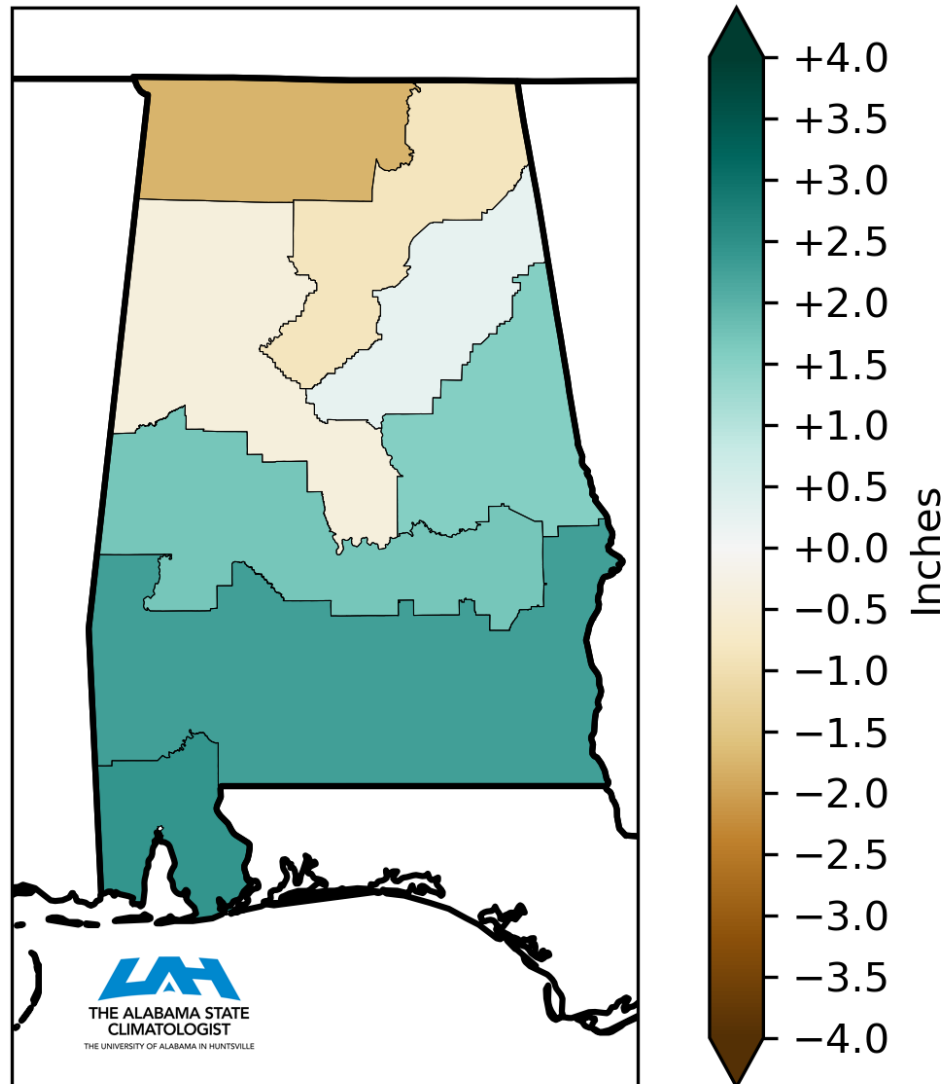


Figure 4. 1957-58, 1972-73, 1965-66, & 1997-98 composite precipitation anomalies. (Data source: NOAA/NCEI)

December				
	Mean Temperature(°F)	Average Daily High Temperature(°F)	Average Daily Low Temperature(°F)	Total Precipitation(inches)
<b>Alabama</b>	47.7	58.4	37.0	5.46
<b>Birmingham</b>	47.4	56.9	37.9	4.87
<b>Huntsville</b>	45.5	55	35.9	5.87
<b>Mobile</b>	53.3	63.5	43	5.45
<b>Montgomery</b>	50.2	61.9	38.6	4.99

January				
	Mean Temperature(°F)	Average Daily High Temperature(°F)	Average Daily Low Temperature(°F)	Total Precipitation(inches)
<b>Alabama</b>	45.3	56.1	34.5	5.29
<b>Birmingham</b>	44.7	54.5	34.9	5.03
<b>Huntsville</b>	42.7	52.3	33.1	4.99
<b>Mobile</b>	51.1	61.5	40.7	5.66
<b>Montgomery</b>	48.1	59.8	36.5	4.64

February				
	Mean Temperature(°F)	Average Daily High Temperature(°F)	Average Daily Low Temperature(°F)	Total Precipitation(inches)
<b>Alabama</b>	49.3	60.7	37.9	5.17
<b>Birmingham</b>	48.8	59.1	38.4	4.95
<b>Huntsville</b>	46.7	57.1	36.4	5.11
<b>Mobile</b>	55	65.6	44.4	4.47
<b>Montgomery</b>	52.6	64.7	40.4	4.88