

First-in-nation state climate assessment released by Vermont

June 10 2014



Hikers on Vermont's famed Camel's Hump Mountain might be able to take a bad weather bypass as more intense storms become the norm in a climate-changed future. But there is no bypass for the big climate changes now affecting Vermont's landscapes and economy. In the first such effort in the United States, on June 10, the Vermont Climate Assessment, produced at the University of Vermont, was released. It follows the path of the National Climate Assessment released in May. The new report combines global and national data and models with local knowledge to create a portrait of Vermont's current climate impacts -- and a detailed forecast of this New England state's warmer, wetter future. Credit: Joshua Brown, University of Vermont

Fewer days for making maple syrup. Twenty-five years with more snow for skiing. Summer heat stress for dairy cows. These are a few of the forecasts from the Vermont Climate Assessment, the nation's first comprehensive state-level climate assessment, released on June 10.

The Vermont report is partnered with the National Climate Assessment, presented by the White House in May. It is expected to be the first of many state-level efforts to "downscale" [global climate models](#), combining them with local knowledge and data. The new Vermont assessment gives a detailed portrait of the impacts of a warming world on the state's landscapes and businesses—like more intense storms, an 80% increase in the likelihood of flooding, but also increased potential for short-term droughts this century.

The Vermont Climate Assessment was written by scientists at the University of Vermont, in collaboration with experts from the State of Vermont, meteorologists from the National Weather Service, as well as Vermont businesses, farmers, and non-profit organizations with local expertise and data.

"The climate has already changed substantially in Vermont," said Gillian Galford, a climate scientist at UVM's Gund Institute for Ecological Economics and the lead author of the new report, "Spring is coming seven days earlier across the state—and that has happened in just the last three decades."

Galford and her colleagues were able to report this by drawing on numerous types of data such as satellite observations and global climate models from NASA—combined with local sources like weather station records from across the state over decades, apple farmers' records of tree blooms going back into the 1960s, and the ice-out date on Vermont's famed Joe's Pond.

Long the site of bets about which spring day it will melt, the pond's ice breakup varies considerably from year to year, but its average has gotten earlier. "As a scientist, the Joe's Pond ice-out date makes a beautiful trend," Galford says, "as a person, I find it tragic that our climate is changing this rapidly."

However, some of the forecasts in the new assessment bode well for some businesses. A longer growing season may allow, for example, new types of European wine grapes to flourish. And Vermont's ski industry may be able to look forward to a temporary climate change "sweet spot," the report notes. The increasing precipitation that has been observed in Vermont in recent years is expected to continue, which means more snow in the next two or three decades. But, "winter precipitation will shift to rain in the next fifty years," Galford notes, as the state's average temperature is projected to increase by more than five degrees Fahrenheit by 2100.

The Vermont Climate Assessment takes this kind of general data from global and national sources—like the Intergovernmental Panel on Climate Change and the US Global Change Program—and gives them local detail: within the overall forecast of spiking temperatures and precipitation, the new report expects the largest increases in Vermont's mountainous regions. Heavy rainfall events are also expected to become more common, threatening development in floodplains and driving pollution into Lake Champlain.

Until this new assessment, Vermont, like most other states, has not had a comprehensive examination of the economic impacts of [climate change](#). "Some of the impacts in Vermont are going to present new opportunities that we can capitalize on in agriculture, recreation and tourism," Galford said. "And there are some serious negatives that we need to be prepared to deal with. By acting now, we can adapt to and mitigate some of these problems."

"This assessment is the first of its kind anywhere in the United States," noted Taylor Ricketts, the director of UVM's Gund Institute that produced the Vermont Climate Assessment. It's "rigorous research that integrates social and natural sciences," he notes, and, "this report will guide our state to be more resilient to the changes we now know are coming."

More information: The full report will be available on June 10 at: www.vtclimate.org/

Provided by University of Vermont

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