

# November 2023 Central NC Climate Summary

*By Phillip Badgett and James Danco*

## November turns cooler, but drought expands.

November had a wide range in temperatures from unseasonably warm days to some cold nights, which mostly cancelled each other out to make the average temperatures close to normal. However, one thing that was not typical for November was only one soaking rain event the entire month. The rest of the month was essentially dry, and this led to a rapid expansion and deepening of the drought conditions that started earlier in the fall.

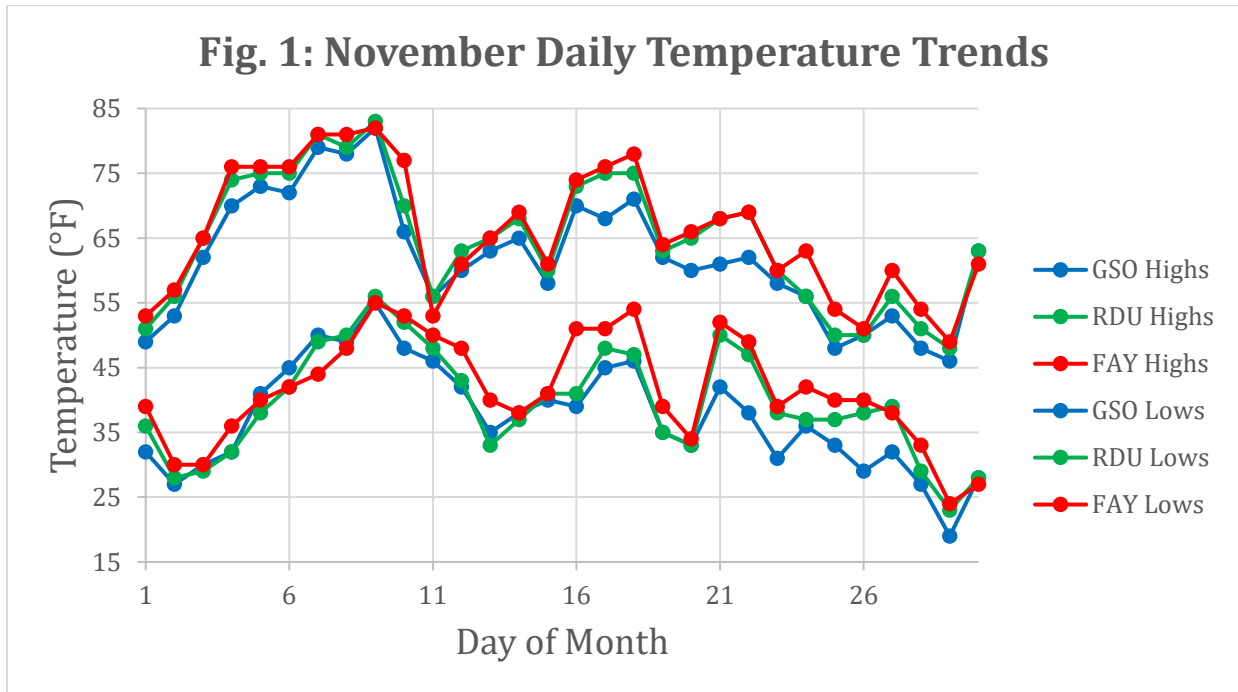
Looking first at temperatures, NCEI reported that the preliminary average temperature across the state of NC for the month was 50.3°F. This was the 50<sup>th</sup>-warmest November in the past 129 years, or about average for the last 30 years. Most of central NC finished the month with an average temperature that was within a half of a degree of normal. This was due to warm high temperatures (which averaged 1-2°F above normal at the three climate sites) and cool low temperatures (which averaged 0.5-1.5°F below normal). The temperatures fell to freezing or below a total of 10 times at Greensboro, 6 at Raleigh and 4 at Fayetteville. The monthly average temperatures and their departures from normal at the three climate sites are depicted in Table 1.

**Table 1: Monthly Temperature Statistics**

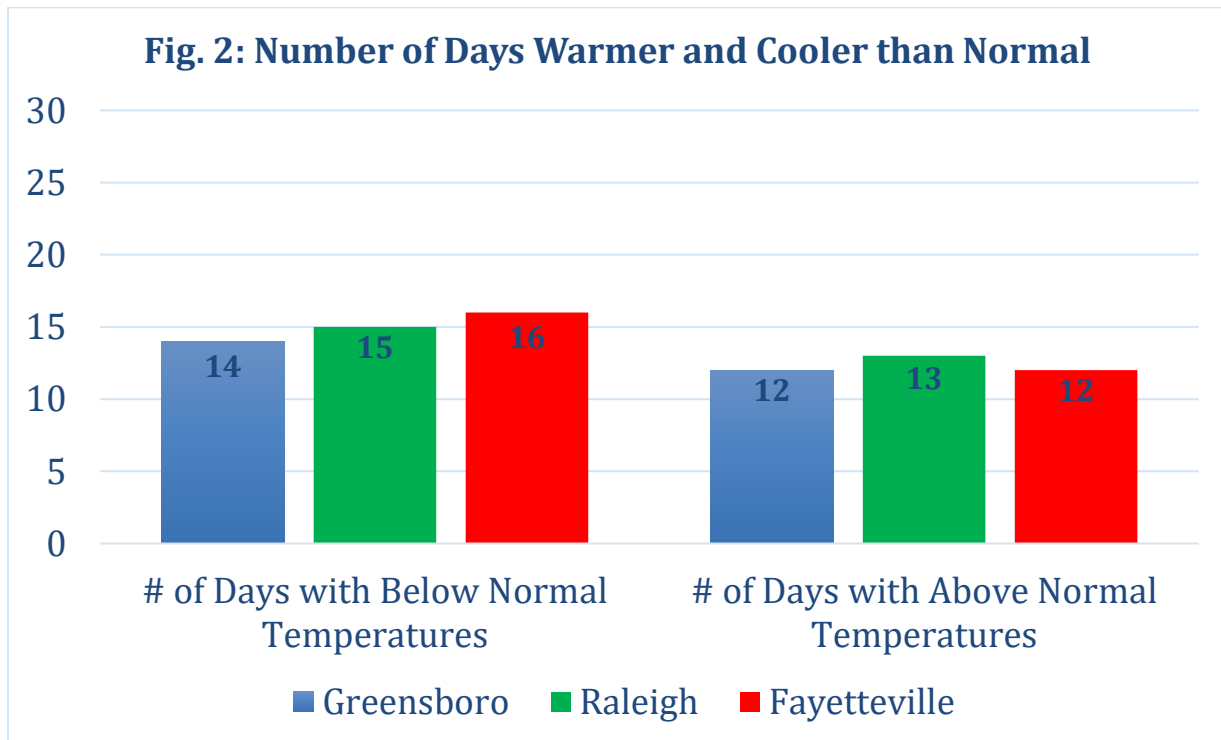
Site	Avg High Temp (°F)	Avg Low Temp (°F)	Avg Temp (°F)	Departure From Normal (°F)	Maximum Temperature (°F)	Minimum temperature (°F)
Greensboro (GSO)	62.1	37.4	49.8	+0.1	82 on 11/9	19 on 11/29
Raleigh-Durham (RDU)	64.8	39.5	52.1	+0.6	83 on 11/9	23 on 11/29
Fayetteville (FAY)	66.0	41.6	53.8	+0.2	82 on 11/9	24 on 11/29

The time series of daily temperature for November at Greensboro, Raleigh, and Fayetteville can be found in Figure 1. Diurnal temperature ranges were large, particularly in the beginning of the month when they were up to 30-40°F. The month started on a cool note, including the first widespread freeze of the season on November 2. This was quickly followed by a warm spell from the 5<sup>th</sup> through the 10<sup>th</sup>. The warmest temperatures of the month occurred on the 9<sup>th</sup> when Raleigh reached 83°F, and both Greensboro and Fayetteville hit 82°F. This tied daily record

highs at both Greensboro and Raleigh. The 19<sup>th</sup> through the 30<sup>th</sup> had mostly below-normal temperatures. The lowest temperatures recorded this month were on the 29<sup>th</sup> when all three climate sites dropped into the upper-teens to mid-20s. Outlying spots even reported some mid-teens.



As shown in Figure 2, there were only slightly more warmer-than-normal days in the month compared to cooler-than-normal days.



November began as October ended: dry. The first three weeks of the month brought little to no rainfall. From the 1<sup>st</sup> through the 20<sup>th</sup>, Greensboro only had 0.01 inches, Raleigh had just 0.02 inches, and Fayetteville had 0.28 inches. When including the dry streak that started on October 21, this meant that during the 31-day period from October 21 to November 20, Greensboro had just 0.05 inches, Raleigh 0.08 inches, and Fayetteville 0.28 inches. Finally, a strong low pressure system affected the state just before Thanksgiving and brought central NC 1-3 inches of much-needed rainfall, highest from Raleigh south and east.

However, since there were no other significant rain-producing systems during the month, November ended bone dry for the most part, especially across western NC. According to preliminary data from the NCEI, November 2023 was the 39<sup>th</sup>-driest November in 129 years across the state, with an average rainfall of only 2.10 inches. This made the 2023 meteorological autumn (September 1 through November 30) the 15<sup>th</sup>-driest on record for the state, with an average precipitation that was 5.72 inches below normal. Much of central NC did not fare any better. Besides that one event on the 21<sup>st</sup> and 22<sup>nd</sup>, Greensboro only received 0.05 inches for the entire rest of the month, while Raleigh only got 0.07 inches and Fayetteville 0.34 inches. Even including that storm, Greensboro and Raleigh were between 1.5 and 2 inches drier than normal, receiving less than half their normal rainfall. Fayetteville, however, was only 0.31 inches drier than normal. The November 2023 monthly precipitation totals are found in Table 2.

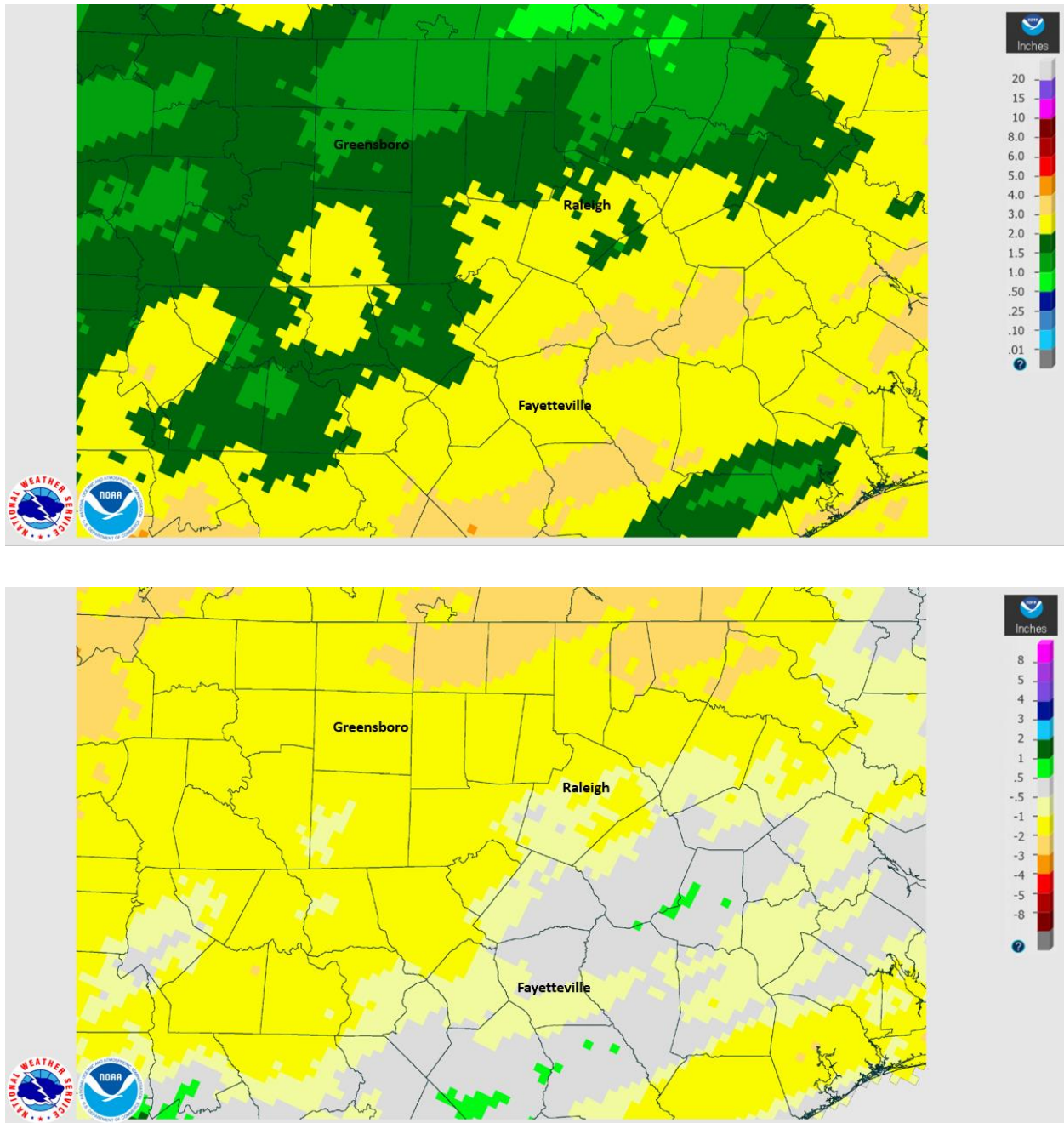
**Table 2: Monthly Precipitation Statistics**

Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	1.63	-1.64	1.46 on 11/21
Raleigh-Durham (RDU)	1.49	-1.83	0.91 on 11/22
Fayetteville (FAY)	2.73	-0.31	1.97 on 11/22

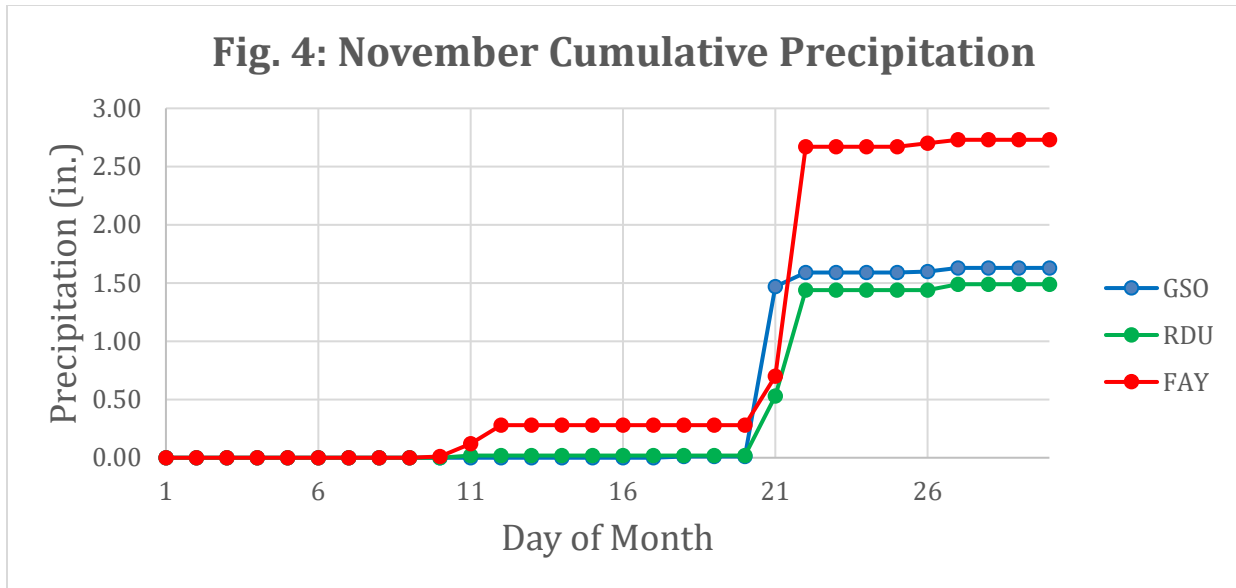
Some of the cooperative station rainfall reports from around central NC from November 2023: Sparta 2.06 inches (-2.49), Lexington 1.35 inches (-2.02), Winston-Salem 1.46 inches (-1.60), Burlington 1.81 inches (-1.46), Mount Airy 1.82 inches (-1.62), Danbury 1.68 inches (-1.39), Henderson 2.55 inches (-1.09), Cary 2.01 inches (-1.49), Raleigh (NCSU) 2.47 inches (-1.04), Louisburg 1.58 inches (-1.85), Apex 2.42 inches (-1.03), Laurinburg 2.93 inches (-0.31), Rocky Mount 1.95 inches (-1.14), Tarboro 2.29 inches (-1.19), and Clinton 3.23 inches (-0.21).

As displayed by the radar-estimated precipitation and the radar-estimated precipitation departure from normal in Figure 3, the final monthly totals across central NC ranged from just 1-2 inches across much of the northern/western Piedmont and northern Coastal Plain, which was 1-3 inches below normal. But across much of the Sandhills and central/southern Coastal Plain, 2-4 inches fell, which was near to only slightly below normal.

**Fig. 3: Radar-Estimated Monthly Precipitation and Precipitation Departure from Normal**

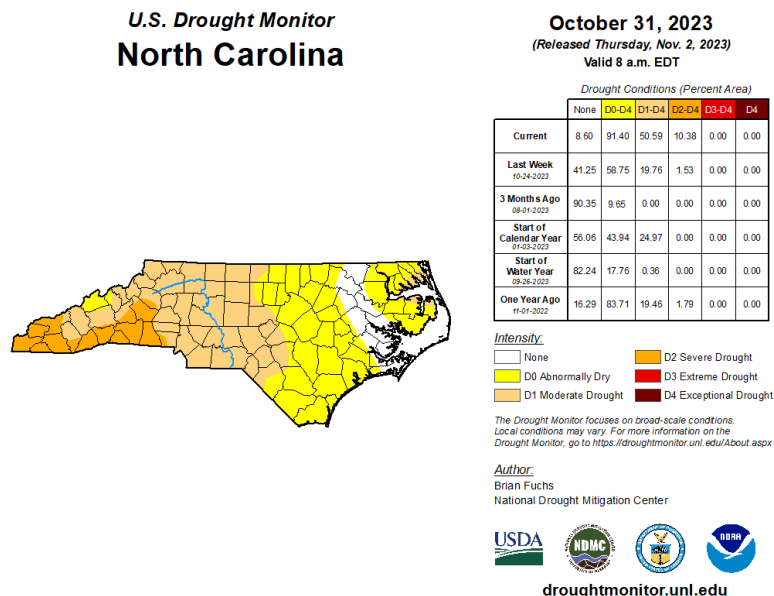


The cumulative precipitation at the three climate sites for the month of November is shown in Figure 4. It is clear how dry the month was other than the one event on the 21<sup>st</sup> and 22<sup>nd</sup>. Only 5 days in the entire month had anything measurable at all at Greensboro, while there were 4 such days at Raleigh and 7 at Fayetteville.



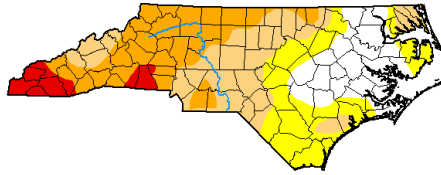
The much below normal rainfall this entire fall season has led to the rapid expansion and deepening of drought conditions. Note the October 31 and November 28 US Drought Monitor Maps for NC in Figure 5. For the first time anywhere in the state since March 2017, D3 (Extreme Drought) conditions spread into southwestern NC. D2 (Severe Drought) conditions overspread much of the rest of the Mountains and even parts of the western Piedmont. D1 (Moderate Drought) expanded to cover much of the Piedmont and western Sandhills. However, D0 (Abnormally Dry) conditions did diminish somewhat over much of the Coastal Plain where rainfall totals were closer to normal.

### Fig. 5: US Drought Monitor for NC on October 31 (top) and November 28 (bottom)



**U.S. Drought Monitor  
North Carolina**

**November 28, 2023**  
(Released Thursday, Nov. 30, 2023)  
Valid 7 a.m. EST



	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	20.04	79.96	57.90	31.37	5.62	0.00
Last Week 11-21-2023	6.33	93.67	73.91	45.72	8.84	0.00
3 Months Ago 09-29-2023	49.94	50.06	10.60	0.00	0.00	0.00
Start of Calendar Year 01-01-2023	56.06	43.94	24.97	0.00	0.00	0.00
Start of Water Year 09-26-2023	82.24	17.76	0.36	0.00	0.00	0.00
One Year Ago 11-29-2022	42.95	57.05	22.72	2.50	0.00	0.00

**Intensity:**  
 None  
 D0 Abnormally Dry  
 D1 Moderate Drought  
 D2 Severe Drought  
 D3 Extreme Drought  
 D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

## Other notes:

### Days with thunderstorms this month:

Greensboro: 0  
Raleigh: 0  
Fayetteville: 1

### Days with dense fog (visibility of ¼ mile or less):

Greensboro: 1  
Raleigh: 0  
Fayetteville: 0

### Strongest wind gusts and direction:

Greensboro: NW (300 degrees) at 35 mph on November 21 and NW (310 degrees) at 35 mph on November 28  
Raleigh: S (200 degrees) at 34 mph on November 22  
Fayetteville: N (010 degrees) at 35 mph on November 1

**Number of days with low temperatures at or below 32°F this month:**

Greensboro: 10

Raleigh: 6

Fayetteville: 4

**Daily records:**

**Greensboro:**

A daily record high temperature of 82°F was tied on November 9. This record was previously set in 1919.

**Raleigh:**

A daily record high temperature of 83°F was tied on November 9. This record was previously set in 2005.

**Fayetteville:**

None.

**Monthly records:**

**Greensboro:**

None.

**Raleigh:**

None.

**Fayetteville:**

None.