**An Analysis of a Localized Ice Storm on 3–4 February 2022 in Eastern New York**

Dan Thompson, Tom Wasula, Christina Speciale, Mike Evans, and Neil Stuart

National Weather Service, Albany, NY

A localized ice storm occurred on 3–4 February 2022 over portions of the Mid-Hudson Valley in eastern New York. The spatial distribution of ice accretion and associated societal impacts was modulated by complex terrain and was highly variable. Most of the areas that experienced freezing rain saw minor impacts. However, the impacts were severe over a portion of Ulster County where 46,000 customers lost power, totaling roughly half of the customers in the county. The impacts were exacerbated by the arrival of subfreezing temperatures following the storm which persisted for the next three days while thousands remained without power. The localized nature of the impacts was very challenging to anticipate for National Weather Service (NWS) Albany forecasters, especially since forecasters also had to accurately predict heavy snow and sleet occurring over other portions of the NWS Albany County Warning Area. Verification statistics for the storm as a whole exceeded performance targets, but icing forecasts were underdone where the most significant impacts occurred. This presentation will examine model data prior to the storm and how it compared with observations. It will show that errors in the icing forecast were mainly due to uncertainty with respect to thermal profiles and timing of precipitation type changes during the heaviest precipitation. It will also show that the warning versus advisory decision was not straightforward even in hindsight. Results presented here underscore the need for probabilistic ice forecasts to inform partners about possible best and worst-case scenarios. This presentation will also discuss a collaborative approach to a case study of this storm made possible by NWS Albany’s collocation with others in the academic, emergency preparedness, and weather analytics communities. One outcome of this collaboration is a journal article to be co-written by NWS meteorologists and academic researchers.

* Brief synoptic overview
* Model output showing uncertainty with p-type and ice totals
* Observations and impacts -
  + Why was Ulster County hit harder than Dutchess/Orange? Share NYS Thruway concern over not having trees been culled in a while
* Comparison of obs vs. forecast, GPRA goals met vs. perceived underwarning over highest impact area
  + Discuss pros and cons of advisory vs. warning decision
  + Argue for probabilistic ice forecasts
* Strategies for operational workflow for multi-hazard event - limit in mental bandwidth for forecasters in complex events, storm term forecaster
* Map room presentation - gave people an idea of the challenges in forecasting and messaging this event from NWS perspective, gained external perspective
  + Upcoming journal publication will be an outcome of this event