

Report reveals inner worlds of snow and winter, and their importance to humans and ecosystems

January 14 2016



Love it, hate it, we all depend on snow. In many areas, the year-round water supply depends on snow. Credit: National Science Foundation

Snow—that icon of winter—blankets the land with a beautiful silence. Love it or hate it, we all depend on snow. Our year-round water supply largely comes from snowmelt.

But we're not the only ones who need [snow](#).

Species from [microscopic fungi](#) to 800-pound-moose require it as much, if not more. They survive the [winter](#) by living in nature's igloo: snow.

And spring's profusion of flowers? They're fertilized by nutrients in snow.

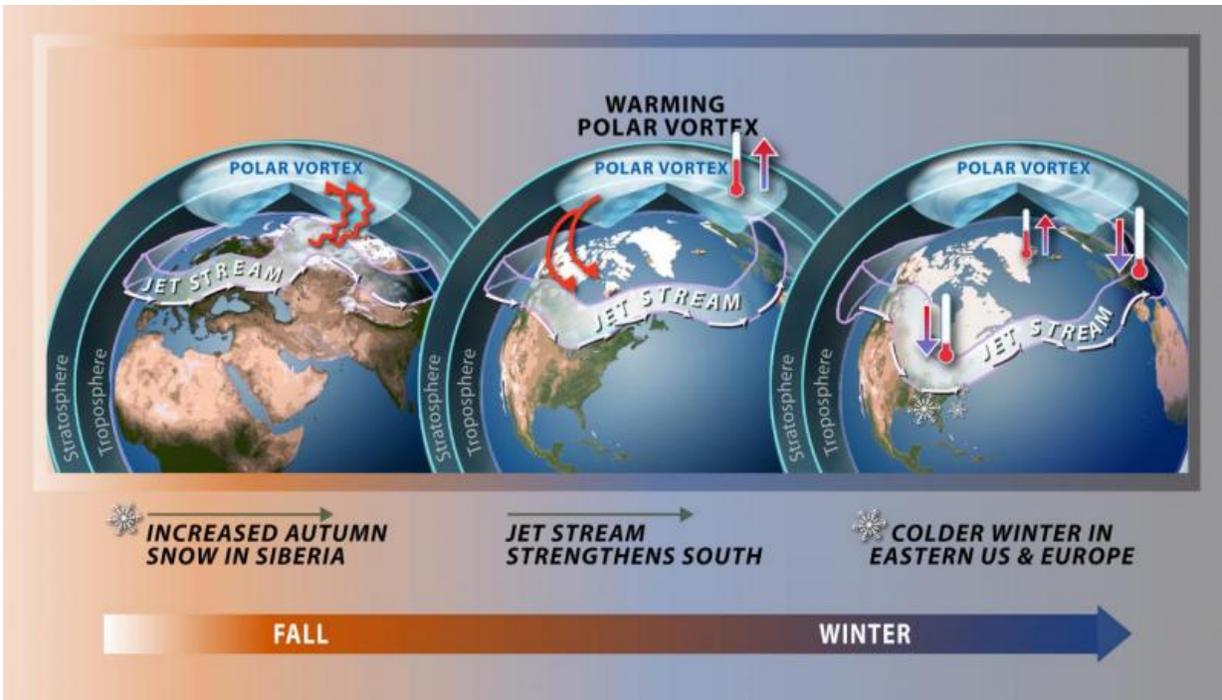
If you're planning to skate on a frozen lake or river this winter, ski on a snowy slope, or, when spring arrives, depend on snowmelt to fill your reservoir, you may need to think twice.

A view of the new winter

Winter is changing, becoming less like the cold seasons we may remember. The "new winter" has consequences far beyond December-to-March. It affects spring and summer, too, including plants' flowering dates—and species such as hummingbirds that depend on precision flowering times for nectar.

In celebration of snow and winter as we know it, and in a look at what winter may be like in the future, the National Science Foundation (NSF) has launched a new special report: [Let It Snow! The Science of Winter](#).

The report focuses on projects supported largely by NSF's Directorate for Geosciences and Directorate for Biological Sciences/Division of Environmental Biology.

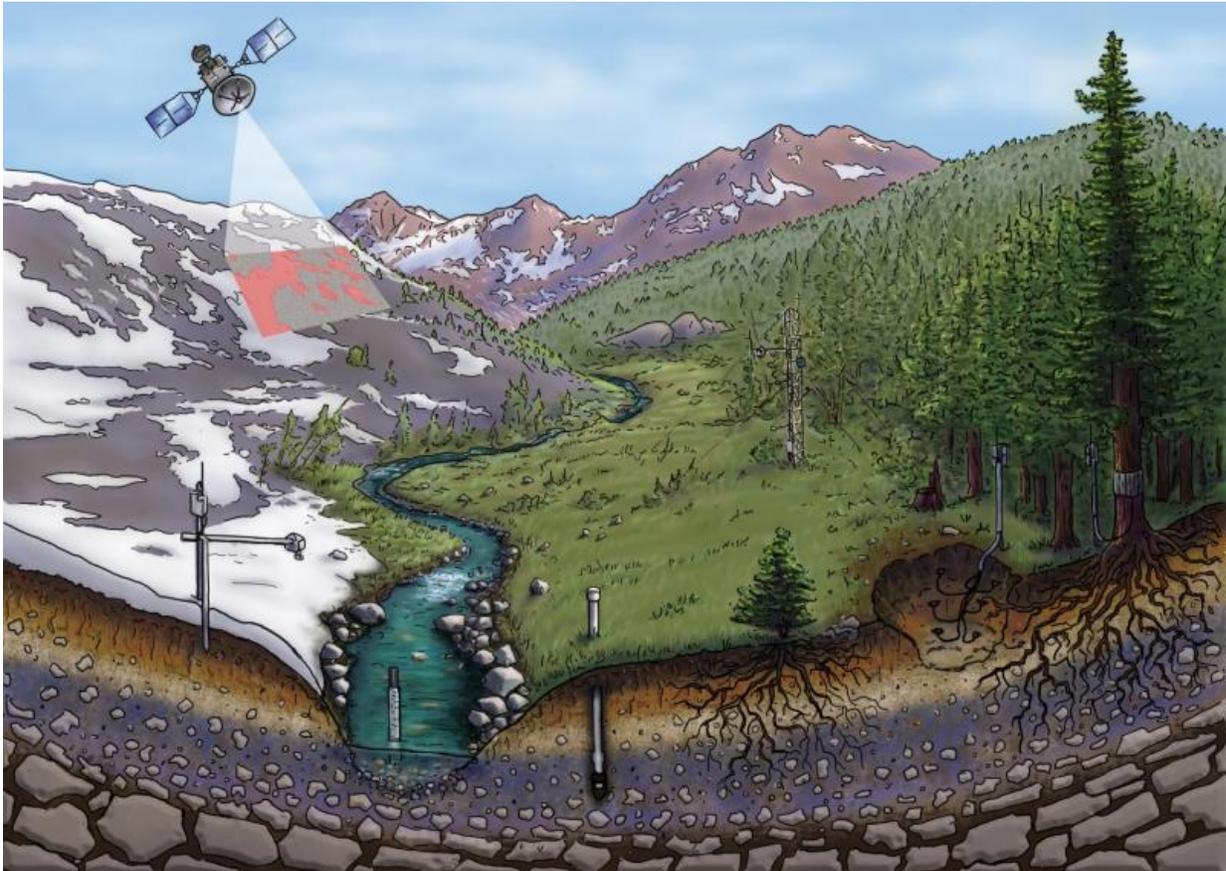


Researchers have validated a new weather prediction model that uses autumn snowfall to predict winter cold in the United States and Europe. Credit: Nicolle Rager Fuller/National Science Foundation

Grants from these areas fund research on subjects as diverse as measuring snowfall; tracking snowstorm "bombs," as whiteouts are known in meteorology; studying animals and plants that live beneath the snow in an ecosystem called the subnivan; searching for snowmelt, or "white gold"; and the bane of winter—dust from the atmosphere that causes snow to melt before its time.

Go winter storm-chasing, enter nature's igloo

In the report, explore such topics as winter storm-chasing, a conifer tree's view of snow, life in nature's igloo, and where our winters have gone.



Scientists at NSF's Critical Zone Observatories study snowmelt and water resources. Credit: National Science Foundation

Watch a video of snowflakes photographed by a new high-speed camera, and another on the water that's locked in snow and ice: a zero sum game.

As you look out your window at a snow-covered landscape, or perhaps one that has been so in the past—and even if you live below the snowline—find out what scientists are learning about winter.

It matters, even if you never see a snowflake.



A secret world, unseen by most humans, is alive beneath the surface of winter's snow. Credit: Kristin Link



The willow ptarmigan is one of many species that use snow as an insulating blanket. Credit: John Whiteman



How do wood frogs survive being frozen in winter? By living under the snow surface. Credit: Jan Storey

Provided by National Science Foundation

Citation: Report reveals inner worlds of snow and winter, and their importance to humans and ecosystems (2016, January 14) retrieved 12 July 2024 from <https://phys.org/news/2016-01-reveals-worlds-winter-importance-humans.html>

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