

**News Release**

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**Cool Science (Very Cool) Examines How Ice Storms May Shape the Future of Northern Forests**

**WOODSTOCK, N.H. (Jan. 21, 2016):** A team of scientists in New Hampshire succeeded this week in capturing one of nature’s most destructive forces – ice – and corralling it in two large research plots on the Hubbard Brook Experimental Forest. This week, scientists from the USDA Forest Service, Syracuse University, the Cary Institute of Ecosystem Studies, Cornell University, University of Vermont, , and the Hubbard Brook Research Foundation created an experimental ice storm that will improve understanding of short- and long-term effects of ice on northern forests.

Ice storms are a big deal in a changing world. Ice storms are expected to become more frequent and severe in the northeastern United States and eastern Canada as long term climate continues to warm while short term weather patterns still bring blasts of arctic air into the region. Large Ice storms disrupt lives and damage infrastructure in towns and cities in northern New England, resulting in billions of dollars of damage. Ice storms also literally reshape forests. Heavy ice loads break branches and topple whole trees, resulting in reduced tree growth in ensuing years, increased susceptibility to pests and pathogens, changes in habitat for wildlife, and alterations in how nutrients like carbon and nitrogen cycle in the forest.

“Science is critical to our understanding of how climate change may shape forests in the future,” said Tony Ferguson, Acting Director of the Northern Research Station and the Forest Products Laboratory. “Creating an ice storm is a very unique experiment that would not be possible without all of our partners and funding from the National Science Foundation.”

While ice storms are a powerful force in forests, they are also inherently difficult to study because scientists, like citizens, have little lead time on when and where these storms are going to occur. Scientists at the Hubbard Brook Experimental Forest are changing that equation, and instead of waiting for the next big storm to hit, they are creating their own artificial ice storms using high-pressure firefighting pumps and hoses to spray water high up into the forest canopy during a cold snap. They are measuring the obvious and immediate downing of limbs and trees, as well as subtler longer term growth responses, interactions with invasive species, and impacts on forest nutrient cycling.

“This research will provide the scientific community, land managers and the concerned public greater insight on the impacts of these powerful, frightening, and curiously aesthetic extreme winter weather events on ecosystem dynamics in northern hardwood forests,” said Lindsey Rustad, Team Leader at Hubbard Brook Experimental Forest and an investigator on the ice storm experiment.

“Ice storms are a great example of extreme weather events with complex outcomes. The experimental ice storm is part of a comprehensive study of ice storms and their effects at Hubbard Brook, which also includes examining forest recovery from a severe ice storm in 1998, developing and applying models to depict the climate conditions that result in ice storms and forest ecosystem effects, and associated outreach and education,” said Charles Driscoll, a professor at Syracuse University and investigator for the Hubbard Brook ice storm experiment.

In addition to Rustad and Driscoll, investigators in the experiment include John Campbell and Paul Schaberg of the USDA Forest Service; Katharine Hayhoe of Texas Tech University, and Sarah Garlick of the Hubbard Brook Research Foundation. Partners include Peter Groffman of the Cary Institute of Ecosystem Studies, Timothy Fahey of Cornell University, and Robert Sanford and Joe Staples of the University of Southern Maine.

The Hubbard Brook “ce Storm Experiment is funded by a grant from the National Science Foundation (DEB-1457675 - Collaborative Research: Understanding the Impacts of Ice Storms on Forest Ecosystems of the Northeastern United States).

The mission of the Forest Service's Northern Research Station is to improve people’s lives and help sustain the natural resources in the Northeast and Midwest through leading-edge science and effective information delivery.

The mission of the [Forest Service](http://www.fs.fed.us/), part of the [U.S. Department of Agriculture](http://www.usda.gov/wps/portal/usda/usdahome), is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. The agency manages 193 million acres of public land, provides assistance to state and private landowners, and maintains the largest forestry research organization in the world. Public lands the Forest Service manages contribute more than $13 billion to the economy each year through visitor spending alone. Those same lands provide 20 percent of the Nation's clean water supply, a value estimated at $7.2 billion per year. The agency has either a direct or indirect role in stewardship of about 80 percent of the 850 million forested acres within the U.S., of which 100 million acres are urban forests where most Americans live.

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