

Using an Inland Extent Forecasting Tool to Support Future Experimentation with National Weather Service Lake-Effect Snow Warning/Advisory Polygons

MICHAEL L. JUREWICZ SR.
NOAA/NWS Binghamton, NY Weather Forecast Office

JOSEPH VILLANI
NOAA/NWS Albany, NY Weather Forecast Office

ABSTRACT

The National Weather Service (NWS) first implemented storm-based tornado, severe thunderstorm, flash flood, and marine warnings in 2007, to replace the previous and long-standing county-based warning system. By focusing on areas most likely to be threatened, storm-based warnings have provided improved specificity and accuracy. However, winter weather hazards still fall under the legacy county-based system. Since lake-effect snow is inherently a convective phenomenon, it provides the best winter-weather-analog to the types of events for which the NWS currently issues storm-based warnings. Consequently, future experimentation with NWS hazard based polygons for lake-effect snow is under consideration in the eastern Great Lakes region.

Based on research performed at the NWS offices in Albany, NY and Binghamton, NY, an application was developed to help meteorologists better forecast the inland extent of lake-effect snow bands. The application uses the latest model and observed data, and keys on a number of atmospheric parameters determined to be most influential on how far inland lake-effect snow bands penetrate. In a polygon-based warning system that keys more directly on lake-effect snow bands themselves, as opposed to geographic boundaries, it will become even more critical to accurately forecast the specific terminus points of associated significant snowfall. The above described inland extent application could be of great utility in this regard. As such, this application will be described in greater detail, with examples of how it could be effectively applied in an operational setting.