

March 2021 Central NC Climate Summary

By Phillip Badgett and James Danco

March featured warm-ups followed by several freezes.

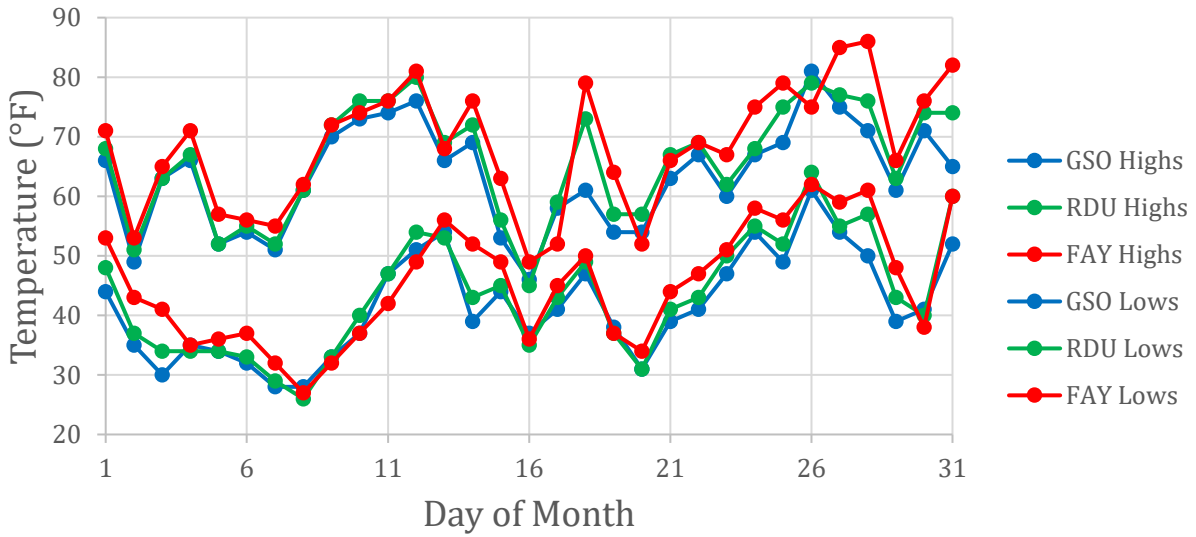
March 2021 brought temperatures that averaged 2 to 3 degrees warmer than average for most of central North Carolina. However, as is typically the case in early spring, the devil was found in the daily details where wide swings in the temperatures were observed during March. The region started March with frequent highs in the 60's to near 70°F the first four days of the month. Then the bottom dropped out after a strong cold front sent low temperatures plunging into the mid-to-upper-20s on March 8, including 26°F at Raleigh. The temperature roller coaster continued with surging temperatures well into the 70's by March 10-12, with some locations including Raleigh and Fayetteville reaching the lower-80s on the 12th. Another strong front sent temperatures plunging to the lower-30s again on March 20. This was followed by a longer duration warmup that sent temperatures well into the 70's for a portion of the last week of March, with even some lower-to-mid-80s at Fayetteville. 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) | 63.4 | 41.7 | 52.5 | +2.5 | 81 on 3/26 | 28 on 3/7, 3/8 |
| Raleigh-Durham (RDU) | 66.0 | 43.4 | 54.7 | +3.1 | 80 on 3/12 | 26 on 3/8 |
| Fayetteville (FAY) | 68.5 | 45.4 | 56.9 | +2.6 | 86 on 3/28 | 27 on 3/8 |

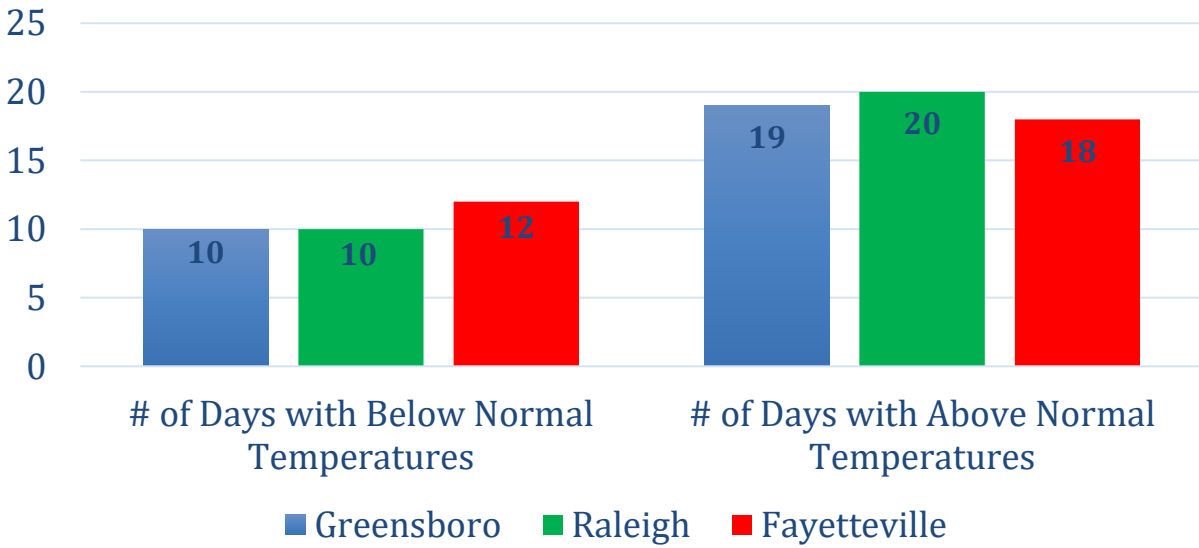
The time series of daily temperature for the month at Greensboro, Raleigh, and Fayetteville can be found in Figure 1. Note the large temperature swings throughout the month due to frequent cold frontal passages. There were five days with lows of 32°F or below at Greensboro and three such days at both Raleigh and Fayetteville. Conversely, the hottest days of the month were in the 80s at all three climate sites, with Fayetteville having four days with highs in the 80s.

Fig. 1: March Daily Temperature Trends



As shown in Figure 2, a majority of the days in March (18 to 20 out of the 31) had above-normal temperatures at all three climate sites.

Fig 2: Number of Days Warmer and Cooler than Normal



With the main storm track and very heavy rainfall generally just west of the Appalachians through the Tennessee and Ohio Valley regions, NC was left with the trailing cold fronts to bring rainfall. These fronts did bring frequent showers to the Mountains into the western Piedmont, where above-normal rainfall was observed. As shown in Table 2, Greensboro totaled 5.16 inches of rain for the month (1.43 inches above normal). Conversely, the cold fronts often lost moisture

as they moved away from the Mountains and farther away from the mean storm track to the west. This led to drier-than-normal conditions in the eastern Piedmont east through most of the Coastal Plain to the Atlantic Coastline. Raleigh and Fayetteville ended the month 1.68 and 0.55 inches drier than normal, respectively.

Table 2: Monthly Precipitation Statistics

| Site | Total precipitation (in.) | Departure from Normal (in.) | Max Daily Precipitation (in.) |
|-----------------------------|---------------------------|-----------------------------|-------------------------------|
| Greensboro (GSO) | 5.16 | +1.43 | 1.21 on 3/25 |
| Raleigh-Durham (RDU) | 2.43 | -1.68 | 0.91 on 3/27 |
| Fayetteville (FAY) | 3.00 | -0.55 | 0.81 on 3/16 |

As displayed by the radar-estimated precipitation and the radar-estimated precipitation departure from normal in Figures 3 and 4, the highest monthly totals of 4-6 inches stretched from the Mountains into the northwestern Piedmont and southern Coastal Plain, with below-normal totals of 2-4 inches everywhere in between from the northern Coastal Plain into the Triangle region and Sandhills.

Fig. 3: Radar-Estimated Monthly Precipitation

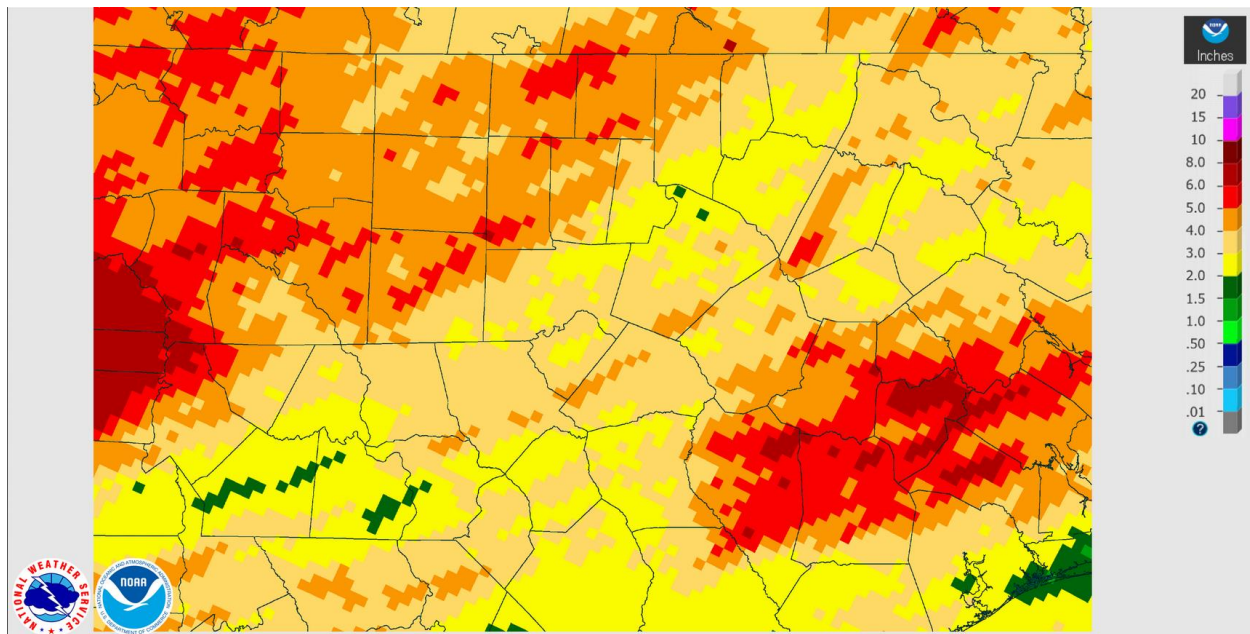
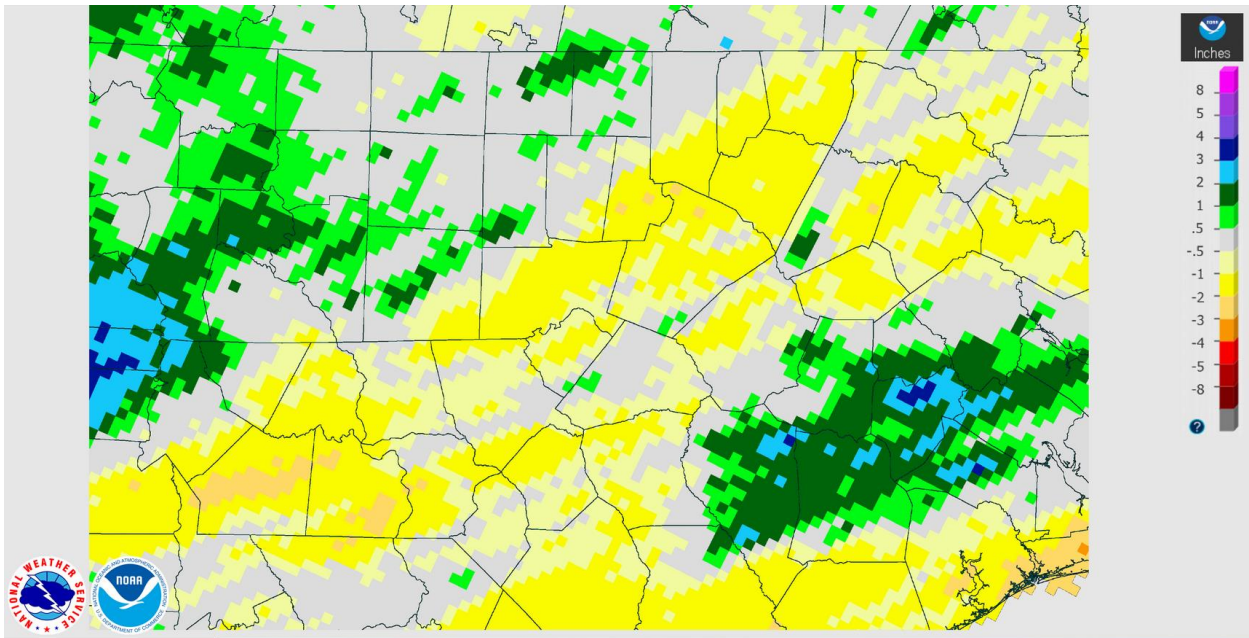
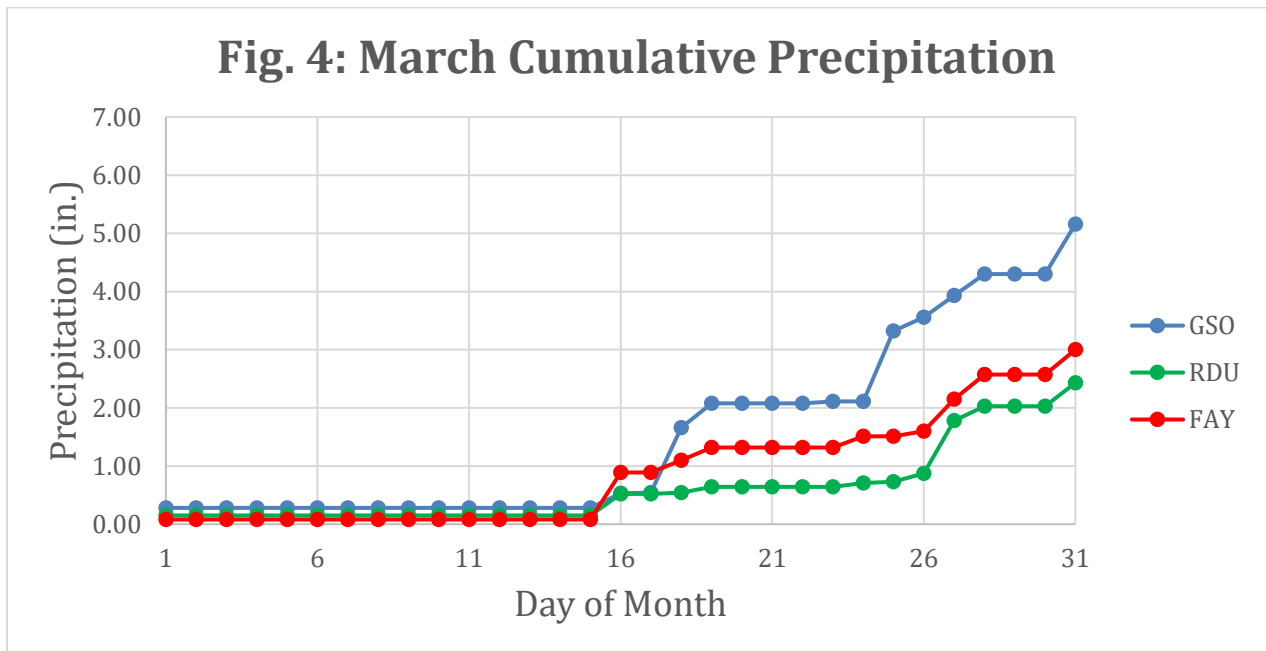


Fig. 4: Radar-Estimated Monthly Departure from Normal Precipitation



The March cumulative precipitation at the three climate sites is shown in Figure 4. The first half of the month (March 1-15) was very dry, with Greensboro, Raleigh, and Fayetteville only totaling around a tenth to a quarter of an inch during this period, all of which fell on the first day of the month. Conditions got much wetter for the second half of the month, especially at Greensboro.



Other notes:

Number of days with thunderstorms this month:

Greensboro: 4
Raleigh: 4
Fayetteville: 5

Number of days with dense fog (visibility of ¼ mile or less) this month:

Greensboro: 4
Raleigh: 3
Fayetteville: 4

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

Greensboro: 5
Raleigh: 3
Fayetteville: 3

Strongest wind gusts and direction:

Greensboro: S at 41 mph on March 26, followed by NW at 41 mph on March 27
Raleigh: W at 40 mph on March 28
Fayetteville: W at 51 mph on March 28

Monthly records of note for March 2021:

There were no monthly records of note at any of the three climate sites this month.

Daily records:

Greensboro:

A record daily rainfall total of 1.12 inches was set at Greensboro on March 18. This broke the old record of 0.95 inches set in 1983.

A record daily rainfall total of 1.21 inches was set at Greensboro on March 25. This broke the old record of 1.08 inches in 1935.

Raleigh:

None.

Fayetteville:

None.