

The 2011 Super Outbreak: A Huntsville Perspective and Implications for Future Events

Chris Darden
NOAA / National Weather Service
Huntsville, Alabama

On April 27, 2011, a tornado outbreak unprecedented in modern times occurred across a large portion of the Deep South and Tennessee Valley regions. By the time the event was over, April 27th had become the deadliest tornado day in the United States since the infamous Tri-State Outbreak of March 18, 1925. For this presentation, I will focus on the events as they unfolded across the Weather Forecast Office (WFO) Huntsville (HUN), AL County Warning Area (CWA). WFO Huntsville covers 11 counties in north Alabama and 3 counties in southern Tennessee.

An analysis of the forecasts and outlooks leading up to the event, along with a review of the tornado climatology for the Huntsville region will be conducted. However, much of the time will be spent covering the outbreak itself from the planning and decision support phase, to the critical warning decision making process, to the days following the outbreak. As the events of April 27th unfolded, three separate and very different episodes of severe weather impacted the region. Each of these “episodes” produced tornadoes, and the timing and “back to back” nature of these events complicated many facets of community planning and decision making such as dismissal policies for schools and businesses. To put some context into how these separate severe weather episodes impacted the region from the pre-dawn hours until late in the evening on the 27th, WFO HUN issued a total of 92 tornado warnings with an average lead time in excess of 20 minutes. In addition, power outages and infrastructure issues related to the early morning and midday storms played a key role in how the public received warnings for the afternoon severe weather and also impacted their decision making.

We will explore how the use of enhanced wording in warnings and statements, communications with emergency managers and media before and during the event, the influx of reports via our ham radio and spotter network along with real-time video of the tornadoes occurring led to optimal situational awareness and a constant flow of accurate and up to date information. An overview of the operational staff planning and strategy, along with a detailed analysis of the strong and violent tornadoes in the HUN CWA will be provided. The Hackleburg, Alabama to Huntland, Tennessee violent EF-5 was on the ground for 132 miles and, unfortunately, killed at least 70 people. This tornado will go down as the deadliest tornado of the entire outbreak and the deadliest single tornado to ever strike Alabama. However, it is important to note there were an additional 5 destructive EF-4 rated tornadoes that day across the area with at least 9 tornadoes having a path length of over 20 miles. In all, 31 tornadoes have been confirmed to date in the CWA from April 27th.

In the days and weeks that followed the outbreak, WFO Huntsville forecasters, along with the assistance of researchers and graduates students from University of Alabama in Huntsville, spent a tremendous amount of resources conducting storm surveys and assessments, handling media requests, and just being there for the community in their time of need. Much of this critical survey period following the outbreak was conducted “literally in the dark” as the majority of north Alabama was without power for 5 to 7 days. An overview of the survey process will be conducted including strategies employed to cover many different damage paths given the logistical problems, lessons learned for future events, and unique stories discovered along the way. I will conclude with some personal reflections on the event and how it has impacted the office, our staff, and our community.

PRESENTER’S BIO

Chris Darden has been meteorologist-in-charge of the National Weather Service office in Huntsville since May, 2011. Prior to being selected as the MIC, Chris served as the office’s Science and Operations Officer for 7 years. Chris first came to the Huntsville office in the spring of 2002 after being selected as both senior forecaster and NASA liaison forecaster.

Prior to arriving in Huntsville, Chris served as a forecaster at both the Memphis, TN and Lubbock, TX offices and as a meteorological intern at Nashville, TN and Burlington, VT. Chris began his NWS career in the summer of 1994 as a student trainee in Taunton, MA.

Chris is a current member of the American Meteorological Society and a member of the AMS Atmospheric Electricity Committee. Professional awards include:

2010: Co-recipient of the AMS Francis W. Reichelderfer Award

2010: NASA/NWS Group Achievement Award for Technology Transfer

2004: NASA/NWS Group Achievement Award for Technology Transfer

2003: Co-recipient National Isaac Cline Award in Meteorology

Chris resides in Madison, AL, with his wife Kay and 10 year old daughter Chloe.