

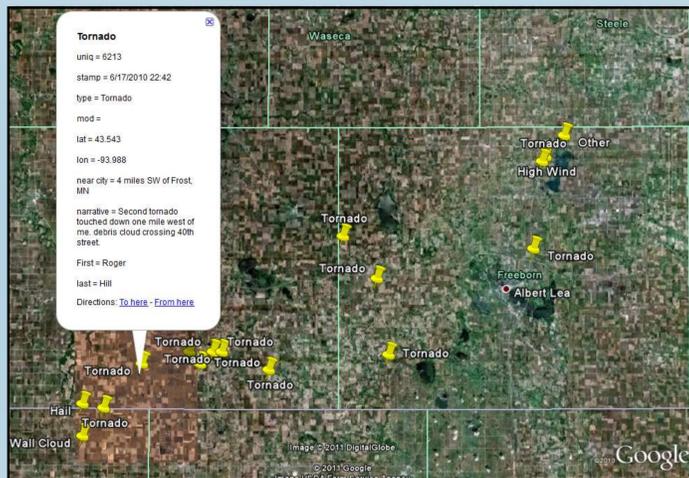


Conducting a GIS-Based Tornado Damage Survey

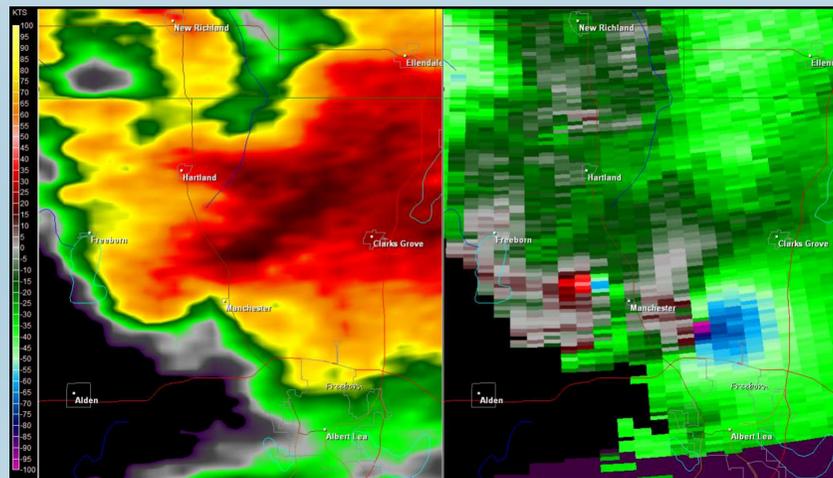


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Following the record-setting tornado outbreak of 17 June 2010 in the state of Minnesota, the National Weather Service office in Chanhassen employed several GIS-based techniques to more efficiently and precisely record information during damage survey operations. This precise information allowed the survey team to compile comprehensive information of the area the team was tasked with assessing. The team used commercially available software to visualize numerous geospatial datasets including precision located spotter reports, radar data, urban areas and waterway information.



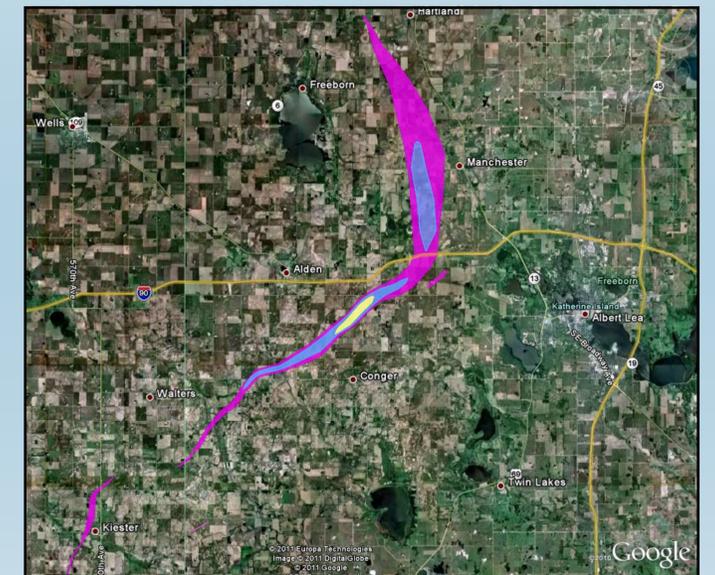
SpotterNetwork.org reports were plotted in Google Earth™ from 24-hour report summary data available to NWS Offices. Mapping information was cached to laptop overnight to allow for field use in the event Internet access was unavailable. Precise reports gave the survey team confidence in early tornado locations, saving time and resources.



Above: Radar reflectivity and storm relative velocity from 0005 UTC 18 June 2010.

Radar data was used in areas where storm splits occurred to assist in differentiation of damage areas.

Delorme Street Atlas was utilized to plot notes, damage indicators, and items of interest during the survey and also to sketch rough tornado path. Photograph meta-data was also noted, for later combination with GPS data.



Due to the techniques used, the survey team released a highly detailed assessment of the damage the day after the severe weather occurred, adding value to information provided by media and emergency management partners.



The National Weather Service office in Chanhassen, MN is planning to integrate these new processes into storm survey operations in upcoming convective seasons. A key challenge is supporting staff to become competent and confident with these modern tools. Staffing must also be considered to expedite data transfer and readiness for field use.