

Preliminary Results from In Situ Observations of the 21 April 2007 Tulia, Texas Tornado

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ABSTRACT

A localized tornado outbreak transpired across the Texas Panhandle during the afternoon and evening hours of 21 April 2007. Of particular interest was a moderate-lived supercell thunderstorm that produced an EF-2 tornado in the town of Tulia, Texas. Fortuitously, a mobile mesonet (MM) vehicle was abruptly impacted by the circulation while collecting data during the vortex passage. This paper will provide a brief glimpse into the mesoscale and synoptic-scale environment with an in-depth concentration on the aforementioned Tulia tornado via in situ observations.

The MM vehicle utilized instrument design and specifications similar to VORTEX in conjunction with customized and modernized upgrades. High temporal resolution observations, on the order of 1 Hz, offer quality analysis of the kinematic characteristics at 2.5 m within the tornado micro-alpha environment. Emphasis will be placed on the measured atmospheric pressure revealing a significant and rapid pressure fall concomitant with the tornadic interaction. Site characterization will determine the degree of exposure in the proximity of the MM while relevant literature will serve to critically evaluate the collected database.