April 2021 Central NC Climate Summary

By Phillip Badgett and James Danco

April turns much drier.

Much drier weather arrived across North Carolina in April 2021. There were frequent cold frontal passages; however, these fronts often dried up as they crossed the Appalachians due to the position of the main storm track. This storm track was well west and north of our region with the heaviest rain falling from Texas to the Great Lakes along its path. We had to rely on the weakening fronts that pushed through with little moisture to work with. Raleigh only had seven days with measurable rainfall recorded, and only one of those days produced more than a quarter of an inch (April 24). By month's end, Raleigh tallied less than one inch of rain (0.94), which was nearly two inches below normal and the sixth-driest April on record. Greensboro and Fayetteville didn't fare much better, both recording measurable rainfall on only five days, with monthly totals of 1.43 and 1.16 inches respectively. These were the 10th and 11th driest Aprils on record, respectively. The April 2021 monthly precipitation totals at all 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)	1.43	-2.14	0.75 on 4/24
Raleigh-Durham (RDU)	0.94	-1.98	0.27 on 4/24
Fayetteville (FAY)	1.16	-1.66	0.87 on 4/10

The frequent cold frontal passages resulted in wide day-to-day temperature swings, just as in March. Greensboro recorded a monthly low of 27°F on April 3 only to turn around and hit 81°F on April 6 and a monthly-tying high of 83°F on April 7. Greensboro also hit 83°F on April 28 and 29. This warmth at the end of the month followed another cold blast that dropped lows to 32°F on April 22 and 33°F on April 23. The same held true in the eastern Piedmont at Raleigh where a hard freeze at 26°F was recorded on April 3, followed by a high of 83°F on April 6 and a monthly-tying high of 86°F on April 7. That was a 60-degree turnaround in just four days. Later in the month another impressive temperature swing was only slightly less dramatic. Daily record low temperatures of 32°F and 31°F were recorded on April 22 and 23 followed by highs in the mid-80s from April 27-29. The

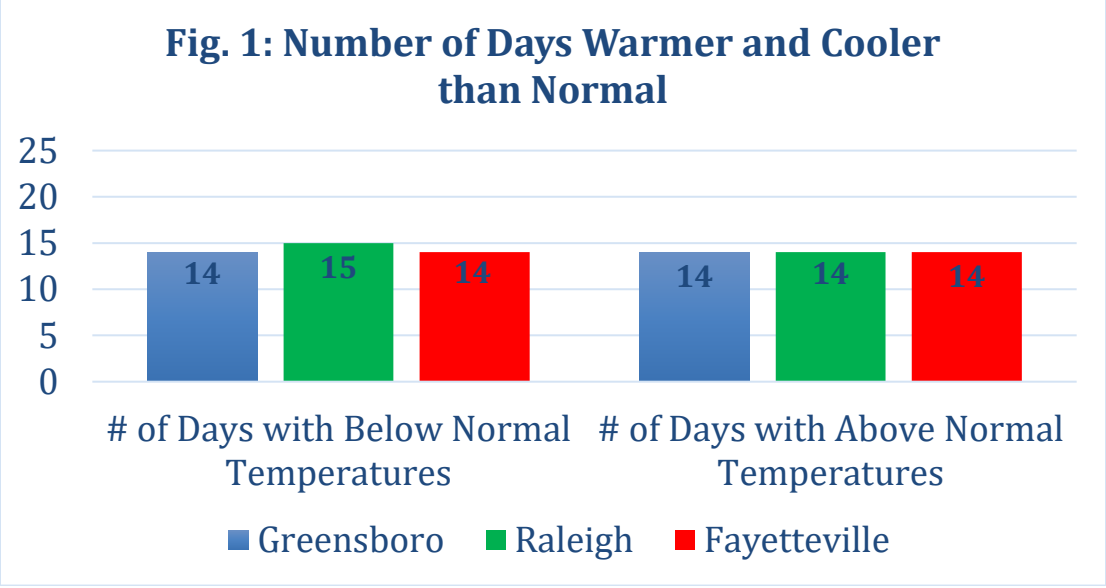
chill also made it into the Sandhills on April 3, when Fayetteville fell to a daily record low of 30°F. Similarly, the temperature at Fayetteville then soared into the 80s for seven consecutive days from April 6-12 (including 87°F on the 7th) as the arctic high shifted offshore and the southwest return flow pulled in the warmth.

The April monthly mean temperatures and their departures from normal at the three climate sites are depicted in Table 2. Note that all three climate sites had mean temperatures very close to normal, with Greensboro and Raleigh only 0.1°F above normal and Fayetteville at exactly the 30-year average.

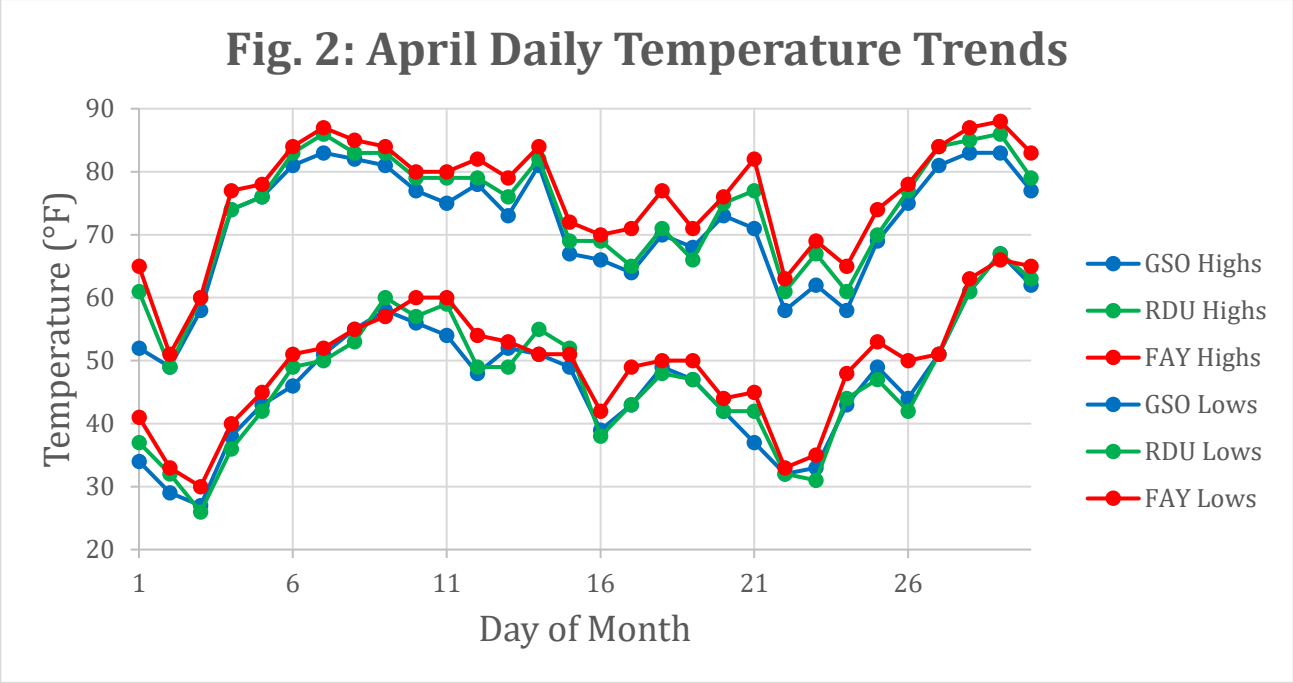
Table 2: Monthly Temperature Statistics

Site	Avg High Temp (°F)	Avg Low Temp (°F)	Avg Temp (°F)	Departure From Normal (°F)	Maximum Temperature (°F)	Minimum temperature (°F)
Greensboro (GSO)	71.5	46.3	58.9	0.1	83 on 4/7, 4/28, 4/29	27 on 4/3
Raleigh-Durham (RDU)	73.7	46.8	60.3	0.1	86 on 4/7, 4/29	26 on 4/3
Fayetteville (FAY)	76.2	49.2	62.7	0.0	88 on 4/29	30 on 4/3

Similarly, the number of days that were warmer and cooler than normal during April were almost exactly the same at all three climate sites, as shown in Figure 1.



The time series of daily temperature for the month at Greensboro, Raleigh, and Fayetteville can be found in Figure 2. As previously mentioned, note the large temperature swings throughout the month due to frequent cold frontal passages. There were four days with lows of 32°F or below at Raleigh, with three such days at Greensboro and one at Fayetteville. The turnaround warmth as the cold high pressures shifted away was just as aggressive. Greensboro and Raleigh had eight days with highs of at least 80°F, and Fayetteville had 13, including a monthly high of 88°F on 4/29.



As displayed by the radar-estimated precipitation and the radar-estimated precipitation departure from normal in Figures 3 and 4, April was dry everywhere except the far northeast part of North Carolina. Monthly precipitation ranged from about a half inch to one and a half inches for most of central NC. However, it was as low as a quarter to half an inch in parts of the Sandhills to as high as 3 to 4 inches in the far northern Coastal Plain. This meant central NC was generally 1 to 3 inches drier than normal, except in the far northeast where it was near normal.

Fig. 3: Radar-Estimated Monthly Precipitation

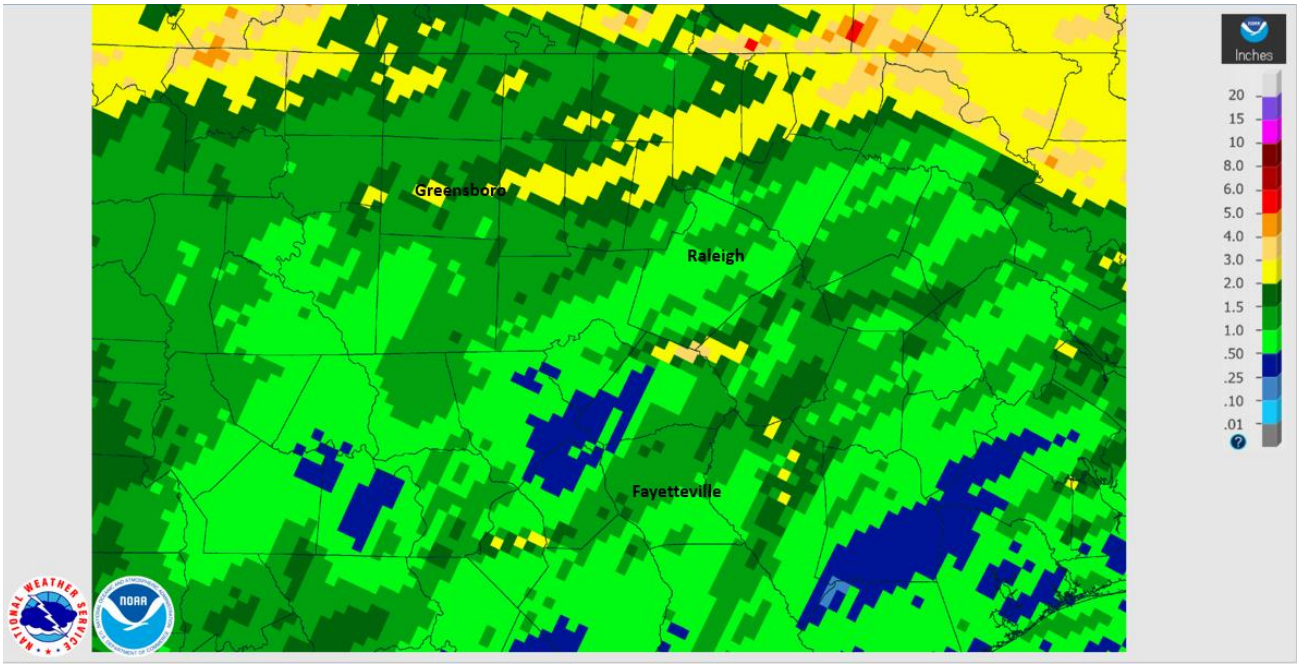
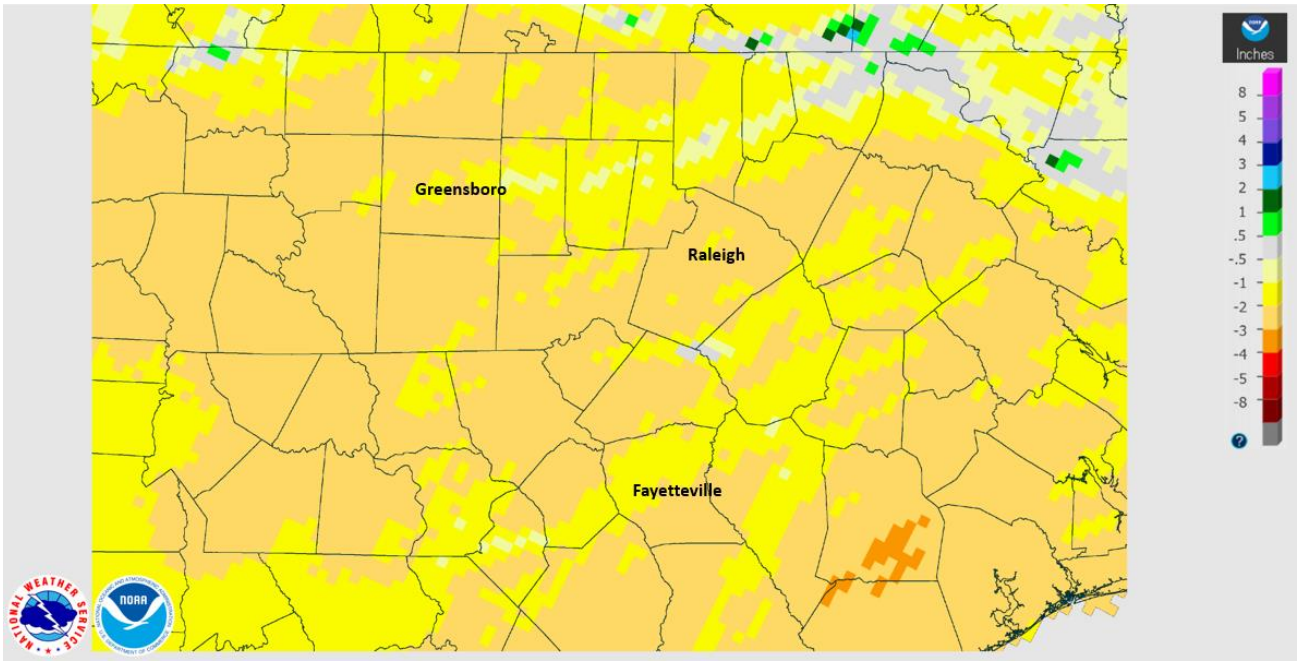
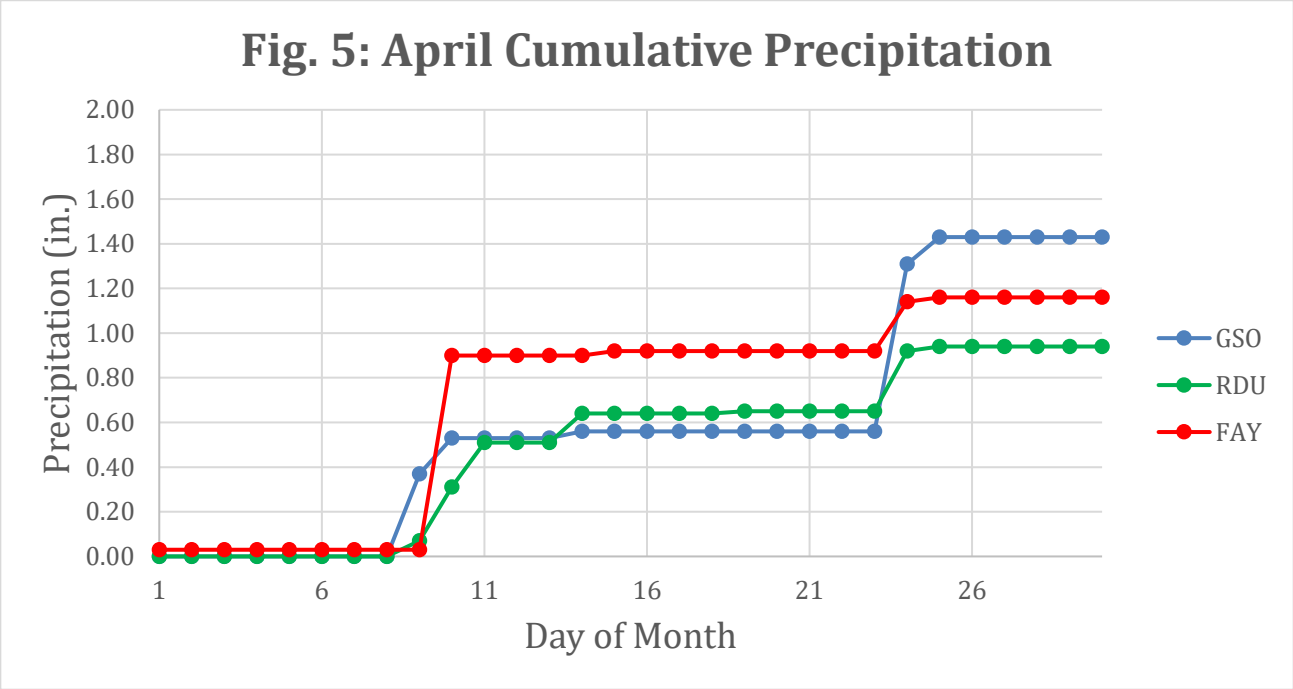


Fig. 4: Radar-Estimated Monthly Departure from Normal Precipitation



The cumulative precipitation at the three climate sites for the month of April is shown in Figure 5. The main periods with precipitation were April 9-11 and April 24-25, with the rest of the month almost entirely dry.

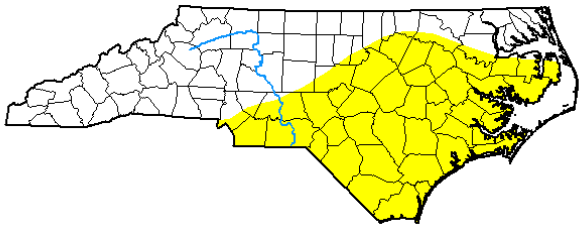


Additional selected ASOS or cooperative observations for April 2021: Winston-Salem (Forsyth County) 1.21 inches (2.50 inches below normal), Lexington (Davidson County) 1.26 inches (2.60 below normal), Mount Airy (Surry County) 2.74 inches (1.55 below normal), Raleigh (NCSU) 1.21 inches (2.42 below normal), Louisburg (Franklin County) 0.88 inches (2.60 below normal), Rocky Mount (Nash County) 1.20 inches (2.41 below normal), Clinton (Sampson County) 3.33 inches (0.08 below normal), Asheboro (Randolph County) 1.04 inches (2.90 below normal), and Jackson Springs (Montgomery County) 0.76 inches (2.29 below normal).

The lack of precipitation in April resulted in the US Drought Monitor introducing an area of D0 Abnormally Dry conditions for a large part of NC, from around Raleigh to the south and east. This is shown in the figure on the next page.

U.S. Drought Monitor

North Carolina



April 27, 2021

(Released Thursday, Apr. 29, 2021)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	49.22	50.78	0.00	0.00	0.00	0.00
Last Week 04-20-2021	88.01	11.99	0.00	0.00	0.00	0.00
3 Months Ago 01-26-2021	98.06	1.94	0.00	0.00	0.00	0.00
Start of Calendar Year 12-29-2020	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 09-29-2020	100.00	0.00	0.00	0.00	0.00	0.00
One Year Ago 04-28-2020	100.00	0.00	0.00	0.00	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

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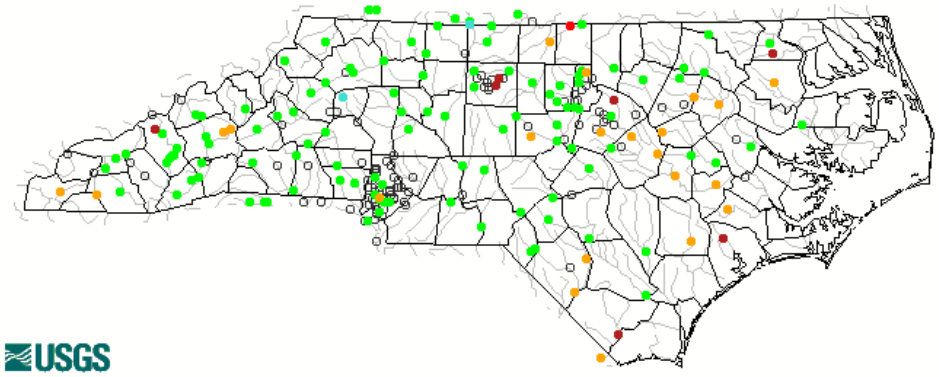
NCEI/NOAA

droughtmonitor.unl.edu

The dry weather also resulted in below-normal streamflow and soil moisture across NC, as displayed in the figures below.

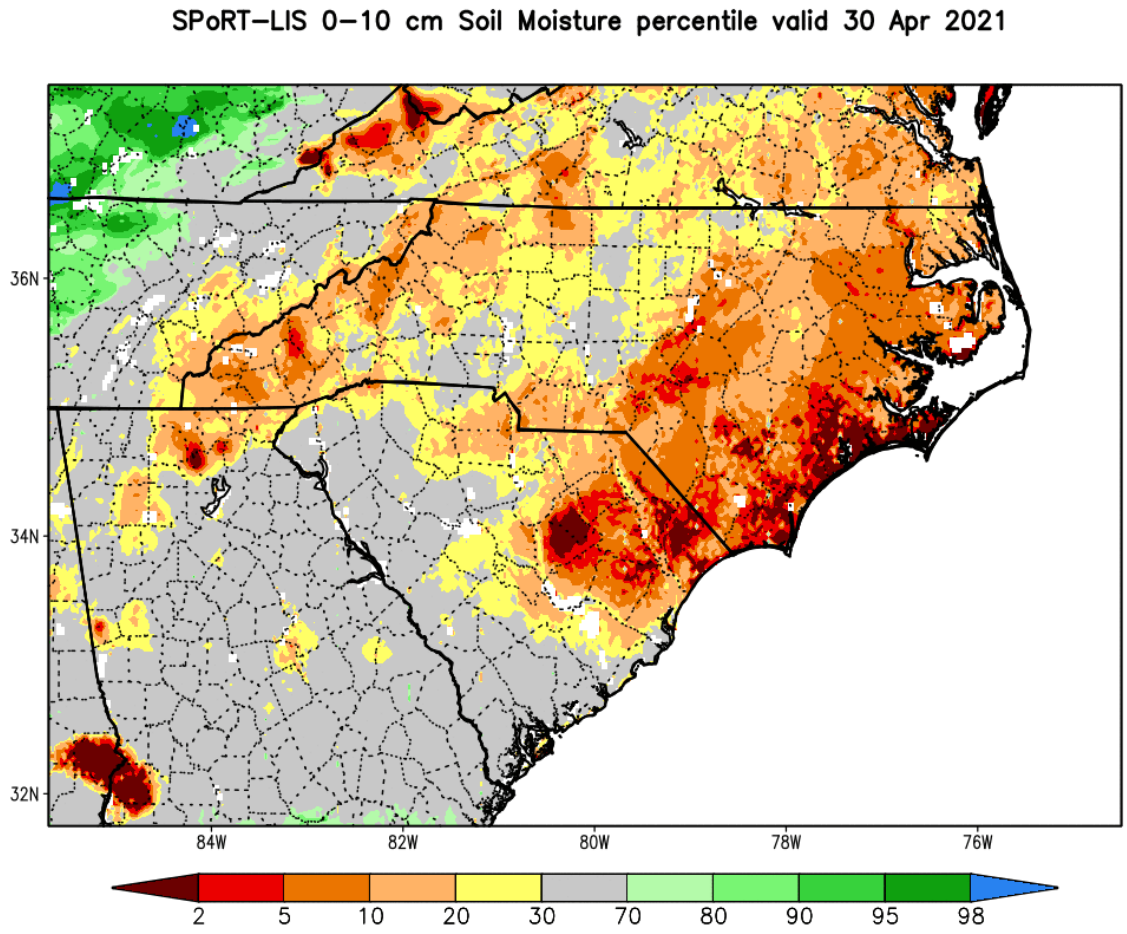
Map of 7-day average streamflow compared to historical streamflow for the day of the year (North Carolina)

Sunday, May 02, 2021



USGS

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



Other notes:

Days with thunderstorms this month:

Greensboro: 2
Raleigh: 1
Fayetteville: 0

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

Greensboro: 0
Raleigh: 0
Fayetteville: 1

Number of days with lows of 32°F or below this month:

Greensboro: 3
Raleigh: 4
Fayetteville: 1

Strongest wind gusts and direction:

Greensboro: SW at 45 mph on April 29
Raleigh: SW at 40 mph on April 29
Fayetteville: SW at 42 mph on April 21

Monthly records:

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

Daily records:

Greensboro:

None.

Raleigh:

A daily record low temperature of 32°F was tied on April 22. The old record was last set in 1978.

A daily record low temperature of 31°F was set on April 23. This broke the old record of 33°F set in 1986.

Fayetteville:

A daily record low temperature of 30°F was tied on April 3. The old record was last set in 1992.

A daily record low temperature of 33°F was tied on April 22. The old record was last set in 1953.

A daily record low temperature of 35°F was tied on April 23. The old record was last set in 1927.