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New England winters will be warmer and shorter, with fewer days below freezing and less snow, scientists say.

By **Matt Rocheleau**

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In the next two and a half decades, the number of subfreezing days in Eastern Massachusetts will decline by about two-thirds, from about 90 to roughly 30, newly released research from the

University of Massachusetts Amherst says.

For winter-weary residents, that may sound fantastic. But scientists say the impending changes — just the latest evidence of human-caused global warming — are deeply troubling.

“While there will be some benefits from climate change, warming, which reduces or eliminates the amount of time any given place experiences freezing weather, will undoubtedly be detrimental,” said University of Massachusetts Amherst professor Michael Rawlins.

Rawlins, fellow UMass climate scientist Raymond Bradley, and other researchers have issued a [study](#), published online this week and appearing in the October issue of the [Journal of Climate](#), that details how New England winters will warm over the next few decades.

Their research, first reported by [WBUR](#), focused on how many regions across North America will experience significant declines in the number of days below freezing each year.

For instance, southern Connecticut can expect to have no days with below freezing temperatures by the middle of the century. Southern Connecticut now sees an average of 35 to 40 subfreezing days annually, Rawlins said.

Overall, researchers estimate that about 1 million square kilometers of North America — 6 percent of the continent that now experiences sub-freezing temperatures — will no longer have freezing weather.

The timing of the fall freeze and spring thaw will also shift, creating shorter winters, researchers found.

That will have a major impact on ecosystems, Rawlins said. It could allow pests that now die off or become less active in the winter to flourish, while other animals and plants may suffer.



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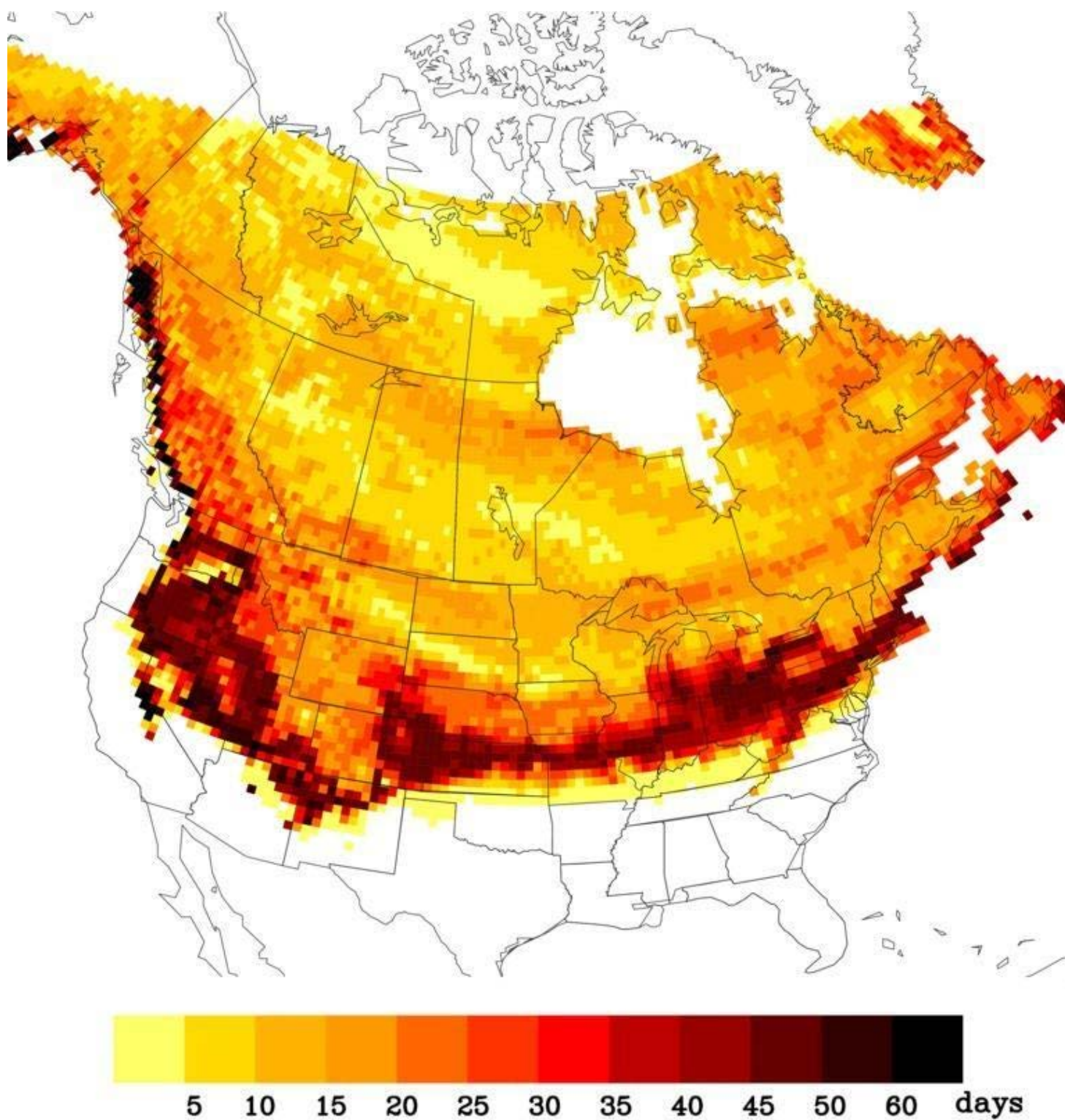
Some regions will experience more warming than others, researchers found. Areas along the divide between the northern and southern United States, along with sections of the Pacific Northwest, will lose a larger share of subfreezing days, many of which are only slightly below 32 degrees.

Colder regions stretching into Canada that have a large number of days that are well below freezing will still experience significant warming, but lose fewer subfreezing days.

Less snowfall would exacerbate warming, researchers found. Snow cover helps reflect energy from the sun during winter, keeping temperatures down. Without snow cover, more sunlight is absorbed by darker surfaces, which can have a warming effect, Rawlins said.

While the overall pattern will be warmer winters, there will likely be fluctuations, with some cooler winters mixed in along the way.

The study projected temperatures from about 2040 until 2070. But Rawlins said specialists expect warmer temperatures to persist beyond that time frame. "Given current rates of greenhouse gas emissions, it is very likely that warming will continue past mid-century unless aggressive actions are taken, and soon, to curb these emissions," he said.



JOURNAL OF CLIMATE / "FUTURE DECREASES IN FREEZING DAYS ACROSS NORTH AMERICA" STUDY

The above map shows the expected change in the frequency of freezing days across North America. Darker areas are projected to experience the greatest declines in freezing day frequency.

Matt Rocheleau can be reached at matthew.rocheleau@globe.com. Follow him on Twitter @mrochele.

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