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November Snowfall Variability and Trends Around Lake Michigan: Sensitivity to Temperature and Teleconnection Patterns

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Using available long-term stations, November climatology of temperature and snowfall since 1950 has been composited for the region near Lake Michigan. Daily data was examined for the available stations to explore the monthly temperature and snowfall, the number of days with snowfall, and snow cover. The characteristics of six sub-region composites were compared using composites around Lake Michigan, respectively. Early season snowfall is much more common in the eastern sub-regions, implying a dominant role of lake-effect snowfall to the overall climatology. The number of days with snowfall is greater in the eastern sub-regions. Western and eastern sub-regions both exhibit a negative correlation between snowfall and temperature. The snowfall is particularly sensitive to the number of near to below freezing days. Teleconnection processes were also examined and a deviation was found with El Niño Novembers as opposed to neutral and La Niña Novembers. A weaker relation to snowfall was seen to the North Atlantic Oscillation (NAO). There is a trend toward less November monthly snowfall and number of days with snow. For some stations in lake-effect prone areas, there are virtually no snowless Novembers in the initial decades, yet three or four out of ten Novembers have been essentially snowless since 1990.

Information about the Authors:
Amanda Bandurski has loved meteorology since she was young. She decided to pursue her career in the science by studying at Valparaiso University. Wanting to be well versed in all things weather, she researched something northern Indiana is accustomed to – lake effect snow. Amanda is involved with the AFROTC here at the university, and will be a weather officer at Scott AFB, IL after her graduation this spring. Justin Barrick has been interested in meteorology since a young age, which is why he wanted to pursue a degree in meteorology. When he found out about the lake effect research class, he thought it would be interesting to research lake effect snow cases around Lake Michigan in November. After graduation, Justin hopes to get a job at an insurance agency and work in the risk management department.

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