

The Impact of Convective Mode on the Morphology of Lake-Effect Snow Bands

Michael L. Jurewicz, Sr., NOAA/NWS, Binghamton, NY

Justin Arnott, NOAA/NWS, Gaylord, MI

At times, lake-effect snow bands undergo changes in structure, typically related to the diurnal heating cycle. Cellular structures are most commonly seen during the afternoon and evening, while organized bands are most commonly observed during the late night/morning period. However, there have been notable exceptions to this timing; indicating there are other factors at play. The goals of this study are to identify these environmental factors, and then provide tools to assist in the forecast process.

Radar imagery, as well as Rapid Update Cycle (RUC)/Rapid Refresh (RAP) model soundings were examined over the Central and Eastern Great Lakes regions. It was found that certain shear and stability parameters, all quantified within the BUFKIT sounding program, can be combined to accurately forecast convective modes in lake-effect snow situations.

Based on research results, forecasters can use BUFKIT soundings/nomograms to anticipate changes in convective mode. Since organized banding normally produces heavier snow accumulations, correct diagnosis of lake-effect snow band structure should enhance the ability to better forecast snowfall amounts.