

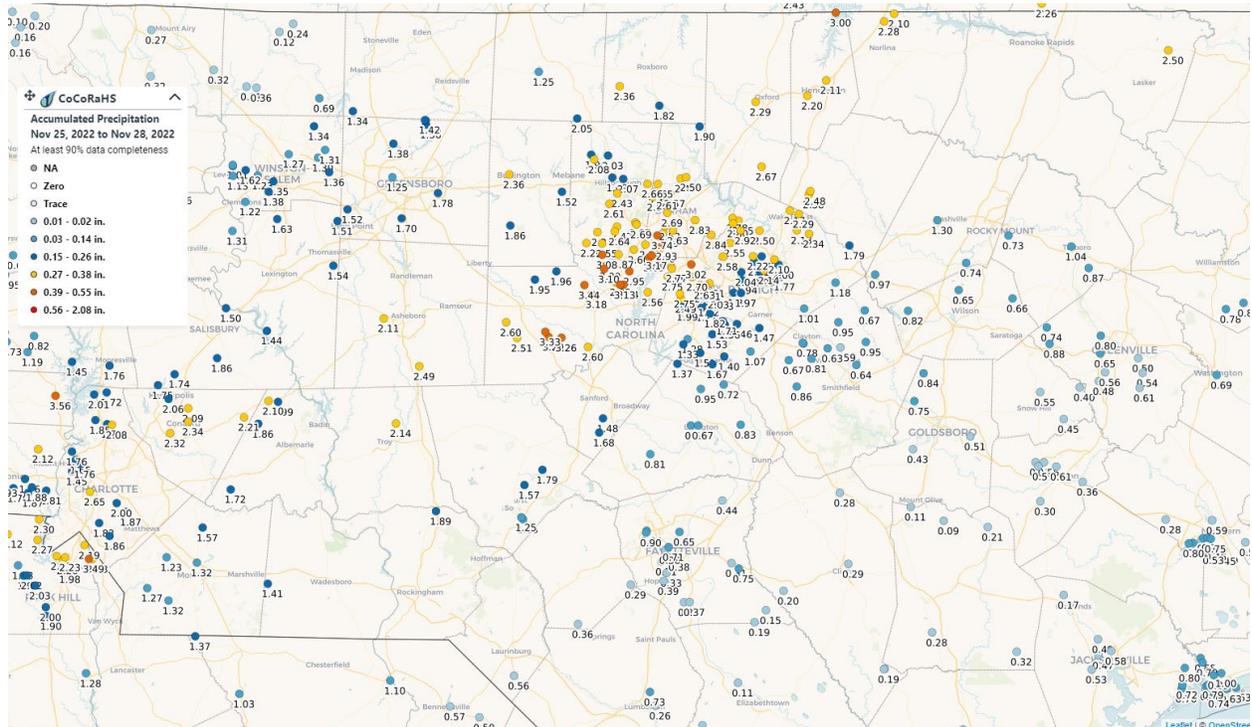
November 2022 Central NC Climate Summary

By Phillip Badgett and James Danco

November was warmer and mostly wetter than normal.

November 2022 brought several large rain events which included the remnants of Hurricane Nicole that tracked across far western NC. While 4 inches of rain fell over portions of the mountains with Nicole, rainfall amounts over central NC averaged 1 to 2 inches. Greensboro reported 1.98 inches. However, the heaviest rain across central NC fell later in the month on the weekend after Thanksgiving when a pair of frontal systems pushed slowly through the region. Figure 1 shows the total rain that fell during this period across central NC, according to CoCoRaHS reports. The heaviest rain fell on the 25th and 27th. A swath of 2 to 3 inches of rain fell on these days from Charlotte northeast through the Triangle Area, Henderson, and Roanoke Rapids. Raleigh had a daily record rainfall of 1.63 inches on the 25th. However, amounts fell off quickly to the southeast, with areas around Fayetteville, Clinton, and Goldsboro only getting a quarter to half an inch. This is significant because the heavy rain knocked back the lingering dry antecedent conditions over much of central NC, but the lower totals in the southeast part of the state kept the D0 and D1 drought status going there. The NC Climate Office's ECONet station in Clinton only measured 1.89 inches for the month, which made this fall its 5th-driest fall in the last 24 years.

Fig. 1: CoCoRaHS Total Rainfall across Central NC from November 25-28



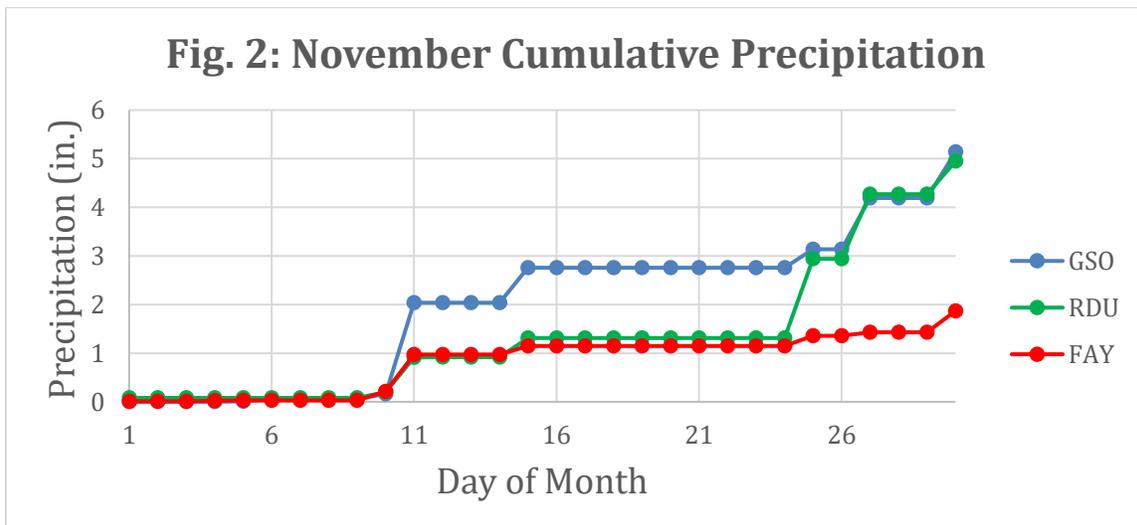
The monthly precipitation totals at the three climate sites are shown in Table 1. Greensboro and Raleigh both got around 5 inches, which was 1.5-2 inches wetter than normal. Greensboro tied for its 16th-wettest November with records going back to 1903, and Raleigh had its 18th-wettest November going back to 1887. However, Fayetteville got less than 2 inches for the month, which was over an inch drier than normal. According to preliminary data from NCEI, the whole state of NC had an average rainfall of 4.12 inches. This made it the 29th-wettest November since 1895.

Table 1: Monthly Precipitation Statistics

Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	5.14	+1.87	1.88 on 11/11
Raleigh-Durham (RDU)	4.95	+1.63	1.63 on 11/25
Fayetteville (FAY)	1.87	-1.17	0.76 on 11/11

Some of the cooperative station reports from around central NC in November 2022 included: Lexington 3.11 inches, Winston-Salem 4.66 inches, Mount Airy 4.41 inches, Danbury 5.33 inches, Yanceyville 4.14 inches, Eden 4.27 inches, Henderson 5.22 inches, Carthage 4.44 inches, Cary 5.21 inches, Raleigh (NCSU) 5.03 inches, Louisburg 4.44 inches, Apex 5.02 inches, Chapel Hill 6.22 inches, Jackson Springs 4.22 inches, Clayton 4.61 inches, Laurinburg 3.29 inches, Rocky Mount 3.42 inches, Tarboro 3.05 inches, and Clinton 3.44 inches.

The cumulative precipitation at the three climate sites for the month of November is shown in Figure 2. The dry first third of the month is evident, followed by the rain on the 10th and 11th from Nicole’s remnants and the heavy rain at the end of the month.



Radar-estimated precipitation and the radar-estimated precipitation departure from normal for the month are depicted in Figure 3. Much of the Piedmont from the Triangle north and west received at least 4 inches, with totals of 5-6+ inches across much of Chatham County and parts of Randolph, Moore, Alamance, and Orange counties. These totals were wetter than normal by as much as 2-3+ inches. However, the far south and east only received 1.5-3 inches, with the lowest totals around Sampson County. This was as much as 1-2 inches drier than normal.

Fig. 3: Radar-Estimated Monthly Precipitation (top) and Departure from Normal Precipitation (bottom)

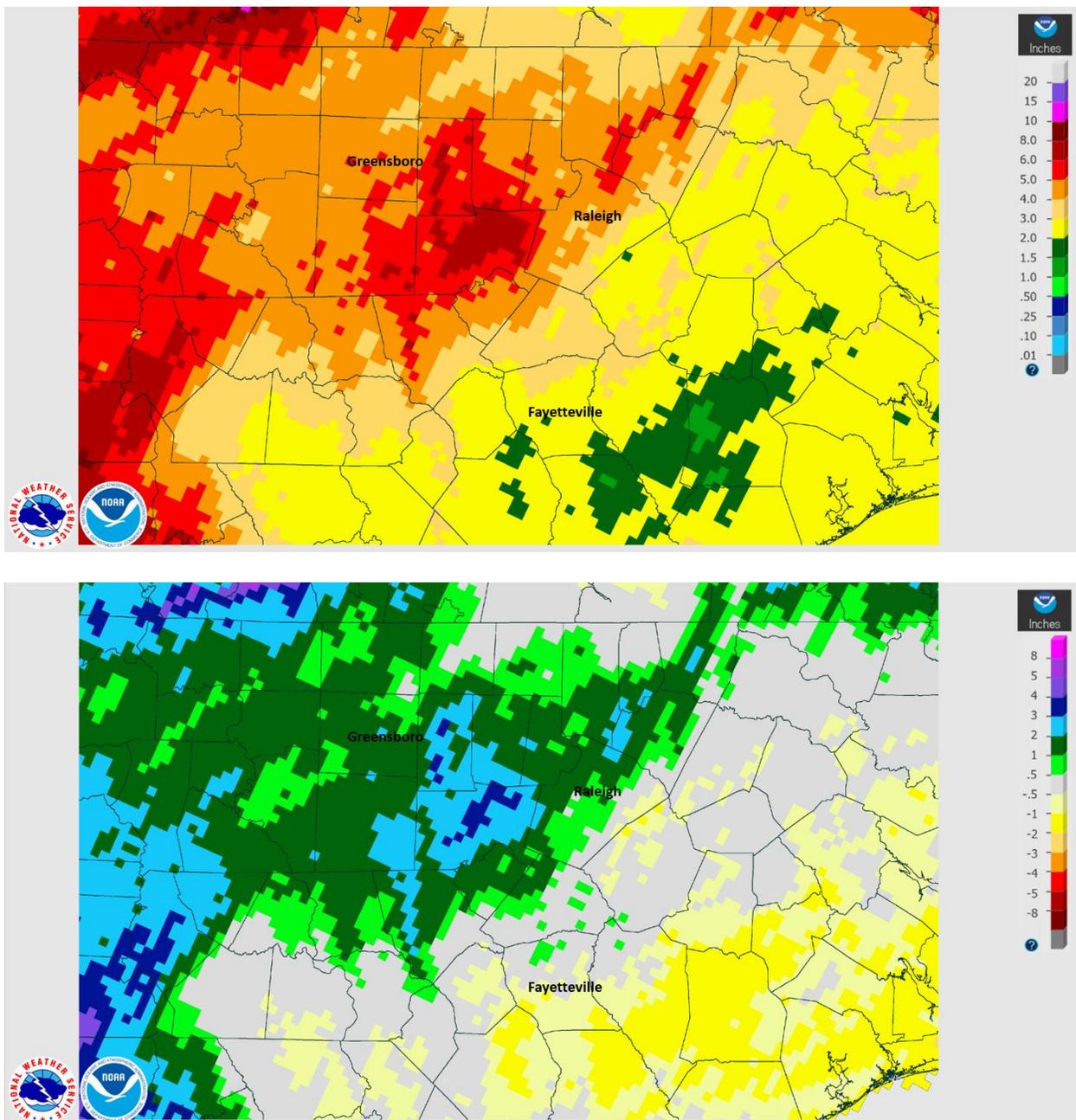
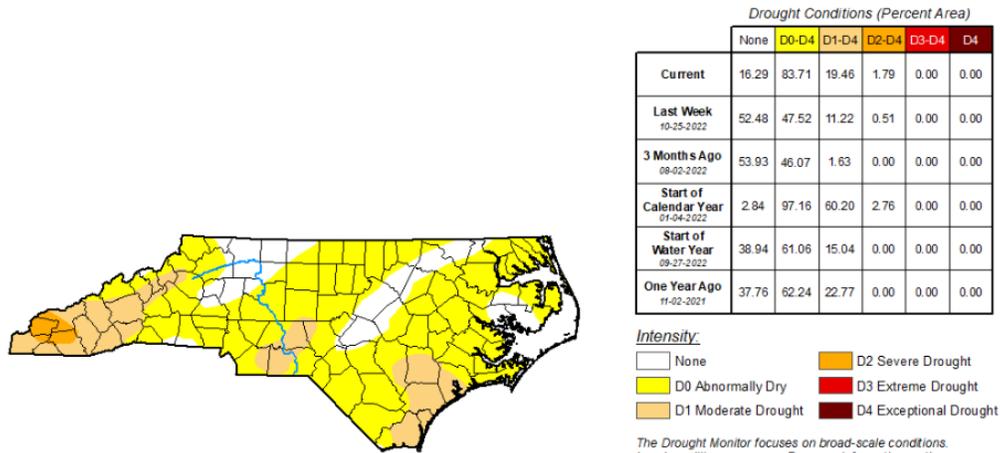


Figure 4 shows that most of the state, including the northern Piedmont, decreased in D0 (Abnormally Dry) conditions from the beginning to the end of the month. However, the drought conditions did not improve in the southern Piedmont and Coastal Plain. In fact, D1 (Moderate Drought) conditions in the southern Coastal Plain actually expanded due to the continued dryness there.

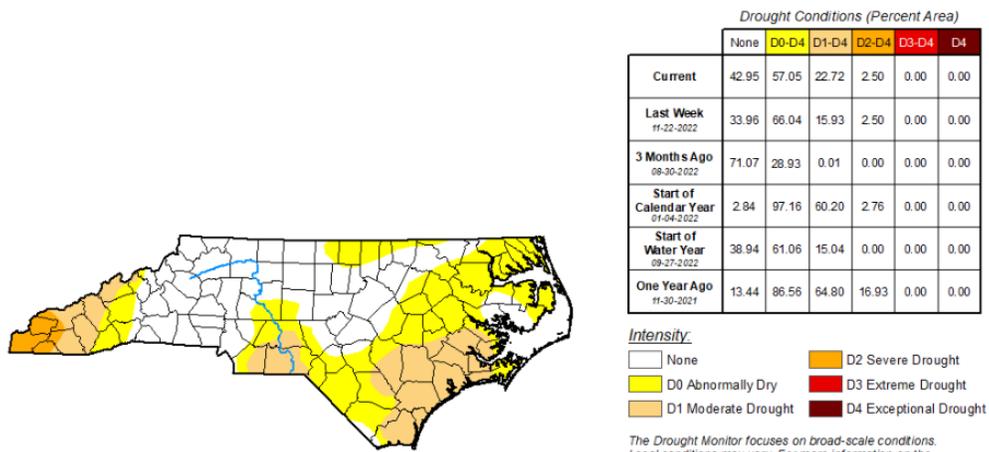
Fig. 4: U.S. Drought Monitor for NC on November 1 (top) and November 29 (bottom)



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droughtmonitor.unl.edu



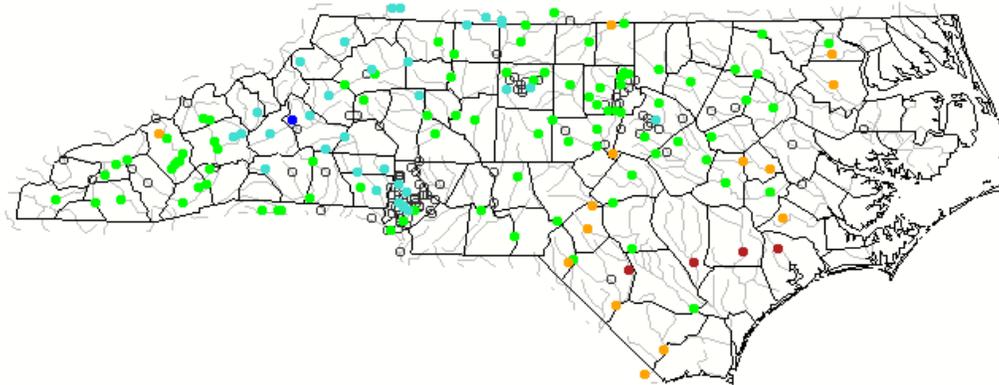
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As shown in Figure 5, the rainfall during November sent the streamflow in most basins to near normal across central NC. The notable exception was in the southeast, particularly the lower Cape Fear River basin where it dropped well below normal.

Fig. 5: Monthly Streamflow compared to Historical Streamflow for November 2022 in NC



Explanation - Percentile classes							
●	●	●	●	●	●	●	○
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

After a cool October, November’s temperatures turned warm, averaging 2-5°F above normal across central NC (Table 2). Raleigh reported its 5th-warmest November on record and the warmest November since 2003. Fayetteville tied with 2015 for its 8th-warmest November on record, with data kept since 1910. The preliminary monthly temperatures across the state of NC averaged 53.6°F according to NCEI, which ranked November 2022 as the 13th-warmest November in the past 128 years.

Table 2: Monthly Temperature Statistics

Site	Avg High Temp (°F)	Avg Low Temp (°F)	Avg Temp (°F)	Departure From Normal (°F)	Maximum Temperature (°F)	Minimum temperature (°F)
Greensboro (GSO)	62.6	41.9	52.2	+2.5	82 on 11/7	23 on 11/21
Raleigh-Durham (RDU)	67.0	45.1	56.1	+4.6	84 on 11/7	26 on 11/18 and 11/21
Fayetteville (FAY)	68.5	46.9	57.7	+4.1	86 on 11/7	26 on 11/21

The time series of daily temperature for the month at Greensboro, Raleigh, and Fayetteville can be found in Figure 6. There were several periods of warm days that ended up boosting the November averages. A southwest flow around the persistent high pressure located offshore sent temperatures soaring the first week of the month. Both Raleigh and Fayetteville tied their daily record high temperatures of 83°F and 85°F on November 6. Then all three climate sites had their warmest temperatures for the month on the 7th, when Greensboro reached 82°F, Raleigh reached 84°F, and Fayetteville hit 86°F. These all shattered the previous record highs for the day by 4°F at Greensboro and Raleigh and by 5°F at Fayetteville. In addition, according to the NC State Climate Office, the usual cool spot of Roxboro even hit 84°F on November 7, which was the warmest November day there since 1974. More record high and high minimum temperatures were set on the 11th and 12th. The full list of records can be found at the end of this report.

However, a strong cold front then sent temperatures tumbling on November 13 and 14, ushering in a cool period. Lows on November 14 fell into the upper-20s to mid-30s across central NC. High temperatures on the 14th and 15th were a good 30-40°F cooler than the monthly highs on the 7th, including just 40s in the western Piedmont. Raleigh fell to 31°F on November 14 for their first recorded freeze of the fall season. Low temperatures dipped into the lower-to-mid-20s on the 21st which were the coldest readings of the month at the three climate sites. Every day from the 13th to the 22nd was cooler than normal at all three climate sites, before temperatures rose back above normal again to close out the month. By month's end, the number of days that dipped at or below 32°F was 7 at both Raleigh and Greensboro, while Fayetteville had 4 such days.

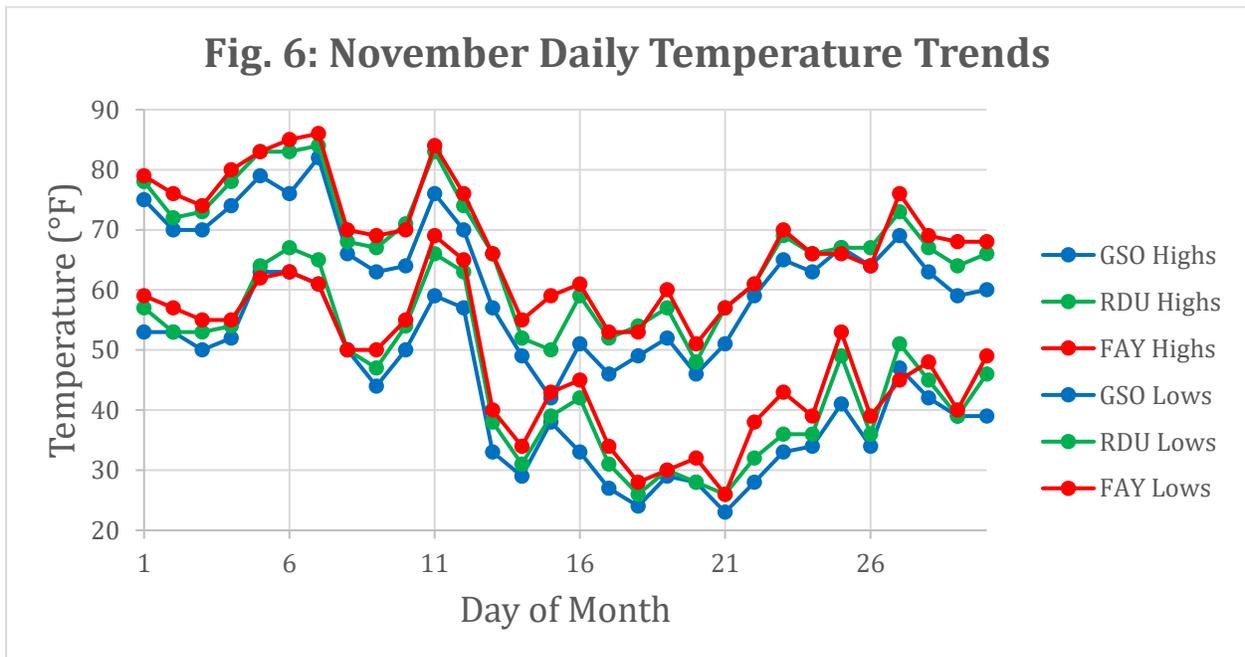
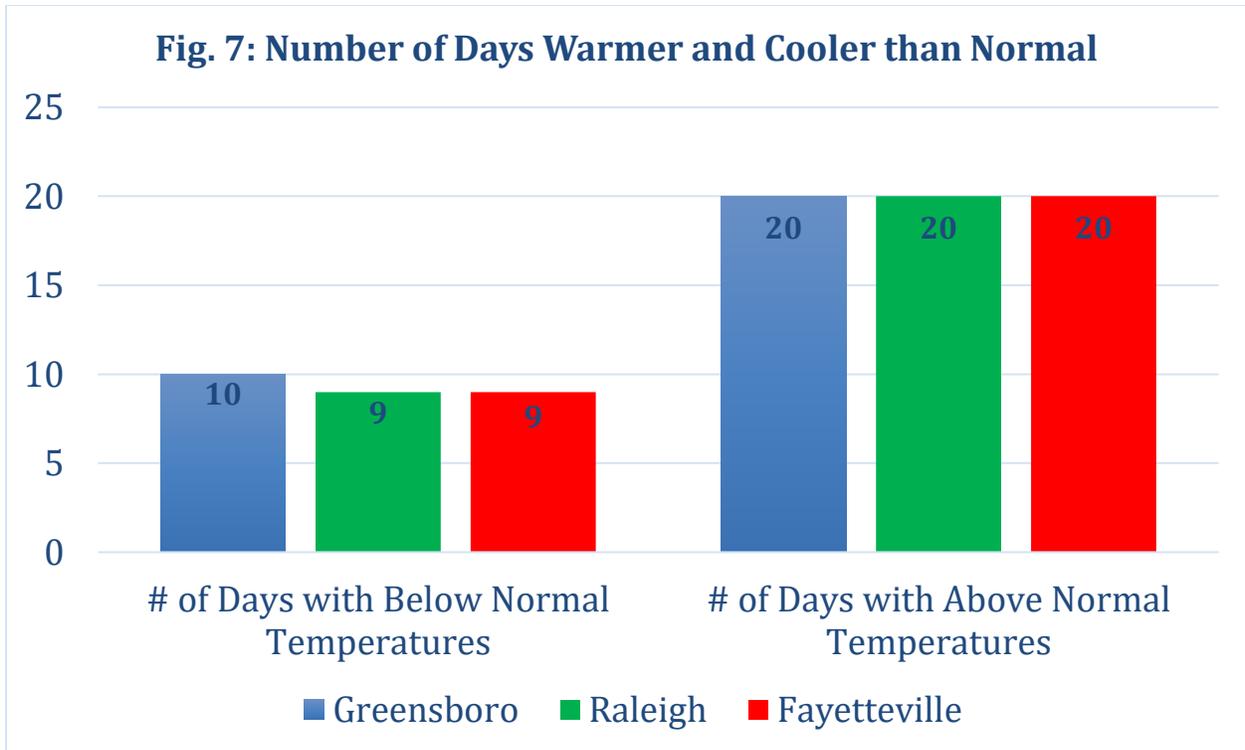


Figure 7 shows that two-thirds of days in the month of November were warmer than normal at all three climate sites.



Other notes:

Days with thunderstorms this month:

Greensboro: 0
 Raleigh: 1
 Fayetteville: 1

Days with dense fog (visibility of 1/4 mile or less):

Greensboro: 5
 Raleigh: 2
 Fayetteville: 1

Strongest wind gusts and direction:

Greensboro: SW (230 degrees) at 41 mph on November 11
 Raleigh: SW (240 degrees) at 49 mph on November 27
 Fayetteville: S (210 degrees) at 39 mph on November 27

Daily records:

Greensboro:

A record high temperature of 82°F was set on November 7. This broke the old record of 78°F set in 1938.

A record high minimum temperature of 61°F was tied on November 7. This record was previously set in 1938.

Raleigh:

A record high temperature of 83°F was tied on November 6. This record was previously set in 2003.

A record high minimum temperature of 67°F was set on November 6. This broke the old record of 65°F set in 2015.

A record high temperature of 84°F was set on November 7. This broke the old record of 80°F set in 2008.

A record high minimum temperature of 65°F was set on November 7. This broke the old record of 61°F set in 2003.

A record high temperature of 83°F was set on November 11. This broke the old record of 80°F set in 2006.

A record high minimum temperature of 63°F was set on November 12. This broke the old record of 62°F set in 1982.

A record rainfall of 1.63 inches was set on November 25. This broke the old record of 1.47 inches set in 1957.

Fayetteville:

A record high temperature of 85°F was tied on November 6. This record was previously set in 1961.

A record high temperature of 86°F was set on November 7. This broke the old record of 81°F set in 1975.

A record high minimum temperature of 69°F was tied on November 11. This record was previously set in 2020.

A record high minimum temperature of 65°F was set on November 12. This broke the old record of 64°F set in 2020.

Monthly records:

Greensboro.

None.

Raleigh.

November 2022 was the 5th-warmest November on record with a monthly average temperature of 56.1°F.

Fayetteville.

November 2022 was tied with November 2015 for the 8th-warmest November on record with a monthly average temperature of 57.7°F.