

## **Changes in the amount and days with snowfall across the Northern Great Plains of the United States**

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**Abstract.** In recent years global climate change has become a more prevalent issue. Globally annual temperatures have increased by 0.74 °C in the past century and 1.3 °C per century in the past 50 years. A warmer climate would cause less snowfall, a shallower snowpack and a change in the timing of snowmelt. Several studies have examined changes to the ratio of snow to rain throughout the United States, and found that there has not been a change in the amount of precipitation but at many locations there has been a decrease in the amount of snowfall. Across the Northern Great Plains, snow accumulation is shallow but persistent for most of the winter. Winter precipitation in solid phase will add fresh snow to the pack and increase its albedo, altering the energy balance at the surface. In this study meteorological data for 20 stations across the Northern Great Plains were obtained from the National Climate Data Center. The number of days with snow has been decreasing across this region over the past 60 years, as the annual maximum and minimum temperatures have been warming. However, there is substantial spatial variability in the trends across this region.

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