

March 2022 Central NC Climate Summary

By Phillip Badgett and James Danco

Spring comes early in March 2022, and March goes out like a lion.

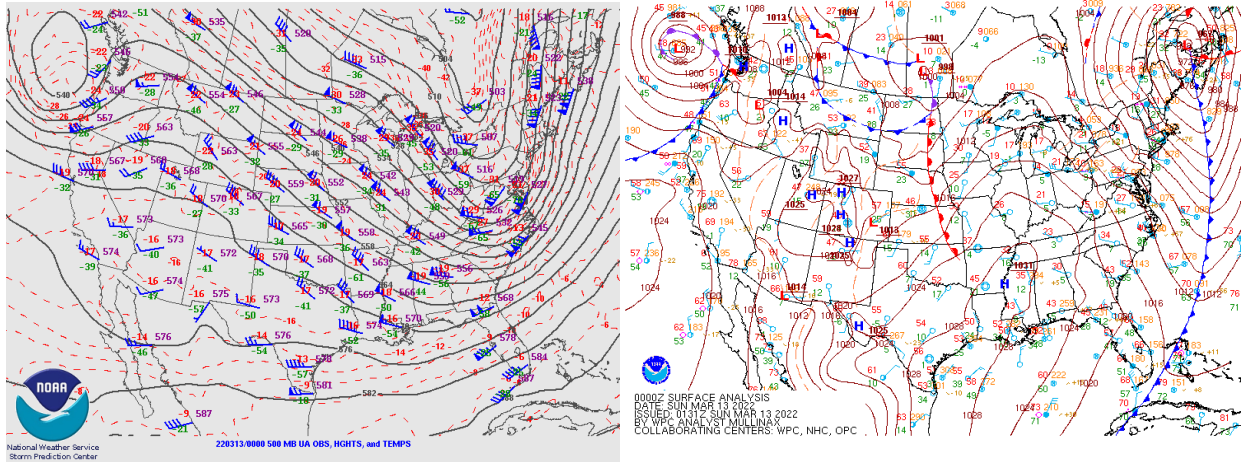
March 2022 brought frequent days with spring-like temperatures. Frequent showers also led to above-normal rainfall across most of central NC, outside of the Coastal Plain. Spring-like temperatures arrived early in March (particularly March 3 when widespread temperatures in the 80s were observed), and the warmth continued with only a few cold spells throughout the month. However, one of the cold spells was particularly harsh. An intense mid and upper level trough sent a strong cold front and surge of very cold air into central NC, sending temperatures into the teens over portions of the Piedmont on March 13. Greensboro fell to 19°F on March 13, while Raleigh fell to 23°F and Fayetteville 24°F. Other cooperative observers' lows included: Albemarle 18°F, Burlington 20°F, Henderson 20°F, Siler City 21°F, Cary 22°F, Louisburg 22°F. Figure 1 depicts the upper-level and surface patterns as observed on the evening of March 12, 2022. Note the anomalously strong and cold upper trough over the Great Lakes to the Mid-Atlantic states, with the cold front already off the coast. A warmup followed quickly with high temperatures returning into the 70s to lower 80s from March 15-19.

The preliminary monthly temperatures across the state of NC averaged 53.4°F according to NCEI, which ranked March 2022 as the 19th-warmest since 1895. The March monthly average temperatures and their departures from normal at the three climate sites in central NC are depicted in Table 1. All three locations were 3°F to 5°F warmer than normal. Greensboro tied its 12th-warmest March on record, and both Raleigh and Fayetteville had their 12th-warmest Marches on record. According to the NC Climate Office, temperatures in Raleigh reached at least 70°F on 17 of the 31 days, which tied for the 4th-most 70°F+ days in any March and the most since 2012.

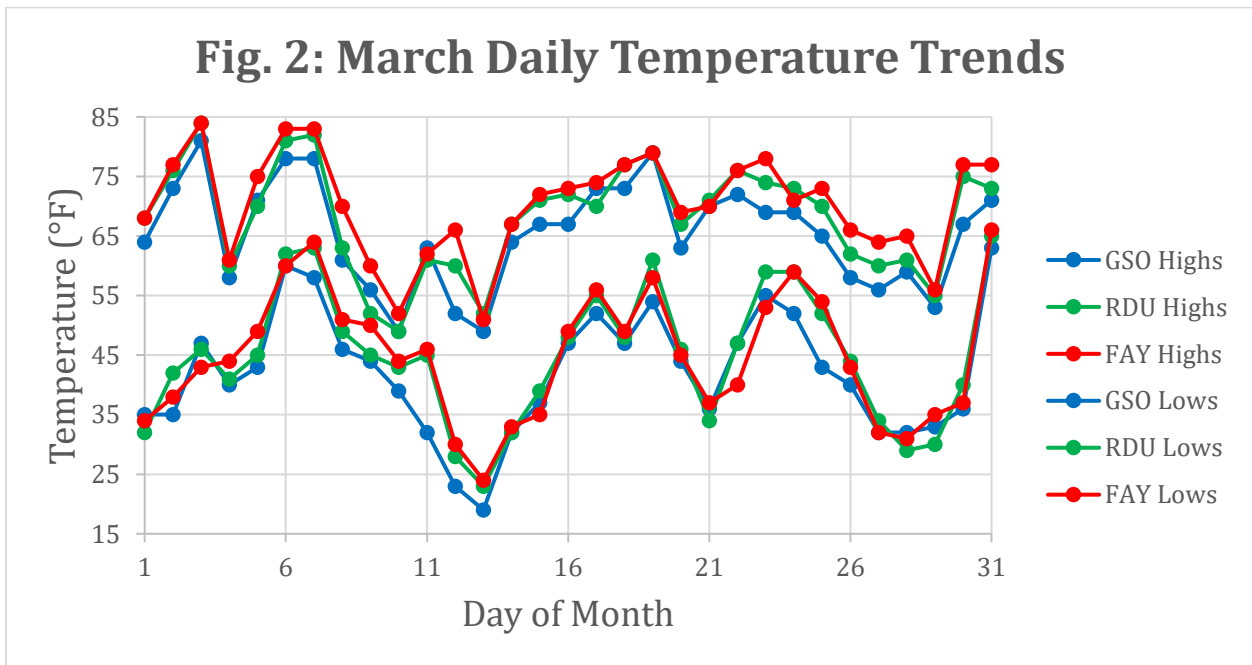
Table 1: Monthly Temperature Statistics

Site	Avg High Temp (°F)	Avg Low Temp (°F)	Avg Temp (°F)	Departure From Normal (°F)	Maximum Temperature (°F)	Minimum temperature (°F)
Greensboro (GSO)	65.4	42.0	53.7	+3.4	81 on 3/3	19 on 3/13
Raleigh-Durham (RDU)	68.1	44.7	56.4	+4.6	84 on 3/3	23 on 3/13
Fayetteville (FAY)	70.2	44.8	57.5	+3.7	84 on 3/3	24 on 3/13

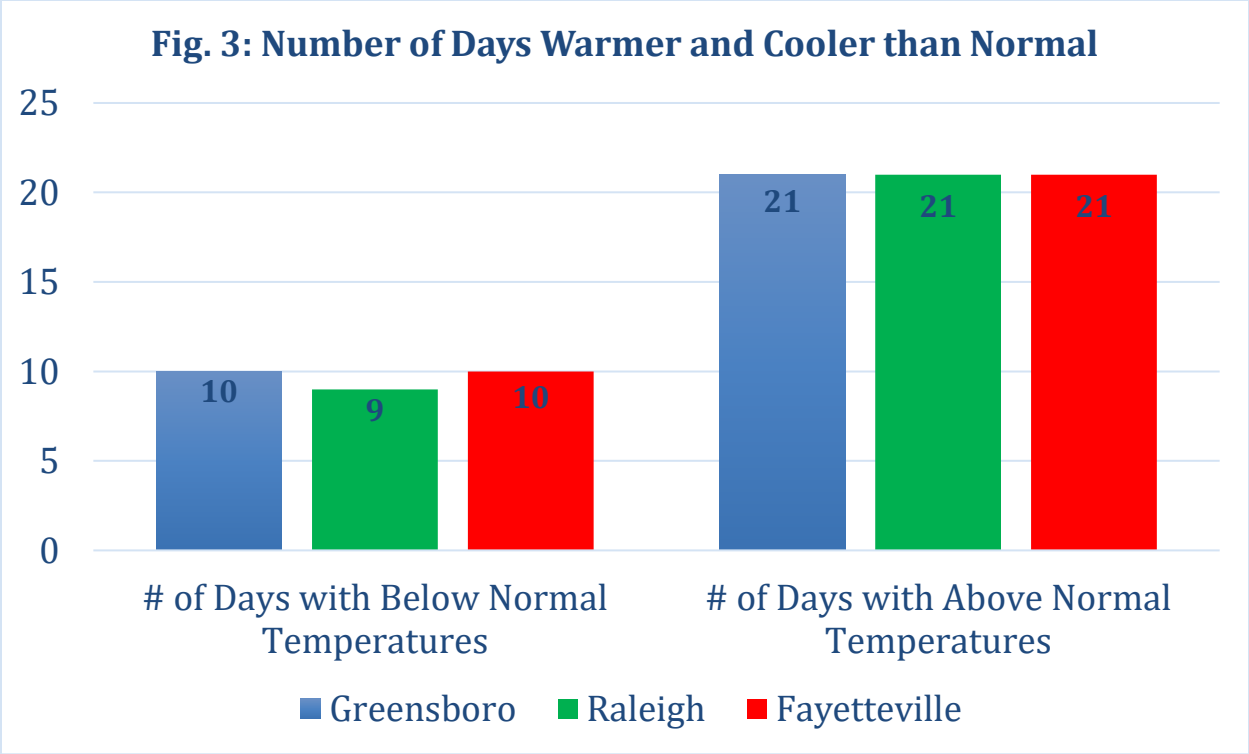
Fig. 1: 500 mb Observations, Heights, and Temperatures (left) and Surface Analysis (right) on 3/12



The time series of daily temperature for the month at Greensboro, Raleigh, and Fayetteville can be found in Figure 2.



As shown in Figure 3, two-thirds of all days in the month of March were warmer than normal at the three climate sites.

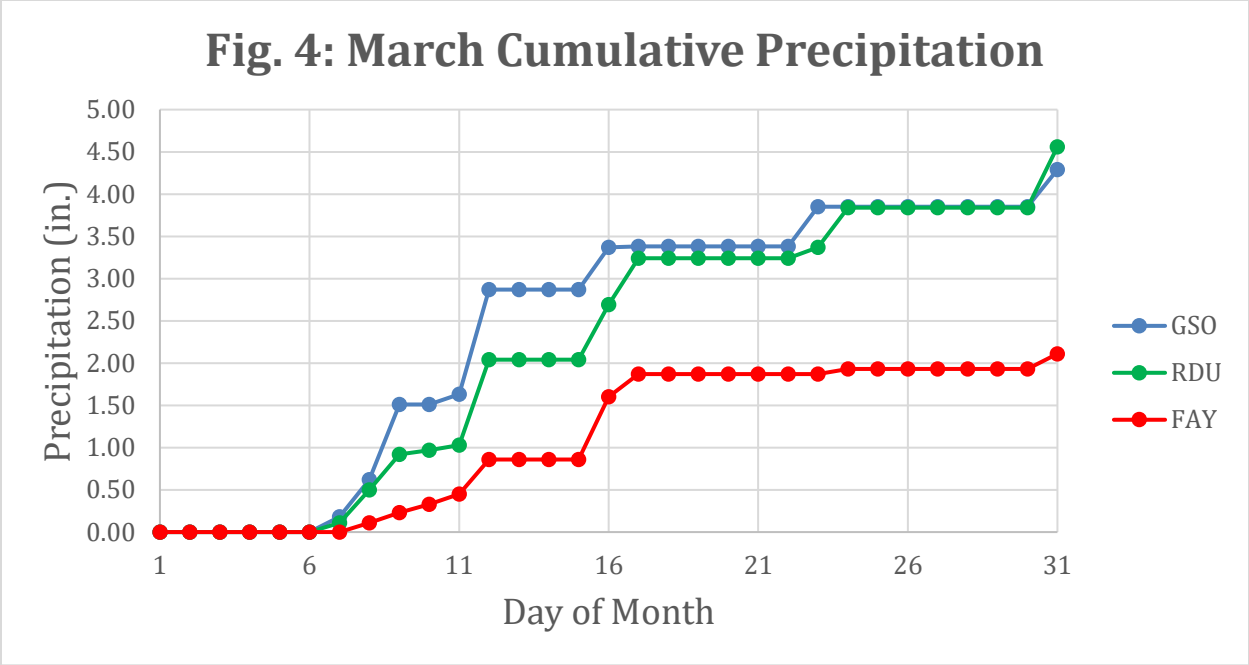


There were several low pressure systems that brought soaking rain to parts of the region during March. Just as in February, much of the heavier rain fell over the western and central part of the state. The totals were much lower east of Interstate 95 southeast to the coast. By month’s end, Greensboro and Raleigh were around a half inch wetter than normal, while Fayetteville was about an inch drier than normal. The March monthly precipitation totals and their departures from normal at the three climates sites are found in Table 2. According to NCEI, the preliminary statewide average precipitation totaled 3.85 inches. This made it the 55th-driest March since 1895.

Table 2: Monthly Precipitation Statistics

Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	4.29	+0.57	1.24 on 3/12
Raleigh-Durham (RDU)	4.56	+0.46	1.01 on 3/12
Fayetteville (FAY)	2.11	-0.97	0.74 on 3/16

The cumulative precipitation at the three climate sites for the month of March is shown in Figure 4. Note the dry start and end to the month, with much of the precipitation occurring in the middle.



Additional selected rainfall amounts from ASOS or cooperative observations in central NC for March 2022 are listed below. Note the above-normal rainfall in the western part of the region and below-normal rainfall in the east.

Winston-Salem (Forsyth County) 4.12 inches (0.52 above normal), Mount Airy (Surry County) 3.93 inches (0.17 above normal), Raleigh (NCSU) 4.31 inches (0.14 above normal), Louisburg (Franklin County) 5.23 inches (1.17 above normal), Rocky Mount (Nash County) 2.24 inches (1.73 below normal), Clinton (Sampson County) 1.94 inches (1.74 below normal), Asheboro (Randolph County) 5.31 inches (1.22 above normal), Yadkinville (Yadkin County) 3.41 inches (0.52 below normal), Reidsville (Rockingham County) 3.83 inches (0.47 below normal), Tarboro (Edgecombe County) 1.85 inches (1.86 below normal), and Erwin-Dunn (Harnett County) 3.49 inches (0.19 below normal).

Radar-estimated precipitation and the radar-estimated precipitation departure from normal are shown in Figures 5 and 6. Note the relatively sharp gradient near I-95, with areas west of I-95 receiving as much as 5 to 8 inches (1 to 4 inches above normal) and areas east of I-95 only getting 1 to 3 inches (1 to 3 inches below normal).

Fig. 5: Radar-Estimated Monthly Precipitation

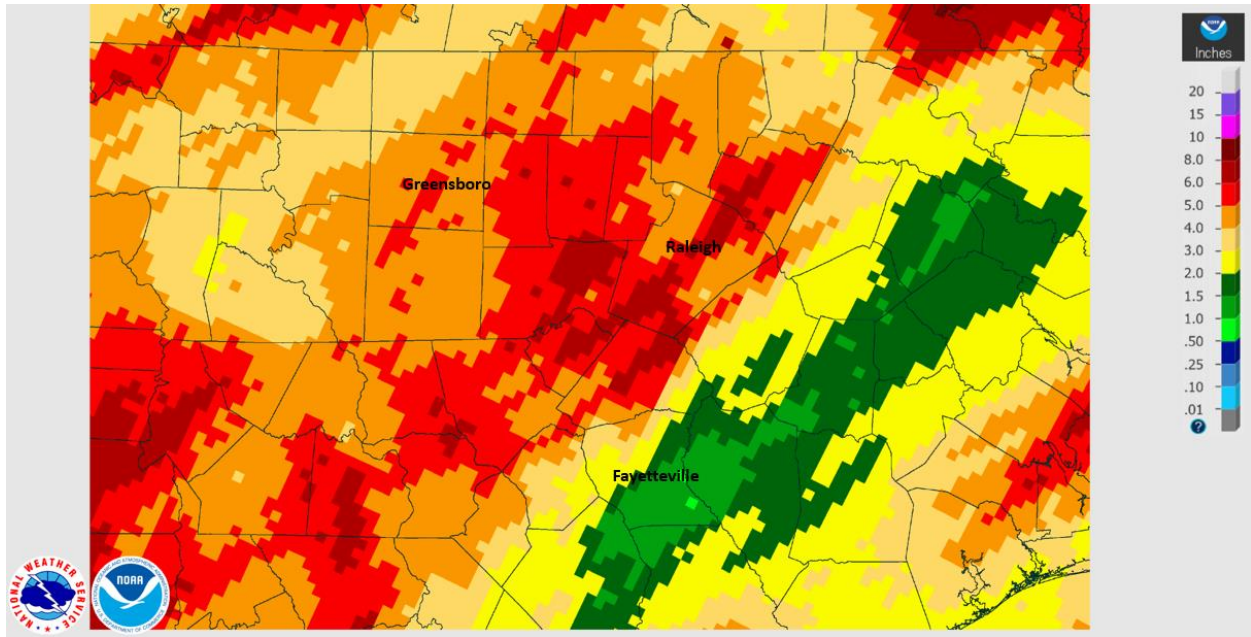
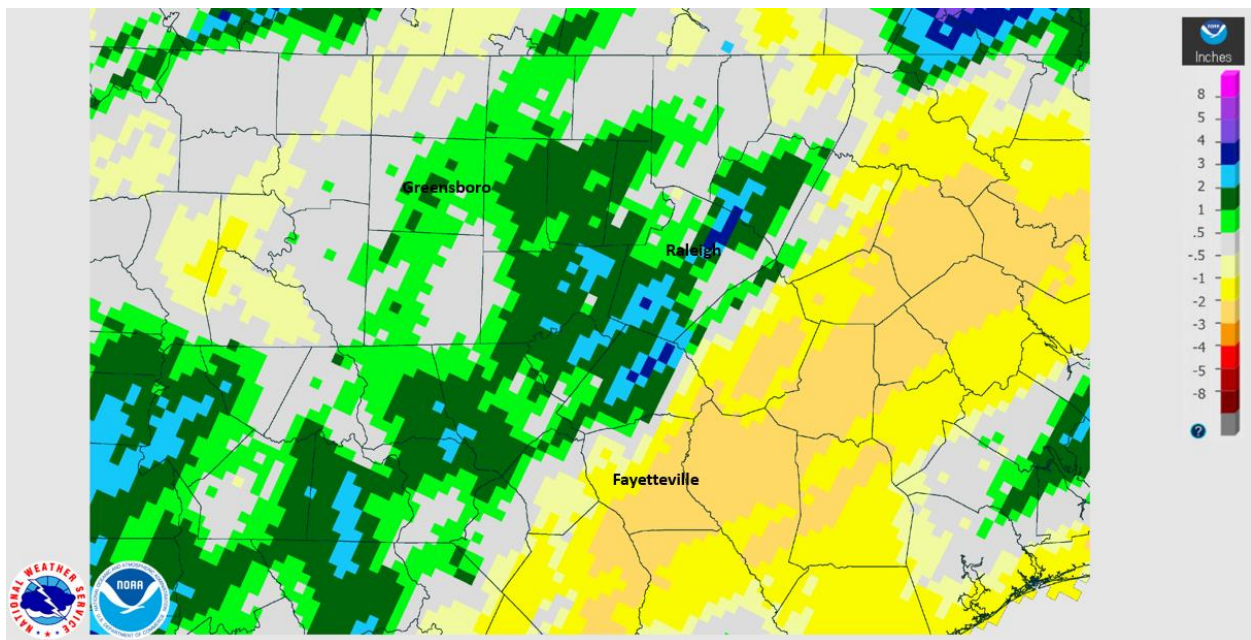


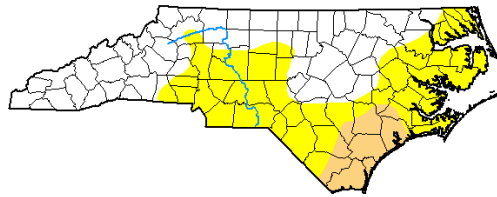
Fig. 6: Radar-Estimated Monthly Departure from Normal Precipitation



As shown in Figure 7, March's rainfall over the Piedmont and western Sandhills did help remove the D0 (Abnormally Dry) conditions there by the end of the month. But the dryness farther east over the Coastal Plain helped to greatly expand the D1 (Moderate Drought) conditions, with even some D2 (Severe Drought) being introduced along the southern coast.

Fig. 7: U.S. Drought Monitor for North Carolina on March 1 (top) and March 29 (bottom)

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



March 1, 2022
(Released Thursday, Mar. 3, 2022)
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	48.29	51.71	9.10	0.00	0.00	0.00
Last Week 02-23-2022	39.25	60.75	9.10	0.00	0.00	0.00
3 Months Ago 11-30-2021	13.44	86.56	64.80	16.93	0.00	0.00
Start of Calendar Year 01-04-2022	2.84	97.16	60.20	2.76	0.00	0.00
Start of Water Year 09-28-2021	91.27	8.73	0.00	0.00	0.00	0.00
One Year Ago 03-02-2021	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

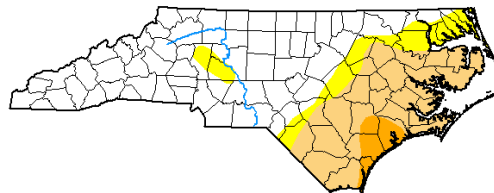
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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



March 29, 2022
(Released Thursday, Mar. 31, 2022)
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	59.00	41.00	30.66	3.54	0.00	0.00
Last Week 03-22-2022	56.25	43.75	30.35	2.85	0.00	0.00
3 Months Ago 12-28-2021	0.70	99.30	86.81	41.64	0.00	0.00
Start of Calendar Year 01-04-2022	2.84	97.16	60.20	2.76	0.00	0.00
Start of Water Year 09-28-2021	91.27	8.73	0.00	0.00	0.00	0.00
One Year Ago 03-30-2021	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>

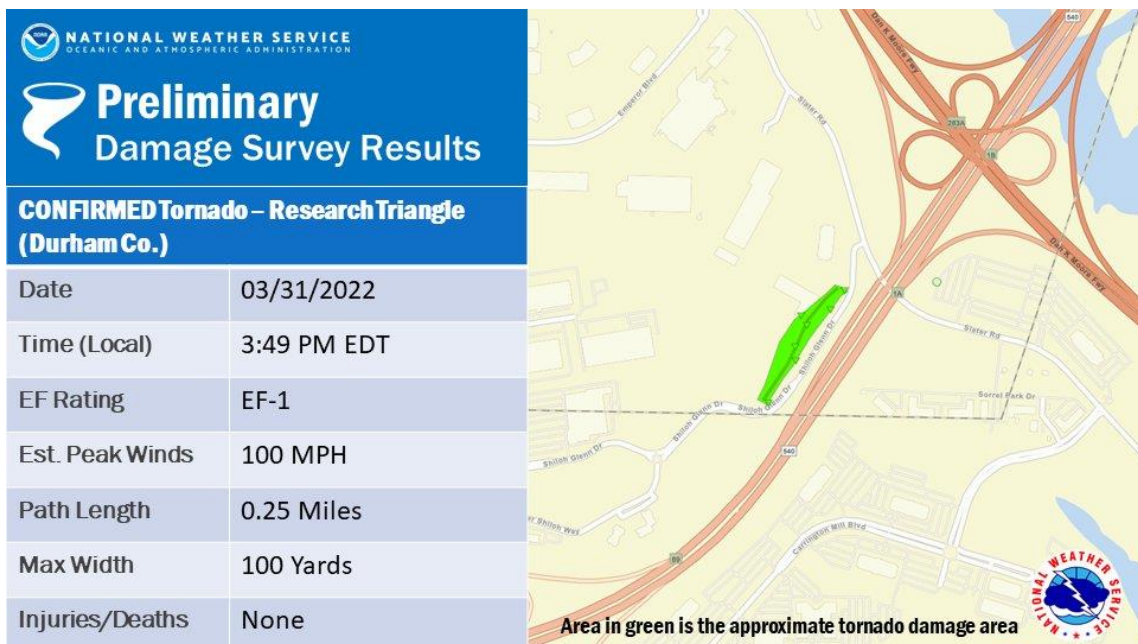
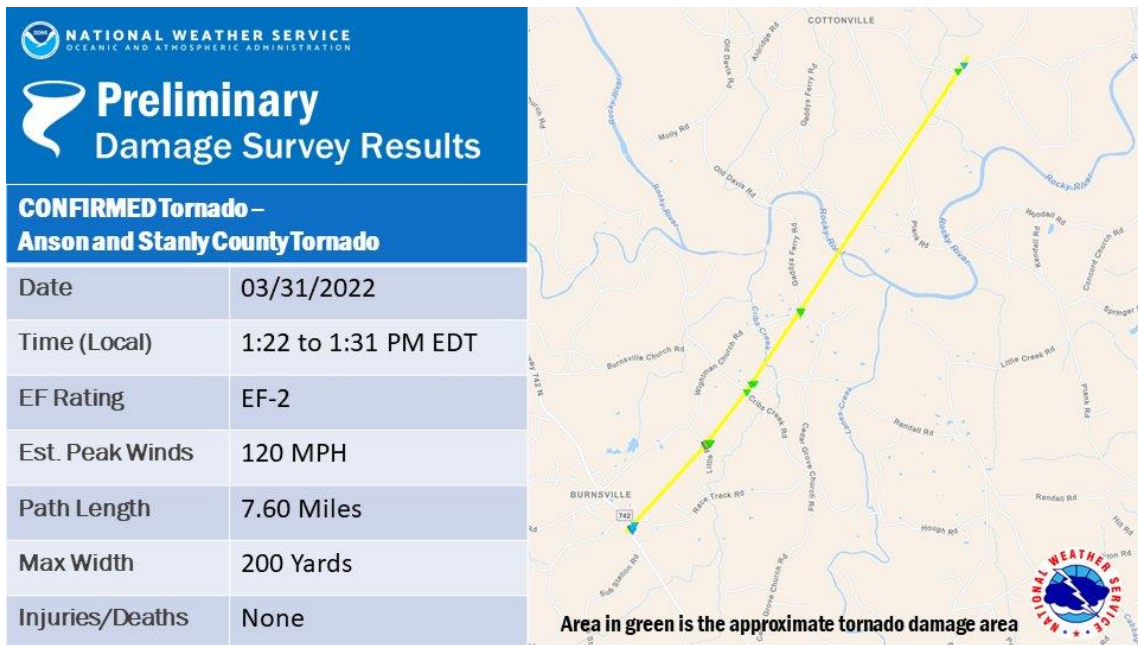
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droughtmonitor.unl.edu

Along with the warmer temperatures, severe weather made an appearance in March. The month ended with widespread showers and thunderstorms on March 31. Some of these storms became severe over central NC. Two tornadoes were reported during the afternoon hours. Figure 8 shows the damage survey information from the National Weather Service in Raleigh. The tornado at the Research Triangle snapped numerous trees and dislodged an HVAC unit. Due to the nasty storms on March 31, 2022, one could conclude that March went out like a roar of a lion.

Fig. 8: Details on the Anson and Stanly County EF-2 Tornado (top) and Research Triangle EF-1 Tornado (bottom)



Other notes:

Days with thunderstorms this month:

Greensboro: 2
Raleigh: 3
Fayetteville: 2

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

Greensboro: 1
Raleigh: 0
Fayetteville: 0

Days with snow reported this month:

Greensboro: 0
Raleigh: 0
Fayetteville: 0

Strongest wind gusts and direction:

Greensboro: NW (300 degrees) at 51 mph on March 7
S (170 degrees) at 51 mph on March 31

Raleigh: SW (210 degrees) at 50 mph on March 31

Fayetteville: S (180 degrees) at 46 mph on March 31

Daily records for March 2022:

Greensboro:

A record high temperature of 78°F was set on March 6. This broke the old record of 77°F set in 1956.

A record high minimum temperature of 63°F was tied on March 31. This record was previously set in 1938.

Raleigh:

A record high minimum temperature of 61°F was set on March 19. This broke the old record of 60°F set in 1927.

A record high minimum temperature of 65°F was tied on March 31. This record was previously set in 1938.

Fayetteville:

A record high temperature of 84°F was set on March 3. This broke the old record of 83°F last set in 1997.

A record high minimum temperature of 66°F was set on March 31. This broke the old record of 64°F set in 1989.

Monthly records:

None.