

# October 2020 Central NC Climate Summary

*By Phillip Badgett and James Danco*

Two more remnant tropical cyclones drench western NC in October.

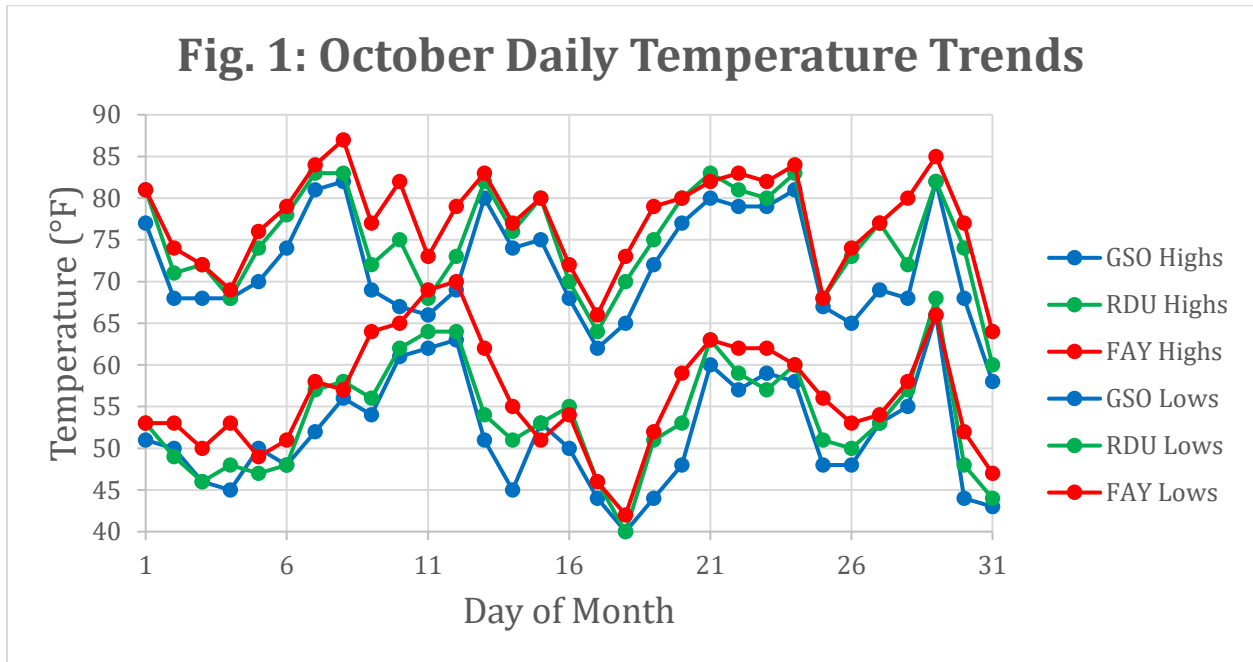
The remnants of Hurricane Delta, which made landfall over the Louisiana coast, moved NE along the Appalachians of western NC in mid-October. This system brought 2 to 4 inches of rain to the Blue Ridge and adjacent Foothills and Piedmont on the 10<sup>th</sup> and 11<sup>th</sup>. Yet another remnant tropical system, this one named Zeta, followed on Delta's heels. Zeta again drenched the same areas of western NC on October 28-29. Due to the quick movement across western NC, this system brought less rainfall than its predecessor, but it did bring strong to damaging wind gusts to the state, with gusts as high as 50+ mph. In addition to the two remnant tropical systems that drenched western and central NC, a strong upper-level trough and cold front brought heavy rain across portions of North Carolina on October 24 and 25.

Even with all the rain and clouds, temperatures during October were well above normal, with a ridge of high pressure remaining in place in the western Atlantic for much of the month. The flow around this upper-level ridge allowed the aforementioned remnant tropical systems to track northeast out of the Gulf of Mexico and along the Appalachians. The high pressure essentially protected the coastal sections of NC from the heavy rain and storminess. It also resulted in anomalously warm and moist southerly flow across NC, with the October nights generally averaging well above normal (by about 3-4°F). Daytime highs were above normal as well, but only by a degree or two. The monthly average temperatures and their departures from normal at the three climate sites are depicted in Table 1. Average temperatures were around 2-3°F above normal.

**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)	71.9	51.7	61.8	+2.3	82 on 10/8, 10/29	40 on 10/18
Raleigh-Durham (RDU)	75.1	53.7	64.4	+3.2	83 on 10/7, 10/8, 10/21, 10/24	40 on 10/18
Fayetteville (FAY)	77.4	56.3	66.9	+3.4	87 on 10/8	42 on 10/18

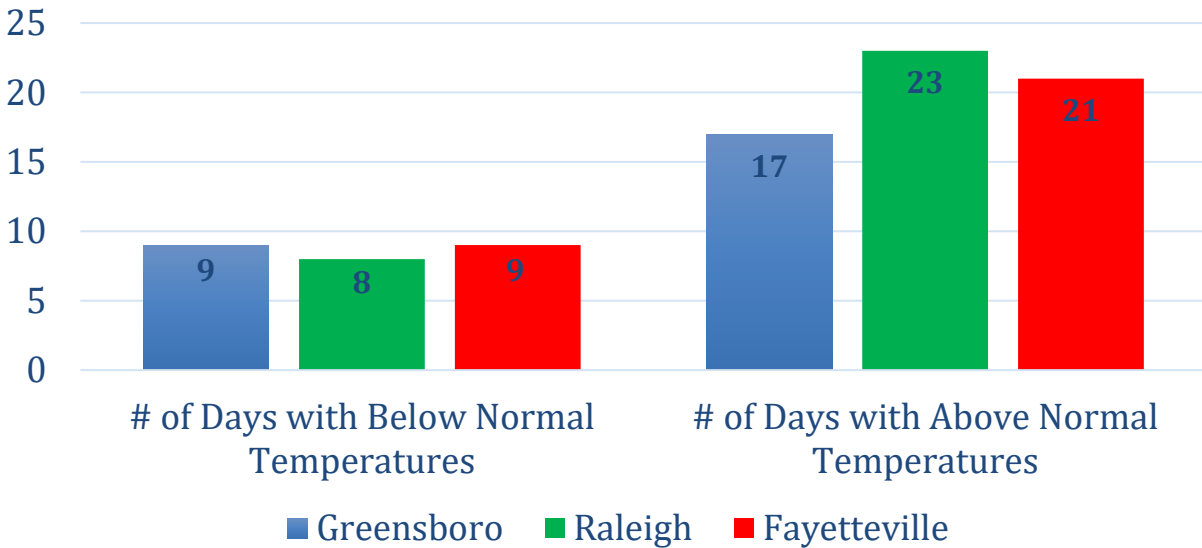
The time series of daily temperature for the month at Greensboro, Raleigh, and Fayetteville can be found in Figure 1. Note the warm temperatures at night, with many lows in the upper-50s and lower-60s, due to the extensive anomalous southerly flow, storminess, and nighttime clouds. The October nightly lows averaged 2.9°F above normal at GSO, 3.9°F above normal at RDU, and a whopping 4.3°F above normal at FAY. The coldest temperatures for the entire month were only 40°F at RDU and GSO, and 42°F at FAY. These lows for the month occurred on October 18 after a rare cold front had passed.



There were three distinct warm spells during October 2020. First, the period of 10/6 through 10/10, which had multiple days with highs in the 80s. Second, each day from 10/21 through 10/24 averaged 10+°F above normal at all three climate sites. And lastly, the period of 10/27 through 10/30, which included daily temperatures on the 29th averaging 15 to 20°F above normal. Both Raleigh and Greensboro set record high minimum temperature records on the 29<sup>th</sup>, and Fayetteville tied a record high maximum temperature. The full list of daily temperature records for the month can be found at the end of this report. Despite the warm temperatures, there were no more 90+°F days recorded in October. The total number of 90+°F days for all of 2020 can also be found at the end of this summary.

As shown in Figure 2, the majority of days in October were warmer than normal at all three climate sites.

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



There were several nights in October in which the wet ground combined with light wind and the longer nights to bring areas of dense fog. The fog was particularly dense on the morning of October 26, when visibilities were reduced to ¼ mile or less for much of central NC. This prompted a Dense Fog Advisory. According to statistics from the NC State Climate Office, RDU recorded 34 hours with fog during the month of October. This was the most of any month since December 2015, and it tied for the 11th most number of hours with fog in any month since 1997 (<https://climate.ncsu.edu/climateblog?id=326>).

October continued the wet trend of 2020 overall in northern and western portions of central NC, while precipitation was near to below average elsewhere. The October 2020 final monthly totals are found in Table 2. Greensboro was nearly 2 inches above normal, while both Raleigh and Fayetteville were slightly drier than normal.

**Table 2: Monthly Precipitation Statistics**

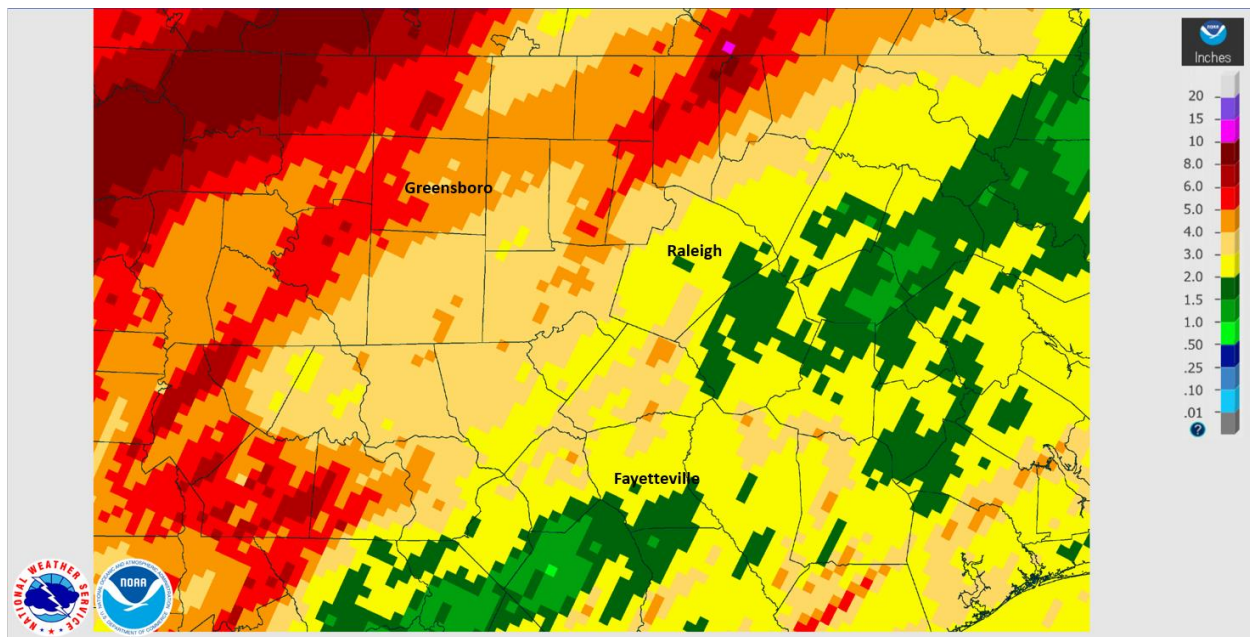
Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	5.02	+1.89	1.58 on 10/25
Raleigh-Durham (RDU)	2.74	-0.51	0.79 on 10/11, 10/16
Fayetteville (FAY)	1.84	-1.37	0.91 on 10/11

Additional selected cooperative observations for the wetter areas in October 2020: Winston-Salem (Forsyth County) 4.99 inches (0.58 inches above normal), Mount Airy (Surry County) 8.67 inches (5.35 above normal), Danbury (Stokes County) 6.63 inches (3.33 above normal), Reidsville (Rockingham County) 4.64 inches (1.19 above normal), and Roxboro (Person County) 4.10 inches (0.38 above normal).

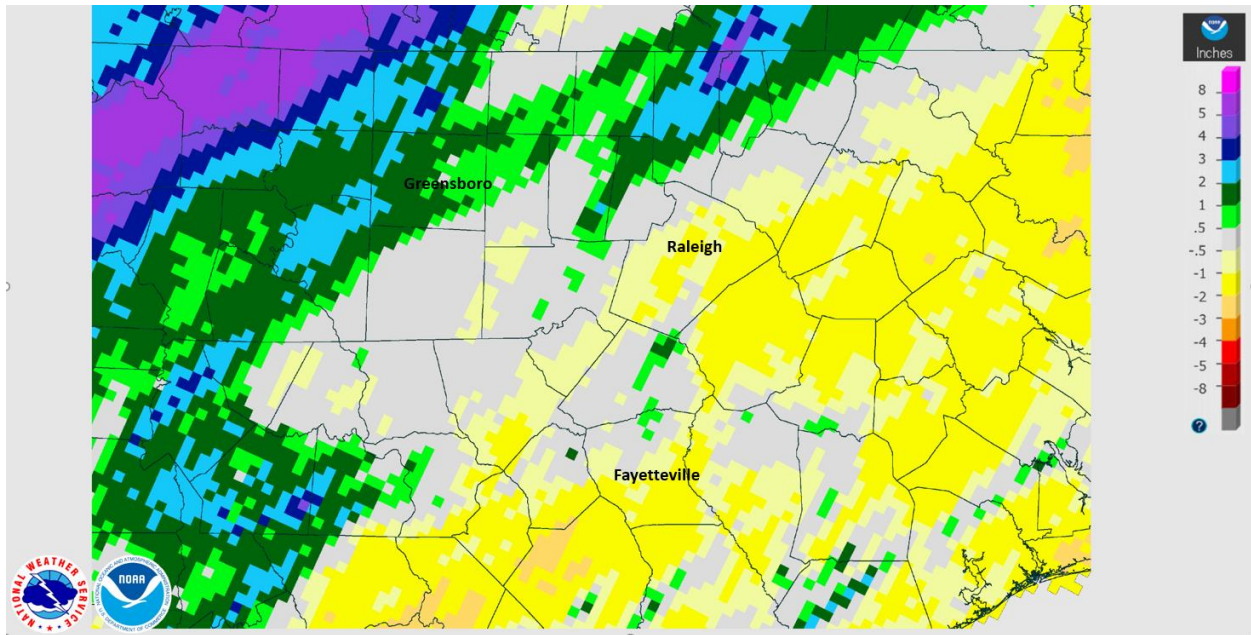
Some sites that were a bit drier than normal for October 2020 included: Raleigh (NCSU-Wake County) 2.33 inches (1.22 below normal), Apex (Wake County) 2.72 inches (0.78 below normal), Cary (Wake County) 2.41 inches (1.03 below normal), Louisburg (Franklin County) 2.19 inches (1.17 below normal), Rocky Mount (Nash County) 2.27 inches (0.82 below normal), Albemarle (Stanly County) 3.70 inches (0.09 below normal), and Jackson Springs (Montgomery County) 3.72 inches (0.43 below normal).

As displayed by the radar-estimated precipitation in Figures 3 and 4, final monthly totals ranged from around 4-6 inches (1-3 inches above normal) in parts of the far northern and western Piedmont to as little as 1-2 inches (1-2 inches below normal) in parts of the Coastal Plain and Sandhills.

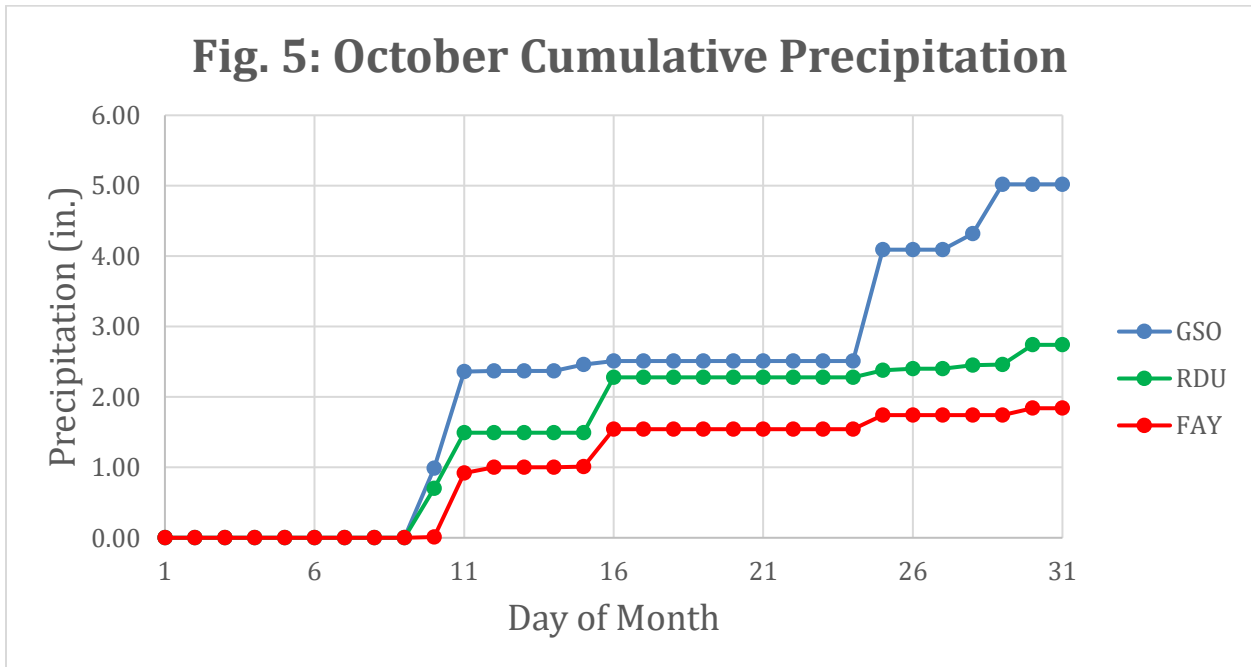
**Fig. 3: Radar-Estimated Monthly Precipitation**



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



The cumulative precipitation at the three climate sites for the month of October is shown in Figure 5.



## **Other notes:**

### **Strongest wind gusts and direction:**

Greensboro: S at 51 mph on October 29 (remnants of Zeta)

Raleigh: SW at 52 mph on October 29 (remnants of Zeta)

Fayetteville: S at 49 mph on September 29 (remnants of Zeta)

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

Greensboro: 0

Raleigh: 0

Fayetteville: 0

### **Number of days with high temperatures at or above 90°F this year:**

Greensboro: 29

Raleigh: 52

Fayetteville: 64

### **Monthly records:**

No monthly records of note were recorded in October 2020.

### **Daily records:**

Greensboro set a new daily record high minimum temperature of 66°F on October 29. This broke the old record of 64°F set in 1984.

Raleigh set a new daily record high minimum temperature of 68°F on October 29. This broke the old record of 66°F set in 1984.

Fayetteville tied a daily record maximum temperature of 85°F on October 29. This record was last set in 1927.