

July 2019 Central NC Climate Summary

July 2019 was hotter than normal, with highly variable rainfall across central North Carolina. As shown in the tables below, temperatures generally averaged about 1.5°F above normal. Rainfall for the month was above normal at Greensboro and Fayetteville, while it was below normal in Raleigh.

Site	Avg High Temp (°F)	Avg Low Temp (°F)	Avg Temp (°F)	Departure From Normal (°F)	Maximum Temperature (°F)	Minimum temperature (°F)
Greensboro (GSO)	90.0	70.0	80.0	+1.5	96 on 7/17	62 on 7/24 and 7/25
Raleigh-Durham (RDU)	92.7	70.4	81.5	+1.5	99 on 7/21	62 on 7/24
Fayetteville (FAY)	94.1	72.2	83.1	+1.7	102 on 7/3	64 on 7/27

Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	5.28	+0.80	2.29 on 7/23
Raleigh-Durham (RDU)	3.63	-1.10	1.16 on 7/23
Fayetteville (FAY)	8.60	+2.68	2.80 on 7/4

The first three weeks of the month were dominated by a strong ridge of high pressure centered over the Southeast United States. This high pressure led to record daily high temperatures for portions of southern North Carolina on July 3 and 4. Fayetteville recorded 102 degrees on July 3, and 98 degrees on July 4, both new daily records. Even though records were not set at Greensboro and Raleigh the first week of July, it was still very hot. All three climate sites recorded highs in the 90's the first eight days of the month (with the exception of Greensboro on July 5).

After a backdoor front settled south through the area on July 9, there was a brief cool down in which many locations remained below 90 for one day with a light northeast flow. This

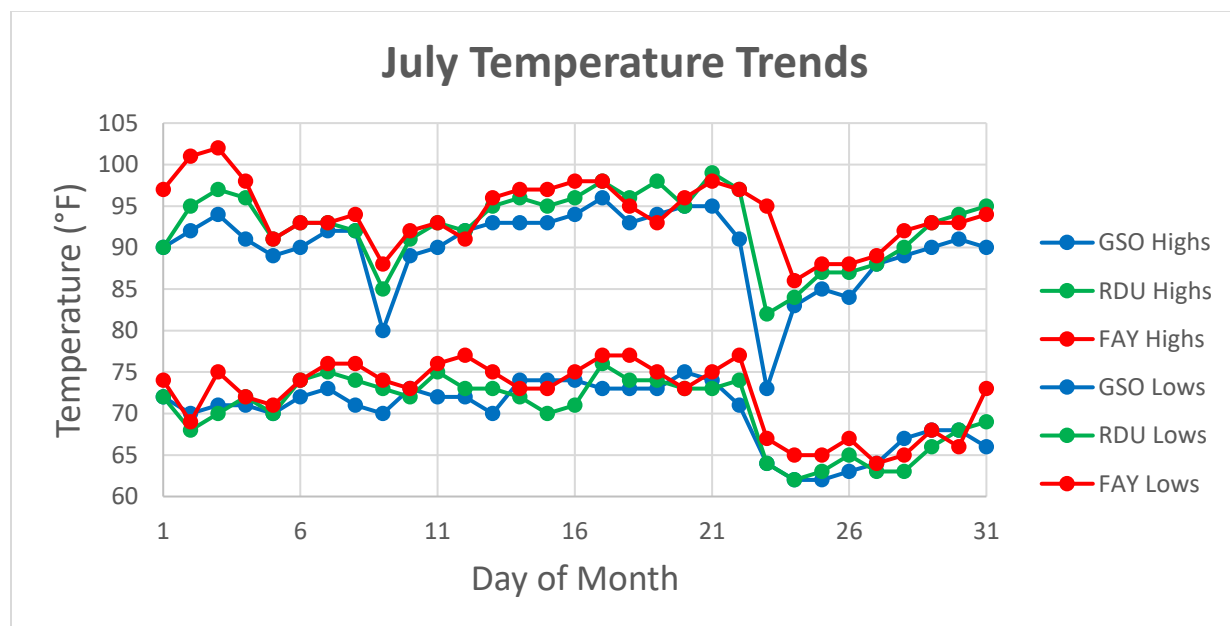
relief was very temporary as highs returned to the 90's in Greensboro, Raleigh, and Fayetteville every day from July 11 to July 22. The heat peaked the week of July 16 through 23, when all three sites had high temperatures in the mid-to-upper 90's. Heat index values reached 100 to 110 at times in the eastern part of the Piedmont, Sandhills, and Coastal Plain on July 21 and 22, when Heat Advisories and Excessive Heat Warnings were in effect.

Rainfall during the first three weeks of the month was sporadic and limited to very isolated thunderstorm activity due to the strength of the upper ridge. Fayetteville was hit hard on July 4 when 2.80 inches fell. This was a daily rainfall record. Raleigh reported 1 inch during a thunderstorm on July 4, but nearby areas had very little. Greensboro reported only a third of an inch in the first 21 days of the month.

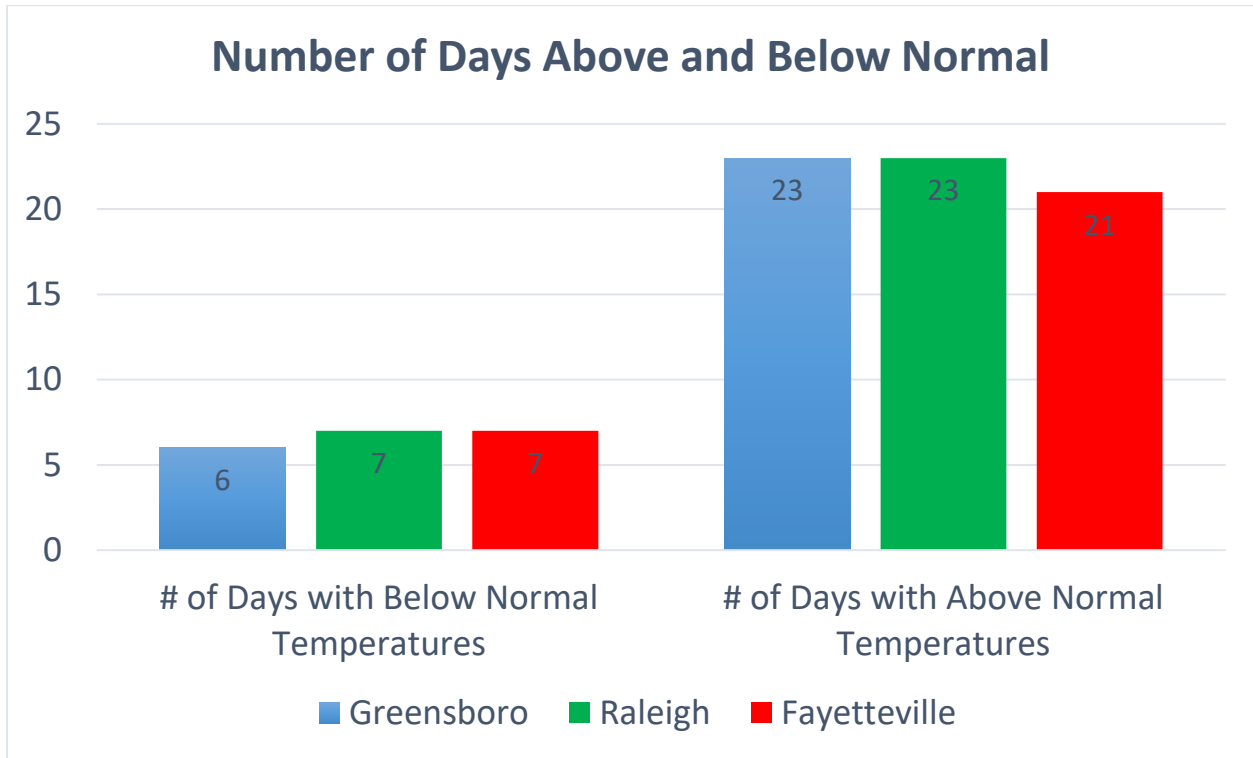
Finally, a huge break in the hot and dry pattern occurred when a large upper-level trough dipped deep into the Tennessee Valley and Mid-Atlantic states on July 22 and 23. The associated cold front brought widespread soaking thunderstorms and cooling temperatures. This was the first significant rainfall for some areas in two weeks. Widespread rainfall totals of one to three inches occurred during the transition to cooler weather. Specifically, Greensboro reported 3.02 inches, Fayetteville 1.91 inches, and Raleigh 1.22 inches. Raleigh's temperature fell to 67 degrees in the middle of the afternoon on July 23 as thunderstorms rolled through. The previous day's high was 97!

The cooler weather associated with the upper-level trough over the eastern United States lasted for about the entire last week of July. High temperatures averaged in the low-to-mid 80's with low temperatures in the mid 50's to lower 60's. Some of the cooperative stations, including Roxboro, Henderson, Sanford, and Lexington, recorded lows in the 50's. The heat and humidity returned for the last few days of July as another upper ridge returned. Readings soared back into the 90's at all locations July 29-31.

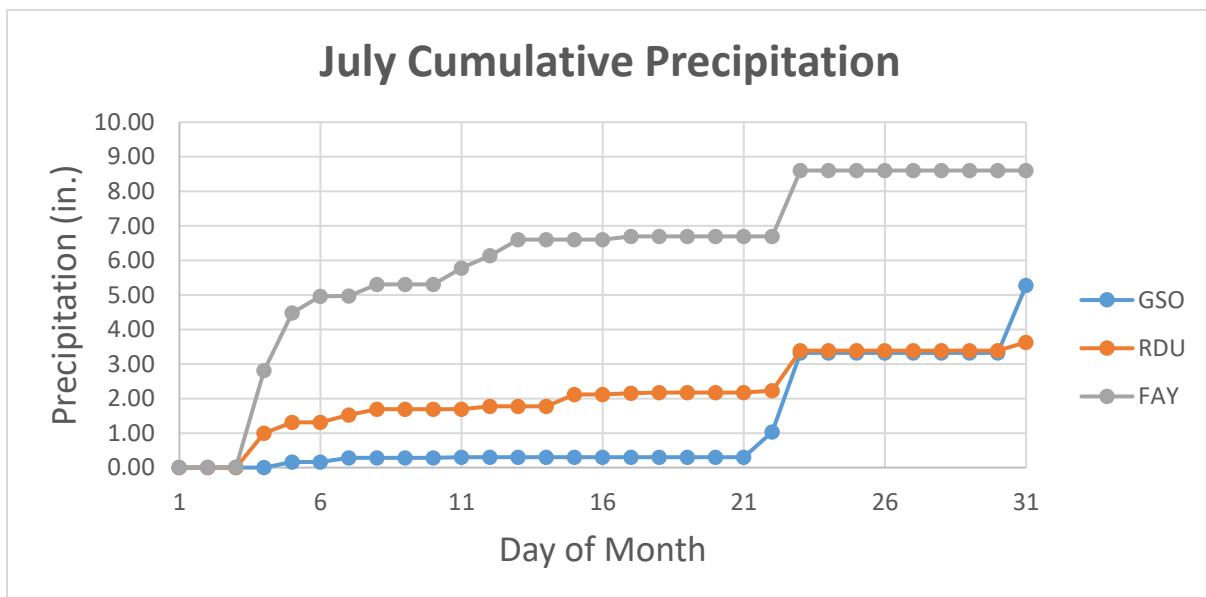
The daily high and low temperatures at Greensboro, Raleigh, and Fayetteville for the month of July are graphed below. The sharp cool-down on July 22 and 23 is evident, along with the persistent heat for much of the month before that. It wasn't only the daytime temperatures that were high; the nights were very warm as well. In fact, from July 3 through July 22, all three locations never dropped below 70 degrees.



The number of days in July with above and below normal temperatures are also shown. The mean temperature was clearly above normal for the vast majority of days (~70%) throughout the region, with only six or seven days cooler than normal.

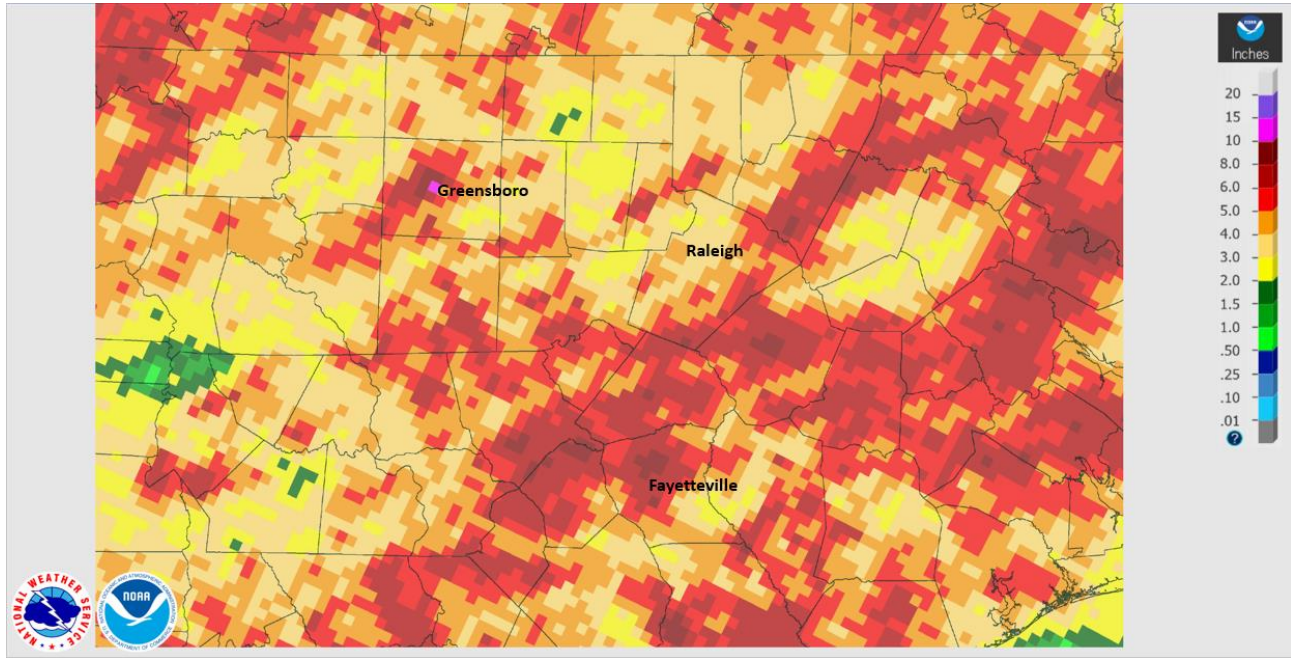


Here is the cumulative precipitation for July at the three climate sites. Greensboro, after recording only 0.30 inches for the first 21 days, tallied nearly 5 additional inches between July 22 and July 31. Fayetteville received nearly 5 inches on July 4 and 5, which was most of its rainfall for the month.

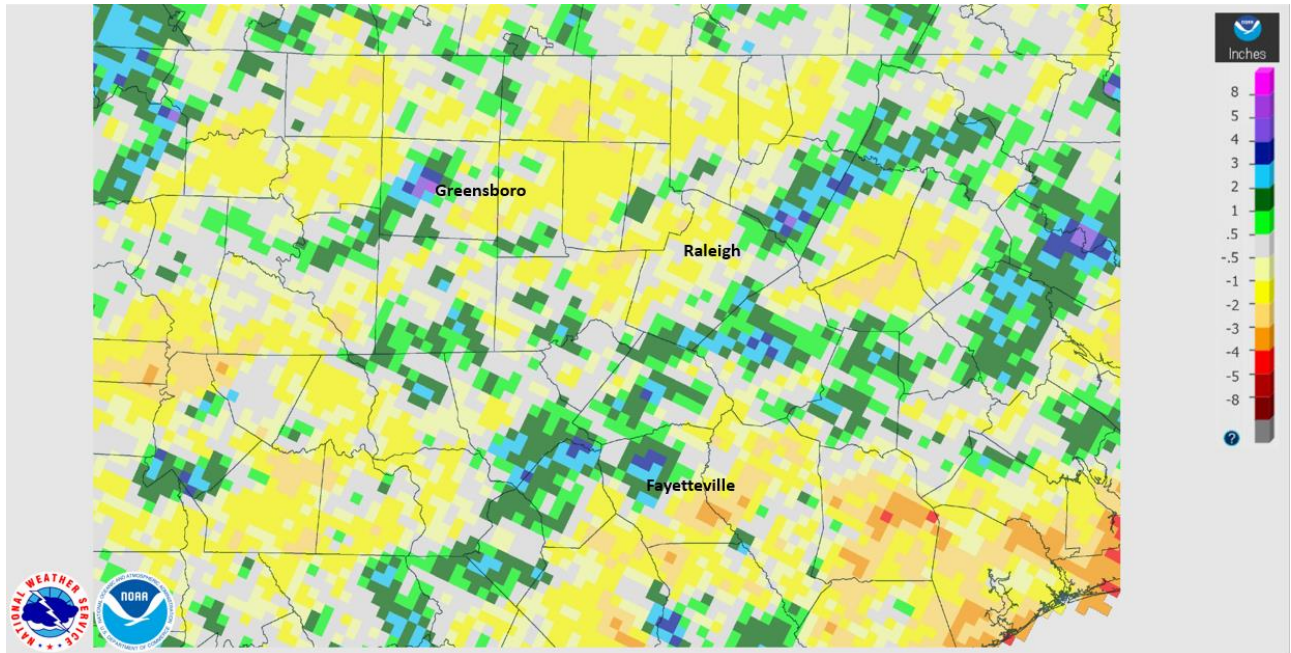


Below are maps of the radar-estimated precipitation and its departure from normal, respectively, throughout central NC for the month of July. Summer rainfall is generally sporadic and quite variable, even within the same county or city, and clearly this month was no exception.

Radar-Estimated Monthly Precipitation



Radar-Estimated Monthly Departure from Normal Precipitation



August Outlook

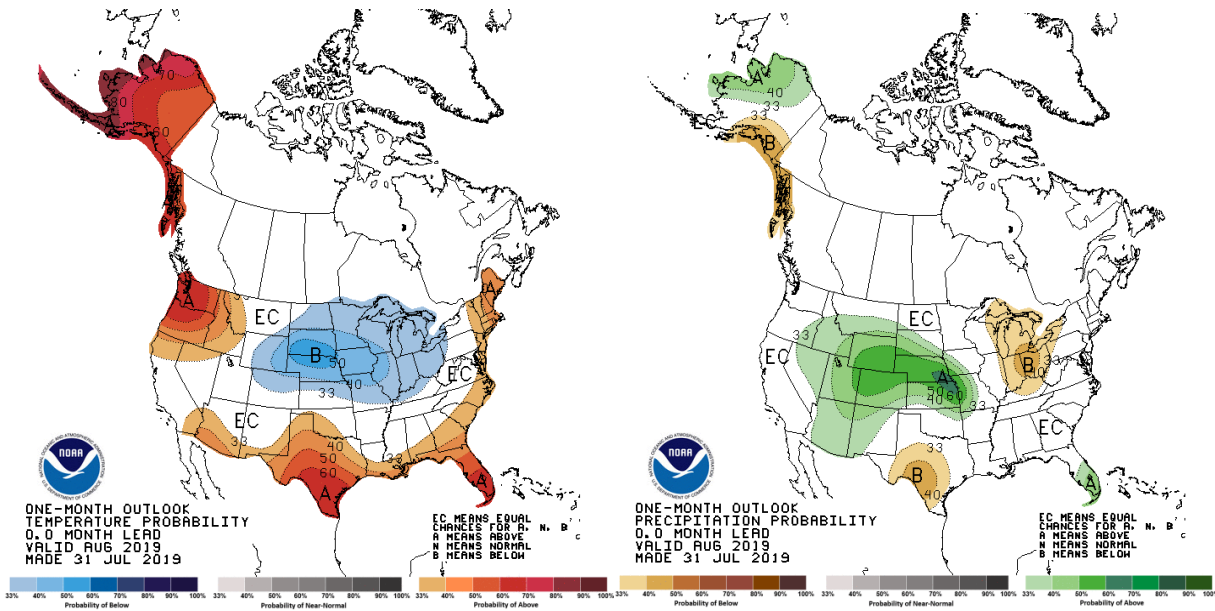
The latest outlook from the Climate Prediction Center indicates slightly increased chances of above normal temperatures and equal chances of above or below normal precipitation.

Site	Normal High Temp (°F)	Normal Low Temp (°F)	Normal Avg Temp (°F)
Greensboro (GSO)	86.3	68.0	77.1
Raleigh-Durham (RDU)	88.4	68.6	78.5
Fayetteville (FAY)	89.6	69.6	79.6

Site	Normal precipitation (in.)
Greensboro (GSO)	3.88
Raleigh-Durham (RDU)	4.26
Fayetteville (FAY)	5.49

Temperature Outlook

Precipitation Outlook



Other Notes

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

Greensboro: 22

Raleigh: 25

Fayetteville: 26

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

Greensboro: 35

Raleigh: 43

Fayetteville: 55

Strongest wind gusts (all associated with thunderstorms):

Greensboro: Southwest at 53 mph on July 31

Raleigh: Southwest at 46 mph on July 11

Fayetteville: Southwest at 42 on July 17

Records:

A record rainfall of 1.96 inches was set at Greensboro on July 31. This broke the old record of 1.60 inches set in 1913.

A record high temperature of 102 degrees was set at Fayetteville on July 3. This broke the old record of 100 set in 1954.

A record daily rainfall of 2.80 inches was set at Fayetteville on July 4. This broke the old record of 1.62 inches set in 1981.

A record high temperature of 98 degrees was tied at Fayetteville on July 4. This tied the old record of 98 set in 1953.