

November 2020 Central NC Climate Summary

By Phillip Badgett and James Danco

Yet another remnant tropical cyclone drenches NC in November.

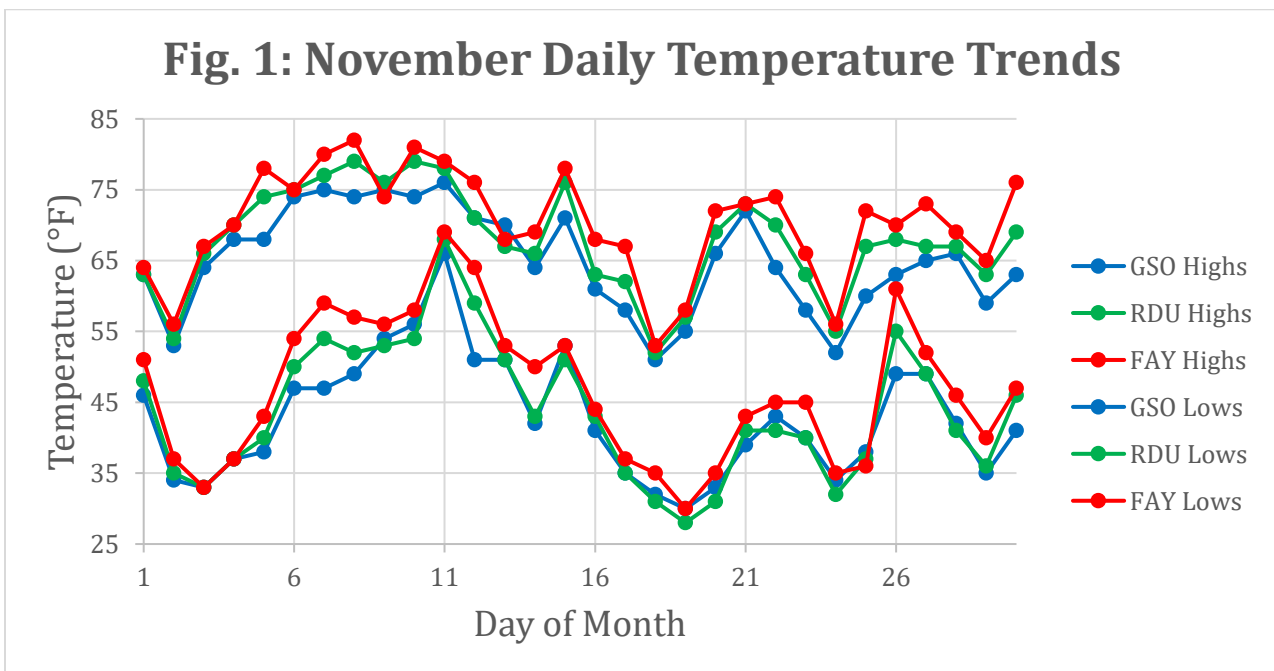
November is typically one of the driest months in Central NC, but it suddenly became excessively wet due to the remnants of Hurricane Eta on November 11 and 12. Earlier that month on November 1, Eta made history when it became the record-tying 28th named storm in the 2020 Atlantic hurricane season, then the fifth major hurricane of the season, before slamming into portions of Nicaragua and Honduras on November 3. Eta's peak sustained wind was 150 mph, making it the third most intense November hurricane ever recorded in the Atlantic basin. Eta rapidly weakened to a tropical depression as it meandered across Central America for two days before moving north over water. It later reorganized over the Caribbean as it accelerated toward Cuba on November 7. Over the next five days, the system moved erratically through the Florida Keys before stalling in the southern Gulf of Mexico. Eta briefly regained hurricane strength before making landfall near Cedar Key, Florida early on the 12th as a tropical storm. The system then weakened but accelerated north-northeast through the Carolinas and Virginia on November 12. The remnants combined with a cold front to produce very heavy rain over central NC on November 11 and 12. The two-day totals averaged 3 to locally 8 inches, with the maximums occurring over the Foothills, northwestern Piedmont, and Coastal Plain. Fayetteville received 5.53 inches. The remainder of the month brought drier conditions, but another cold front brought widespread showers during the last week of November. Bolstered by yet another remnant tropical cyclone, the North Carolina State Climate Office (NCSCO) reported a statewide average rainfall of nearly 6 inches. This made November 2020 the tenth-wettest November for North Carolina since 1895.

A ridge continued to persist just off the Southeast US coast in November, a pattern that continued from October. It was responsible for steering the remnants of Eta northward around its periphery across NC and for keeping the atmosphere warm and humid. The pattern did break down allowing a cold front to temporarily blow all the warmth out to sea. A chilly high pressure system rolled in from the northwest for a brief period November 18-20, when it turned cold enough for a widespread frost and freeze that ended the growing season for 2020. Otherwise, much-above-normal temperatures (by 3-5°F on average) prevailed across central NC. The NCSCO reported that November 2020 was North Carolina's third-warmest November on record, with a statewide average temperature of 55.2°F. The final temperature statistics for November 2020 in central NC are depicted in Table 1. Raleigh had a monthly average temperature of 55.8°F, which tied with 2001 as the fifth-warmest November on record. Greensboro recorded 54.0°F, making it the sixth-warmest November on record, and Fayetteville reported 58.6°F, which was the fifth warmest. The full monthly record information can be found in the records section at the end of this report.

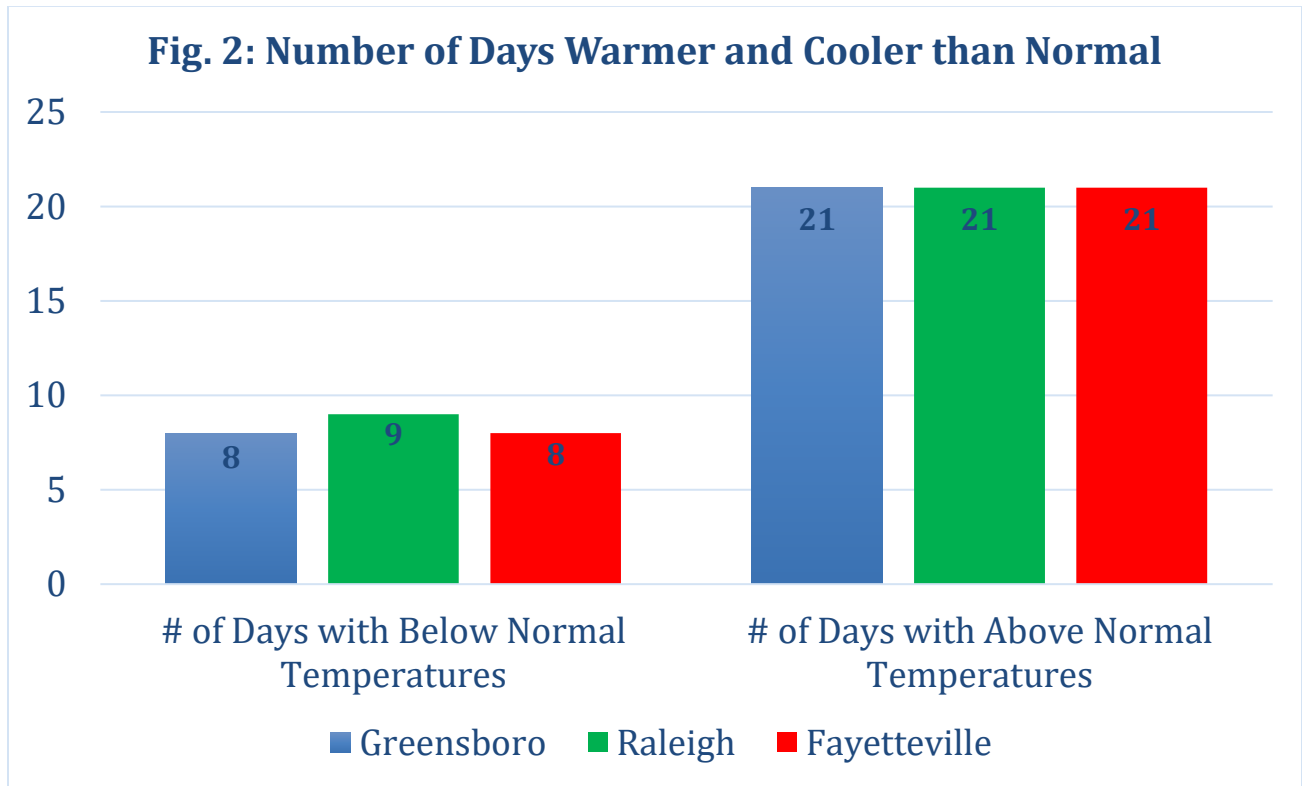
Table 1: Monthly Temperature Statistics

Site	Avg High Temp (°F)	Avg Low Temp (°F)	Avg Temp (°F)	Departure From Normal (°F)	Maximum Temperature (°F)	Minimum temperature (°F)
Greensboro (GSO)	65.1	42.8	54.0	+3.8	76 on 11/11	30 on 11/19
Raleigh-Durham (RDU)	67.9	43.8	55.8	+3.6	79 on 11/8 and 11/10	28 on 11/19
Fayetteville (FAY)	70.3	46.8	58.6	+3.9	82 on 11/8	30 on 11/19

The time series of daily temperature for the month at Greensboro, Raleigh, and Fayetteville can be found in Figure 1. Note the continued warm temperatures due to the persistent anomalous southerly flow, heavy rain events, and extensive clouds. There were only three brief cool downs, on November 1-4, November 17-20, and November 23-24. The warmest readings were found between November 6 and 15, when temperatures averaged as much as 15-20°F above normal. Lows were only in the mid-to-upper-60s on November 11, which set new high minimum temperature records at all three climate sites. The coldest temperatures of the month ended the growing season with a freeze on November 19. The first freeze of the season occurred later than normal at most sites. The number of lows of 32°F or lower were also below normal, with Raleigh having 4, Greensboro 2, and Fayetteville only 1.



As shown in Figure 2, 70% of the days in November at all three climate sites had average temperatures that were above normal.



The November 2020 monthly precipitation totals are found in Table 2. November continued the excessively wet trend of 2020 overall. The central NC statistics indicated the same wet trends as the state as a whole. Greensboro and Fayetteville both had their sixth-wettest Novembers on record, nearly 4 inches above normal.

Table 2: Monthly Precipitation Statistics

Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	6.68	+3.57	2.96 on 11/12
Raleigh-Durham (RDU)	5.29	+2.17	2.94 on 11/12
Fayetteville (FAY)	6.73	+3.96	2.84 on 11/11

Additional selected cooperative observations for the wetter areas in November 2020: Winston-Salem (Forsyth County) 7.68 inches (4.33 above normal), Lexington (Davidson County) 6.82 inches (3.41 above normal), Albemarle (Stanly County) 7.60 inches (4.24 above normal), North Wilkesboro (Wilkes County) 6.00 inches (2.51 above normal), Louisburg (Franklin County) 6.08 inches (2.83 above normal), Rocky Mount (Nash County) 11.69 inches (9.65 above normal), Clinton (Sampson County) 7.37 inches (3.12 above normal), Raleigh - NCSU 6.58 inches (3.40 above normal), and Randleman (Randolph County) 5.54 inches (2.10 above normal).

As displayed by the radar-estimated precipitation and its departure from normal in Figure 3, final monthly totals across central NC ranged from 3-4 inches in far SW and far NE areas to as much as 10-15 inches in parts of the Coastal Plain. The vast majority of the region had above-normal precipitation, by as much as 4-8 inches in the Coastal Plain (Figure 4).

Fig. 3: Radar-Estimated Monthly Precipitation

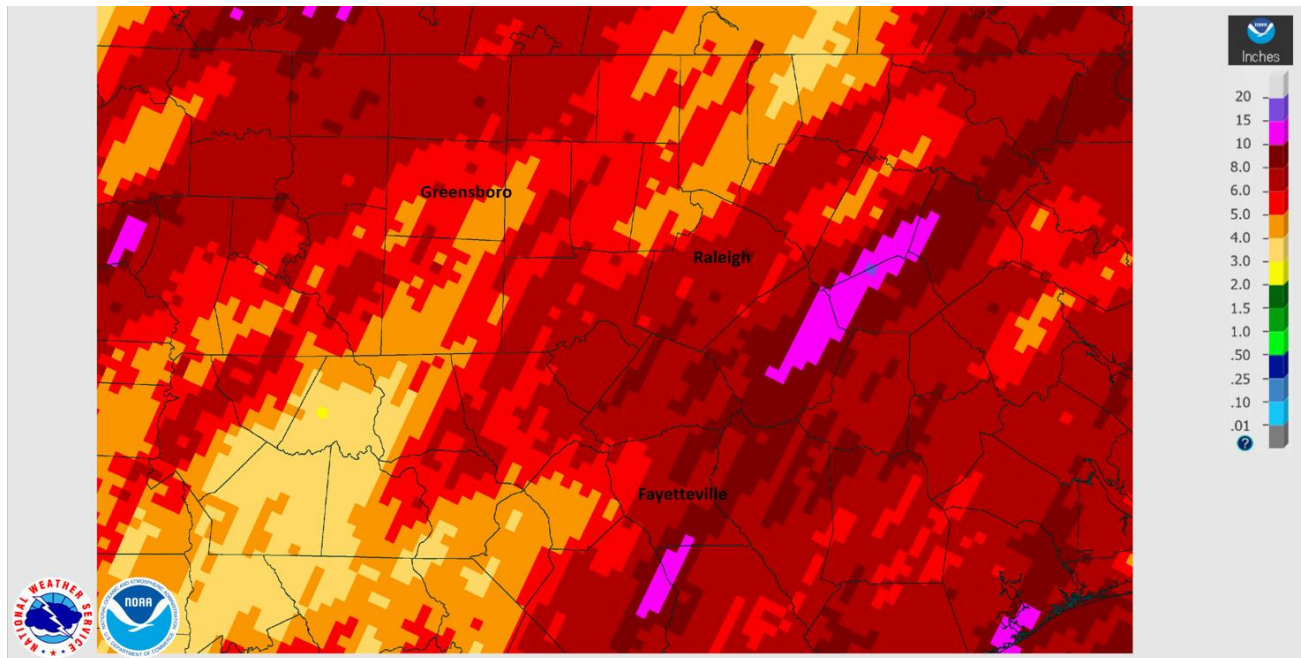
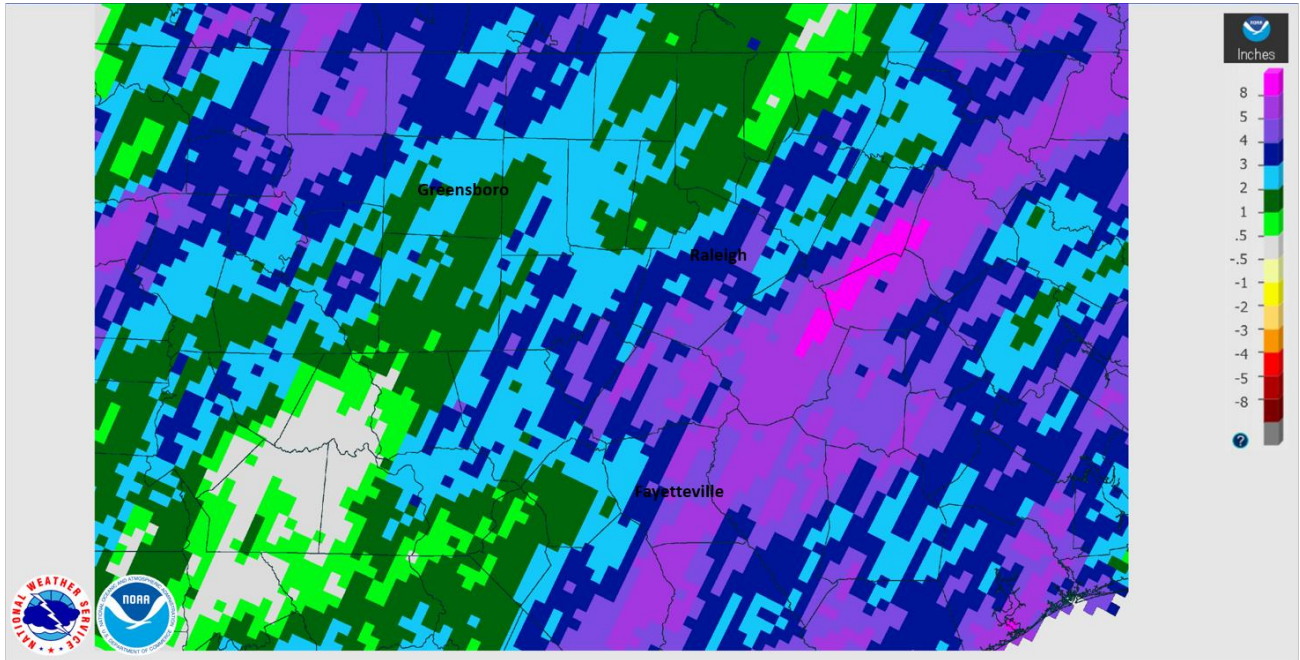
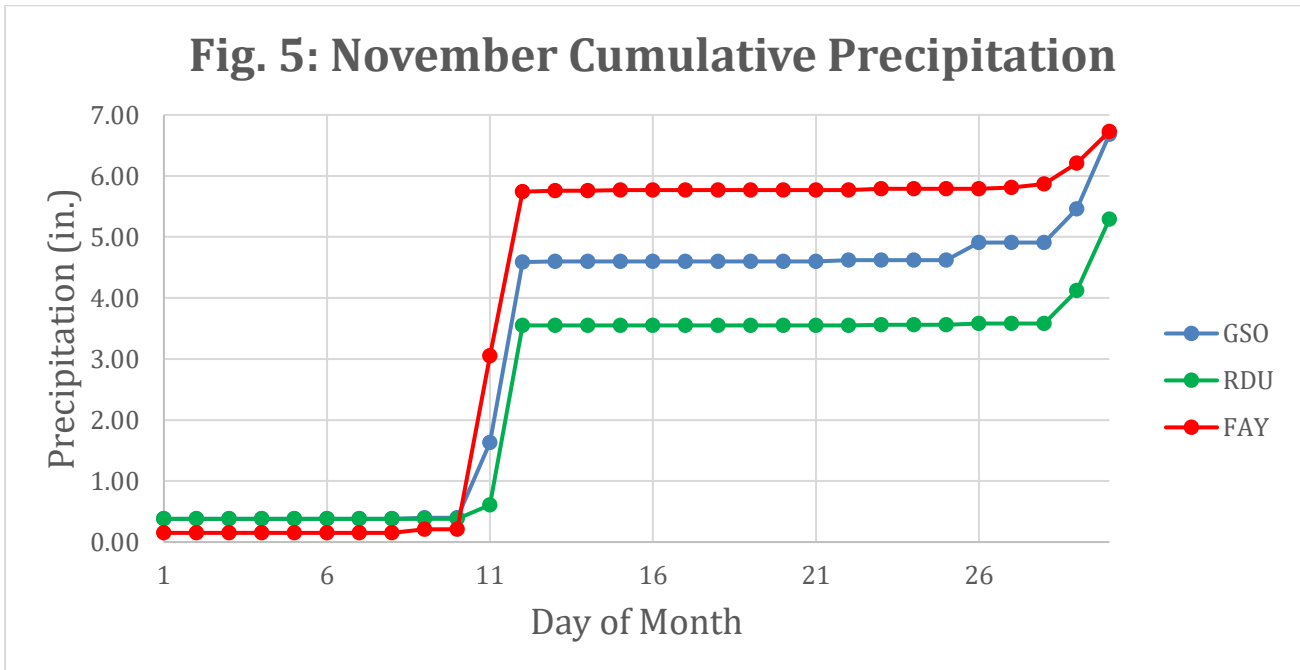


Fig. 4: Radar-Estimated Monthly Departure from Normal Precipitation



The cumulative precipitation at the three climate sites for the month of November is shown in Figure 5. The vast majority of the rain fell from the remnants of Hurricane Eta on the 11th and 12th. The only other significant precipitation occurred in the last two days of the month, with the whole rest of November being almost entirely dry.

Fig. 5: November Cumulative Precipitation



Other notes:

Strongest wind gusts and direction:

Greensboro: NW at 41 mph on November 2, and SW at 41 mph on November 15

Raleigh: SW at 43 mph on November 30

Fayetteville: SW at 41 mph on November 30

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

Greensboro: 2

Raleigh: 4

Fayetteville: 1

Monthly records:

November 2020 was the sixth-warmest November on record at Greensboro, with an average temperature of 54.0°F. The warmest November on record was 56.2°F in 1985.

2020 was the sixth-wettest November on record at Greensboro, with a total of 6.68 inches. The wettest November on record was 8.26 inches in 1985.

November 2020 tied for the fifth-warmest November on record at Raleigh, with an average temperature of 55.8°F. The warmest November on record was 58.3°F (tied) in 1985 and 1931.

November 2020 was the fifth-warmest November on record at Fayetteville, with an average temperature of 58.6°F. The warmest November on record was 61.2°F in 1985.

2020 was the sixth-wettest November on record at Fayetteville, with a total of 6.73 inches. The wettest November on record was 8.84 inches in 2006.

Daily records:

Greensboro set a daily high minimum temperature record of 66°F on November 11. The old record was 58°F in 2002.

Greensboro set a daily rainfall record of 2.96 inches on November 12. The old record was 2.46 inches in 2018.

Greensboro set a daily rainfall record of 1.22 inches on November 30. The old record was 0.95 inches in 2019.

Raleigh set a daily record high minimum temperature of 68°F on November 11. The old record was 64°F in 2002.

Fayetteville set a daily rainfall record of 2.84 inches on November 11. The old record was 2.41 inches in 2009.

Fayetteville set a daily record high minimum temperature of 69°F on November 11. The old record was 63°F in 2002.

Fayetteville set a daily rainfall record of 2.69 inches on November 12. The old record was 2.37 inches in 1947.

Fayetteville set a daily record high minimum temperature of 64°F on November 12. The old record was 59°F in 1970.

Fayetteville set a daily record high minimum temperature of 61°F on November 26. The old record was 60°F in 2001.