

# **An Overview of the 6 June 2008 Northern Minnesota Tornado Event**

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## **ABSTRACT**

Two significant tornadoes touched down during the morning of 6 June 2008 in northern Minnesota. The first tornado produced EF2 damage at a turkey farm on the Wadena/Hubbard County line, and the second one resulted in EF3 damage to cabins along the shores of Pickerel Lake northeast of Park Rapids, MN. Both tornadoes were produced by a low-topped supercell that rapidly developed within the circulation of a cold-core, upper-level low pressure system and near the surface warm front.

The event presented two primary challenges to local warning operations. First, situational awareness (SA) was not particularly high during the event given the climatologically atypical time of occurrence (1400-1500 UTC, 0900-1000 LT). Consensus among the forecasters that day was that the greatest likelihood for severe storms would be during the afternoon when instability would be maximized due to daytime heating. Second, low-level storm interrogation was nearly impossible due to the storm's structure and its distance from the radar. The synoptic set-up and near-storm environment favored low-topped supercells with an equilibrium level around 25,000 feet. The first tornado also touched down in a sparsely populated area at a considerable distance (approximately 120 statute miles southeast) from the KMX radar site located in Mayville, ND. Neighboring radar sites were at comparable distances from the storm and not useful during real-time operations.

A review of the synoptic and mesoscale set-up, as well as pertinent thermodynamic parameters will be presented, providing evidence for the rapid mid-morning tornadic development. Lessons learned and ways to improve SA for this type of event will also be addressed along with a brief narrative highlighting the difficulties encountered during a portion of the damage survey.