

June 2020 Central NC Climate Summary

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June 2020 featured plenty of sun and warm weather on either side of record cool and wet weather for the middle of the month.

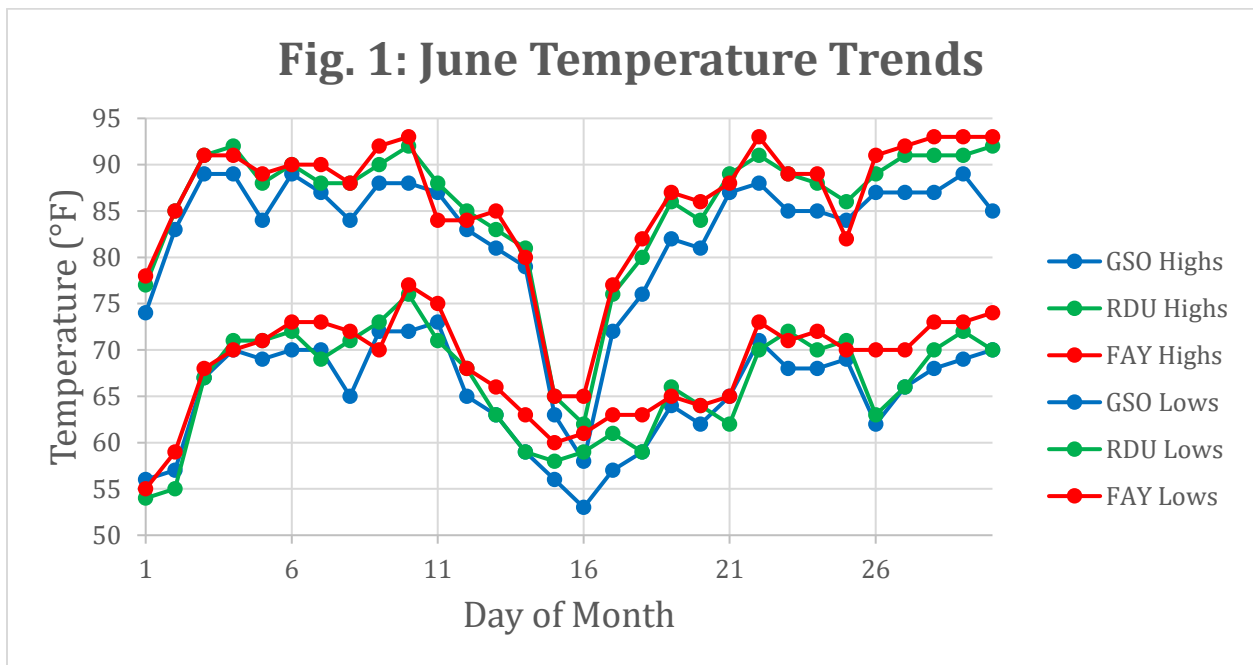
The summer season kicked off with plenty of sunny and dry days that extended well into the second week. Temperatures reached into the upper-80s and lower-90s with very little rainfall through June 14. However, the bottom fell out beginning June 15 as the rain came and the temperatures crashed. Highs stayed in the upper-50s to mid-60s on June 15-16, with 2 to 7 inches of rain common between June 15 and 22. This heavy rainfall led to flooding on many of the central NC rivers, including the Tar River at Rocky Mount. Per the NC State Climate Office data, these rains raised the Tar River at Rocky Mount to a **crest of 27.25 feet**, or over 6 feet above flood stage. That was the third-highest crest on record at that site, trailing only the heights following hurricanes Floyd and Matthew. As is typical with summer, hot temperatures returned for the last week of the month when readings slowly recovered into the mid-80s to lower-90s.

High pressure aloft brought the relatively hot and dry conditions to begin June. Highs reached into the lower-90s for many areas in central NC including Raleigh and Fayetteville. The development of an anomalous upper level “cut off” low pressure system over the Tennessee Valley to the Mid-Atlantic states by mid-month brought summer to a screeching halt. Daily temperature departures went from 5 to 10 degrees above normal to 15 to 20 degrees below normal during this time. Temperatures slowly recovered later in the month as the upper level system weakened and the rain and cloudiness subsided. When all was said and done, the monthly temperatures and precipitation turned out to be slightly below normal across most of central NC. The monthly average temperatures and their departures from normal at the three climate sites are depicted in Table 1. Several record cool and wet records were set this month. The monthly record information can be found in the records section at the end of this report.

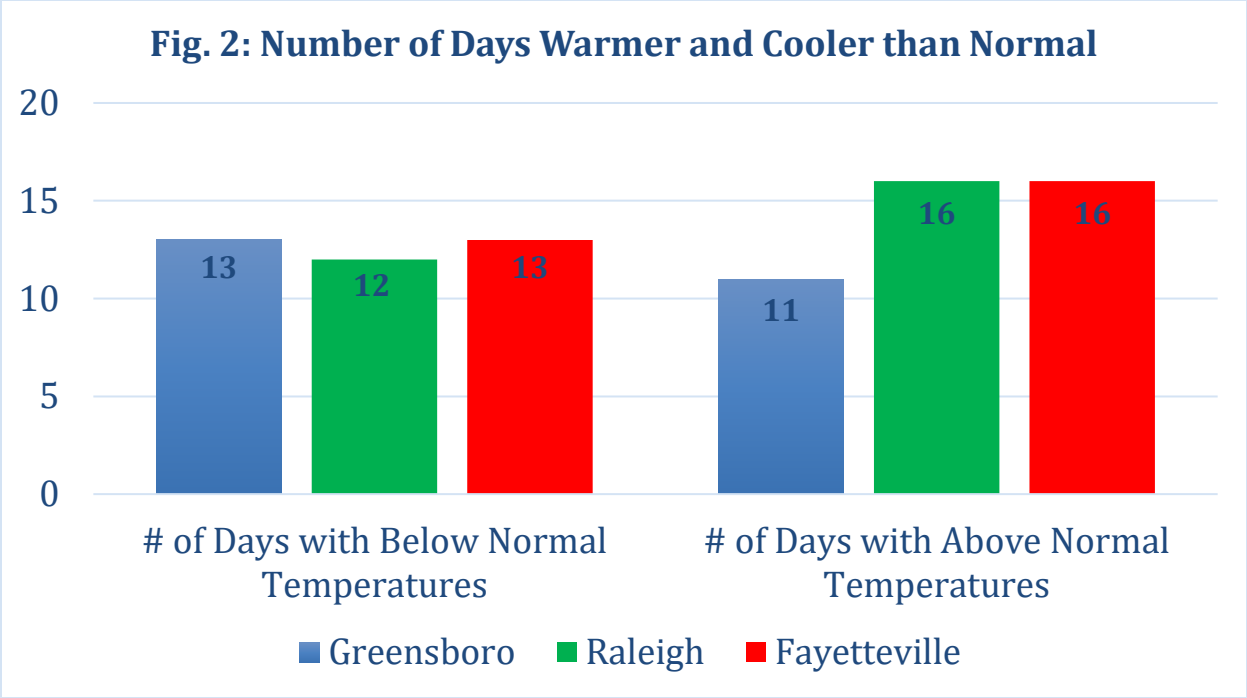
Table 1: Monthly Temperature Statistics

Site	Avg High Temp (°F)	Avg Low Temp (°F)	Avg Temp (°F)	Departure from Normal (°F)	Maximum Temperature (°F)	Minimum temperature (°F)
Greensboro (GSO)	82.7	65.2	73.9	-1.2	89 on 6/3, 6/4, 6/6, 6/29	53 on 6/16
Raleigh-Durham (RDU)	85.6	66.4	76.0	-0.4	92 on 6/4, 6/10, 6/30	54 on 6/1
Fayetteville (FAY)	86.2	68.2	77.2	-1.0	93 on 6/10, 6/22, 6/28, 6/29, 6/30	55 on 6/1

The time series of daily temperature for the month at Greensboro, Raleigh, and Fayetteville can be found in Figure 1. Note the warm beginning, very cool middle, and warm end of the month at all sites. The initial cold front dropped south through the state June 11-12. A strong high pressure system over SE Canada and the Great Lakes states then built down the Eastern Seaboard into the Carolinas June 14-17. This unusually strong high pressure for summer combined with the upper level system to bring widespread rain, cloudiness, NE winds, and chilly temperatures to NC. This cold air damming (CAD) pattern sent temperatures plummeting, with much of central NC staying in the upper-50s to mid-60s on June 15 and 16. These highs generally ranged between 20°F and 30°F below normal. Greensboro recorded a high of only 58°F on June 16, which broke the daily record low maximum temperature for the date. Raleigh recorded high temperatures of only 65°F on June 15 and 62°F on June 16, the latter also setting a new record low maximum temperature for the date. Furthermore, Greensboro did not record a single day with a high temperature of 90°F or higher during the entire month of June. This resulted in 2020 having the 9th-latest occurrence of the first 90°F day at Greensboro dating back to 1903 (data per the NC State Climate Office).



As shown in Figure 2, the wild temperature swings during the month of June cancelled out to result in close to equal numbers of days with above and below normal temperatures at all three climate sites.



Rainfall during the first half of June was very limited due to high pressure dominating. The rain and chilly weather set in at the middle of the month as the cutoff low pressure and CAD event took hold. Rainfall totals during the third week of the month averaged between 2.5 and 7 inches. Fayetteville tallied 6.75 inches between June 15 and 22, while Rocky Mount totaled 6 inches. Some of the cooperative observations between June 15 and 22 included: 6.42 inches in Louisburg (Franklin County), 5.70 inches in Carthage (Moore County), and 3.27 inches in Clinton (Sampson County). To the north and west, totals were not as impressive. However, it was still a wet week. Raleigh-Durham Airport reported 2.19 inches, Albemarle (Stanly County) totaled 2.56 inches, and Winston-Salem (Forsyth County) tallied 1.96 inches. This rainfall turned out to be beneficial as drier conditions prevailed the last week of the month. The final monthly precipitation totals are found in Table 2. Raleigh and Greensboro were slightly drier than normal, while Fayetteville was 3.61 inches above normal.

As displayed by the radar-estimated precipitation in Figure 3, final monthly totals were quite variable and generally in the 2 to 10 inch range across central NC, lowest in the western Piedmont and highest in the NE Piedmont, Coastal Plain, and Sandhills. The driest spots were about 1 to 2 inches below normal while the wettest spots were as much as 5+ inches above normal (Figure 4).

Fig. 3: Radar-Estimated Monthly Precipitation

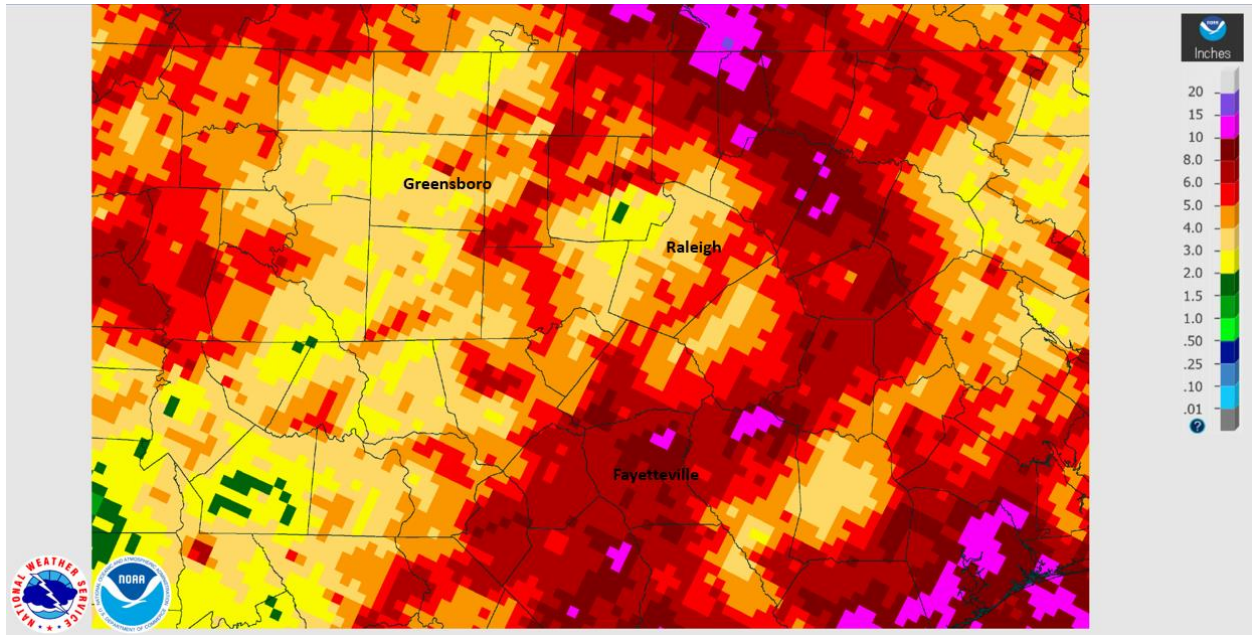


Fig. 4: Radar-Estimated Monthly Departure from Normal Precipitation

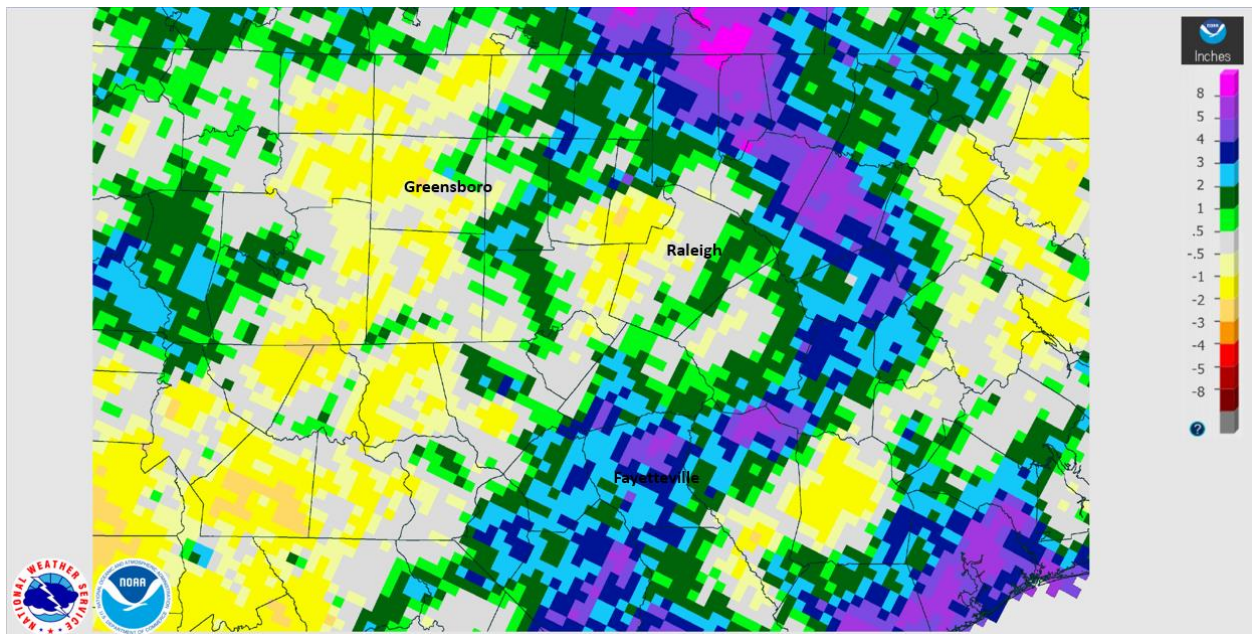
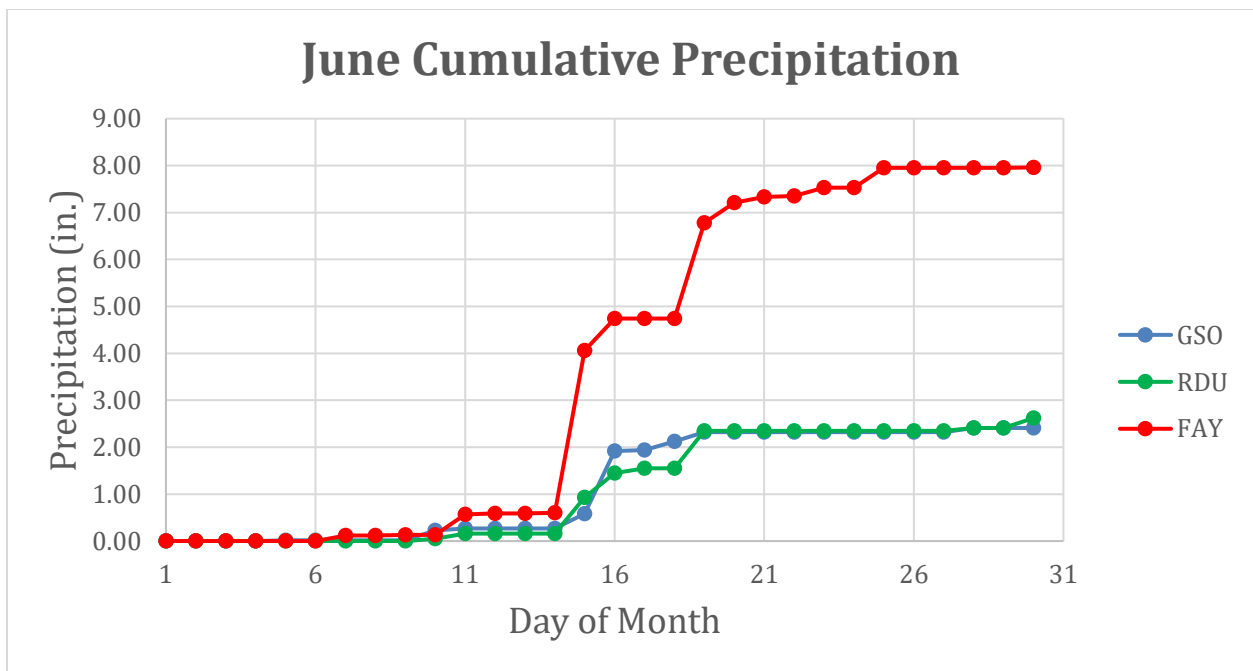


Table 2: Monthly Precipitation Statistics

Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	2.41	-1.32	1.34 on 6/16
Raleigh-Durham (RDU)	2.62	-0.90	0.80 on 6/19
Fayetteville (FAY)	7.96	+3.61	3.46 on 6/15

The cumulative precipitation at the three climate sites for the month of June is shown in Figure 3. The very dry beginning, wet middle, and dry end of the month are clear.



Other notes:

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

Greensboro: 0 (9th-latest time to hit 90°F since 1903 - hit 90 on July 1, 2020)

Raleigh: 10

Fayetteville: 12

Strongest wind gusts and direction:

Greensboro: SW at 30 mph on June 10

Raleigh: W at 35 mph on June 20

Fayetteville: SW at 39 mph on June 22

Records:**Monthly records included:**

Greensboro had zero 90°F days in June 2020. They failed to reach 90°F through June 30 for only the 9th time since 1903.

Daily records included:

Greensboro tied a daily record high minimum temperature of 72°F on June 9. This tied the old record set in 2008.

Greensboro recorded a new daily record low maximum temperature of 63°F on June 15. This broke the record of 64°F set in 1965.

Greensboro recorded a new daily record low maximum temperature of 58°F on June 16. This broke the old record of 62°F set in 1965.

Raleigh set a daily record high minimum temperature of 76°F on June 10. This broke the old record of 74°F set in 2010.

Raleigh tied a daily record low maximum temperature of 62°F on June 16. This tied the old record set in 1965.

Fayetteville recorded a daily high minimum temperature of 77°F on June 10. This broke the old record of 76°F set in 1993.

Fayetteville recorded a new daily rainfall record of 3.46 inches on June 15. The old record was 1.87 set in 1912.

Fayetteville recorded a new daily record low maximum temperature of 65°F set on June 15. This broke the old record of 75°F set in 1927.

Fayetteville recorded a new daily record low maximum temperature of 65°F set on June 16. This broke the old record of 70°F set in 1948.

Fayetteville recorded a new daily rainfall record of 2.04 inches on June 19. The old record was 1.13 inches set in 2015.