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# Synoptic and Lake-Effect Classification of Snowfall in the Lake Michigan Region

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## **Synoptic and Lake-Effect Classification of Snowfall in the Lake Michigan Region**

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This research is part of a broader project that explores the role of Lake Michigan in its regional climatology. Since 1950, the wintertime temperatures have risen, but snowfall amounts have stayed constant. This study explores snowfall events in October and November to see the role that early lake-effect snow has on the constant yearly snowfall average, as well as to see which areas around the lake are most impacted by lake-effect snow. In order to understand the role of lake-effect snow in the regional climatology, this study used the daily weather map archive to focus on the overall synoptic-scale pattern for each event. Through analysis of reported snow since 1950, the type of snowfall, either synoptic or lake-effect, has been categorized for the whole region. The six sub-regions surrounding Lake Michigan were also individually categorized. This research utilized statistical correlations to learn more about the distribution of synoptic versus lake-effect snow in each sub-region. By understanding the role of lake-effect snow in the regional climatology, improved forecasting tools for the Lake Michigan region can be created.

### *Information about the Authors:*

The authors are a group of junior and 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 or her education at the graduate level within the atmospheric science realm.

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