Exploration of Synoptic-Scale Patterns in Early-Season Snowfall around the Lake Michigan Region

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This research is part of a broader project that explores the role of Lake Michigan in the regional snowfall climatology. This study explores the statistics of snowfall through the month of November in the Lake Michigan region. Each November snowfall event was classified by whether it was a synoptic event or a lake-effect snow event. From these classifications, a table of dates and snowfall statistics were compiled for Lake Michigan snowfall events from 1950 to 2012. This table was used in coordination with NCDC netCDF re-analysis files to find relationships between the type of the event and 850-hPa, 500-hPa, and 300-hPa temperature, height, wind speed, and wind direction. In order to further understand the climatological development of the snow events around Lake Michigan, composite datasets were also assembled and analyzed. By doing this, the "mean-state" of lake-effect and synoptic snow events around Lake Michigan can be studied. Additionally, the variance between the two modes of snowfall can be statistically analyzed.

Information about the Authors:
Andrew VanDe Guchte and Zachary Sefcovic are two senior meteorology students gaining experience in the field of research under the guidance of Professor Craig Clark. Since lake-effect snow impacts Valparaiso University, having the opportunity to research the phenomenon in-depth has been invaluable. Each author is interested in continuing his education to graduate-level study within the atmospheric science realm.

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