

Super Outbreak April 3rd, 4th 1974

Bobby Boyd
Meteorologist
National Weather Service
Nashville, Tennessee

Presented by Larry Vannozzi
Meteorologist In Charge
National Weather Service
Nashville, Tennessee

During the Super Outbreak of April 3rd, 4th 1974 I was one of several Upper Air and Weather Radar Specialists on duty during the event at the National Weather Service Meteorological Observatory in Nashville Tennessee. The following is briefly my recollections of the Super Outbreak.

Shortly after launching the weather balloon on the morning of April 3rd I noticed a band of altocumulus castellanus clouds stretching from the Eastern sky to the Northwest: Indicative of instability and steep mid-level lapse rates. The sun shone brightly during the morning hours of April 3rd. The morning balloon data showed a Showalter index of a -5, which meant the atmosphere was very unstable. Instability is a key ingredient for development of severe storms.

The weather map on the morning of April 3rd showed a warm front stretching West to East across Southern Kentucky with low pressure centered in Kansas. A cold front extended down through Eastern Oklahoma. I recall a very powerful 300 millibar Jet Stream with winds well in excess of 100 knots across Texas.

At the request of the National Severe Storms Forecast Center, I made a special balloon release at 18Z (Noon). It also showed a Showalter index of a -5. After completing the 18z upper air run I went into the darkened radar room to begin what would become a night of terror in Middle Tennessee and by far the worst severe weather event of my 38 year career in terms of loss of life.

The afternoon of April 3rd was warm and muggy with scattered Cumulus clouds. A high of 82 degrees was reached in Nashville during the afternoon.

Isolated Thunderstorms formed off to our Northwest during the early afternoon. Some of these storms had tops in excess of 50,000 feet. Between 1 and 2 pm CST public reports of tornadoes were being received from Southeast Tennessee. One storm in Bradley county would yield the first tornado touchdown from the Super Outbreak in Tennessee. The storm had a top of 58,000 feet but no hook on our radar at 1:35 pm CST. The tornado caused one fatality and one hundred injuries. Ironically parts of Eastern Tennessee would be struck first by tornadoes during the afternoon of April 3rd.

I remember thinking that the storms to our Northwest are much stronger in terms of reflectivity, echo tops and appearance on radar but we were getting reports of tornadoes with damage and fatalities in Eastern Tennessee from storms that didn't look nearly as bad and wondering why?

The first hook echo appeared on the Nashville WSR-57 radar at 1952Z (1:52 pm CST) 10 miles southwest of Hopkinsville, Kentucky. The storm had a top of 60,000 feet. Movement was northeast at 40 knots.

Between 2 pm and 3 pm CST several Super Cells with distinct hooks developed 50 to 60 miles to our northwest and about 100 miles to our Southeast. These storms seemingly just exploded on the radar scope (Cap suddenly broke). Storm tops ranged from 55,000 to 65,000 feet. Around 3 pm CST a hook echo was indicated in Robertson County, Tennessee. This would be the first tornado touchdown in Middle Tennessee from the Super Outbreak. The Super Cell was also accompanied by softball sized hail.

The tornado activity continued throughout the evening and night, with 37 hook echoes being identified by the Nashville radar. By 2:15 am April 4th, 21 tornado warnings, 7 severe thunderstorm warnings, and one flash flood warning had been issued within a 14 hour period for the Middle Tennessee area. (This may not seem like a lot of warnings by today's standards but this was in the days of the teletypewriter when communications were much slower). 44 tornadoes occurred in Tennessee with 47 people killed and 774

injured. Property damage neared \$50 million dollars.

Walter Cronkite may have said it best on the evening network news when he said on April 3rd 1974, “ a *jet stream pump*, extending from the Gulf of Mexico to Ontario Canada, created one of the worst barrages of tornadoes ever to hit the United States. “

Even though the Super Outbreak was a black cloud, it to had a silver lining. Each spring since 1975, public awareness campaigns have been conducted in the Southeastern United States. Through these campaigns the public has become aware of the Watch and Warning program, and Tennesseans more than ever before have learned the proper responses to severe weather threats.

Boyd.sxw
openOffice.org Writer
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