

A Changing Winter Climate and the Impact on Forest Soils
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ABSTRACT

Understanding local climate changes in response to global warming is important both for predicting how ecosystems will respond and public perception of climate change. In this study, we looked at winter temperature and snowpack data from the Hubbard Brook Experimental Forest in the White Mountains in New Hampshire for trends associated with climate change and directly measured the impact of snow removal on forest soils over a four-year period. Since 1956, winter average temperatures have increased, the average maximum temperature has increased for each winter month (December- April), and both the average and maximum snowpack depth has declined. A declining winter snowpack may result in deeper soil freezing and more frequent freeze-thaw events. Recent evidence has identified these processes as a potential new source of soil acidification. These trends are consistent with global warming forecasts, and represent new forms of stress resulting from changes in the climate of the Northeastern United States.