

May 2023 Central NC Climate Summary

By Phillip Badgett and James Danco

Drier conditions return.

May 2023 brought many cloudy and cool days, but rainfall was below normal. According to preliminary data from NCEI, the statewide temperature averaged 64.4°F, which ranked as the 26th-coolest May in the 129 years of official records. This statewide average temperature was 2.5°F below normal. Most areas finished the month with an average temperature that was 1-3°F below normal. As for the climate sites in central NC, all of them averaged 2-3°F below normal, as shown in Table 1. Greensboro had its 26th-coolest May since records began in 1903. The coolness was especially apparent when looking at just maximum temperatures, which averaged 4.3°F below normal at Greensboro, 3.0°F below normal at Raleigh, and 3.4°F below normal at Fayetteville. The coolest days in May occurred from a stiff northeast flow bringing in ample cloud cover, particularly at the beginning and end of the month. According to the NC Climate Office, 72% of the month (533 hours) was mostly cloudy or overcast at Raleigh, the 2nd-highest of any May since 1973. All three climate sites had below-normal temperatures every day from May 1-5 and May 21-31. Most days in between those periods were slightly above normal, but there was never any exceptional warmth. The hottest day was May 9, when temperatures reached the mid-80s to lower-90s. The fact that Greensboro and Raleigh did not reach 90°F at all is another testament to how cool the month was. Greensboro's average first 90+°F day is May 19 and Raleigh's is May 11.

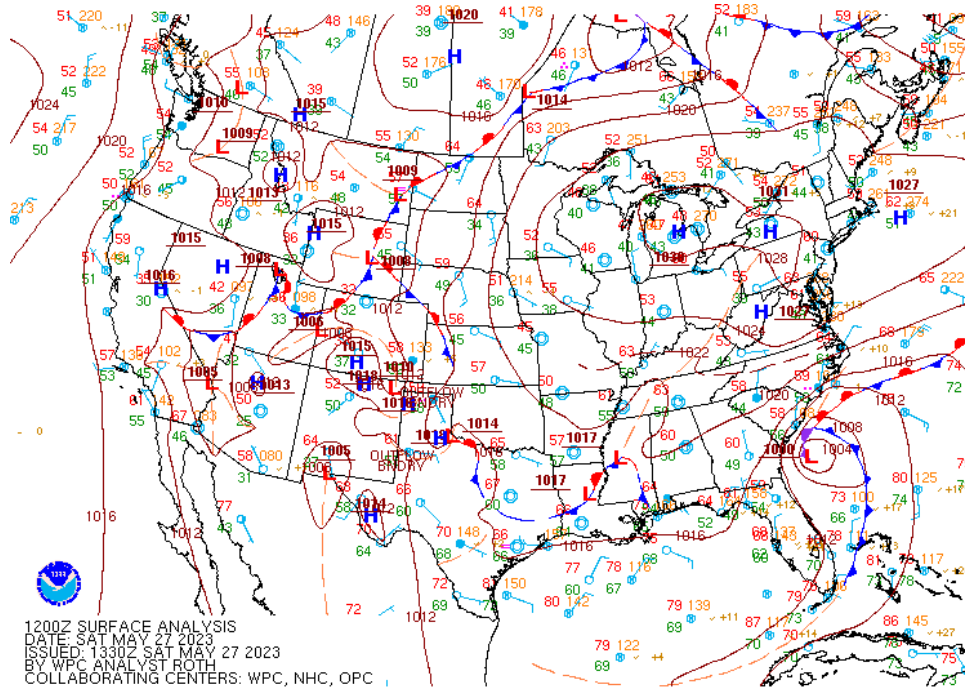
Table 1: Monthly Temperature Statistics

Site	Avg High Temp (°F)	Avg Low Temp (°F)	Avg Temp (°F)	Departure From Normal (°F)	Maximum Temperature (°F)	Minimum temperature (°F)
Greensboro (GSO)	73.7	55.4	64.5	-3.0	84 on 5/9	41 on 5/4
Raleigh-Durham (RDU)	77.0	56.6	66.8	-2.0	87 on 5/9	43 on 5/4
Fayetteville (FAY)	78.7	57.6	68.2	-2.7	91 on 5/9	45 on 5/5

The system of the month was the cold air damming event that occurred late in the month, May 27-30, 2023. High pressure built down the Eastern Seaboard into the Carolinas, then low pressure tracked along the coast. This brought northeast flow and a chilly rain for late May to much of central NC. Both Greensboro and Fayetteville set daily low maximum temperature records of

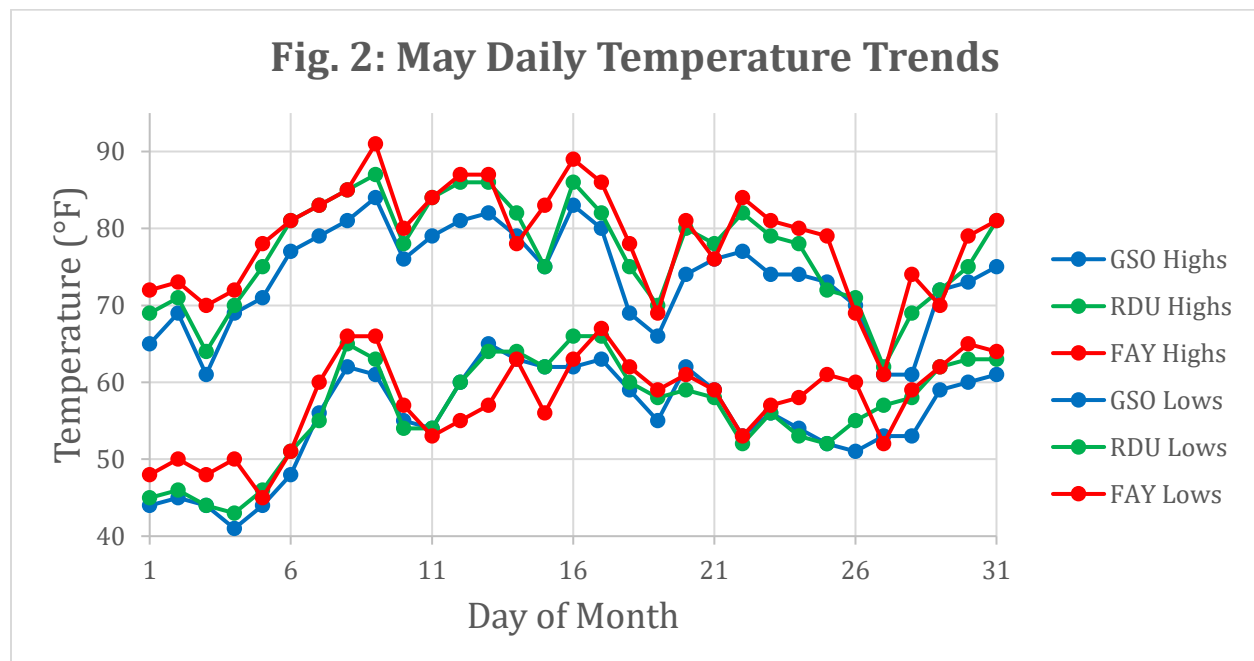
61°F on May 27 with all the clouds, rain, and northeast wind. Figure 1 shows the surface weather map on the morning of May 27, 2023, when cool high pressure was nosing down from the north.

Fig. 1: Surface Analysis at 12z on May 27, 2023

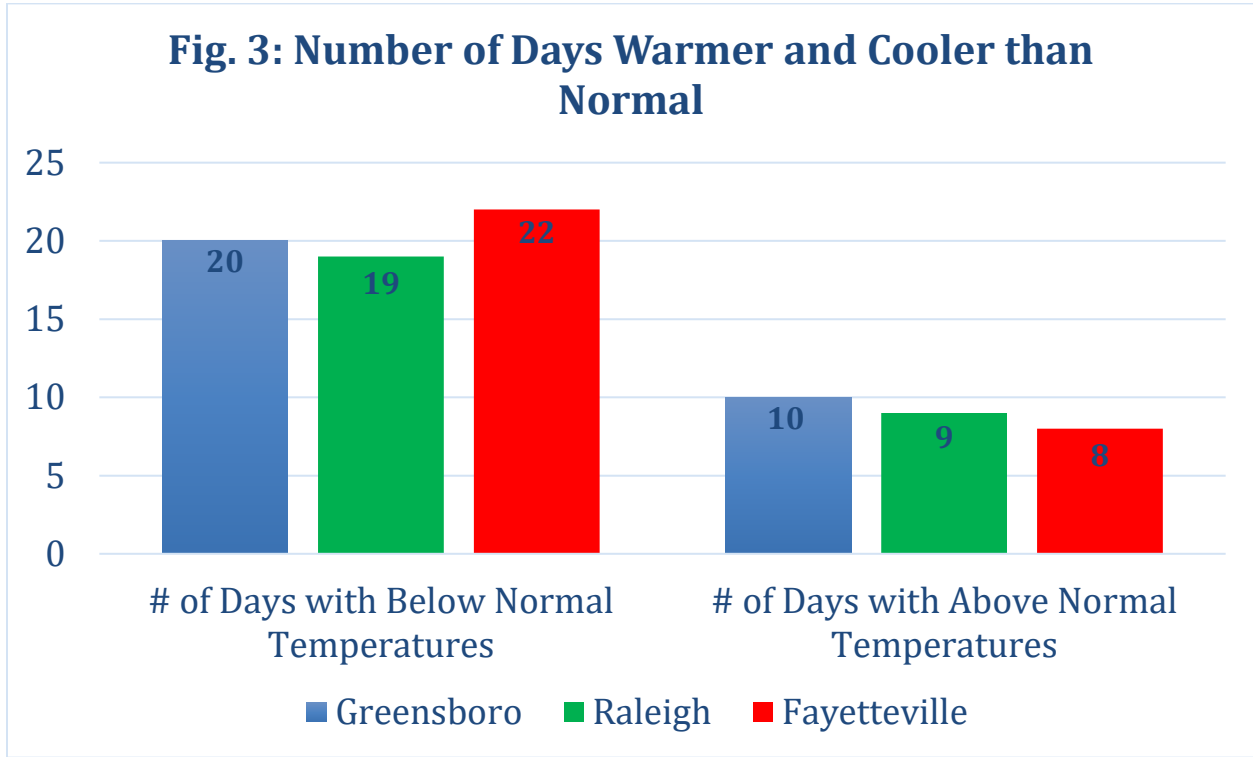


The time series of daily temperature for the month at Greensboro, Raleigh, and Fayetteville can be found in Figure 2. The cool period at the end of the month is evident. The first several days of the month were also cool, with highs in the 60s to lower-70s and lows dipping into the 40s.

Fig. 2: May Daily Temperature Trends



As shown in Figure 3, 60-70% of days in May at all three climate sites were cooler than normal.

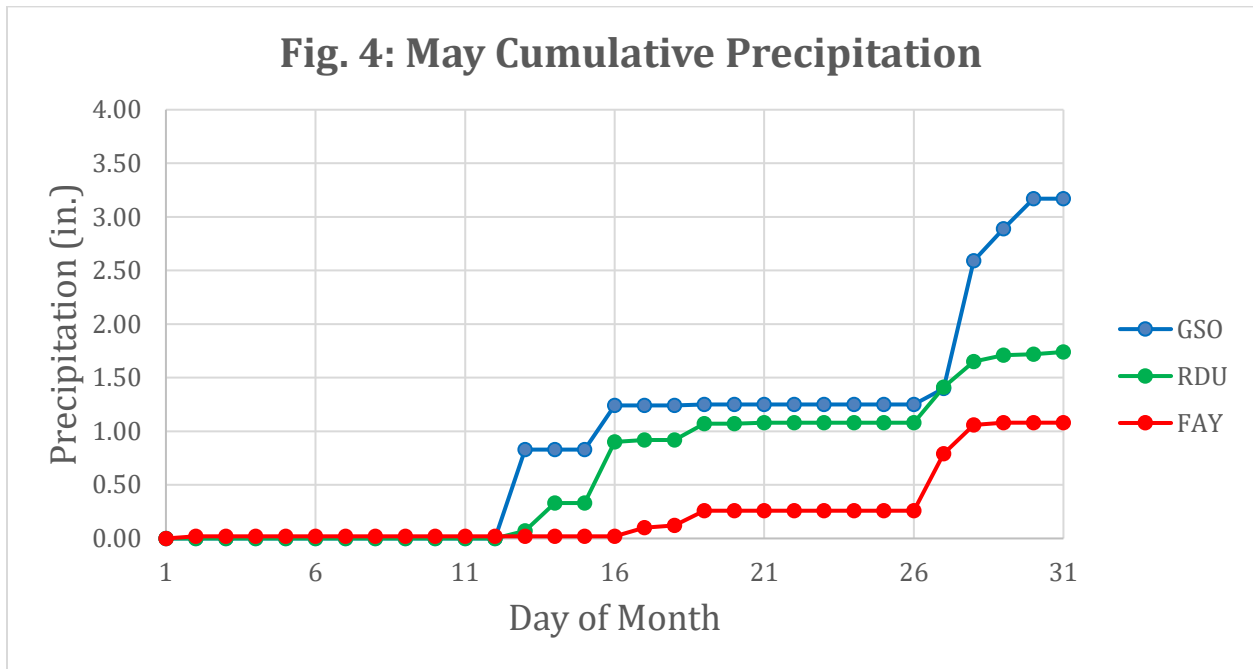


May 2023 ended up with below-normal rainfall totals across central NC. According to NCEI, the statewide average rainfall was 3.11 inches. This made it the 37th-driest May in the past 129 years and was 0.91 inches below normal. All three climate sites in central NC were drier than normal as well (Table 2). The 1.08 inches recorded for the month at Fayetteville made it the 10th-driest May on record going back to 1910. Raleigh had its 19th-driest May, with records going back to 1887.

Table 2: Monthly Precipitation Statistics

Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	3.17	-0.32	1.19 on 5/28
Raleigh-Durham (RDU)	1.74	-1.64	0.57 on 5/16
Fayetteville (FAY)	1.08	-2.03	0.53 on 5/27

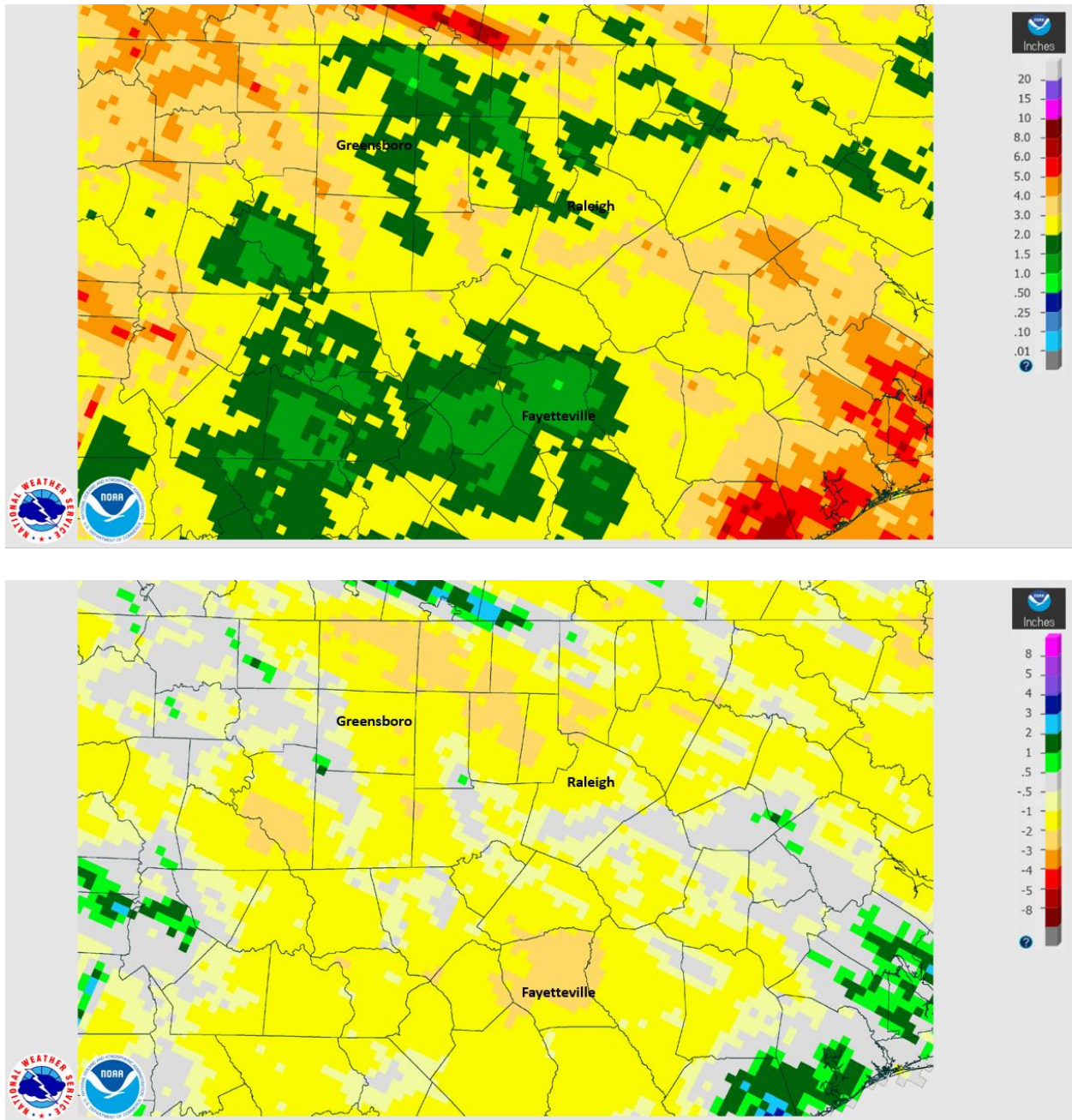
The cumulative precipitation at the three climate sites for the month of May is shown in Figure 4. The beginning of the month was especially dry, with Greensboro and Raleigh only receiving a trace of rain from May 1-12. Fayetteville only received 0.02 inches through May 16 and just 0.26 inches through the 26th! The aforementioned cold air damming event finally brought some decent rain at the end of the month, particularly at Greensboro which measured 1.92 inches from May 27-30 (including 1.19 inches on the 28th). However, this was not enough to overcome the dry rest of the month.



Some of the cooperative station rainfall reports from around central NC from May 2023 included: Sparta 3.96 inches (-1.52), Lexington 1.50 inches (-1.83), Winston-Salem 4.10 inches (+0.34), Burlington 1.77 inches (-1.60), Mount Airy 3.76 inches (-0.77), Danbury 3.78 inches (-0.63), Yanceyville 2.40 inches (-1.62), Eden 2.05 inches (-2.12), Henderson 4.00 inches (+0.10), Carthage 3.60 inches (+0.65), Cary 2.30 inches (-1.44), Raleigh (NCSU) 3.71 inches (-0.28), Louisburg 2.17 inches (-1.54), Apex 3.47 inches (-0.36), Chapel Hill 4.00 inches (+0.22), Jackson Springs 2.98 inches (-0.39), Clayton 4.25 inches (+0.19), Laurinburg 2.60 inches (-0.90), Rocky Mount 2.13 inches (-0.79), Tarboro 3.29 inches (-0.04), and Clinton 2.40 inches (-1.65).

As displayed by the radar-estimated precipitation and the radar-estimated precipitation departure from normal in Figure 5, the final monthly totals ranged from 1-2 inches across much of the south and portions of the northern Piedmont. They were in the 2-4 inch range across the rest of the Piedmont and in the Coastal Plain. Most of central NC was 1-2 inches drier than normal.

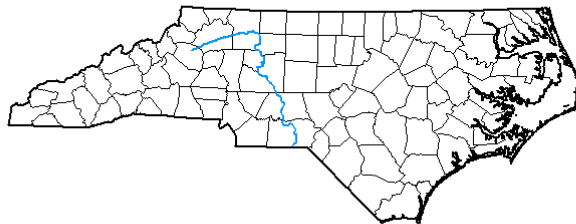
Fig. 5: Radar-Estimated Monthly Precipitation (top) and Departure from Normal Precipitation (bottom)



After no dryness or drought across NC at the beginning of May, the lack of rain during the month did help bring back a couple small areas of D0 (Abnormally Dry) conditions in NC. One was over the southern Piedmont and the other over the central Coastal Plain, as seen in Figure 6. These areas were small owing to the wet previous month, which limited any impacts.

Fig. 6: US Drought Monitor for NC on May 2 (top) and May 30 (bottom)

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



May 2, 2023

(Released Thursday, May 4, 2023)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	100.00	0.00	0.00	0.00	0.00	0.00
Last Week <small>04-25-2023</small>	88.88	11.12	2.96	0.00	0.00	0.00
3 Months Ago <small>01-31-2023</small>	63.40	36.60	14.97	0.00	0.00	0.00
Start of Calendar Year <small>01-03-2023</small>	56.06	43.94	24.97	0.00	0.00	0.00
Start of Water Year <small>09-27-2022</small>	38.94	61.06	15.04	0.00	0.00	0.00
One Year Ago <small>05-03-2022</small>	54.16	45.84	26.62	11.02	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>

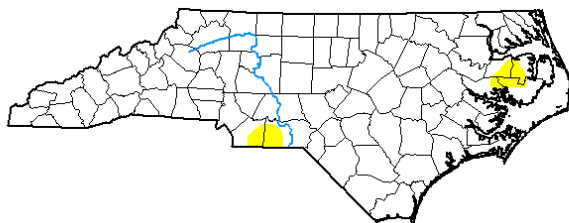
Author:

Brad Pugh
CPC/NOAA



droughtmonitor.unl.edu

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



May 30, 2023

(Released Thursday, Jun. 1, 2023)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	97.53	2.47	0.00	0.00	0.00	0.00
Last Week <small>05-23-2023</small>	96.04	3.96	0.00	0.00	0.00	0.00
3 Months Ago <small>02-28-2023</small>	89.48	10.52	0.00	0.00	0.00	0.00
Start of Calendar Year <small>01-03-2023</small>	56.06	43.94	24.97	0.00	0.00	0.00
Start of Water Year <small>09-27-2022</small>	38.94	61.06	15.04	0.00	0.00	0.00
One Year Ago <small>05-31-2022</small>	60.56	39.44	25.77	11.52	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>

Author:

Richard Heim
NCEI/NOAA



droughtmonitor.unl.edu

Other notes:

Days with thunderstorms this month included:

Greensboro: 4
Raleigh: 2
Fayetteville: 1

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

Greensboro: 1
Raleigh: 2
Fayetteville: 1

Strongest wind gusts and direction:

Greensboro: W (270 degrees) at 48 mph on May 16
Raleigh: NW (310 degrees) at 42 mph on May 16
Fayetteville: W (270 degrees) at 43 mph on May 2

Daily records:

Greensboro:

A daily record low maximum temperature of 61°F was set on May 27. This broke the old record of 62°F set in 1963.

Raleigh:

None.

Fayetteville:

A daily record low maximum temperature of 61°F was set on May 27. This broke the old record of 63°F set in 1972.

Monthly records:

Greensboro:

None.

Raleigh:

None.

Fayetteville:

May 2023 was the 10th-driest May on record with only 1.08 inches of rainfall recorded.