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**Glenn Ledder\*** (gledder@math.unl.edu). *Using freeze and thaw data for lakes to study global warming.*

Global warming does not necessarily mean an increase in global temperature. Just as the heating of a cup of ice water serves primarily to melt the ice rather than raise the temperature, the most significant effect of global warming is its effect on the earth's ice cover. Data for total ice cover is hard to obtain, but other data sets can be used for the same purpose. The National Snow and Ice Data Center maintains a web-accessible repository of historical data on freeze dates, thaw dates, and total duration of ice cover for many lakes throughout the earth; indeed, freeze and thaw reports for some lakes date back almost two hundred years. This mass of data contains patterns that are obscured by the large effect of random annual variation. Nevertheless, linear regression can be used to detect long-term trends. In this talk, we introduce the NSIDC data and show how it can be used with a simple spreadsheet to find these long-term trends and assess the evidence for global warming. (Received September 24, 2012)