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# DATA SNOW TRENDS IN THE ILLINOIS STATE

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## ABSTRACT

The Chicago area there are in the south-eastern of Lake Michigan in the north of Illinois State with climatic influences from Lake Michigan. The data obtained refer to the stations Chicago, Freeport, Rockford, Kenosha, Aurora, Gary, Joliet, Ottawa, Dixon, Clinton, Dekalb, Kankakee, Pontiac, Peoria, Bloomington. The climate of the Chicago Area is with cold winters and scattered snowfall in the winter months. The study shows some estimates of snowfall trends over a multi-year period. Data refers to reports from the National Oceanic and Atmospheric Administration National Weather Service, Chicago, IL, 333 West University Drive, Romeoville, IL. The analysis of snow precipitation amount data is based on the application of the mathematical method Excel. The results show that precipitation values are different over the years. Trends are given by regression equations. For January 1985-2021: $y = 4.4576x + 1937.5$, $R^2 = 0.0378$. The tendency of the value of snowfall for the months of January is with a constant 4.4576. In the period Seasonal Snowfall Totals for Chicago from 1884 to 2021: $y = 2.3353x + 1890.2$, $R^2 = 0.0868$. The tendency of the value of snowfall for each year period is with a constant 2.3353. The smallest amount of snow precipitation is estimated for the years 1920-1921 with 9.8 inches. The highest amount of snow precipitation is estimated for the years 1978-1979 with 89.7 inch. All result are based on statistical method. Our statewide snowfall records in Illinois start in 1902. There is no long-term trend in snowfall since 1902. However, some decades were snowier than others, such as the 1910s, 1960s, and 1970s. In fact, the 1970s were the snowiest decade on record with an average snowfall of 27.2 inches. Snowfall amounts dropped steeply with less year to year variability for much of the 1980s and into the early 2000s. However, snowfall amounts in the last 6 winters have been more variable with the winter of 2014 being about as snowy as the late 1970s. The snowiest winter on record was 1979 with 44.5 inches. Here are the 5 snowiest winters on record: 1979 with 44.5 inches; 1978 with 44.4 inches; 1912 with 39.5 inches; 2014 with 39.4 inches; 1960 with 38.6 inches; Snowfall is accumulated from July 1 of the first year to June 30 of the second year. The second year is used in the plot and table (for example, 2006 refers to the 2005-2006 season, source: state climatologist Illinois).

**Key words:** area, data snow, trends, Climatic influence, Illinois.