

April 2006 NC Weather Review

Overview

April rainfall totals generally returned to near normal values across North Carolina. This happened after one of the driest March's on record. Several significant rainfall events during the last 8 days of April allowed several stations to record above average monthly rainfall amounts. Raleigh-Durham's monthly rainfall total was 2.13 inches above normal and Asheville was 1.08 inches above normal. The Raleigh-Durham Airport location recorded their 5th wettest April since records have been kept in 1944. Other locations did not fair quite as well including Fayetteville and Mount Airy. Both of these stations ended the month at 1.17 inches below normal.

The April 2006 average monthly temperatures averaged well above normal (3 to 5 degrees) at most of the inland locations. Greensboro recorded their 2nd warmest April since 1928 and Raleigh-Durham had their 5th warmest April since 1944. It was not quite as balmy along the immediate coast and on the Outer Banks, where temperatures only averaged 0.5 to 2.4 degrees above normal from Elizabeth City to Wilmington.

Soil moisture and stream flow levels slipped to near all time record low values over the Piedmont as dry weather persisted through mid April. The rainfall during the latter half of the month increased top soil moisture levels and temporarily increased some of the small stream flows. The rain was even enough to put a small dent in the long term drought conditions.

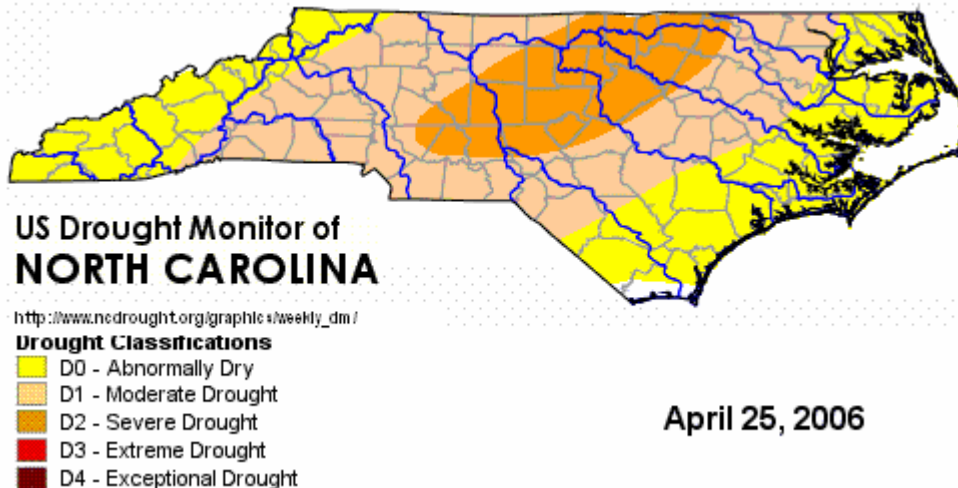


Figure 1. North Carolina Drought Monitor as of April 25, 2006. Note that severe drought conditions across portions of central North Carolina.

Figure 1 is the North Carolina drought monitor as seen on April 25, 2006. The Severe drought classification still encompassed much of central North Carolina but it had been trimmed back to moderate drought conditions just to the southeast of Raleigh. Severe drought conditions did expand southward to include the southern Piedmont around Charlotte. Moderate drought conditions continued to be observed to the crest of the Appalachian Mountains.

For the latest information concerning the drought, visit <http://www.ncwater.org/drought/>

Details

Temperatures

The average monthly temperatures during April generally ranged between 60 and 65, except a little cooler in the 50s across the Mountains and northern Foothills. Overall, monthly temperatures generally ranged between 3 to 5 degrees above normal. The April 2006 average temperatures are shown below in Figure 2 below.

Warm temperatures dominated nearly the entire month of April 2006. Greensboro and Raleigh were warm enough to end the month as one of the top 5 warmest April's on record. Daily high temperatures frequently ventured into the 80s over the interior part of the state. The hottest period of the month occurred at mid month (April 13-16), when highs reached into the 90s at several locations. Fayetteville soared to 95 degrees on April 15th while Greensboro reached 90 degrees, and Raleigh reached 89 degrees.

There were only 2 distinct periods in which the temperatures were significantly below normal. Those occurred behind cold frontal passages during April 9-11 and April 26-30. The latter of the two strong cold frontal passages was followed by a wave of low pressure that brought an extended period of rain, low cloudiness, and chilly temperatures. Highs remained in the 50s over much of the northern Piedmont on April 27th. Raleigh reached only 54 degrees on the 27th which was a record low maximum for that date.

Although some interior stations recorded their last freezing temperatures on the morning of April 10th; neither Raleigh, nor Greensboro recorded a 32 degree temperature during April. The date of the last 32 degree occurrence for the spring season of 2006 can be found in figure 3 on the following page. The average date of the last 32 degree occurrence is depicted in Figure 4 on the following page as well.

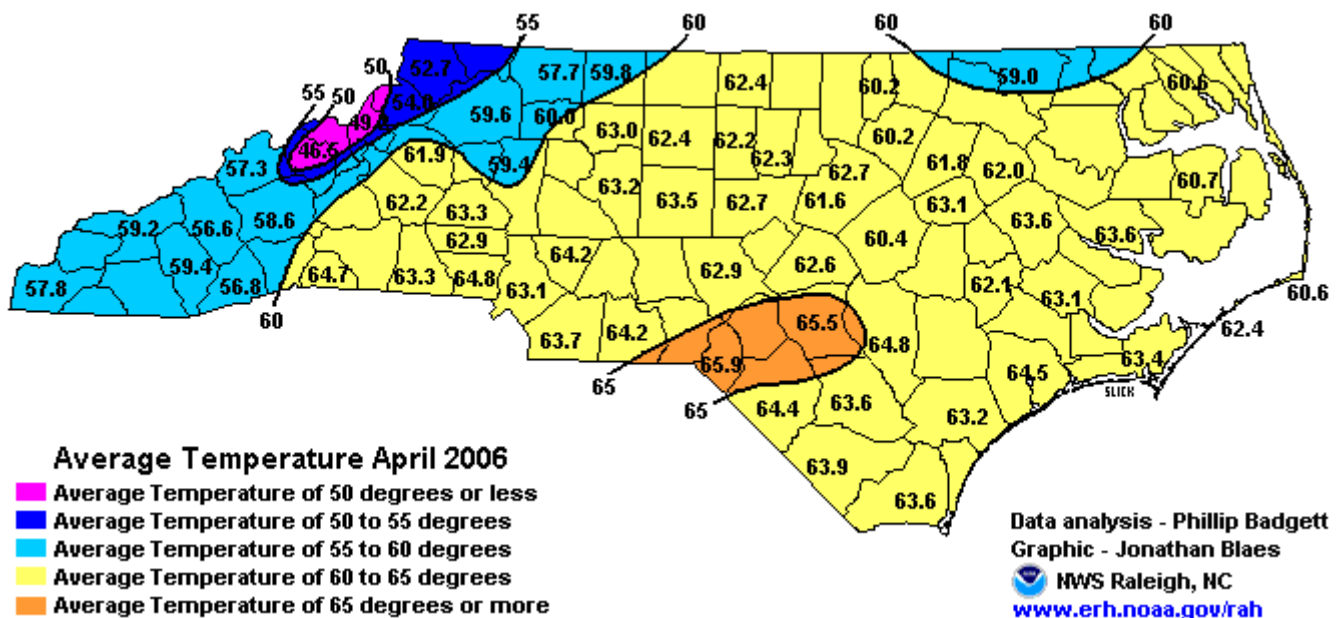


Figure 2. Average monthly temperatures during April 2006 across North Carolina.

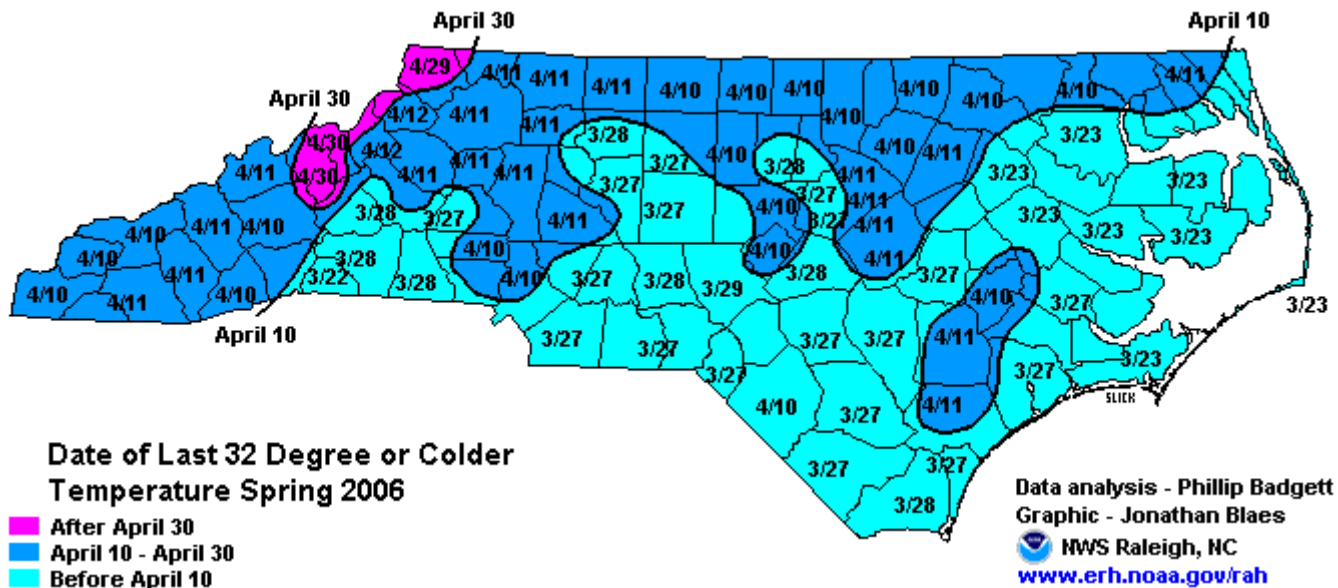


Figure 3. The last day with temperatures 32 degrees or colder during the spring of 2006 across North Carolina.

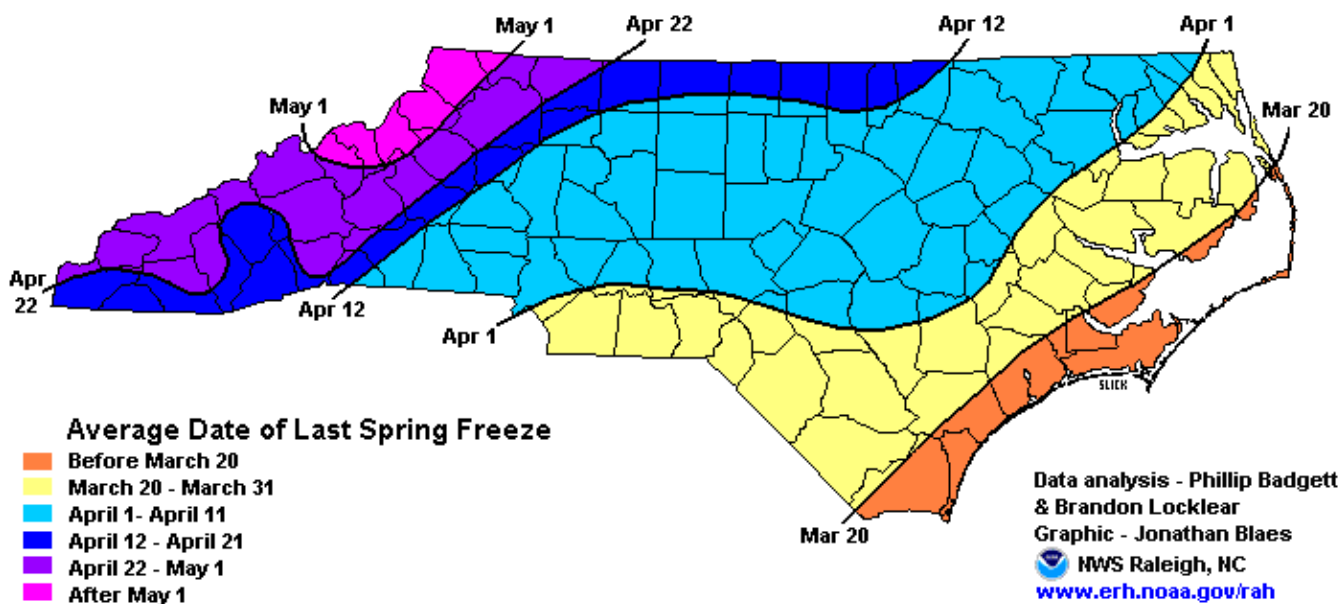


Figure 4. Average occurrence of the last freeze during spring across North Carolina.

Figures 5 and 6 on the following page depict the daily maximum and minimum temperatures observed at both Raleigh-Durham (RDU) and Greensboro (GSO) during April 2006. The dashed lines represent the normal maximum temperature (red) and the normal minimum temperature (blue). The rather large temperature swings noted at both sites are typical in early spring.

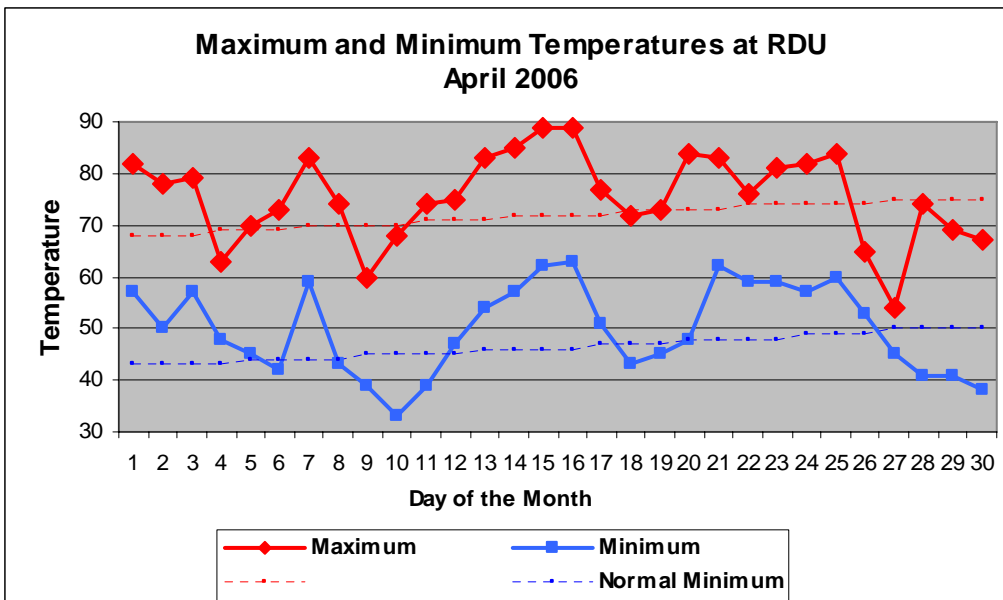


Figure 5. Daily maximum and minimum temperatures observed during April 2006 at Raleigh-Durham (RDU).

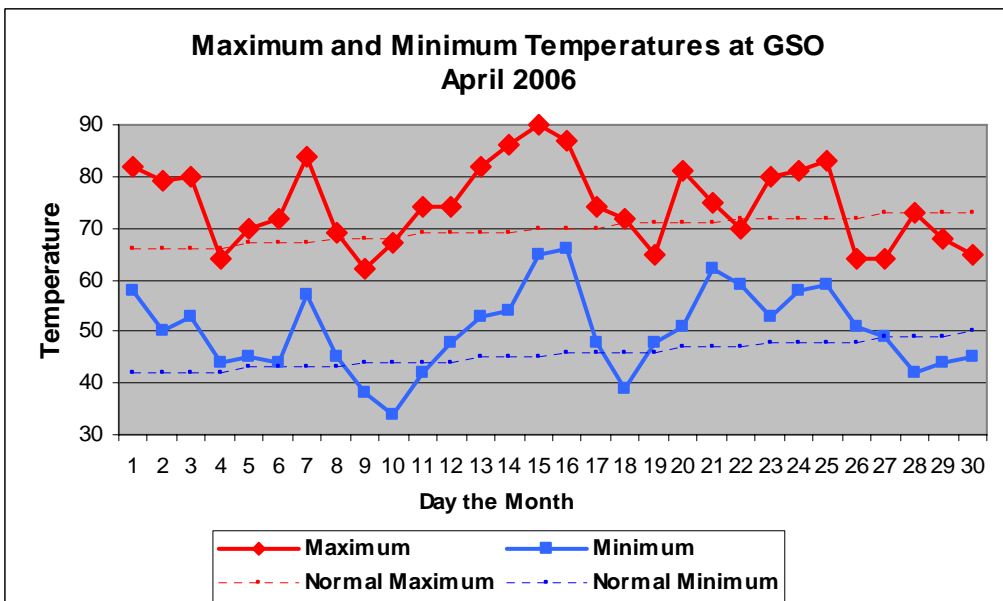


Figure 6. Daily maximum and minimum temperatures observed during April 2006 at Greensboro (GSO).

April 2006 Precipitation

Monthly precipitation totals generally averaged between 3 and 4 inches across much of the state (80 to 90 percent of normal). The totals were a bit higher across the Mountains where between 4 and 6 inches of rain fell (100 to 125 percent of normal). Totals were lower across the southern sections from Charlotte east to Fayetteville where the monthly rainfall ranged between 2 and 3 inches (only 50 to 75 percent of normal). These precipitation amounts were closer to normal than in previous months. However, generally below normal amounts across the state further enhanced the ongoing drought conditions. Figure 7 on the following page depicts the estimated rainfall for April 2006 from selected National Weather Service reporting sites.

The first half of the month was dominated by fast moving, moisture starved weather systems. The overall dry pattern that prevailed during March and the beginning of April began changed around mid April when slower moving; moisture laden systems began affecting the state. There were several significant rainfall events during the latter half of April.

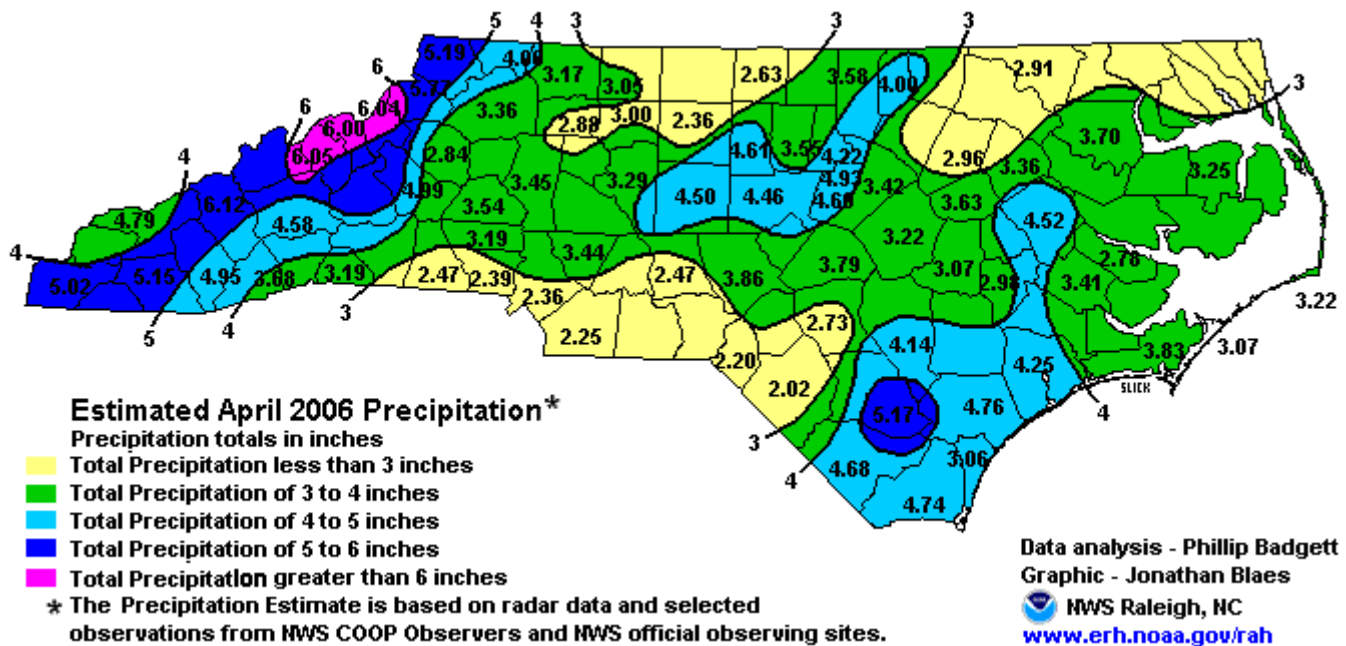


Figure 7. Estimated Rainfall for April 2006. Plotted data was recorded by National Weather Service observation systems or cooperative observers.

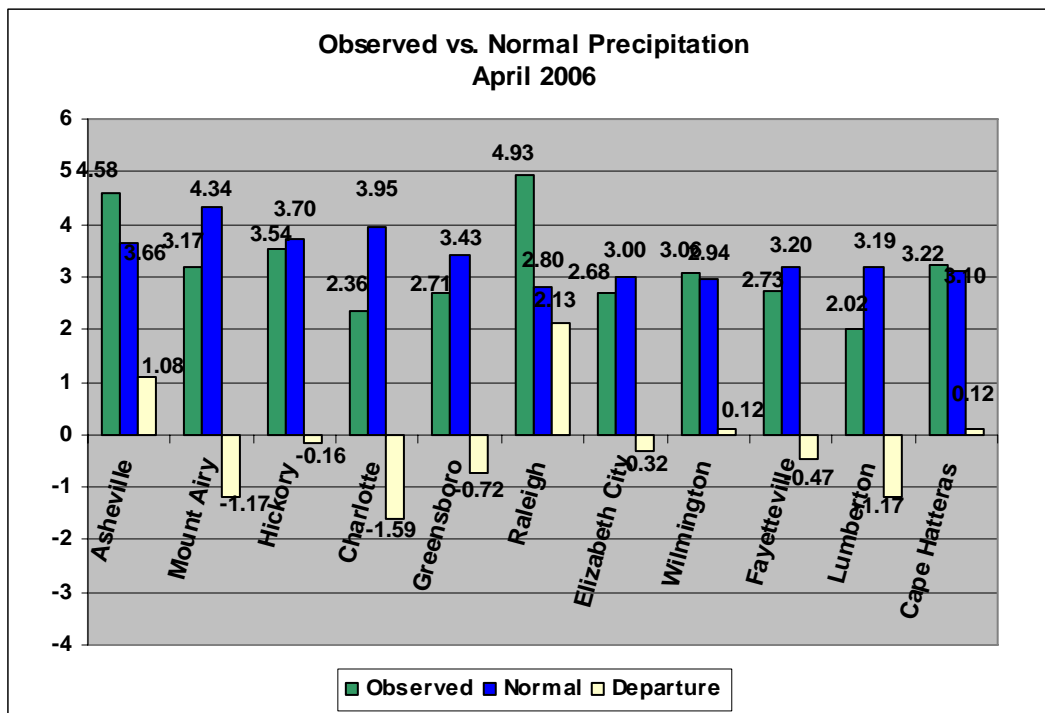


Figure 8. Comparison of observed precipitation and normal precipitation for April 2006 at selected locations across North Carolina.

Current, Semi-Annual and Annual Temperature Trends

April 2006 went down in the record books as another month with above normal temperatures at both Greensboro and Raleigh. Above normal monthly temperatures have been recorded in 11 of the past 13 months at both Raleigh-Durham and Greensboro. Temperatures have averaged above normal in 13 of the past 16 months at both sites dating back to January 2005. Only March, May, and December 2005 averaged cooler than the 30 year normal. Figure 9 illustrates the annual monthly temperature departures from normal at Greensboro and Raleigh-Durham.

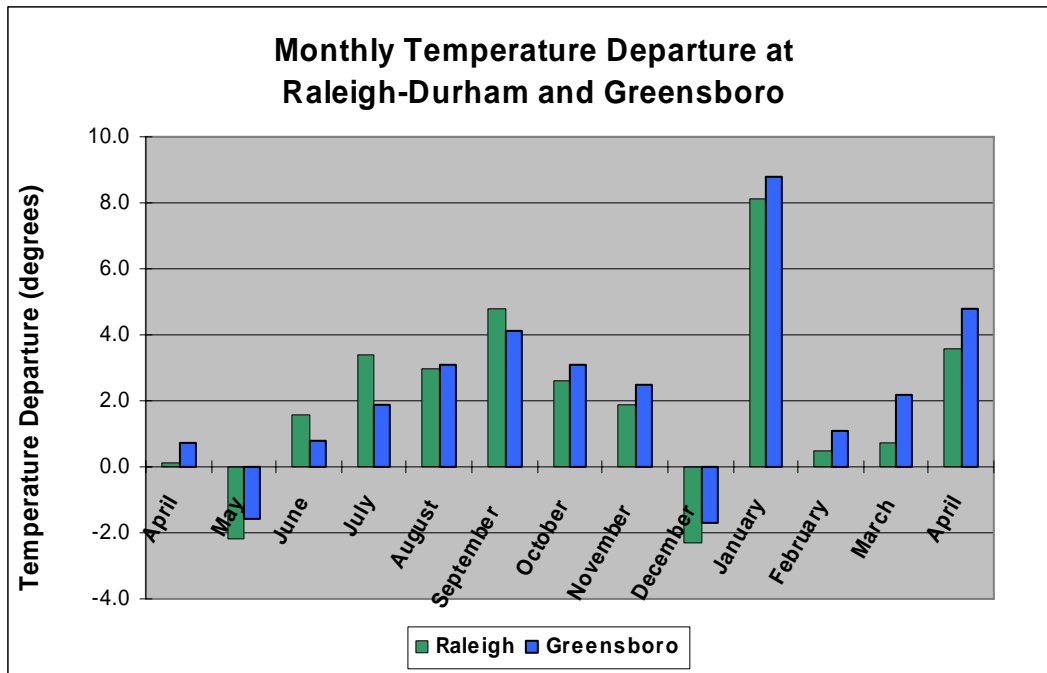


Figure 9. Monthly temperature departures from normal at Raleigh-Durham and Greensboro from April 2005 through April 2006.

Current, Semi-Annual, and Annual Precipitation Trends

The dry conditions observed across the state since the beginning of 2006 began to show signs of easing during late April. Very little rainfall was recorded during the first half of April which continued a rapid expansion of moderate to severe drought conditions throughout the state. Widespread rain during the last week of April may have signaled a change in the dry pattern.

Raleigh-Durham recorded above normal monthly rainfall for the first time this year. Even with the April surplus of 2.13 inches, the 2006 deficit was still at 4.42 inches. Below normal precipitation has been recorded in 7 of the past 12, and 9 of the past 15 months. Figure 10 depicts the precipitation trends at RDU during the past 12 months.

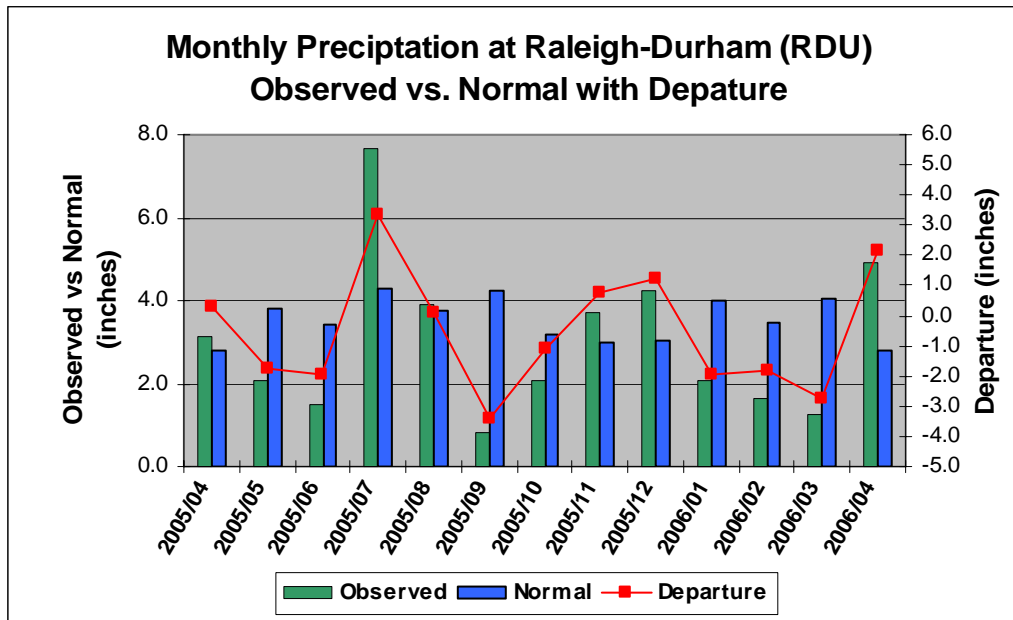


Figure 10. Semi-annual and annual precipitation trends at Raleigh-Durham (RDU).

The rainfall during April at Greensboro totaled 0.72 inches below normal. Greensboro has been even drier than Raleigh-Durham, as 9 of the past 12 and 11 of the past 15 months have been drier than normal. Figure 11 depicts the monthly precipitation totals and the departure from normal during the past 12 months at Greensboro.

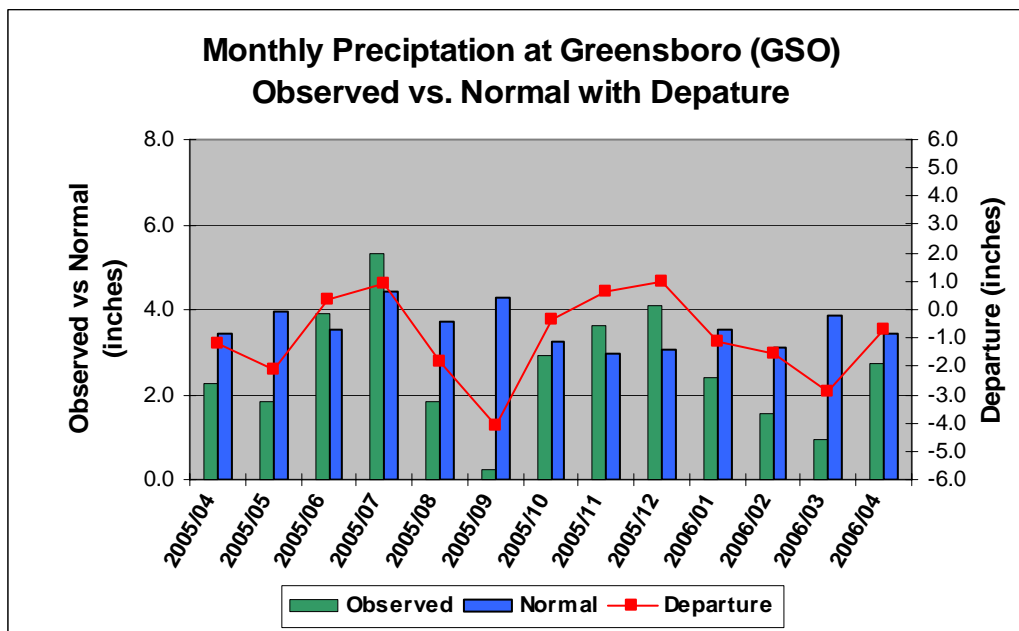


Figure 11. Semi-annual and annual precipitation trends at Greensboro (GSO).

North Carolina Water Resources Information and Outlook

The reservoir levels remained nearly steady from February through mid April even with the lack of rain. The same was not true of the stream and river flows as they began a decline in mid January and continued to decline through mid April. The inflow into local reservoirs in and around the northern and central Piedmont had reduced to a trickle. The widespread rain during the last week of April created brief rises on area streams. Yet, the USGS continued to report that stream flows remained historically into the lowest 10 percentile observed. Additional widespread rain is needed before concerns that local reservoirs may again begin a steady decline are relieved. Many local cities and towns continued the already tightened water conservation and restriction measures that were instated in late March.

Climate Outlook for May, June, and July 2006

The Climate Prediction Center released the latest 3 month climate outlook recently. Details concerning this forecast can be found at:

http://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/page2.gif

90-120 Day Precipitation Outlook for North Carolina through August 2006

On a much brighter note according to outlooks from the Climate Prediction Center, the oceanic and atmospheric indicators in the tropical pacific indicate a rapidly weakening La Niña conditions. This allowed the CPC to reduce the probability of dry conditions over North Carolina for the remainder of the 2006 spring season. There were now equal chances of above, near normal, and below normal rainfall across North Carolina for the remainder of the spring season.

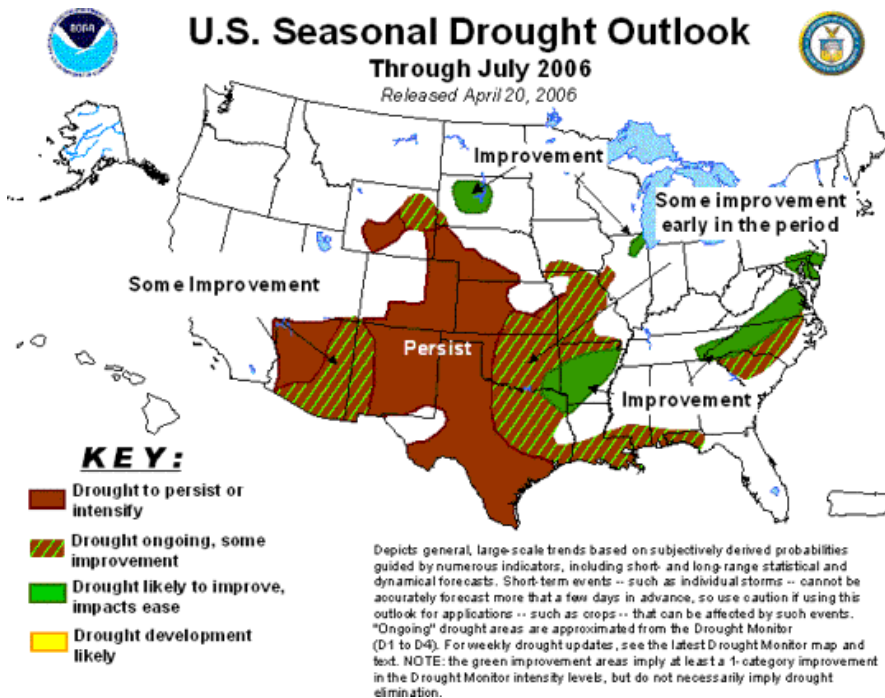


Figure 11 is the U.S. Seasonal Drought Outlook from NOAA. The drought over central North Carolina and southern Virginia may expand to cover most of North Carolina and the southeastern U.S. from March through June.

Conclusion

The rapid weakening of the La Nina conditions favors a return to near normal rainfall over the southeastern United States including North Carolina for the remainder of the spring season. The widespread rain event the last week in April may have marked the beginning of the end of the current severe drought. However, it will take a sustained period of above normal rainfall to help the current moderate to severe drought conditions.

NC Weather Review Team

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