

## **Colorado Lightning Mapping Array depicts a Lightning Jump Prior to a Non-Supercell Tornado 5 miles west of Cheyenne**

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Non-Supercell Tornadoes typically develop in an environment with steep low level lapse rates (sfc-3km), preexisting convergent boundary, which may overlap with the sfc-3km capes greater than 40 j/kg. Non-Supercell Tornadoes also tend to form on the southern end of a storm where new updrafts develop over the intersection of thunderstorm outflow boundaries. WSR-88D velocity data is usually limited in detecting mesocyclones prior to tornado formation, but it can be helpful at short ranges (60-80km) where you can detect storm-scale/mesocyclone boundaries. This research is based on a paper written by Jon Daviess and James Caruso who studied these small scale features. Here is the link to this study: <http://www.nwas.org/ej/cardav/>. The Non-Supercell tornado in our observed case (July 29<sup>th</sup> 2013) had a number of similarities to this research paper. Not only will we look at the various environmental parameters and the WSR-88D data. We will also examine the Source Density lightning product from the Colorado Lightning Mapping Array, which may serve as a precursor to tornado development.