

February 2020 Central NC Climate Summary

By Phillip Badgett and James Danco

February 2020 was warm, wet and stormy.

February 2020 continued this winter season's theme: warm and wet. The monthly temperatures averaged generally 3 to 4°F warmer than the 30-year average across central NC. Precipitation was well above normal, by 1 to 2 inches across the southeast to as much as 4 to 5 inches in the Triad region. This led to ample runoff which produced considerable river flooding. The other highlights of the month included several severe weather outbreaks and one light snowfall event.

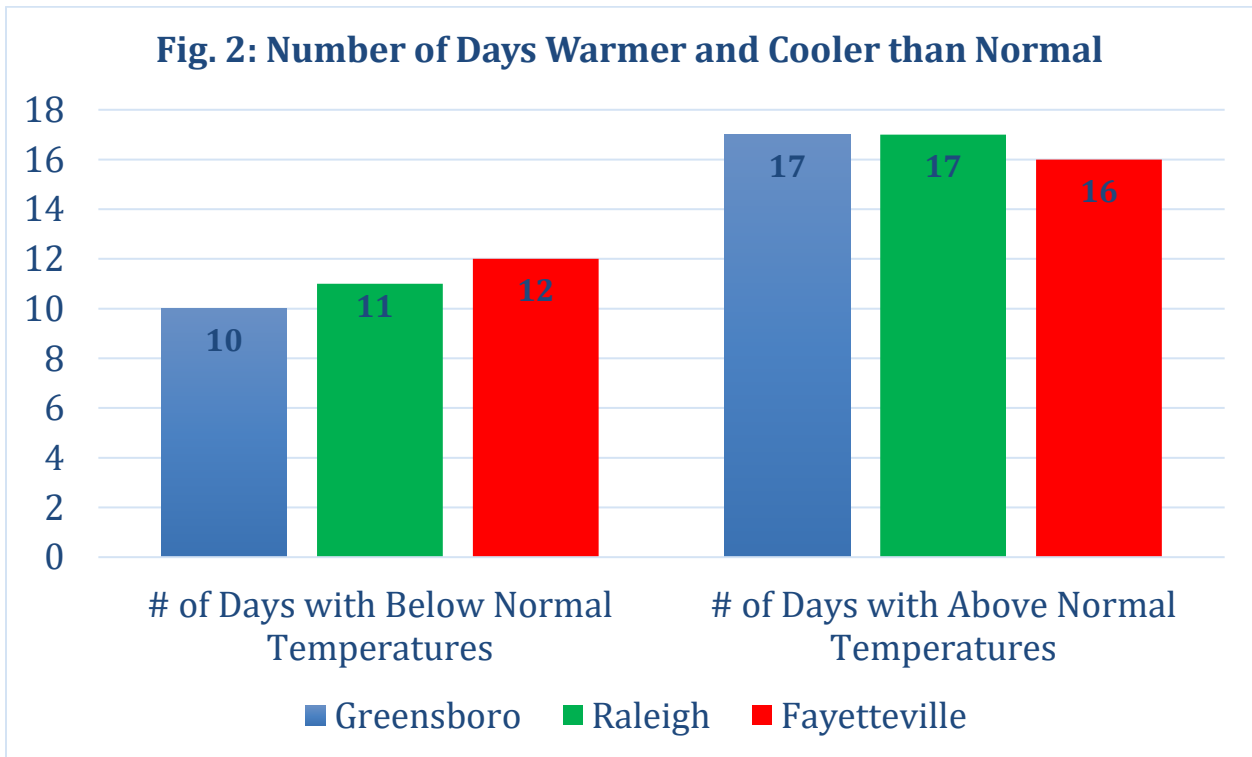
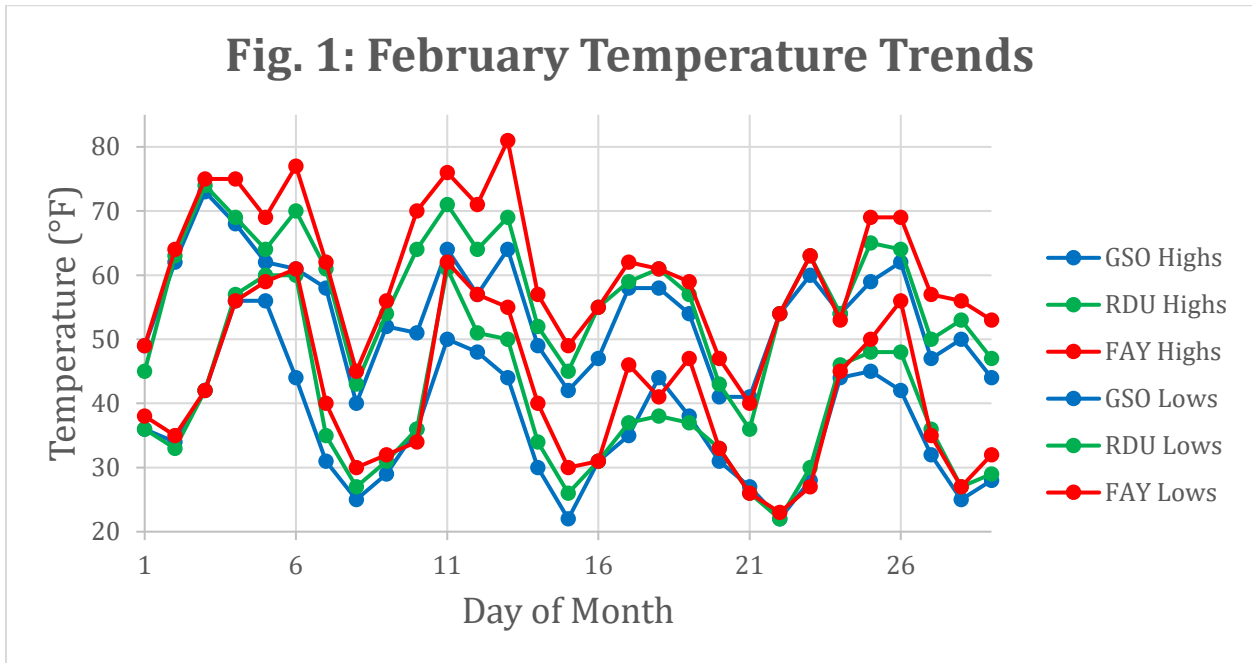
The monthly average temperatures and their departures from normal at the three climate sites are depicted in Table 1.

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)	54.5	36.4	45.4	+3.0	73 on 2/3	22 on 2/15 and 2/22
Raleigh-Durham (RDU)	57.6	38.9	48.2	+3.7	74 on 2/3	22 on 2/22
Fayetteville (FAY)	61.2	41.0	51.1	+3.8	81 on 2/13	23 on 2/22

In a continuation of the pattern that became established in December 2019, the main flow across the United States during February 2020 was Pacific dominated. This flow pattern kept the heavy rain and stormy pattern going and also kept the cold air well north and west of North Carolina. The time series of daily temperature for the month at Greensboro, Raleigh, and Fayetteville can be found in Figure 1. The warmest periods occurred during the first two weeks of the month when daily average temperatures soared at times to between 15°F and 25°F above normal. Raleigh reported daily departures from normal of +22°F on February 6 and 11. Raleigh reached 74°F on February 3 for the highest temperature of the month, and Greensboro reached 73°F on the same day. Fayetteville reached its monthly high temperature of 81°F on February 13, which set a new daily record high. The previous record was 76°F in 1918. All three climate sites also recorded new daily record high minimum temperatures on February 5, with both Greensboro and Raleigh recording a daily record high minimum temperature on February 4, as well. The

coldest readings this month only reached into the lower 20s. The warmth was felt through a majority of February with about 55-60% of the days recording above normal temperatures (Figure 2).



February 2020 continued the wet trend that began in December 2019, making this the third straight wet month. As shown in Table 2, Greensboro received 7.23 inches of precipitation, which was 4.27 inches above normal. This made the month the wettest February on record at Greensboro. Raleigh and Fayetteville both received close to 5 inches, which was also well above normal. As displayed by the radar-estimated precipitation in Figure 3, final monthly totals were generally in the 4 to 8 inch range across central NC, wettest to the northwest. These amounts generally ranged from around 1 to 5 inches above normal (Figure 4).

Fig. 3: Radar-Estimated Monthly Precipitation

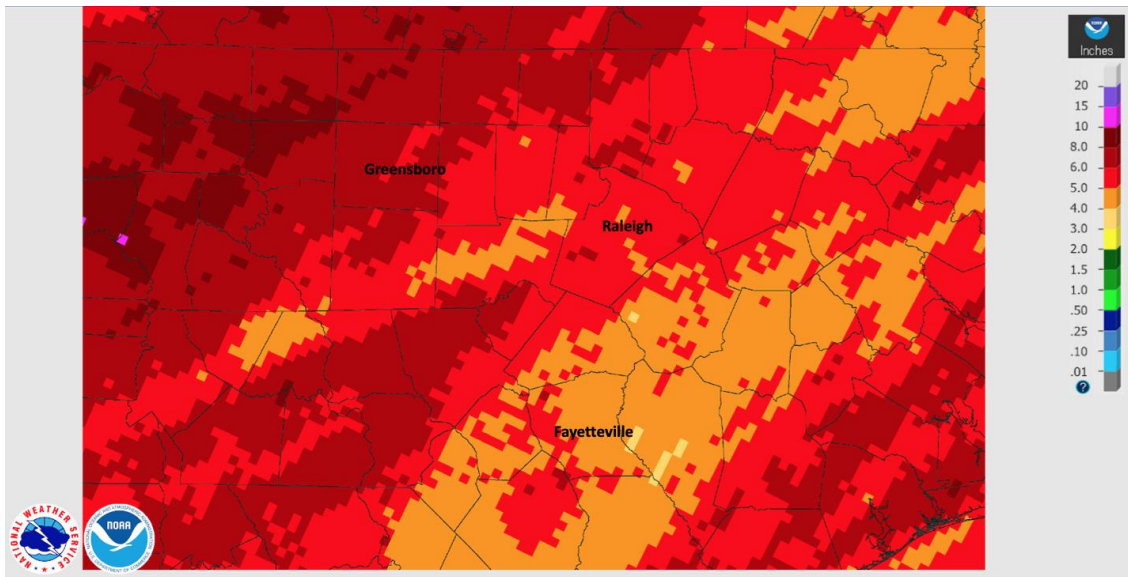


Fig. 4: Radar-Estimated Monthly Departure from Normal Precipitation

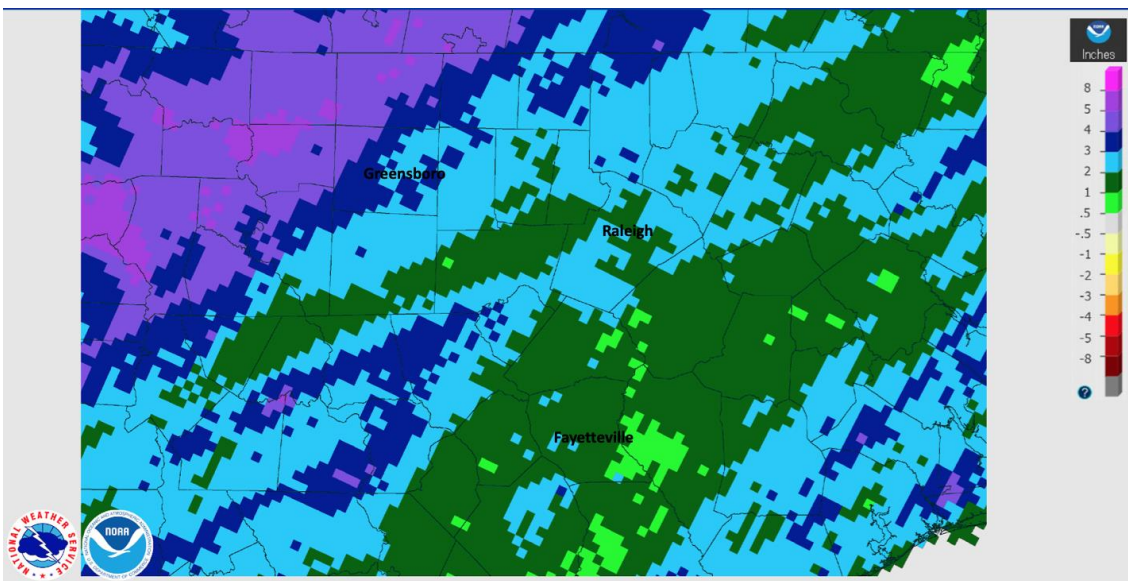
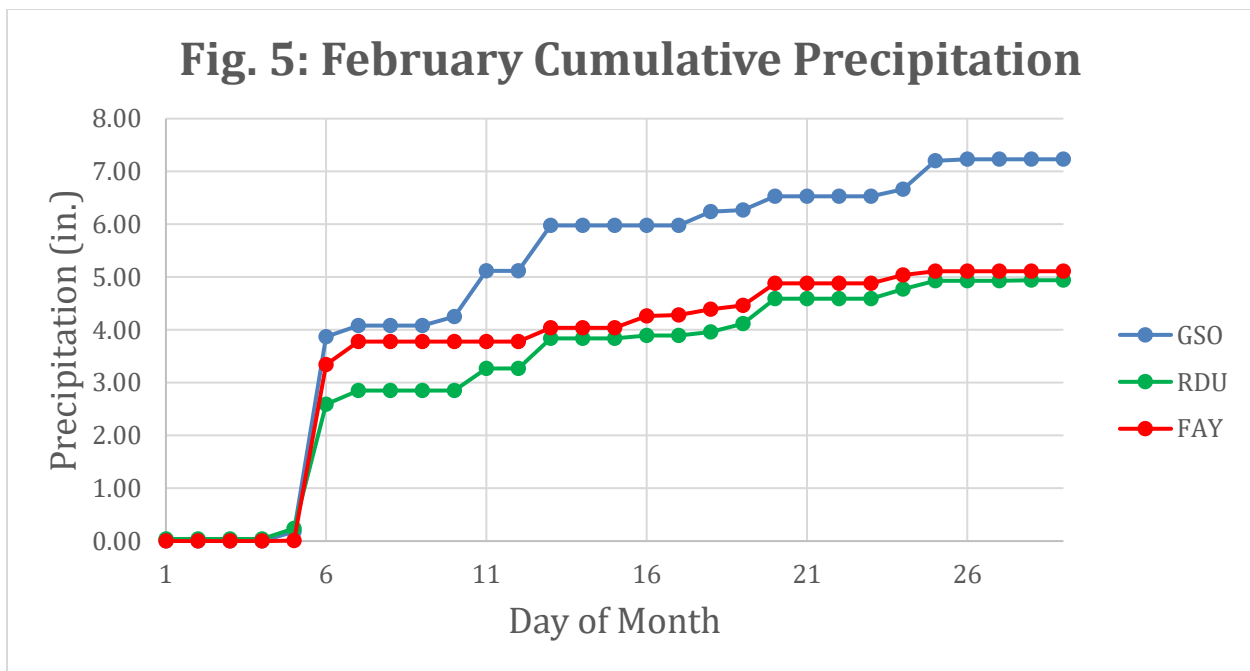


Table 2: Monthly Precipitation Statistics

Site	Total precipitation (in.)	Departure from Normal (in.)	Max Daily Precipitation (in.)
Greensboro (GSO)	7.23	+4.27	3.69 on 2/6
Raleigh-Durham (RDU)	4.94	+1.71	2.35 on 2/6
Fayetteville (FAY)	5.11	+2.35	3.33 on 2/6

The cumulative precipitation at the three climate sites for the month of February is shown in Figure 5. Measurable precipitation fell on 12 of the 29 days at Greensboro, 13 of the 29 days at Raleigh, and 11 of the 29 days at Fayetteville.

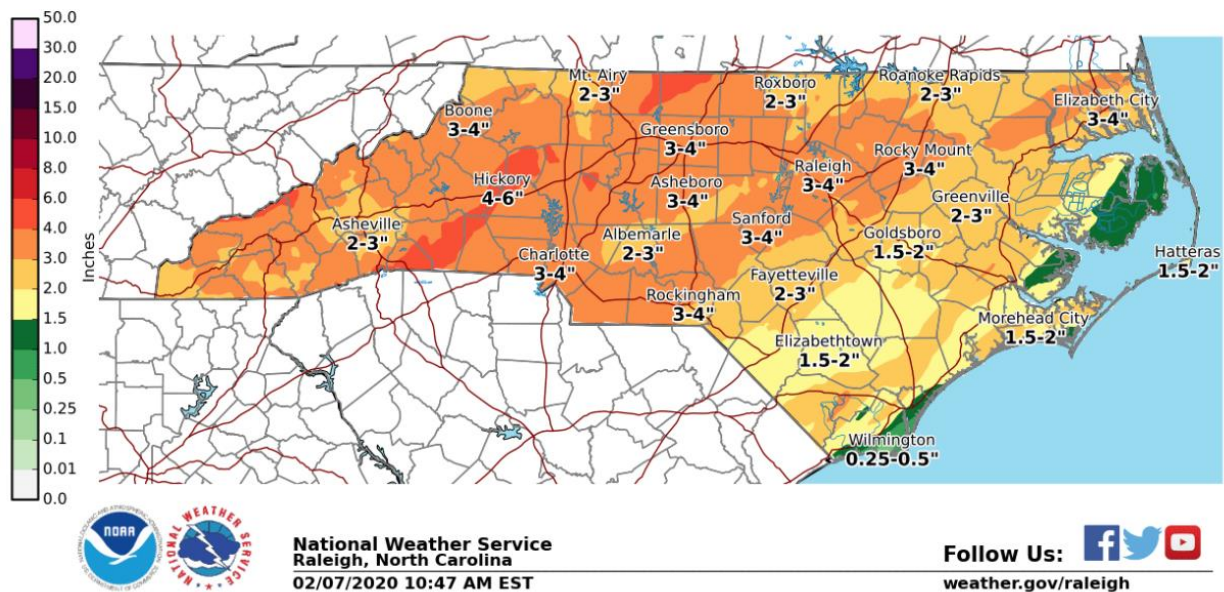


There were several significant rainfall events during the month, but it was the heavy rain event that occurred from February 5-7 that led to widespread river flooding, including moderate to major flooding along parts of the Neuse and Tar Rivers. A strong upper-level trough tracked east across NC from the Gulf Coast states bringing the heavy rain and severe weather. A warm front produced heavy rain on February 5 and 6, which was followed by the main cold front and surface wave in the afternoon and evening of February 6. This is when a line of strong to severe thunderstorms raced across the state, producing widespread damaging wind gusts. There were many reports of downed trees and power lines. A bow echo produced 80-100 mph straight-line winds near Enfield (Halifax County) and near Bunn (Franklin County), which snapped and

uprooted trees and resulted in minor to moderate damage to numerous structures. In addition, two EF-1 tornadoes were confirmed, one in Randolph County and one in Stanly County. Widespread strong damaging winds continued into the morning of February 7, when wind gusts reached 58 mph at Fayetteville, and 54 mph at both Raleigh and Greensboro.

As shown in Figure 6, storm total rainfall amounts for the February 5-7 event generally ranged from 2 to 4 inches across central NC. This included 4.32 inches at the NWS Raleigh office. In addition, the 24-hour rainfall totals on February 6 of 3.69 inches and 3.33 inches at Greensboro and Fayetteville, respectively, not only shattered the previous daily precipitation records, but they also broke the record for the wettest day ever recorded in the month of February at both locations. At Greensboro, the previous record was 2.59 inches set on February 2, 1916, and at Fayetteville, the previous record was 2.70 inches set on February 4, 1998.

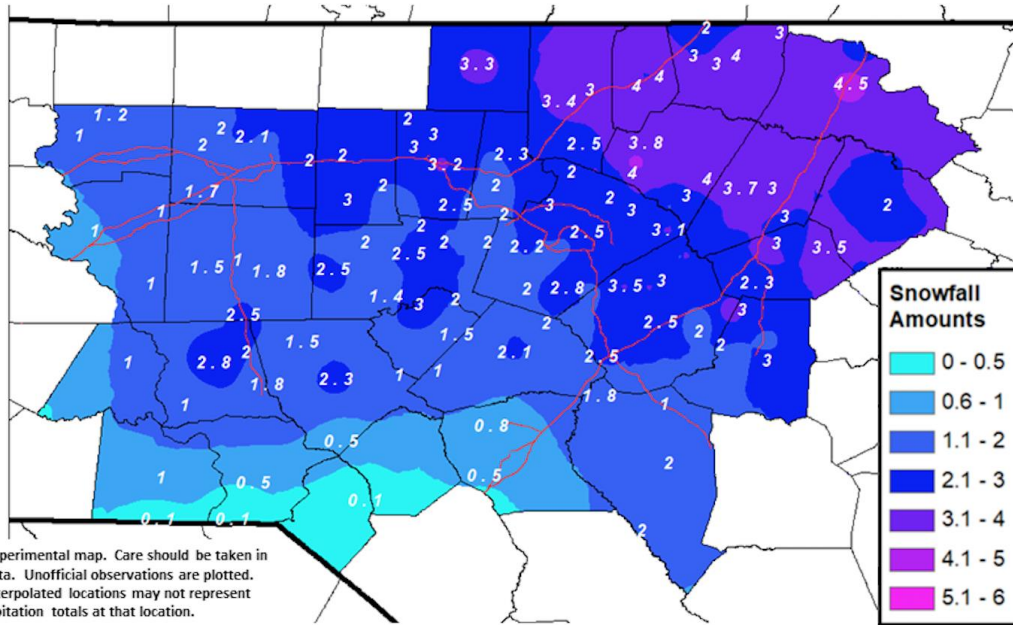
Fig. 6: Storm Total Rainfall for February 5-7, 2020 in NC



Given the amount of warmth during the month, a somewhat surprising snow event occurred on February 20-21. It took perfect timing of a cold high pressure system arriving from the north, coinciding with the approach of a mid and upper level trough from the west to produce the only snow event of the winter. As precipitation developed during the day on February 20, colder air continued to be advected into NC courtesy of strong high pressure located over the Great Lakes. A brief mixture of rain and snow changed to snow as the precipitation spread east throughout central NC during the late afternoon and early evening. Temperatures were near or slightly above freezing during the late afternoon, limiting accumulations. Temperatures fell below freezing during the evening and the snow accumulated rapidly. This produced slick travel conditions throughout the region. By late evening, light snow was falling over much of central NC. The snow ended shortly after midnight at most locations. Storm total snowfall amounts ranged between 1 and 4 inches, with most Triad and Triangle locations receiving between 2 and 3 inches. Greensboro reported 2.0 inches of snow, which tied the daily snowfall record for February 20 originally set in 1904. Raleigh reported 2.5 inches of snow. This was also a daily record, breaking the previous

record daily snowfall of 0.8 inches set back in 1907. Figure 7 is a map of the unofficial snowfall measurements in central NC from the February 20-21 event.

Fig. 7: Snowfall (inches) from the February 20-21, 2020 Snow Event in Central NC



Website: www.weather.gov/raleigh

Twitter: [@NWSRaleigh](https://twitter.com/NWSRaleigh)

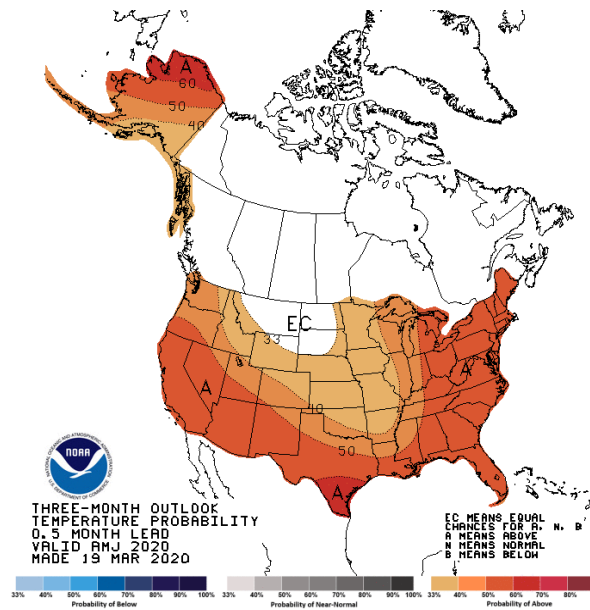
Facebook: [fb.com/NWSRaleigh](https://facebook.com/NWSRaleigh)



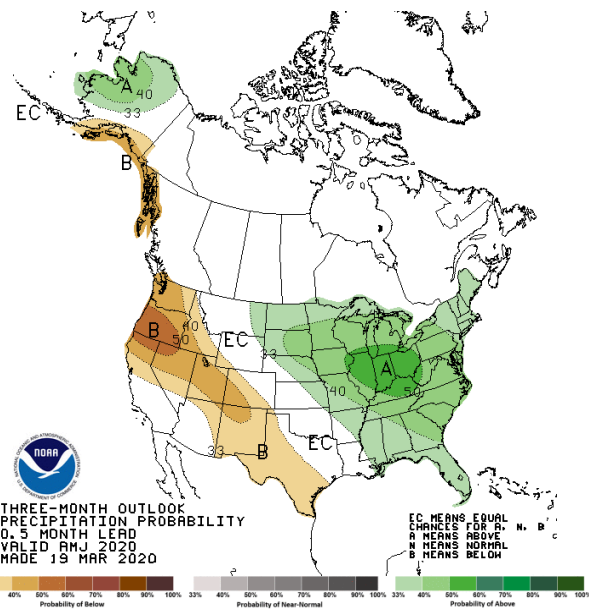
Spring 2020 Outlook

The latest outlook from the Climate Prediction Center for the three-month period of April-May-June indicates a higher probability of both warmer and wetter than normal conditions for our region.

Temperature Outlook



Precipitation Outlook



Other notes:

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

Greensboro: 13
Raleigh: 9
Fayetteville: 9

Strongest wind gusts and direction:

Greensboro: SW at 54 mph on February 7
Raleigh: SW at 54 mph on February 7
Fayetteville: SW at 58 mph on February 7

Records:

A record monthly precipitation total for February of 7.23 inches was set at Greensboro. The old February record was 7.04 inches set in 1929.

A record daily snowfall total of 2.0 inches was set at Greensboro on February 20. This tied the old record of 2.0 inches set in 1904.

A record daily snowfall total of 2.5 inches was set at Raleigh on February 20. This broke the old record of 0.8 inches set in 1907.

A record daily high temperature of 81°F was recorded at Fayetteville on February 13. This shattered the old record of 76°F set in 1918.

A new daily precipitation record of 3.69 inches was set at Greensboro on February 6. This shattered the old record of 2.04 inches set in 1955. In addition, this broke the record for the wettest day ever recorded in the month of February. The previous record was 2.59 inches on February 2, 1916.

A new daily precipitation record of 3.33 inches was set at Fayetteville on February 6. This shattered the old record of 1.77 inches set in 1985. In addition, this broke the record for the wettest day ever recorded in the month of February. The previous record was 2.70 inches on February 4, 1998.

Record high minimum temperatures of 56°F were set on February 4 and 5 at Greensboro.

Record high minimum temperatures were recorded at Raleigh on February 4 and 5 with lows of 57°F and 60°F on those days, respectively.

A record high minimum temperature of 59°F was set at Fayetteville on February 5.