March 2023 Central NC Climate Summary

By Phillip Badgett and James Danco

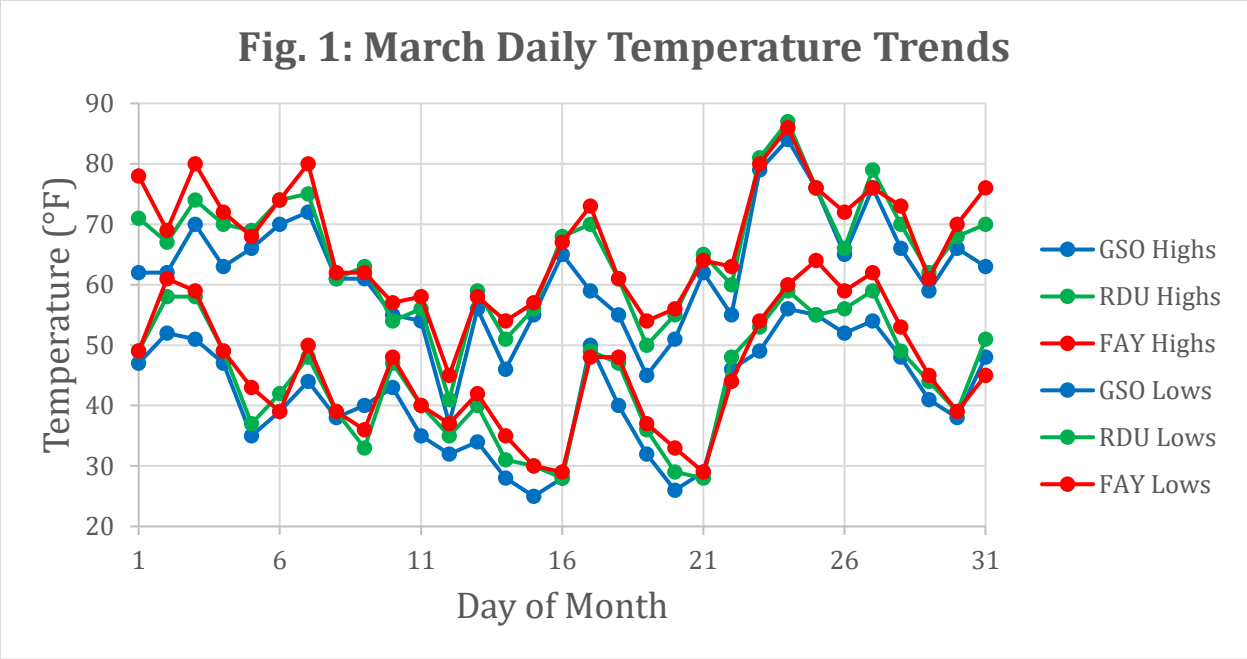
A generally warm, dry March ratchets up spring.

Other than a cold snap during the middle of the month, generally warm, spring-like temperatures were felt during March 2023. According to the NCEI, preliminary statewide temperatures averaged 52.4°F, which ranked as the 29th-warmest March in the 129 years of official records. This reading was 2.1°F above normal. Honing in on our climate sites in central NC, monthly average temperatures were 1 to 3°F above normal. Raleigh had its 23rd-warmest March on record dating back to 1887, and Fayetteville tied for its 20th-warmest March going back to 1910. The warmest day in March was on the 24th when many areas east of the mountains reached well into the 80s. Raleigh and Fayetteville both came within 1°F of their daily record high temperatures. On the flip side, a pair of cold snaps occurred from March 14-16 and again March 19-21 when a Canadian air mass spread sub-freezing low temperatures across the state. All three climate sites dropped into the mid-to-upper-20s. The monthly average temperatures and their departures from normal at the three climate sites are depicted in Table 1.

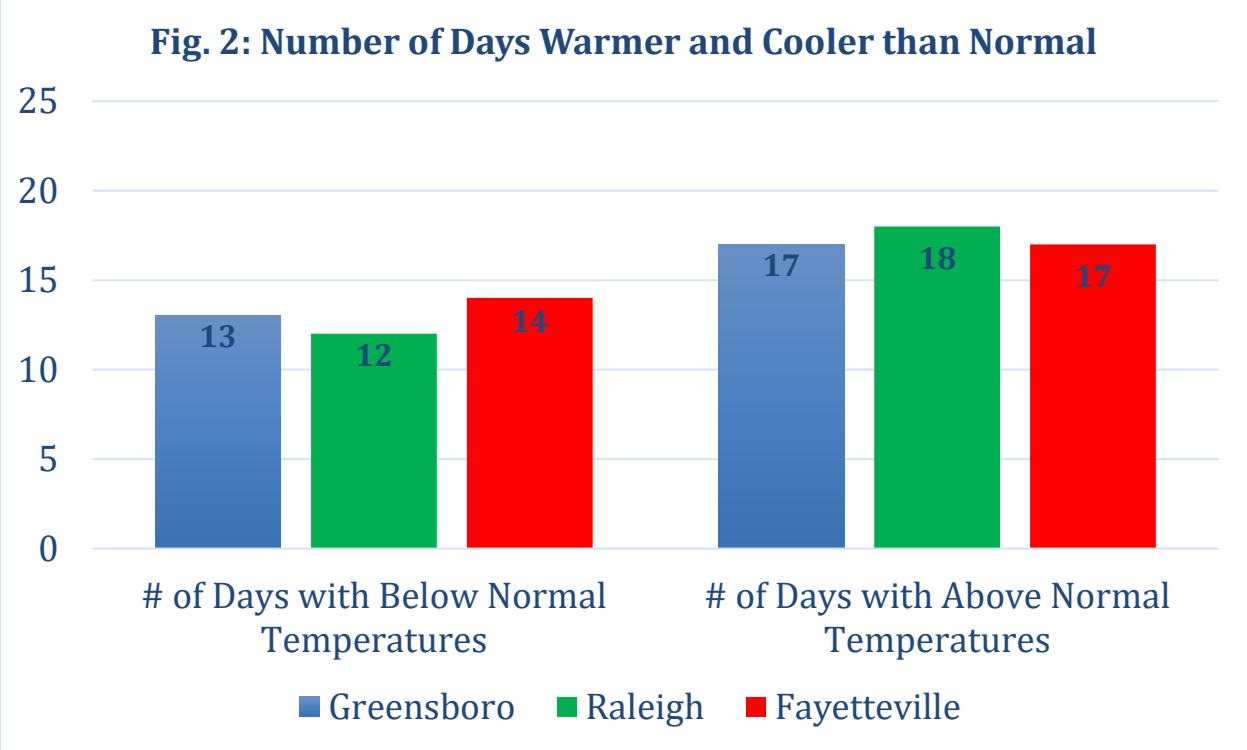
Table 1: Monthly Temperature Statistics

Site	Avg High Temp (°F)	Avg Low Temp (°F)	Avg Temp (°F)	Departure From Normal (°F)	Maximum Temperature (°F)	Minimum temperature (°F)
Greensboro (GSO)	61.8	41.4	51.6	+1.3	84 on 3/24	25 on 3/15
Raleigh-Durham (RDU)	65.5	44.1	54.8	+3.0	87 on 3/24	28 on 3/16 and 3/21
Fayetteville (FAY)	67.2	45.4	56.3	+2.5	86 on 3/24	29 on 3/16 and 3/21

The time series of daily temperature for the month at Greensboro, Raleigh, and Fayetteville can be found in Figure 1. Note the cold snaps during the middle of the month before the end quickly warmed up. There were 7 days with lows that reached at or below 32°F at Greensboro, 5 such days at Raleigh, and 3 at Fayetteville. This was below the average of 10 such days at Greensboro, 8 at Raleigh, and 7 at Fayetteville.



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

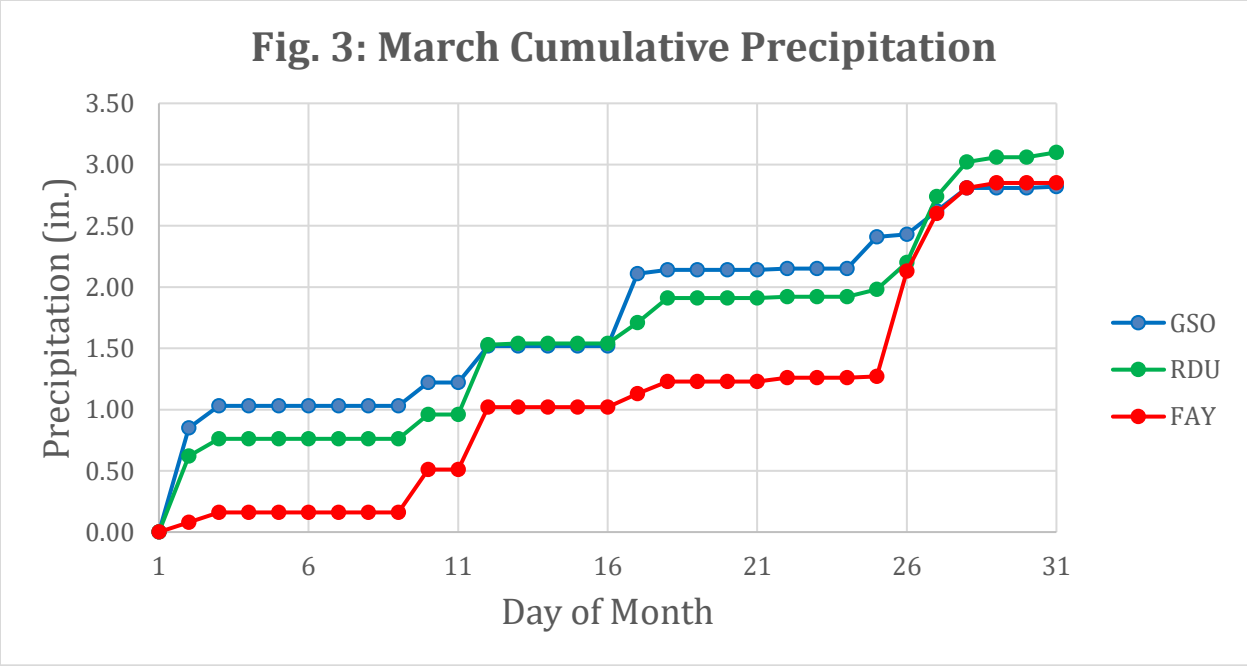


March 2023 was a relatively dry month across central NC. According to NCEI, the preliminary statewide average rainfall was 2.97 inches. This made it the 27th-driest March in the past 129 years. As shown in Table 2, the final rainfall tallies for March 2023 from the three main central NC climate reporting sites were all around 3 inches, which was drier than normal. There was no measurable snowfall reported during the month at the three climate sites, though some flakes did briefly fall on the 12th. Greensboro and Raleigh reported a trace of snow on this day, and a few spots in Forsyth and Guilford counties reported as much as 0.5 inches. Even still, this ended winter with only a trace of snow at Greensboro for the first time since 1991-1992, and only a trace of snow at Raleigh for the first time since 2005-2006.

Table 2: Monthly Precipitation Statistics

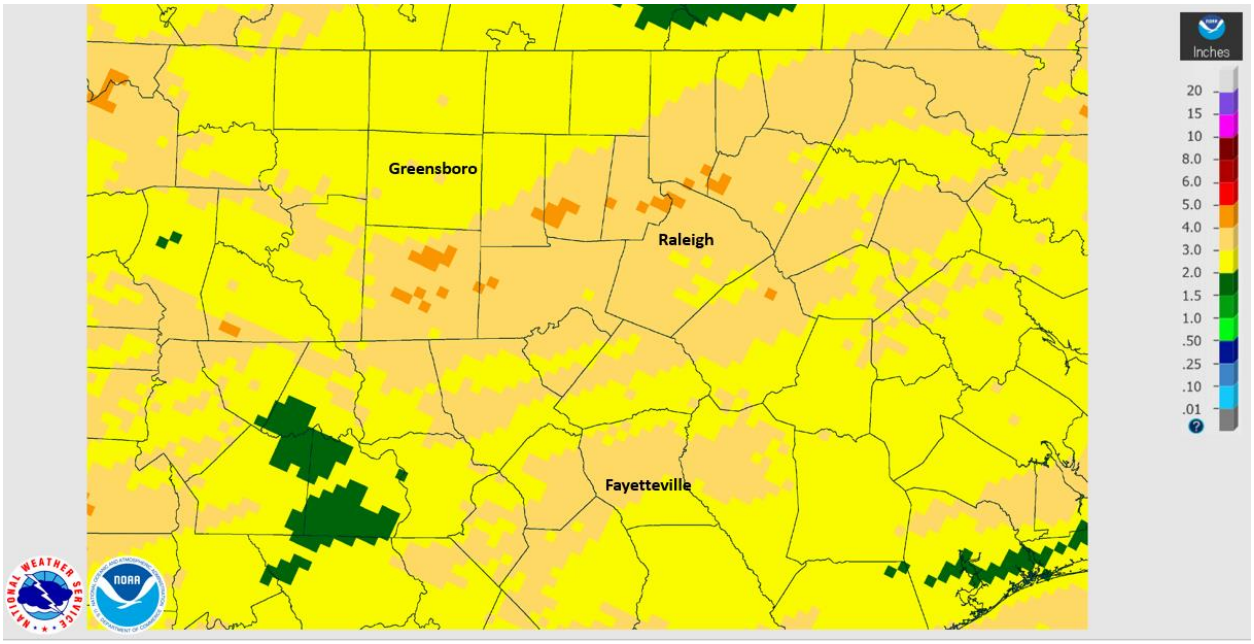
Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	2.82	-0.90	0.85 on 3/2
Raleigh-Durham (RDU)	3.10	-1.00	0.62 on 3/2
Fayetteville (FAY)	2.85	-0.23	0.86 on 3/26

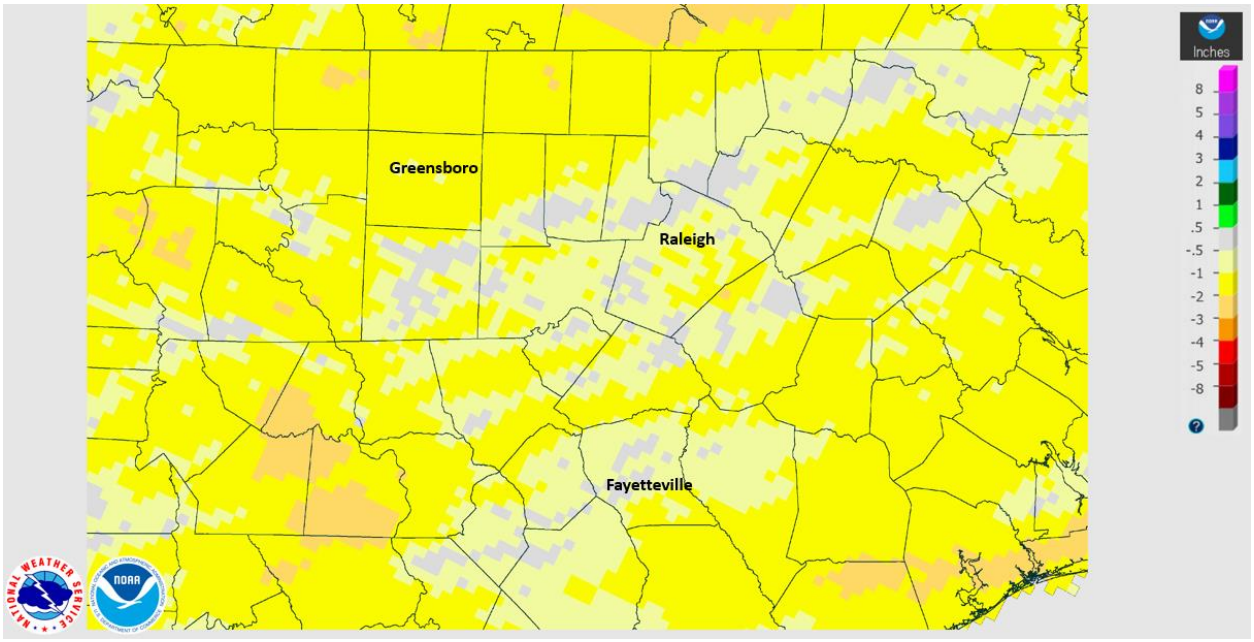
The March cumulative precipitation at the three climate sites is shown in Figure 3. The heaviest rain at Greensboro and Raleigh came on March 2 with a cold frontal passage, before drier conditions set in for the rest of the month.



As displayed by the radar-estimated precipitation and departure from normal in Figure 4, the final monthly totals across central NC were generally 2-4 inches, which in most places was 0.5-2 inches drier than normal.

Fig. 4: Radar-Estimated Monthly Precipitation (top) and Monthly Departure from Normal Precipitation (bottom)

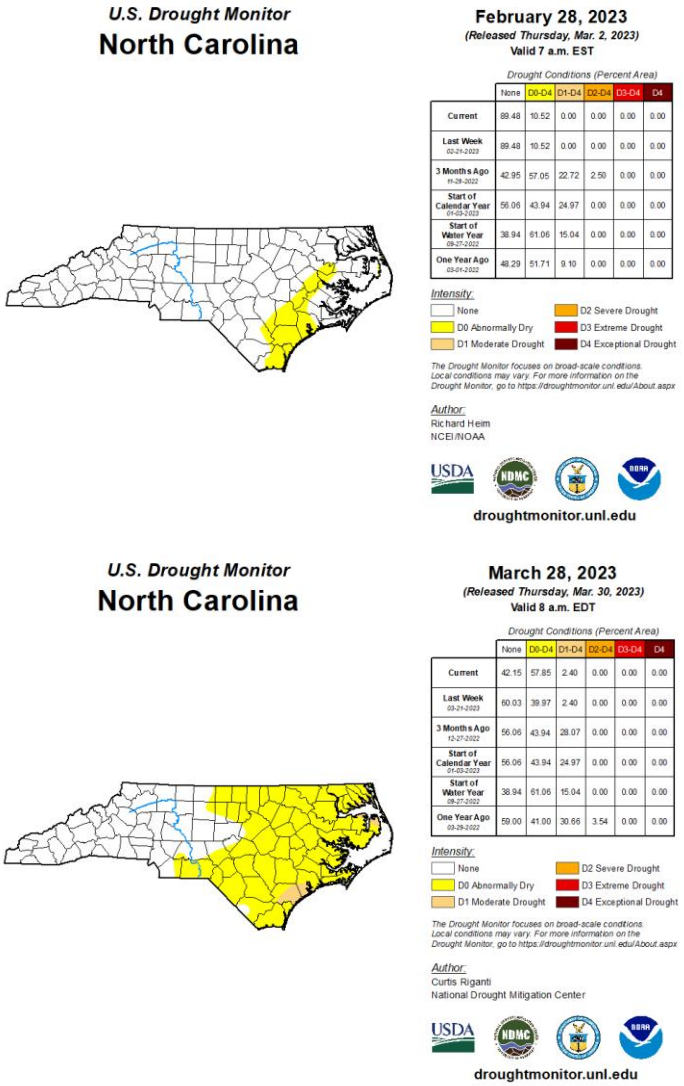




Cooperative station rainfall reports from around central NC from March 2023 included: Sparta 3.13 inches (-1.78 inches from normal), Lexington 3.35 inches (-0.51), Winston-Salem 2.74 inches (-0.86), Burlington 2.59 inches (-1.29), Mount Airy 2.60 inches (-1.59), Danbury 2.33 inches (-1.76), Yanceyville 2.81 inches (-1.57), Eden 1.72 inches (-2.18), Henderson 3.88 inches (-0.29), Carthage 2.74 inches (-1.38), Cary 2.35 inches (-1.69), Raleigh (NCSU) 3.05 inches (-1.15), Louisburg 2.12 inches (-1.94), Apex 3.37 inches (-0.71), Chapel Hill 3.64 inches (-0.75, Jackson Springs 3.45 inches (-0.63), Clayton 3.29 inches (-0.81), Laurinburg 3.71 inches (-0.71), Rocky Mount 2.80 inches (-1.17), Tarboro 3.23 inches (-0.48), and Clinton 2.55 inches (-1.13).

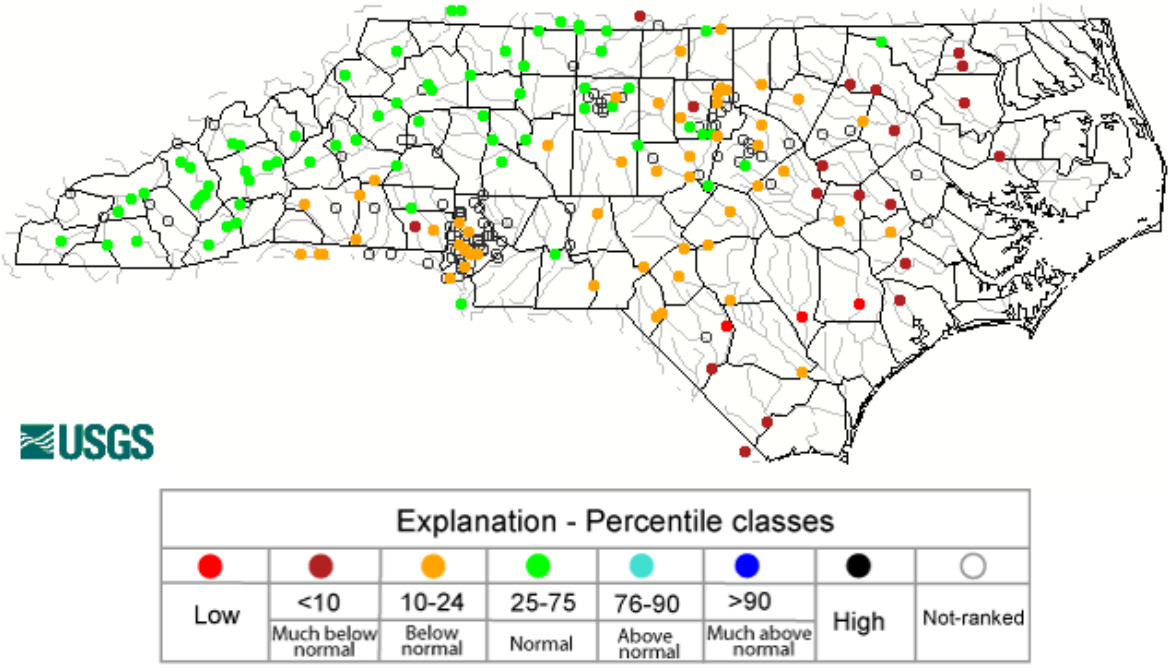
The US Drought Monitor maps in Figure 5 show that D0 (Abnormally Dry) conditions spread back across much of central NC by the end of the month, outside of the NW Piedmont. However, the only D1 (Moderate Drought) conditions were limited to a small area at the immediate southern NC coast.

Fig. 5: US Drought Monitor for NC on February 28 (top) and March 28 (bottom)



These dry conditions helped slip streamflow levels back below normal in much of central NC, as seen in Figure 6.

Fig. 6: Map of Monthly Streamflow compared to Historical Streamflow for March 2023



Other notes:

Days with thunderstorms this month:

Greensboro: 3
Raleigh: 3
Fayetteville: 2

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

Greensboro: 1
Raleigh: 1
Fayetteville: 2

Strongest wind gusts and direction:

Greensboro: S (180 degrees) at 48 mph on March 3
Raleigh: SW (210 degrees) at 46 mph on March 3
Fayetteville: S (200 degrees) at 40 mph on March 3

Daily records:

Greensboro:

None.

Raleigh:

None.

Fayetteville:

None.

Monthly records:

Greensboro:

None.

Raleigh:

None.

Fayetteville:

None.