

February 2024 Central NC Climate Summary

By Phillip Badgett and James Danco

February 2024 was warm and dry.

The lack of cold air this winter season continued to be noticeable in February 2024. Temperatures for the month averaged well above the normal. In addition, the very wet pattern that began in December and continued in January essentially came to an end in February. Rainfall totals backed off to less than 2 inches (50-75% of February's normal) across most of central NC. These warm and dry conditions aided the continuation of the "snow drought," as much of central NC has now gone over 2 years since the last measurable snowfall in January 2022.

NCEI reported that the preliminary average temperature across the state of NC for the month was 46.5°F. This made it the 16th-warmest February in the past 130 years and 2.7°F above the 1991-2000 average. Central NC was even warmer than the statewide average temperature for February. Most of central NC finished the month with an average temperature that ranged between 3°F and 4°F above normal. The warmest temperatures this month were in the 70s, while the lowest temperatures were in the 20s. Temperatures fell to 32°F or below on 15 days at Greensboro, 10 days at Fayetteville, and only 8 times at Raleigh. The monthly average temperatures and their departures from normal at the three climate sites are depicted in Table 1. This was the 13th-warmest February on record at Greensboro (with records going back to 1903), tied for the 13th-warmest at Raleigh (with records going back to 1887), and the 21st-warmest at Fayetteville (with records going back to 1910).

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)	57.6	35.1	46.4	+3.4	70 on 2/26	24 on 2/18
Raleigh-Durham (RDU)	60.3	37.9	49.1	+4.1	76 on 2/10	27 on 2/19
Fayetteville (FAY)	61.5	38.6	50.1	+3.1	77 on 2/28	29 on 2/4 and 2/8

The time series of daily temperature for the month at Greensboro, Raleigh, and Fayetteville can be found in Figure 1. There was one warm stretch from the 10th to the 16th with highs largely

in the 60s and 70s. A daily record high of 76°F was set at Raleigh on the 10th, breaking the previous record set just last year. A brief cooldown then occurred, with highs only in the mid-to-upper-40s on the 18th behind a cold frontal passage. Warm weather returned for the last week of the month.

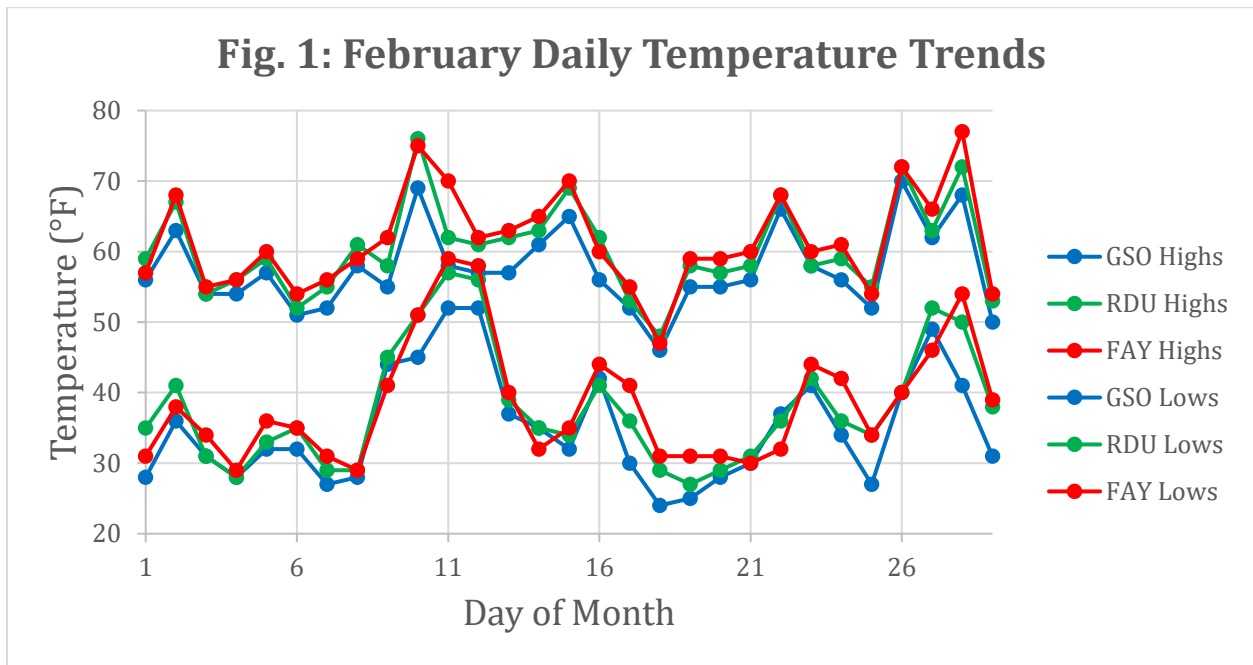
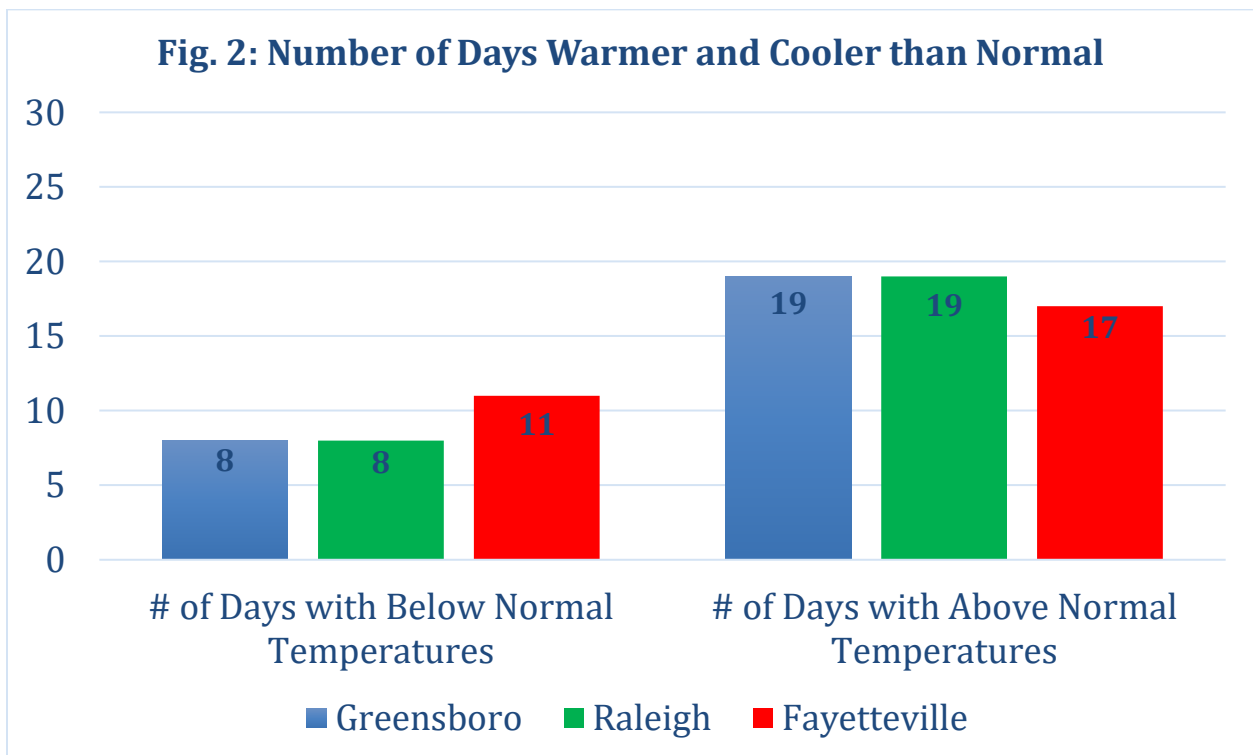


Figure 2 shows a majority of days in February were warmer than normal at all 3 climate sites.



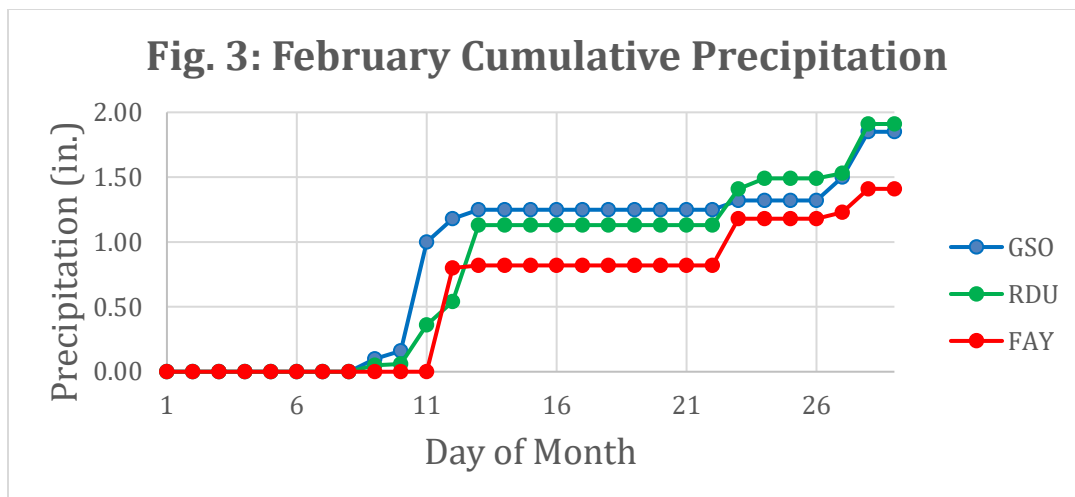
Bucking the wet trend from December and January, February turned drier than normal. High pressure was frequently located just offshore of the Carolinas which produced warm and dry southwest winds. According to the NCEI, February 2024 turned out to be NC’s 10th-driest February since 1895, with a statewide average rainfall of only 1.64 inches. Central NC tallied around the statewide average. All 3 climate sites only had 1 to 2 inches for the entire month, which was around an inch below normal. The February 2024 monthly precipitation totals are in Table 2.

Table 2: Monthly Precipitation Statistics

Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	1.85	-0.96	0.84 on 2/11
Raleigh-Durham (RDU)	1.91	-0.87	0.59 on 2/13
Fayetteville (FAY)	1.41	-1.37	0.80 on 2/12

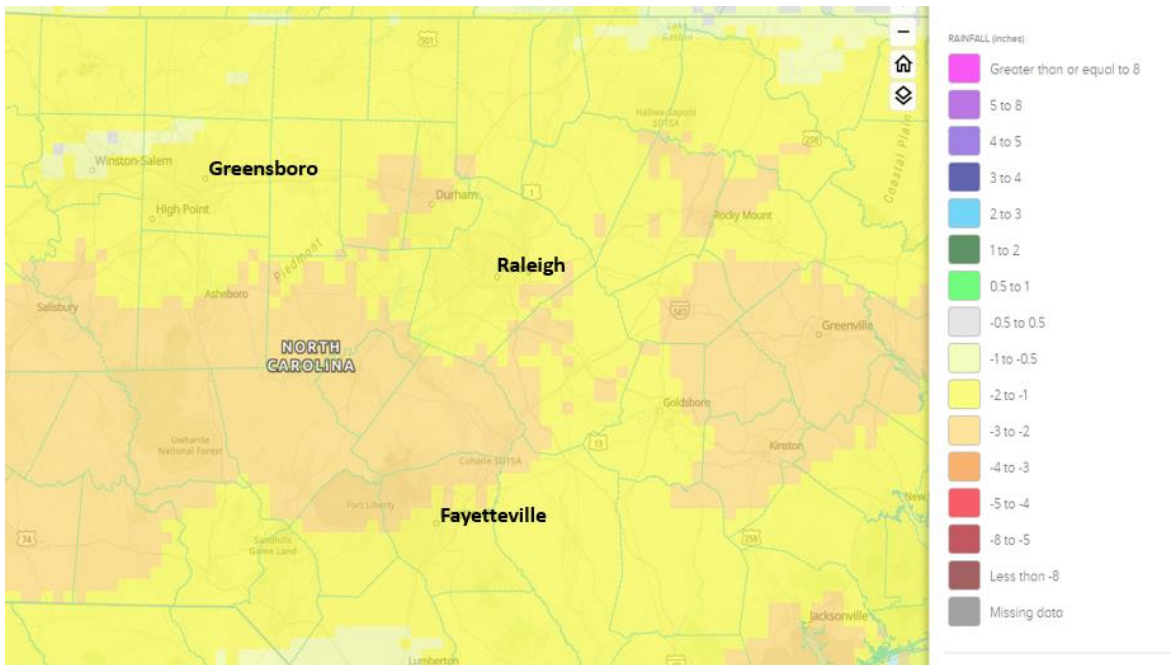
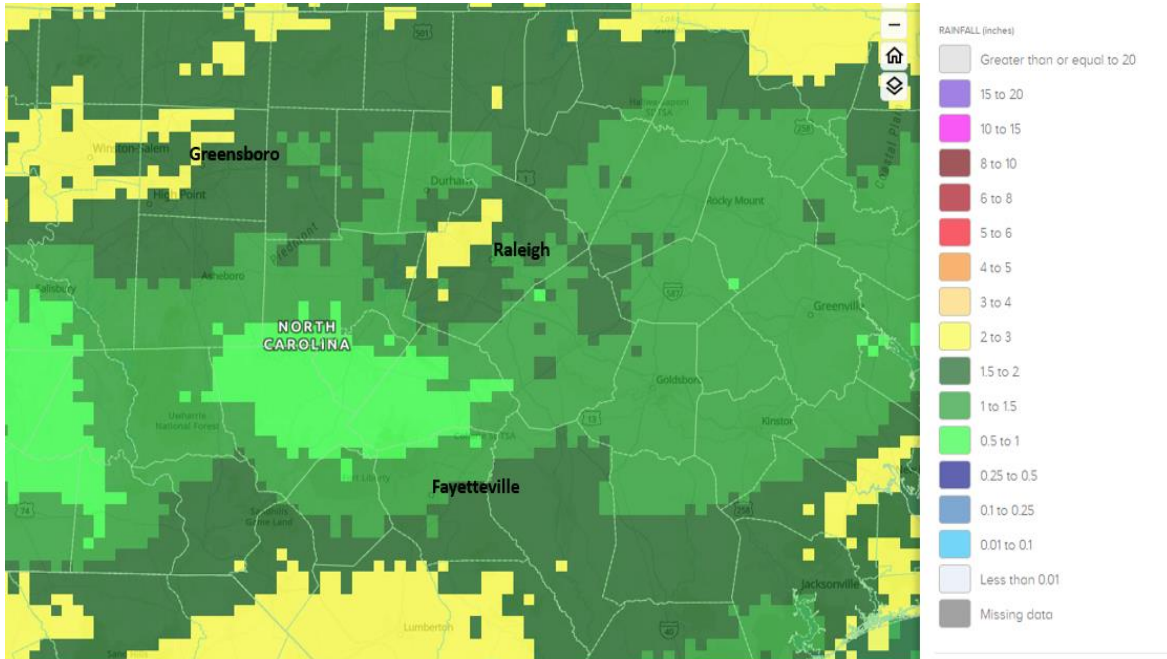
Some of the cooperative station rainfall reports from around central NC from February 2024 included: Sparta 8.88 inches (+4.42), Winston-Salem 1.96 inches (-0.93), Albemarle 1.50 inches (- 1.46), Burlington 1.76 inches (-1.05), Mount Airy 6.94 inches (+3.05), Danbury 8.59 inches (+4.84), Henderson 2.97 inches (-1.14), Cary 1.31 inches (-1.59), Raleigh (NCSU) 2.05 inches (-0.83), Louisburg 0.99 inches (-1.87), Apex 1.69 inches (-1.31), Laurinburg 1.66 inches (-1.60), Rocky Mount 1.28 inches (-1.59), and Clinton 1.61 inches (-1.50).

The cumulative precipitation at the three climate sites for the month of February is shown in Figure 3. The heaviest rain fell from February 11-13, when a stalled low pressure system brought around a half inch to an inch across central NC. The rest of the month was mainly dry other than a couple of lighter events towards the end of the month.



As displayed by the radar-estimated precipitation and the radar-estimated precipitation departure from normal in Figure 4, the final monthly totals across central NC mostly ranged from 1 to 2 inches, but small areas in Wake County and around the Triad received 2 to 3 inches. A portion of the southern Piedmont and Sandhills received as little as half an inch to an inch for the entire month. These totals were generally 1 to 3 inches below normal across the whole region.

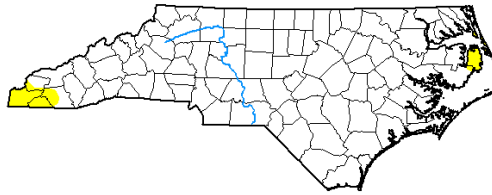
Fig. 4: Radar-Estimated Monthly Precipitation and Precipitation Departure from Normal



The drier-than-normal February allowed Abnormally Dry (D0) and Moderate Drought (D1) conditions to return to much of eastern NC by month's end. Figure 5 shows the US Drought Monitor map on January 30 compared to February 27, when the Coastal Plain and eastern Sandhills were in D0 conditions and a part of northeastern NC was in D1 conditions.

Fig. 5: US Drought Monitor for NC on January 30 (top) and February 27 (bottom)

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



January 30, 2024
(Released Thursday, Feb. 1, 2024)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	97.14	2.86	0.00	0.00	0.00	0.00
Last Week 01-23-2024	91.17	8.83	2.02	0.00	0.00	0.00
3 Months Ago 10-31-2023	8.60	91.40	50.59	10.38	0.00	0.00
Start of Calendar Year 01-01-2024	53.95	46.05	13.26	3.54	0.00	0.00
Start of Water Year 09-26-2023	82.24	17.76	0.36	0.00	0.00	0.00
One Year Ago 01-31-2023	63.40	36.60	14.97	0.00	0.00	0.00

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

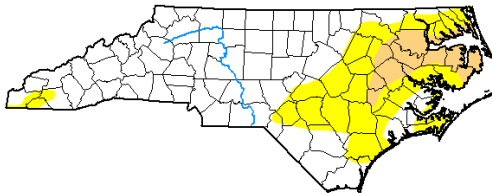
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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droughtmonitor.unl.edu

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



February 27, 2024
(Released Thursday, Feb. 29, 2024)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	65.46	34.54	8.59	0.00	0.00	0.00
Last Week 02-20-2024	67.52	32.48	0.00	0.00	0.00	0.00
3 Months Ago 11-28-2023	20.04	79.96	57.90	31.37	5.62	0.00
Start of Calendar Year 01-01-2024	53.95	46.05	13.26	3.54	0.00	0.00
Start of Water Year 09-26-2023	82.24	17.76	0.36	0.00	0.00	0.00
One Year Ago 02-28-2023	89.48	10.52	0.00	0.00	0.00	0.00

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

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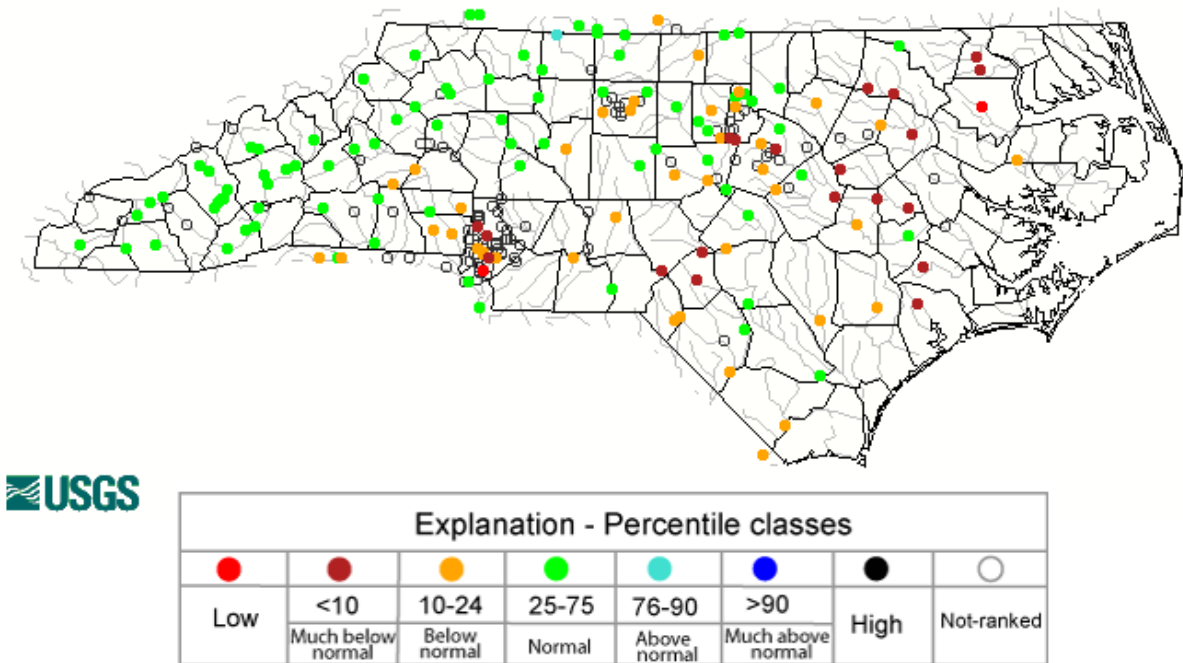
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droughtmonitor.unl.edu

The dry month also had an effect on streamflow, which was below normal across much of central NC (Figure 6). Some spots were even below the 10th percentile of normal.

Fig. 6: Monthly Streamflow across NC compared to Historical Streamflow for February 2024



Other notes:

Days with thunderstorms this month:

Greensboro: 0
 Raleigh: 1
 Fayetteville: 0

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

Greensboro: 1
 Raleigh: 1
 Fayetteville: 0

Strongest wind gusts and direction:

Greensboro: NW (300 degrees) at 43 mph on February 28

Raleigh: W (280 degrees) at 51 mph on February 28

Fayetteville: SW (230 degrees) at 49 mph on February 28

Number of days with low temperatures at or below 32°F:

Greensboro: 15

Raleigh: 8

Fayetteville: 10

Monthly records:

Greensboro:

None.

Raleigh:

None.

Fayetteville:

None.

Daily records:

Greensboro:

None.

Raleigh:

A daily record high temperature of 76°F was set on February 10. This broke the old record of 75°F set in 2023.

Fayetteville:

None.