

October 2019 Central NC Climate Summary

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From 100 degree highs to near freezing lows highlighted October 2019.

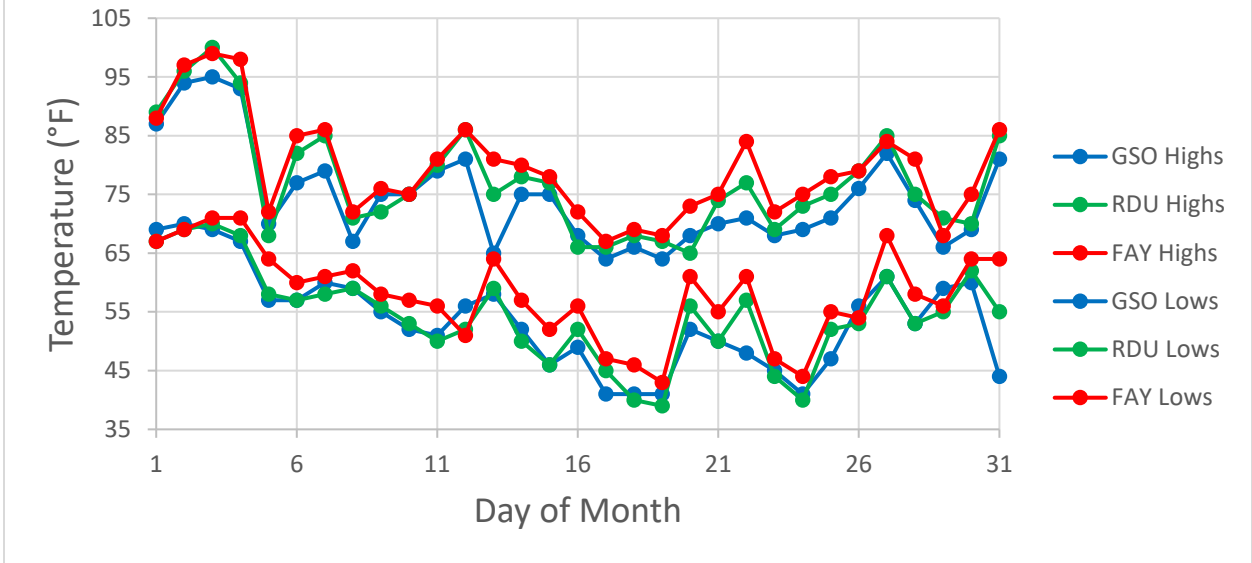
October 2019 began with a historic heat wave which affected much of the southern and eastern United States. Numerous daily and monthly record high temperatures were set. In central NC, the period from October 2 through October 4 is when the hottest temperatures occurred. Record highs were broken at all three climate sites on October 2 and 3, and at Fayetteville on October 4. Raleigh reached 100°F on October 3, which was its hottest October temperature ever recorded, with records dating back to 1887. It also shattered the previous daily record high by 9°F. Greensboro hit 95°F on the same day. This tied the all-time record October high in Greensboro as well, with records dating back to 1903.

A pattern change to cooler weather occurred on October 5. Afterward, temperatures fluctuated from cool to warm in a more normal pattern for October. Overall, October 2019 temperatures ended up averaging 4-6°F above normal. This made October 2019 the fourth-warmest October on record at Fayetteville and the fifth-warmest on record at Raleigh and Greensboro.

Site	Avg High Temp (°F)	Avg Low Temp (°F)	Avg Temp (°F)	Departure From Normal (°F)	Maximum Temperature (°F)	Minimum temperature (°F)
Greensboro (GSO)	74.6	53.7	64.2	+4.7	95 on 10/3	41 on 10/18, 10/19, 10/24
Raleigh-Durham (RDU)	77.2	54.4	65.8	+4.6	100 on 10/3	39 on 10/19
Fayetteville (FAY)	79.4	58.0	68.7	+5.2	99 on 10/3	43 on 10/19

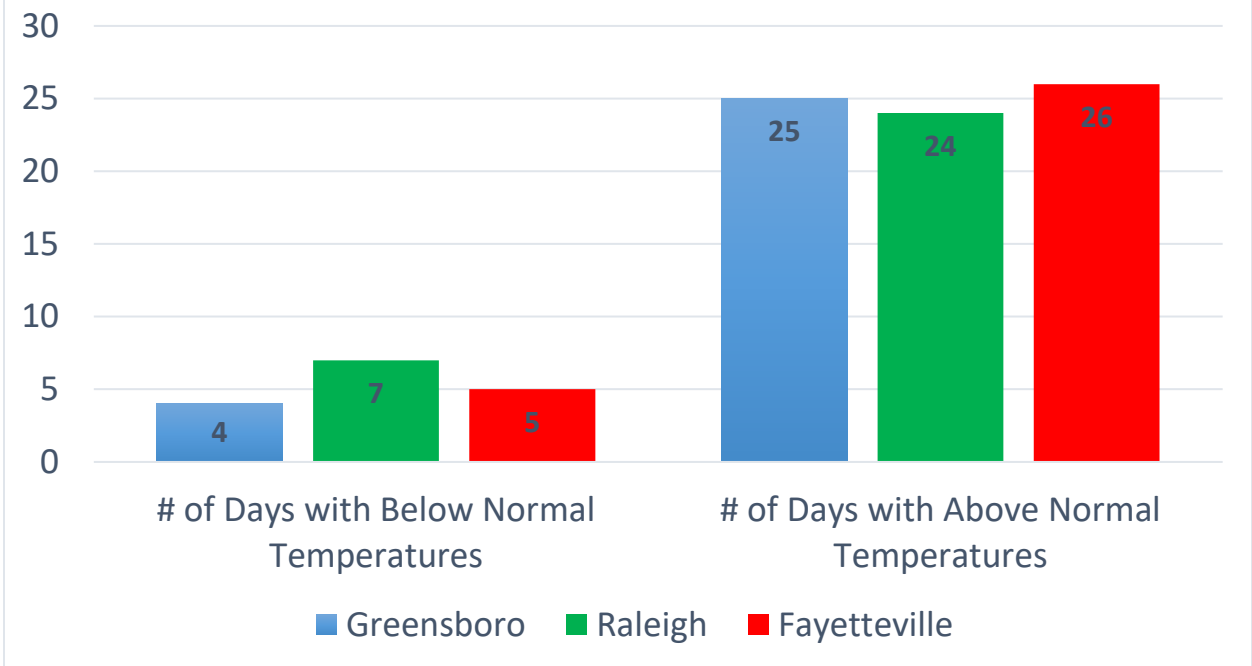
Figure 1 shows the daily high and low temperatures at Greensboro, Raleigh, and Fayetteville for the month of October. The hot conditions at the beginning of the month, followed by more seasonable temperatures, are evident. Another warm spell occurred at the end of October ahead of a strong cold front, which crossed through central NC on October 31 accompanied by a line of strong to severe storms. Raleigh reached a high of 85°F on this date, which tied the old daily record high temperature.

Fig. 1: October Temperature Trends



The number of days in October with above and below normal temperatures at the three climate sites is shown in Figure 2. Similar to September, the vast majority of days (around 80%) were warmer than normal.

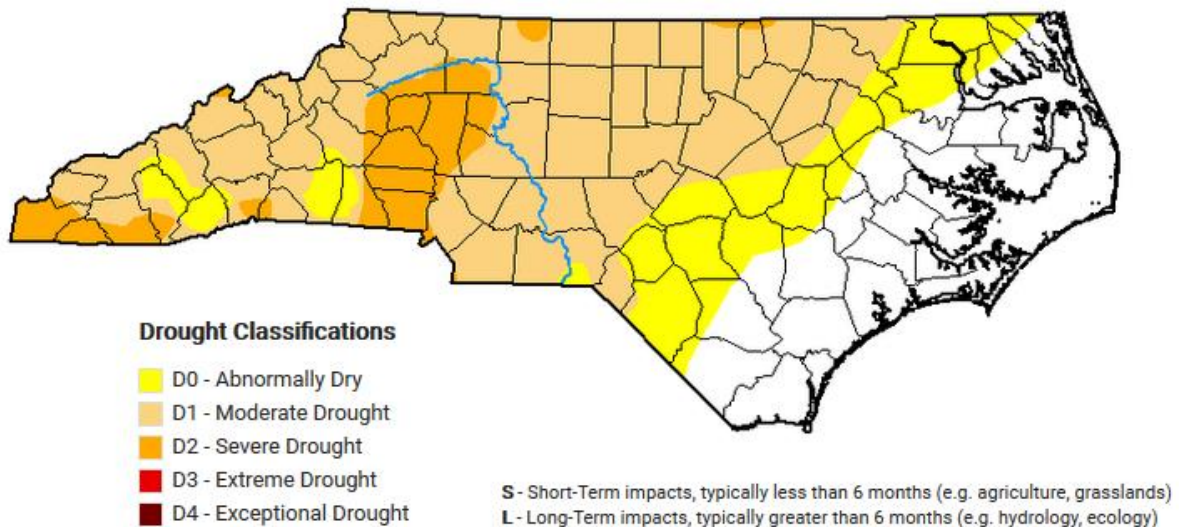
Fig. 2: Number of Days Warmer and Cooler than Normal



Drought spread east to cover much of western and central NC with the arrival of the heat at the start of October. Little to no rain fell over much of the region during the first two weeks of

the month. In fact, both Greensboro and Fayetteville did not record any measurable precipitation from October 1-12. Raleigh only recorded 0.01 inches during this period. When combined with the dry September, many locations had gone five to seven weeks with hardly a drop of rain by this point. On October 15, as shown in Figure 3, the U.S. Drought Monitor of North Carolina placed much of central NC along and west of I-95 in a moderate drought, including Greensboro and Raleigh.

Fig. 3: October 15, 2019 NC Drought Index

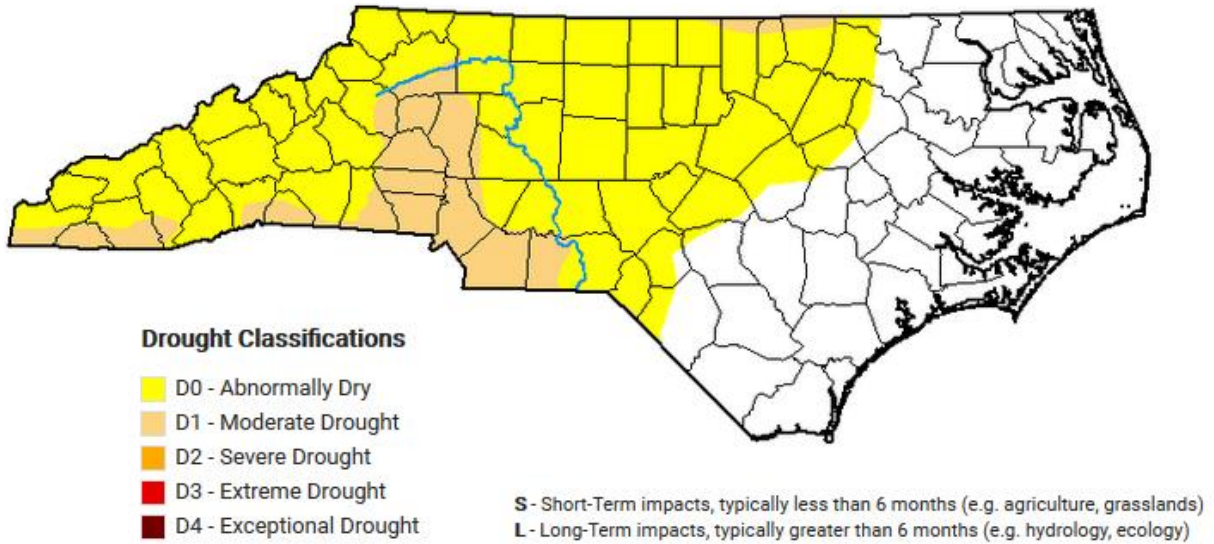


Finally, the record-setting heat ridge that extended the summer well into October gave way to a couple of strong troughs that brought cooling rains. The heaviest rain fell in the Appalachians and along the Blue Ridge, with significant but lighter rain over central NC. By month's end, Greensboro reached nearly 200% of normal October precipitation. Raleigh received near-normal rainfall while Fayetteville's rainfall was slightly below normal.

Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	6.06	+2.93	1.50 on 10/30
Raleigh-Durham (RDU)	3.36	+0.11	1.57 on 10/20
Fayetteville (FAY)	2.41	-0.80	0.75 on 10/20

Figure 4 demonstrates that the much wetter second half of October helped to substantially alleviate the drought conditions across the area, with a downgrade from moderate drought to abnormally dry conditions.

Fig. 4: October 29, 2019 NC Drought Index



The radar-estimated rainfall for October across central NC is shown in Figures 5 and 6. Note that with a main storm track just to our west, the monthly totals were heaviest in the northwest and lightest in the southeast. The only places that were over half an inch drier than normal were in a few southern counties (Sampson, Cumberland, and Anson counties).

Fig. 5: Radar-Estimated Monthly Precipitation

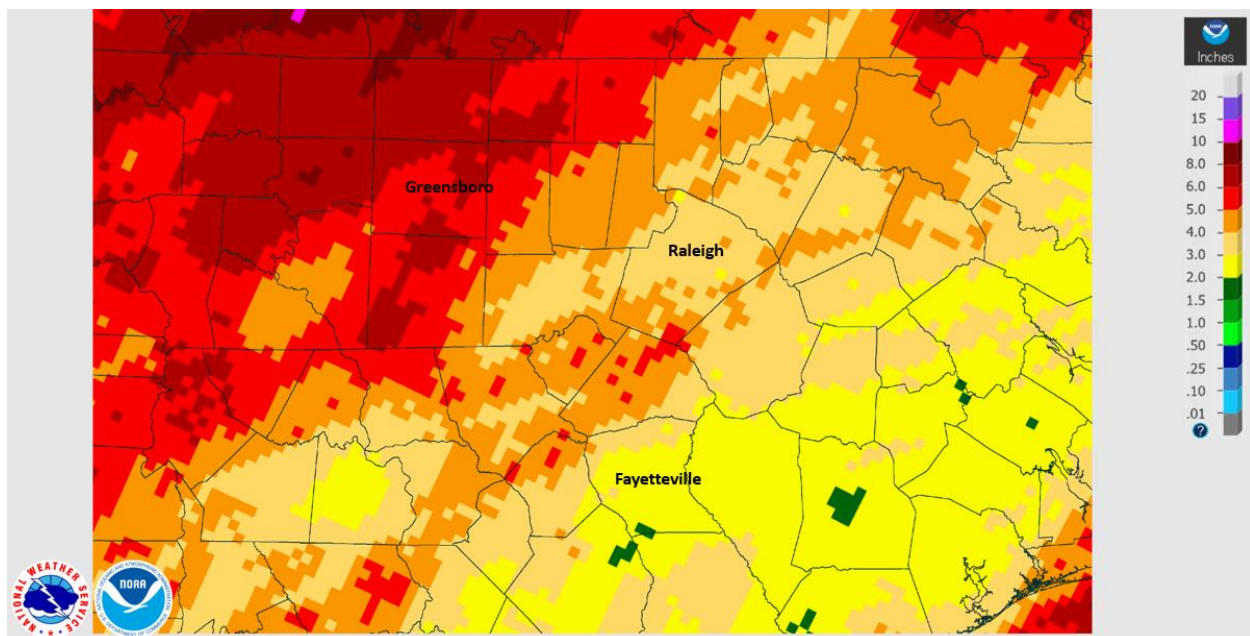


Fig. 6: Radar-Estimated Monthly Departure from Normal Precipitation

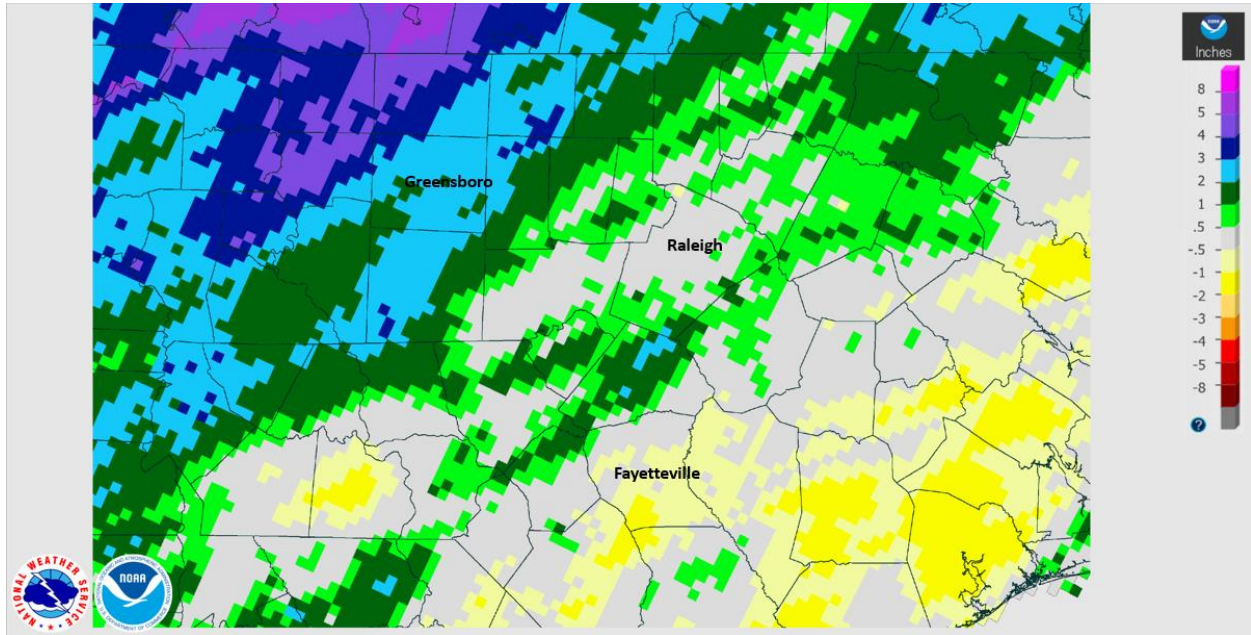
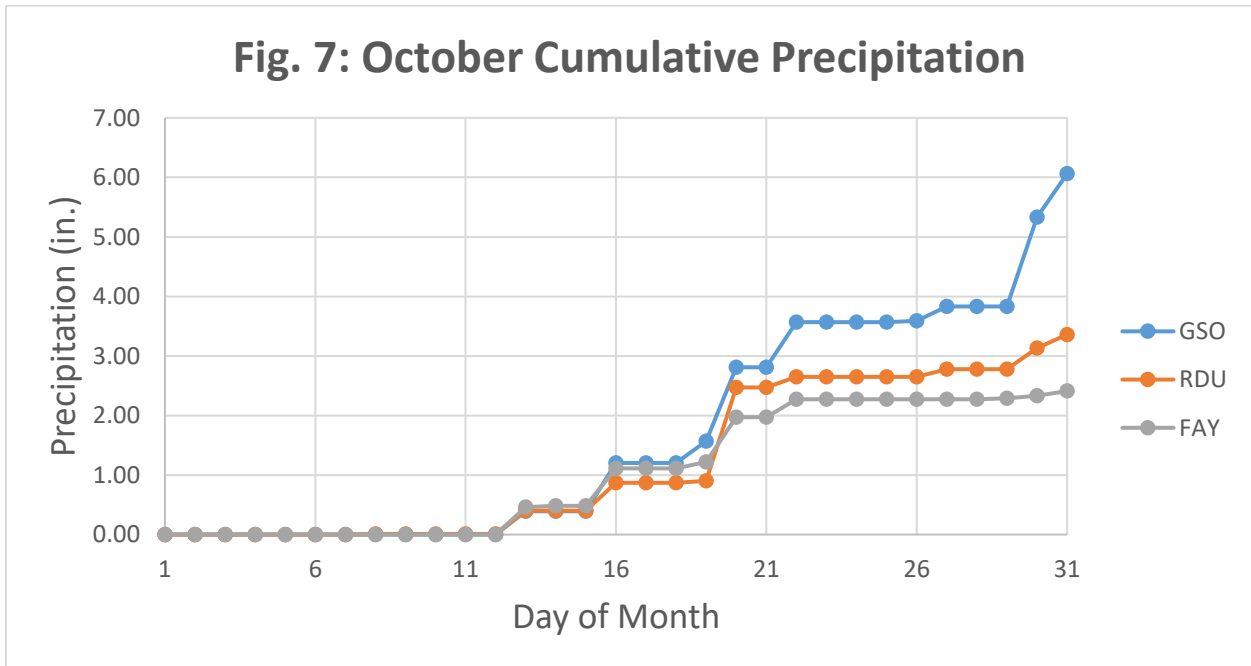


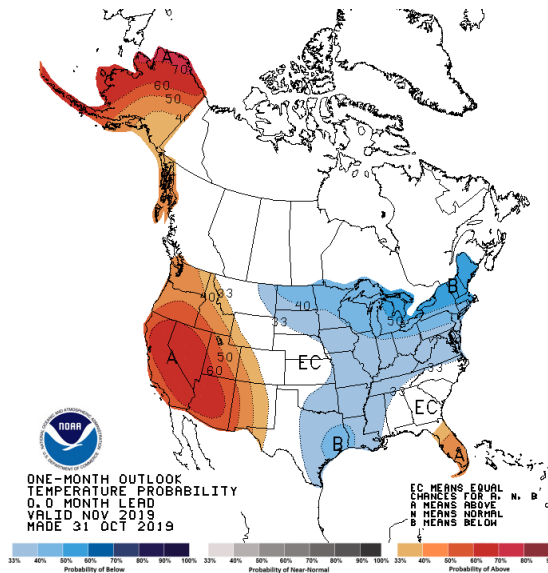
Figure 7 shows the cumulative precipitation for October at Greensboro, Raleigh, and Fayetteville. The very dry start to the month followed by the much wetter second half is evident, particularly in places to the north and west such as Greensboro, which received 2.23 inches of rain on October 30 and 31.



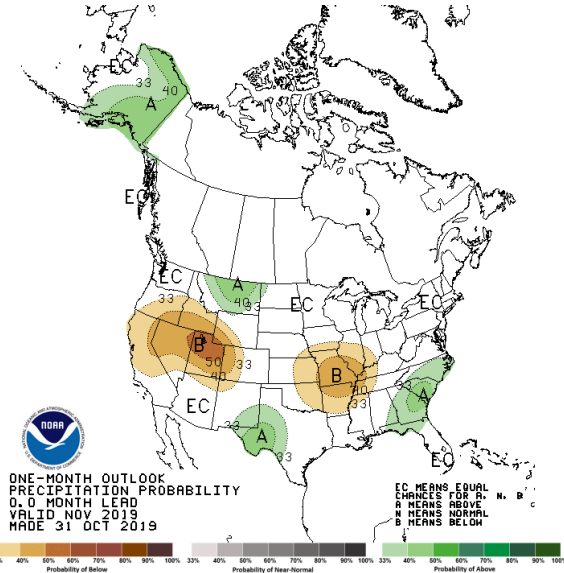
November 2019 Outlook

The latest November outlook from the Climate Prediction Center indicates equal chances of above and below normal temperatures and slightly increased chances of wetter-than-normal conditions across central NC.

Temperature Outlook



Precipitation Outlook



Other notes:

Number of days with high temperatures at or above 90°F this month:

Greensboro: 3
Raleigh: 3
Fayetteville: 3

Number of days with high temperatures at or above 90°F this year so far:

Greensboro: 50
Raleigh: 75
Fayetteville: 98

Strongest wind gusts and direction (all associated with a cold frontal passage):

Greensboro, Northwest at 43 mph on October 31
Raleigh, West at 38 mph on October 31
Fayetteville, West at 41 mph on October 31

Records:

- The monthly average temperature of 64.2°F at the Piedmont Triad International Airport makes this the fifth-warmest October on record. The warmest October on record was in 1919, averaging 67.2°F.
- A record high temperature of 94°F was set at the Piedmont Triad International Airport on October 2. This broke the old record of 91°F set in 1986.
- A record high temperature of 95°F was set at the Piedmont Triad International Airport on October 3. This broke the old record of 91°F set in 1986. This also tied the all-time record high temperature for the month of October, last set in 1954.
- The monthly average temperature of 65.8°F at the Raleigh-Durham International Airport makes this the fifth-warmest October on record. The warmest October on record was in 1919, averaging 69.3°F.
- A record high temperature of 96°F was set at the Raleigh-Durham International Airport on October 2. This broke the old record of 91°F set in 1986.
- A record high temperature of 100°F was set at the Raleigh-Durham International Airport on October 3. This broke the old record of 91°F set in 2002. This also broke the all-time record high temperature for the month of October of 98°F set in 1954.
- A record high temperature of 85°F was tied at the Raleigh-Durham International Airport on October 31. This tied the old record set in 1961.
- The monthly average temperature of 68.7°F at the Fayetteville Regional Airport makes this the fourth-warmest October on record. The warmest October on record was in 1919, averaging 72.9°F.
- A record high temperature of 97°F was set at the Fayetteville Regional Airport on October 2. This broke the old record of 93°F set in 1986.
- A record high temperature of 99°F was set at the Fayetteville Regional Airport on October 3. This broke the old record of 95°F set in 1986.
- A record high temperature of 98°F was set at the Fayetteville Regional Airport on October 4. This broke the old record of 97°F set in 1941.