

Prolonged effects of a warming anomaly on grasslands

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Professors Yiqi Luo, Linda Wallace and Rebecca Sherry in the Department of Botany and Microbiology coauthored a paper with colleagues Jay Arnone and Paul Verburge at the Desert Research Institute; Dale Johnson from the University of Nevada at Reno; David Chimel from the National Center for Atmospheric Research; and others to report their findings on the long-term effects of warming anomaly on grassland productivity and ecosystem carbon cycling.

According to the paper, the research team excavated 12 soil monoliths, each weighing 12 tons, from the University of Oklahoma Kessler Farm Field laboratory. The monoliths were trucked to Reno, Nevada and housed in a greenhouse for four years. They were acclimated to the control environment in the greenhouse in the first year. Then, six of the 12 monoliths were subjected to warming treatments of 4 degrees Celsius and the rest remained in a control environment of average central Oklahoma conditions for the second year. In the third and fourth years, both control and warming-treated monoliths were kept at the control conditions.

The research team found that warming by 4 degrees Celsius in the Reno greenhouse not only depressed plant growth and suppressed land carbon absorption in the treatment year but also resulted in prolonged suppression of plant growth and carbon absorption in the following year.

Source: University of Oklahoma

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