Spring to come three weeks earlier to the United States

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Credit: Notneb82, Wikimedia Commons

Scientists have projected that the onset of spring plant growth will shift by a median of three weeks earlier over the next century, as a result of rising global temperatures.

The results, published today, in the journal *Environmental Research Letters*, have long term implications for the growing season of plants and the relationship between plants and the animals that depend upon them.

The researchers, based at the University of Wisconsin-Madison, US, applied the extended Spring Indices to predict the dates of leaf and flower emergence based on day length. These general models capture the

phenology of many plant species.

Their results show particularly rapid shifts in plant phenology in the Pacific Northwest and Mountainous regions of the western US, with smaller shifts in southern areas, where spring already arrives early.

"Our projections show that winter will be shorter - which sound greats great for those of us in Wisconsin" explains Andrew Allstadt, an author on the paper. "But long distance migratory birds, for example, time their migration based on day length in their winter range. They may arrive in their breeding ground to find that the plant resources that they require are already gone."

The researchers also investigated so-called 'false springs' - when freezing temperatures return after spring plant growth has begun. They showed that these events will decrease in most locations. However a large area of the western Great Plains is projected to see an increase in false springs. "This is important as false springs can damage plant production cycles in natural and agricultural systems" continues Allstadt. "In some cases, an entire crop can be lost."

These researchers are working on a NASA Biodiversity Grant, with the goal of assisting people working in conservation of public land in the US. As such, the researchers have provided much of their data freely on their website: http://silvis.forest.wisc.edu/

"We are expanding our research to cover all kinds of extreme weather, including droughts and heat waves" concluded Allstadt. "We are particularly interested in how these affect bird populations in wildlife refuges."

More information: 'Spring plant phenology and false springs in the conterminous US during the 21st century' *Environmental Research*

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