

The 4 August 2018 Severe Weather Event across east central New York

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On 4 August 2018, a localized, high impact severe weather event occurred across east-central New York (NY) with 18 wind damage reports (winds ≥ 50 knots) on a day when widespread severe weather was not anticipated by the National Weather Service at Albany. A cluster of pulse thunderstorms fired in the late morning into the early afternoon across southern Quebec into extreme northern NY. The outflow boundaries from the early convection fired new thunderstorms that became strong to severe, as they moved southward across the southern Adirondacks, and the Lake George Saratoga Region. The gust front associated with the severe thunderstorms further progressed down the Hudson River Valley and into the Greater Capital Region and Taconics in the late afternoon into the early evening before weakening.

Observational data, as well as short range deterministic Rapid Refresh data suggested an isolated severe weather threat was possible. A 500 hPa upper level trough axis had not yet moved across the region. Sufficient low-level moisture remained over the region that had severe weather that afternoon with surface dew points in the 15-20°C range coupled with surface based convective available potential energy (CAPE) values of 1000-2000 J kg⁻¹. 0-6 km deep layer shear was weak in the 15-25 knot range with weak mid-level lapse rates. Downdraft CAPE values were in the 800-1200 J kg⁻¹ range. The threat for deep organized convection was minimal, but a gust front and subsequent outflow boundaries surged all the way south of Albany in the Capital District producing the significant wind damage. Several runs of the 3-km High Resolution Rapid Refresh mesoscale model implied isolated strong to severe thunderstorms potentially impacting portions of eastern NY and western New England that afternoon.

This talk will focus on a detailed mesoscale and radar analysis of the event. Traditional base and derived WSR-88D radar products will also be shown in conjunction with some Dual-Pol data. The storm-scale analysis will focus on the gust front and cold pools associated with the severe convection. Finally, the societal impacts will be briefly discussed, such as the nearly 45-minute delay of the 1.2 million dollar Whitney horse race at the Saratoga Race Track in Saratoga Springs, NY which was attended by over 40,000 people.