

June 2022 Central NC Climate Summary

By Phillip Badgett and James Danco

June 2022 was hot and very dry.

June turned much drier than normal over central North Carolina. The widespread rain events of May became scattered showers in June. There were only a few periods that could be considered beneficial rain days. Those days were generally focused around cold frontal passages on June 2-3, June 16-17, and June 27-29. A line of storms with gusty winds did move through the region on June 17, which caused nearly a quarter million power outages across the state, but they were so fast moving that they only dropped less than half an inch of rain. By month's end, rainfall totals were generally around 25% to 50% of average for most of central NC. All three climate sites were 2-3 inches drier than normal. Greensboro had its 17th-driest June on record, while Raleigh had its 15th-driest and Fayetteville had its 19th-driest. In fact, June was so dry that according to preliminary data from NCEI, the statewide average precipitation only totaled 1.61 inches. This made it the 2nd-driest June since records began in 1895 and the driest June since 1990. Other cooperative station reports from around central NC included: Wadesboro 1.92 inches, Lexington 0.57 inches, Pfafftown 1.17 inches, Winston-Salem 0.92 inches, Asheboro 2.48 inches, Albemarle 2.96 inches, Mount Airy 2.20 inches, Henderson 1.71 inches, Falls Lake 2.12 inches, Cary 1.81 inches, Raleigh NCSU 1.84 inches, Apex 2.40 inches, Chapel Hill 2.61 inches, Siler City 0.84 inches, Jackson Springs 2.90 inches, Clayton 1.68 inches, Smithfield 0.62 inches, Rocky Mount 0.79 inches, Clinton 2.47 inches, and Tarboro 0.86 inches. The 0.86 inches at Tarboro made this the 3rd-driest June there in the past 130 years, according to the NC State Climate Office. The June 2022 monthly precipitation totals at the three climate sites are found in Table 1.

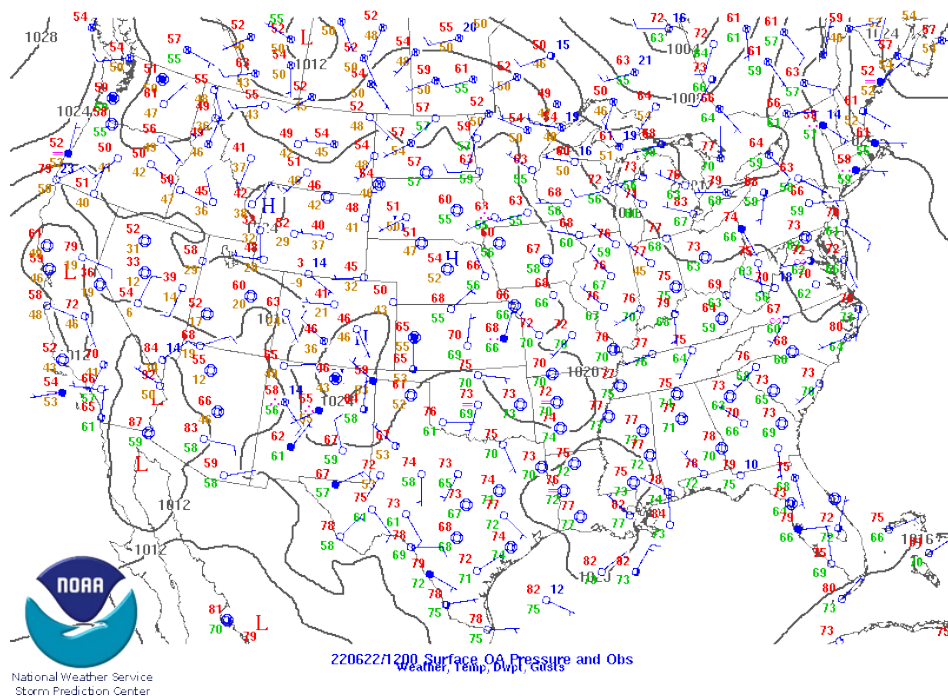
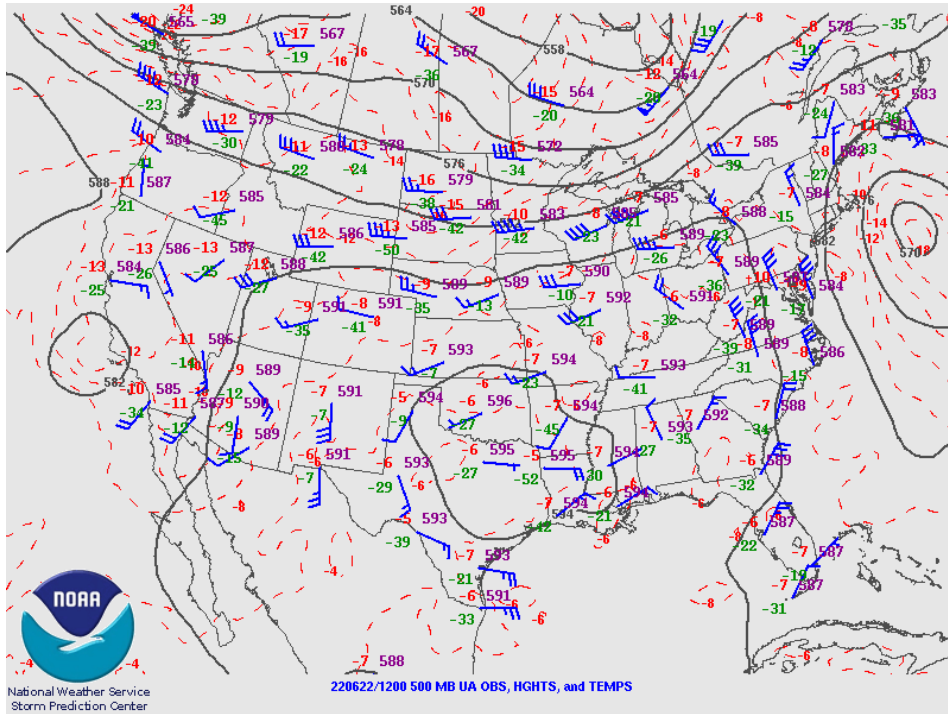
Table 1: Monthly Precipitation Statistics

Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	1.90	-2.19	1.06 on 6/16
Raleigh-Durham (RDU)	1.61	-2.28	0.75 on 6/16
Fayetteville (FAY)	2.10	-2.79	1.25 on 6/29

The system of the month of June was a strong ridge of high pressure that developed over the southern US, including over NC, around mid-month. The ridge peaked June 22, then weakened somewhat before strengthening again by late month. Figure 1 shows the strong surface and upper level ridge located over the southern US on June 22, 2022. The strong ridge allowed for sizzling

heat with temperatures topping out at 100°F at Raleigh and 101°F at Fayetteville, both of which tied daily record highs. See the bottom of this summary for a complete list of records. The strong ridge also prevented much-needed rainfall from reaching portions of southern and eastern NC.

Fig. 1: 500 mb Observations, Heights, and Temperatures (top) and Surface Analysis (bottom) on 6/22



Radar-estimated precipitation and the radar-estimated precipitation departure from normal are shown in Figures 2 and 3. Monthly rainfall totals were generally 1-3 inches (or 1-3 inches below normal) across most of central NC, but a few isolated spots were even drier than that. The only location that was wetter than normal was much of southern Sampson County, which received 5-8 inches for the month.

Fig. 2: Radar-Estimated Monthly Precipitation

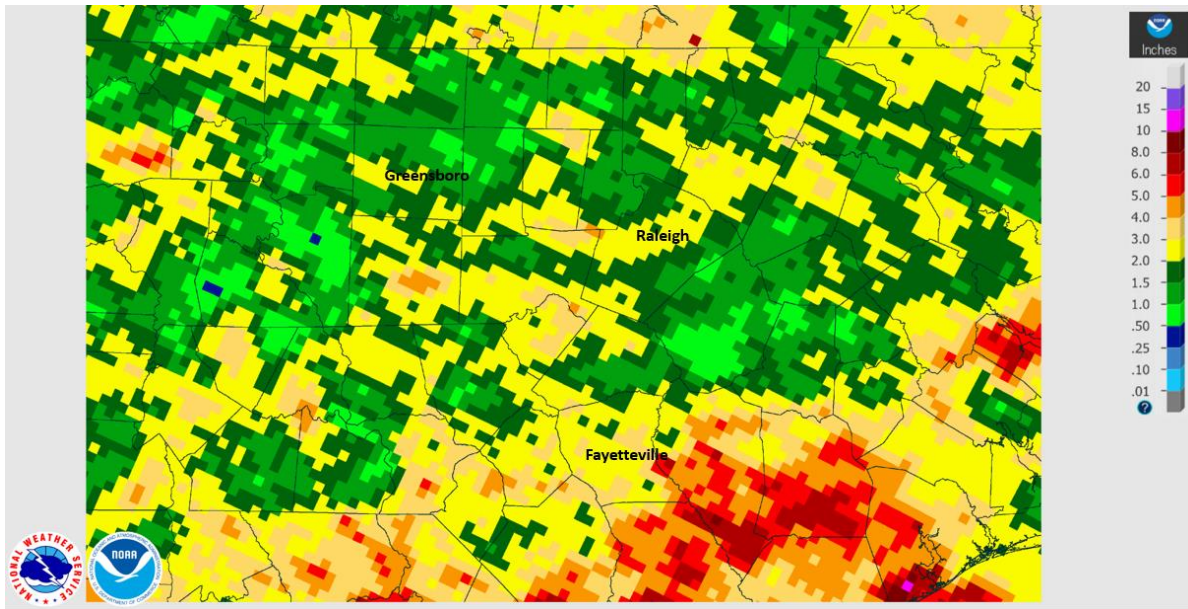
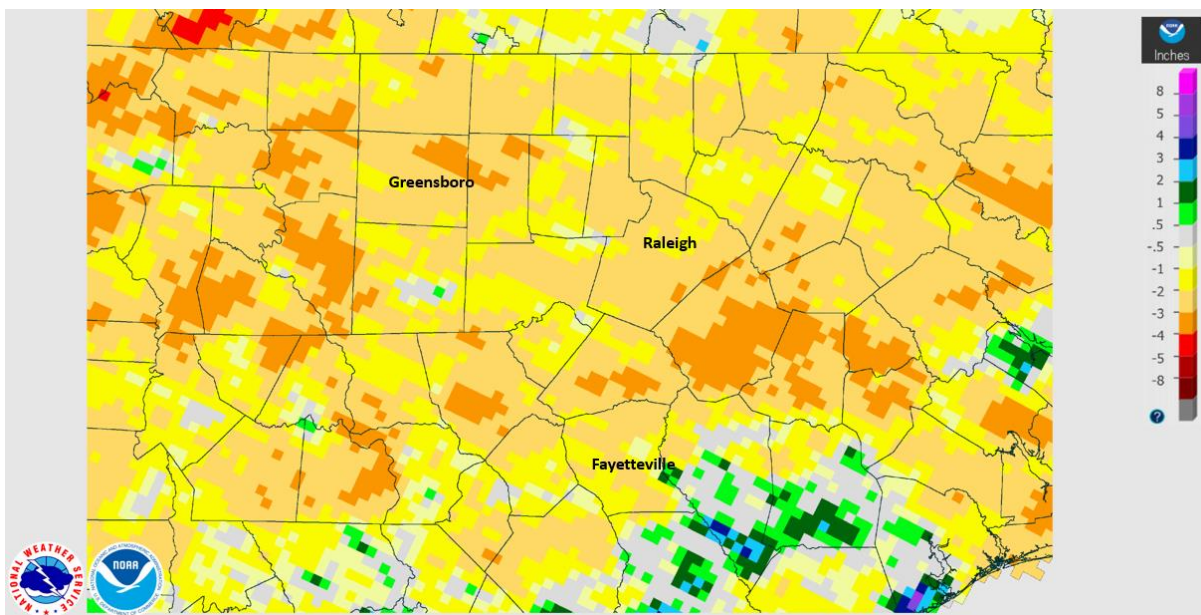


Fig. 3: Radar-Estimated Monthly Departure from Normal Precipitation



The cumulative precipitation at the three climate sites for the month of June is shown in Figure 4. The two “wet” periods at the middle and end of the month are clear, with much of June dry otherwise.

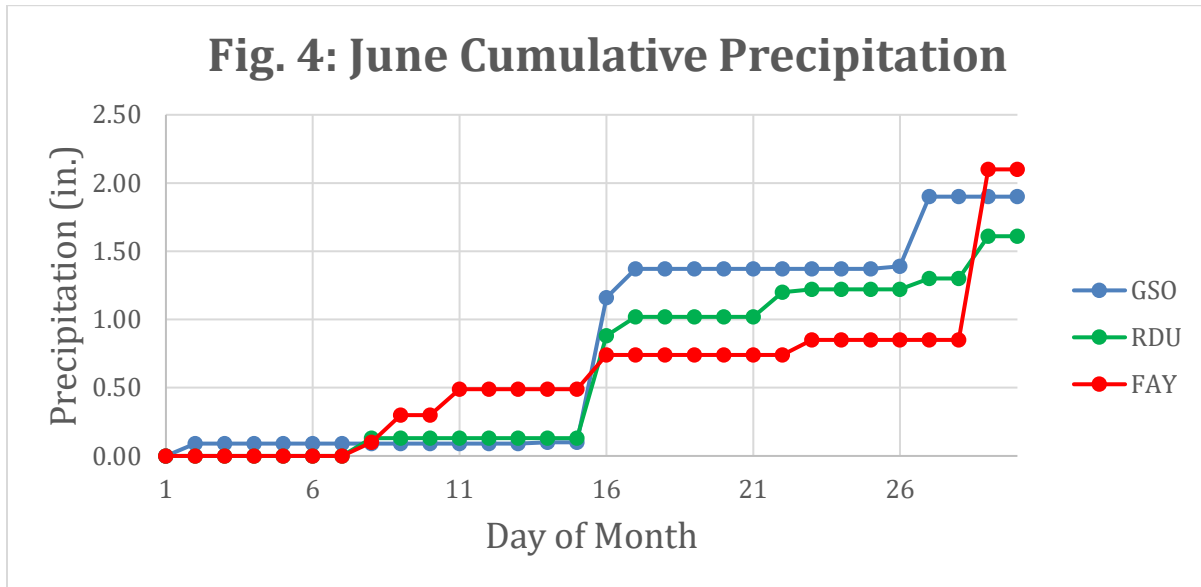
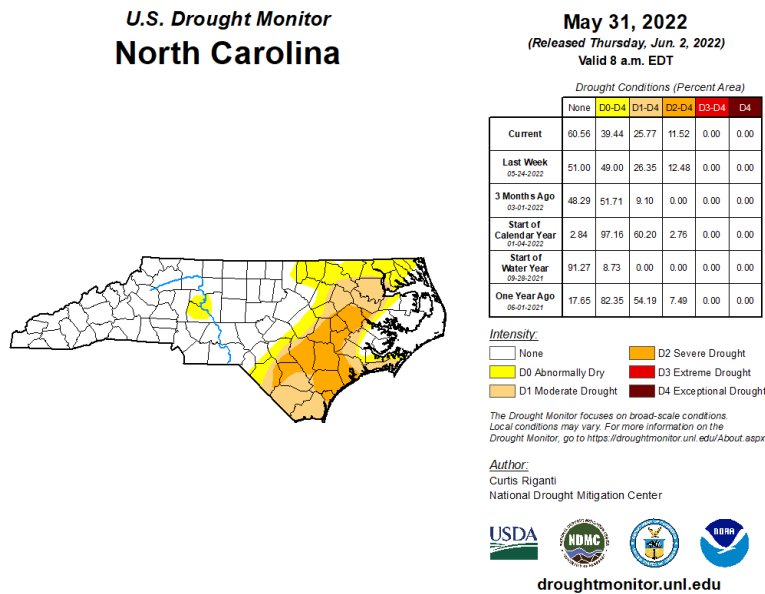


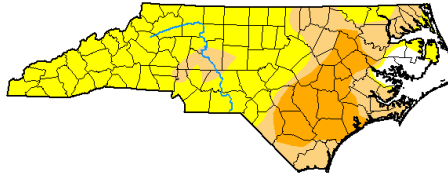
Figure 5 depicts the below-normal rainfall again increased the D2 (Severe Drought) conditions in the Coastal Plain. It also caused D0 (Abnormally Dry) conditions to spread across the whole rest of NC, with a pocket of D1 (Moderate Drought) developing in the western Piedmont.

Fig. 5: U.S. Drought Monitor for North Carolina on May 31 (top) and June 28 (bottom)



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

June 28, 2022
(Released Thursday, Jun. 30, 2022)
Valid 8 a.m. EDT



	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	3.25	96.75	40.60	17.11	0.00	0.00
Last Week 06-21-2022	34.44	65.56	35.61	8.16	0.00	0.00
3 Months Ago 03-29-2022	59.00	41.00	30.66	3.54	0.00	0.00
Start of Calendar Year 01-04-2022	2.84	97.16	60.20	2.76	0.00	0.00
Start of Water Year 06-28-2021	91.27	8.73	0.00	0.00	0.00	0.00
One Year Ago 06-28-2021	45.20	54.80	4.54	0.00	0.00	0.00

Intensity:
 None (white) D2 Severe Drought (dark orange)
 D0 Abnormally Dry (yellow) D3 Extreme Drought (red)
 D1 Moderate Drought (orange) D4 Exceptional Drought (dark red)

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>

Author:
Curtis Riganti
National Drought Mitigation Center

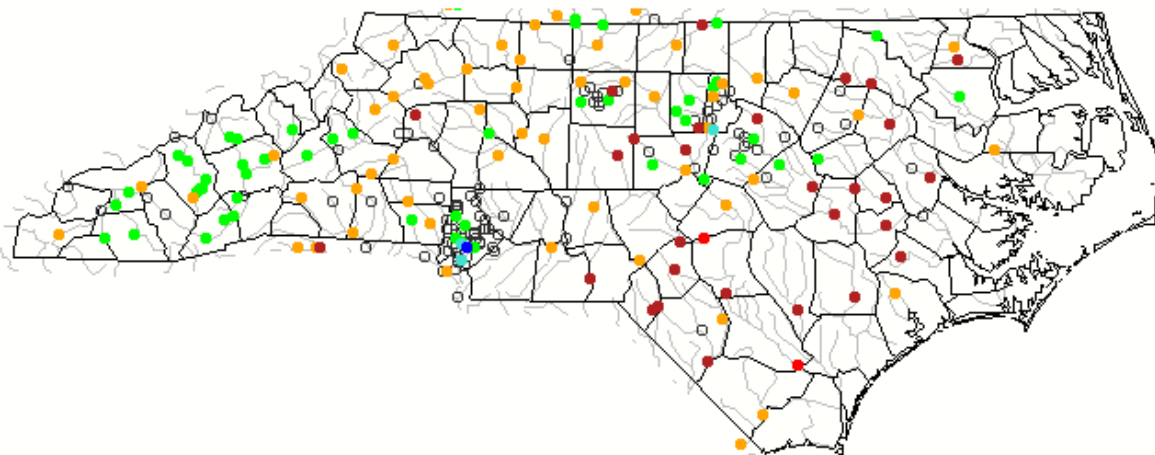


droughtmonitor.unl.edu

As seen in Figure 6, most streamflows across central NC were below normal by the end of the month, particularly in the Sandhills and Coastal Plain where many were below their historical 10th percentile.

Figure 6: Map of 7-Day Average Streamflow compared to Historical Streamflow for the Day of the Year

Wednesday, June 29, 2022



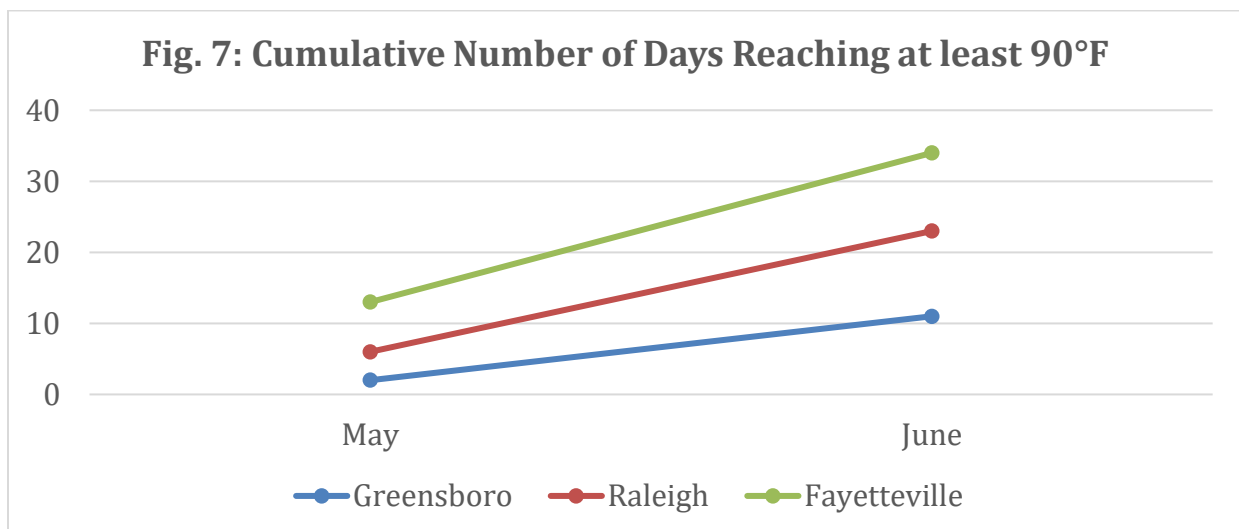
Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

June continued the theme of the spring as far as temperatures, which were hotter than normal. There were a few cold frontal passages which brought cooler temperatures for brief periods. Raleigh hit a monthly high of 100°F on June 22. This followed up a cool spell during the period of June 18-20 when Raleigh dipped to a monthly low of 55°F on June 19 and 20. Greensboro had similar temperatures, hitting a monthly high of 96°F on June 22 after falling to 56°F for a monthly low on June 19. Fayetteville topped out at 101°F on June 22 for a monthly high after falling to 55°F on June 20. By month's end, temperatures generally averaged 1-2°F above normal at the three climate sites. The final monthly temperatures across the whole state averaged 75.2°F according to NCEI, which ranked June 2022 as the 24th-warmest since 1895. The June monthly average temperatures and their departures from normal at the three climate sites are depicted in Table 2. This was the 13th-warmest June on record at Raleigh and the 14th-warmest at Fayetteville.

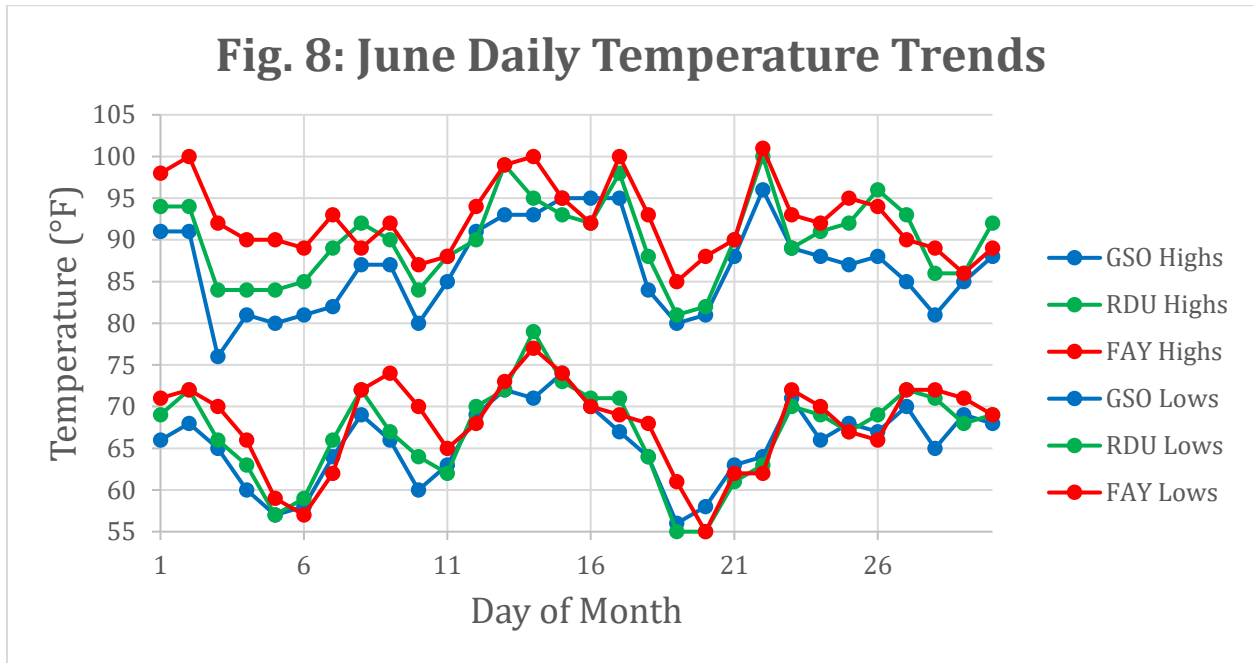
Table 2: Monthly Temperature Statistics

Site	Avg High Temp (°F)	Avg Low Temp (°F)	Avg Temp (°F)	Departure From Normal (°F)	Maximum Temperature (°F)	Minimum temperature (°F)
Greensboro (GSO)	86.8	65.6	76.2	+0.9	96 on 6/22	56 on 6/19
Raleigh-Durham (RDU)	90.0	66.9	78.4	+1.8	100 on 6/22	55 on 6/19 and 6/20
Fayetteville (FAY)	92.4	67.9	80.2	+1.8	101 on 6/22	55 on 6/20

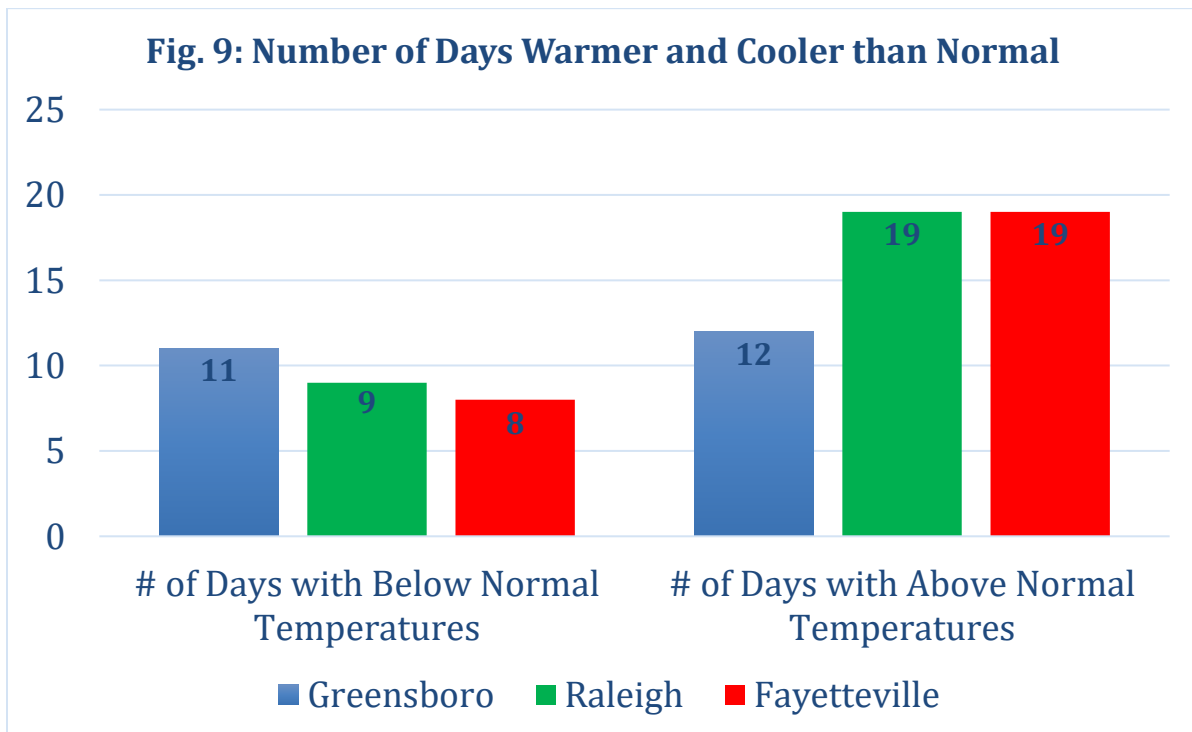
The number of 90+°F days really jumped in June, as seen in Figure 7. Fayetteville recorded 21 days with highs of 90°F or more, while Raleigh had 17 and Greensboro recorded 9.



The time series of daily temperature for the month at Greensboro, Raleigh, and Fayetteville can be found in Figure 8. Despite the many hot days with temperatures exceeding 90°F, there were still a few notable brief cooldowns, particularly from June 18-20.



As demonstrated in Figure 9, while the numbers of warmer and cooler than normal days during the month were roughly equal at Greensboro, nearly two-thirds of days in June were warmer than normal at Raleigh and Fayetteville.



Other notes:

Days with thunderstorms this month:

Greensboro: 6
Raleigh: 6
Fayetteville: 10

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

Greensboro: 0
Raleigh: 1
Fayetteville: 3

Strongest wind gusts and direction:

Greensboro: W (270 degrees) at 50 mph on June 17
Raleigh: W (290 degrees) at 39 mph on June 17
Fayetteville: N (350 degrees) at 51 mph on June 17

Daily records:

Greensboro:

A record high minimum temperature of 71°F was tied on June 14. This record was previously set in 2015.

A record high minimum temperature of 74°F was set on June 15. This broke the old record of 73°F set in 2015.

Raleigh:

A record high minimum temperature of 79°F was set on June 14. This broke the old record of 76°F set in 2005.

A record high temperature of 100°F was tied on June 22. This record was previously set in 1981.

Fayetteville:

A record high temperature of 99°F was tied on June 13. This record was previously set in 1945.

A record high temperature of 100°F was tied on June 14. This record was previously set in 1940.

A record high minimum temperature of 77°F was set on June 14. This broke the old record of 75°F set in 2015.

A record high temperature of 101°F was tied on June 22. This record was previously set in 1990.

Monthly records:

None.