

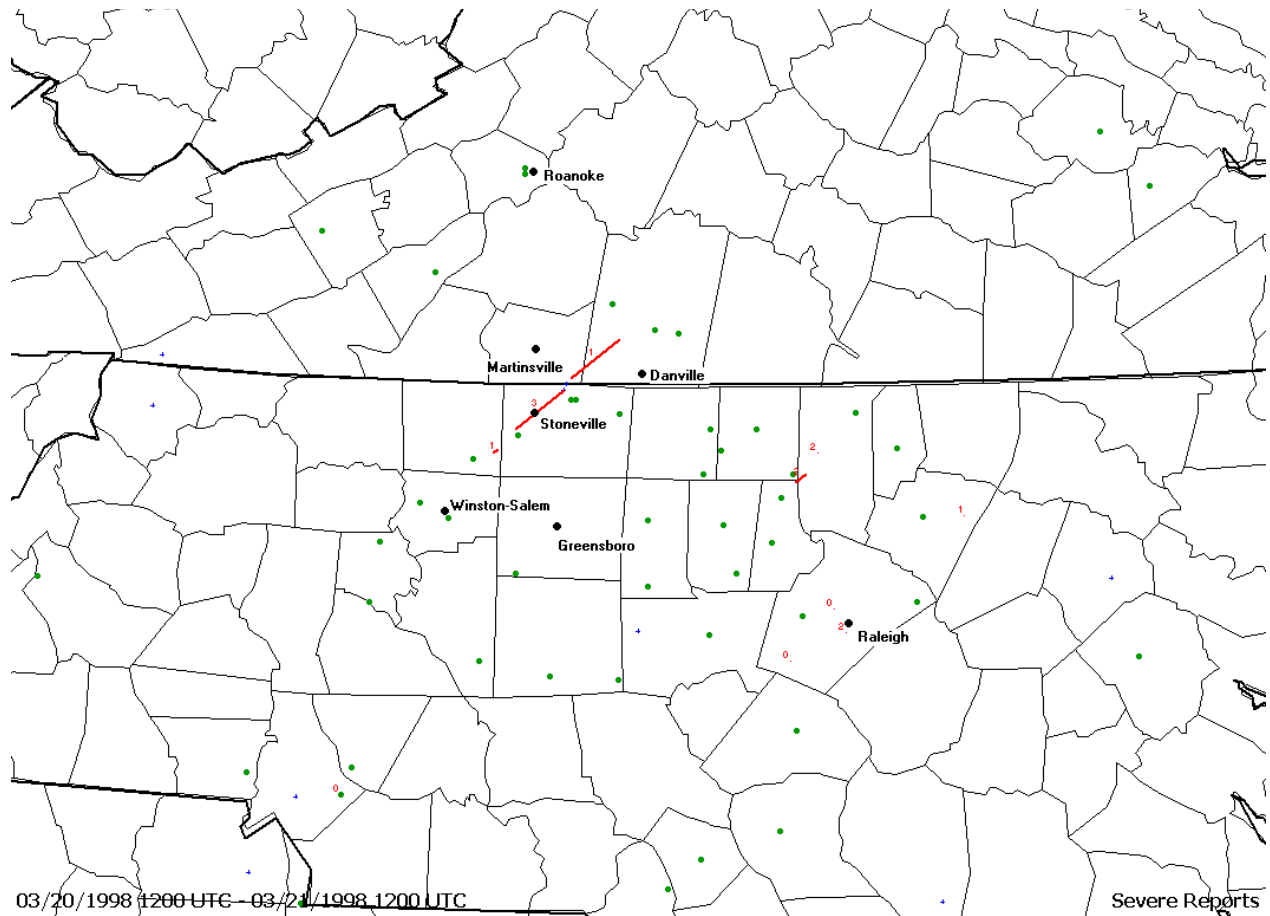
# Devastating Tornado Outbreak of March 20, 1998

*A brief review of the outbreak of tornadoes in north-central North Carolina and Southside Virginia 25 years ago, including one of the strongest tornadoes recorded in the region: the deadly F3 Stoneville tornado.*

*March 20, 2018*

## **Summary of the March 20, 1998 tornadoes and associated damage**

Tornadoes are relatively rare in the western Piedmont of North Carolina and Virginia compared to eastern parts of these states, and strong tornadoes are especially rare. In fact, since 1950, only a few F3 or stronger tornadoes have been recorded in the region around the Triad area of northwest North Carolina, and one of them was the deadly tornado of March 20, 1998 that tracked through the town of Stoneville. The F3 tornado that passed through Stoneville, NC on March 20, 1998 was not the only tornado to touch down in this region on that day. Figure 1 shows that on this day there were actually three tornadoes, all spawned from the same thunderstorm, which touched down across northern NC and into southern VA. The two other tornadoes produced damage in the F1 category on the Fujita scale. [Note: The Fujita scale (tornado damage from F0 to F5 with associated estimated wind speeds) was modified in 2007 to account for more recent research on a large variety of damage, and is now known as the Enhanced Fujita or [EF scale](#). F1 (now EF1) damage is thought to be associated with wind speeds of between 86-110 mph, while F3 (now EF3) damage is associated with wind speeds of between 136-165 mph.] Figure 1 shows there was also some straight-line wind damage in the break in the line between the two tornadoes near the NC/VA state line (blue plus signs), while there were quite a few large hail reports (green dots) in the region as well (some were as large as a golf ball).



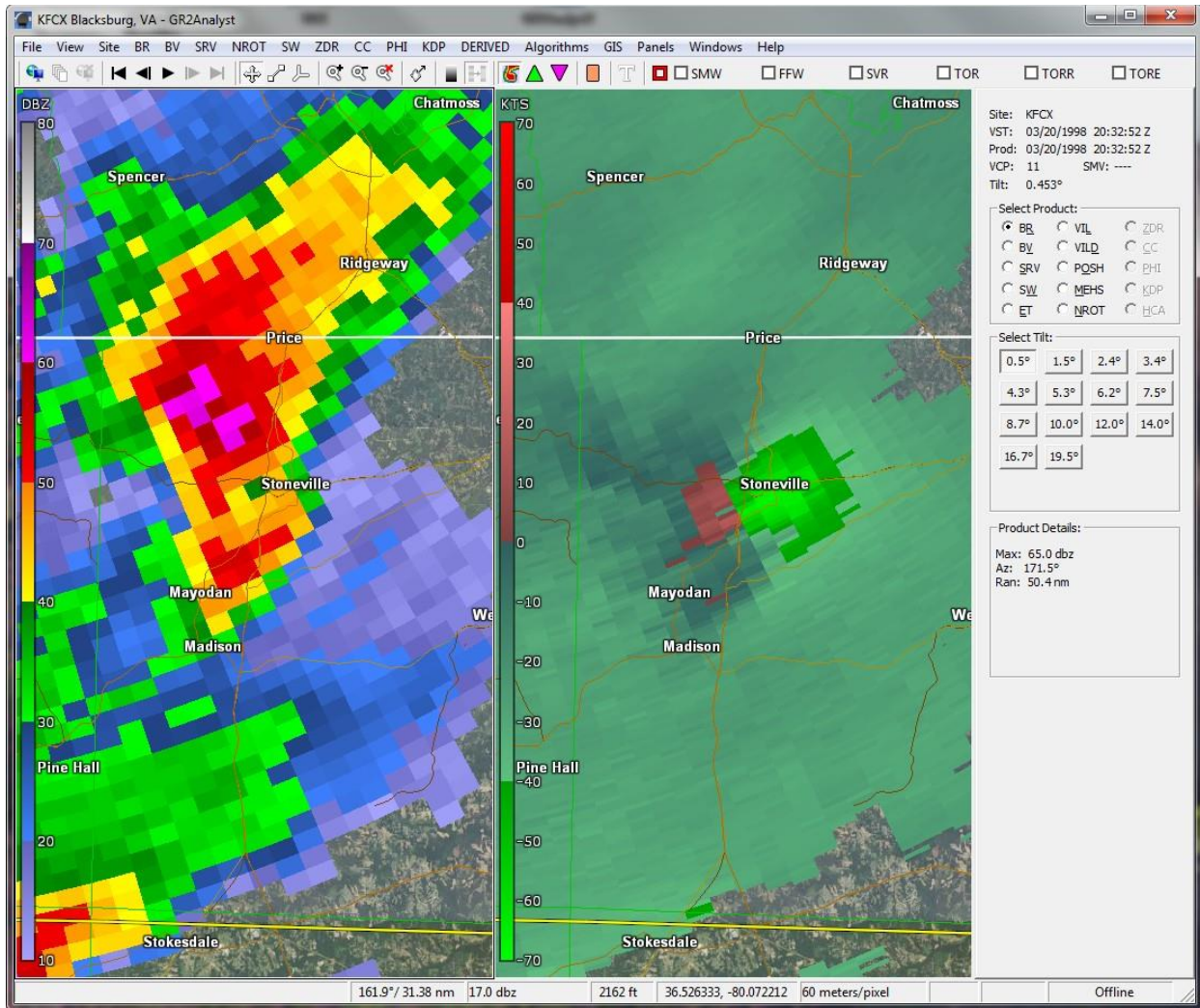
**Figure 1.** Tornadoes (red tracks with F-scale ratings plotted next to them), severe wind reports (blue plus signs), and severe hail reports (green dots) for the day March 20, 1998 and overnight that night.

Zooming in closer to region where the significant tornado damage occurred (Figure 2) shows that the first tornado briefly touched down near the small town of Pine Hall in eastern Stokes County and was only on the ground for about a mile and half and for about 3 minutes, but still produced quite a bit of damage. This was at about 3:15 pm local time. The second and strongest tornado of the day, first touched down near Mayodan at 3:25pm, and traveled for about 12 miles to just northwest of Eden, produced a path width ranging from 100 yards to 800 yards, and was on the ground for 24 minutes doing extensive damage along the way. Sadly, two people lost their lives as the F3 tornado passed through Stoneville, and at least 27 others suffered injuries. The damage total from these two tornadoes was approximately \$34 million. The same thunderstorm then produced a third tornado after it crossed into southern VA, touching down near the town of Sandy Level just before 400pm. This tornado was also on the ground for about 12 miles, lasted for about 25 minutes, produced F1 rated damage, and caused about \$1 million in damage to homes and vehicles. Fortunately, there were no reported injuries from this tornado in VA.



**Figure 2.** Specific tracks of tornado damage (in green) across northern NC and southern VA. Times are in universal time (UTC), which is 5 hours later than local time (EST).

Below in Figure 3 are Doppler radar images of the precipitation area (left) and velocity couplet (right) associated with the tornado just before it hit Stoneville, NC. The resolution of the radar products is better today than it was in 1998, but even so the strong circulation shows up clearly.



**Figure 3.** Doppler radar data from the KFCX (Floyd County) WSR-88D radar, with reflectivity pattern on the left, and storm-relative velocity on the right. Image courtesy of Gibson Ridge Software.

Below are a few photos of the tornado as it approached Stoneville taken by various people.



**Figure 4.** Photo taken by Matt Alberts and Keith Smith while driving north on Hwy 220 with a friend near the Mayodan exit. They were looking north and the tornado crossed from left to right.



**Figure 5.** Taken in the vicinity of Stoneville by Drew Kohler. Photo courtesy of the Greensboro News-Record.



*Photo by Ray Priddy*

**Figure 6.** *Photo by Ray Priddy as tornado approached Stoneville. Courtesy of the Town of Stoneville.*

## **Summary**

March and especially into April is a favored time of year for tornadoes in this region, and especially strong ones, even though relative to some other parts of the country the occurrence of strong to violent tornadoes is not nearly as common. When favorable conditions develop, which includes some degree of instability with warm moist air moving up from the south, wind shear, and often a retreating warm frontal boundary, we can get these strong tornadoes. In fact, similar conditions to the March 1998 Stoneville tornado came together more recently and even earlier in the season, on [February 24<sup>th</sup> near Appomattox Virginia, where the second EF3/F3 tornado to be recorded in the Blacksburg County Warning area occurred.](#)

Thus, despite its rarity, people should always be prepared for a tornado to happen again, really any time but especially during the Spring season, and also during remnants of tropical systems more likely in the late summer and Fall. We encourage people to remain alert to weather forecasts and have a way to receive warnings from the [National Weather Service](#), whether it is a smart phone, local television, radio, or [NOAA All Hazards Weather Radio](#). Have a [safety plan](#) in place for your home, business, or school, and consider practicing it.