

A Total Lightning Perspective of the 20 May 2013 Moore, Oklahoma Supercell

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In the early afternoon of 20 May 2013, a storm initiated to the west-southwest of Newcastle, Oklahoma. This storm would rapidly intensify into the parent supercell of the tornado that struck the city of Moore, Oklahoma. This article describes what contributions total lightning observations from the Oklahoma Lightning Mapping Array could provide to operational forecasters had these observations been available in real-time. This effort includes a focus on the GOES-R pseudo-geostationary lightning mapper demonstration product as well as the NASA SPoRT / Meteorological Development Laboratory's total lightning tracking tool. These observations and tools identified several contributions. Two distinct lightning jumps at 1908 and 1928 UTC provided a lead time of 19 minutes ahead of severe hail and 26 minutes ahead of the Moore, Oklahoma tornado's touchdown. These observations provide strong situational awareness to forecasters, as the lightning jumps are related to the rapid strengthening of the storm's updraft and mesocyclone and serve as a precursor to the stretching of the storm vortex ahead severe weather.