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News in Brief: Warming may not release Arctic carbon

Element could stay locked in soil, 20-year study suggests



By Erin Wayman

Web edition: May 15, 2013

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The Arctic's stockpile of carbon may be more secure than scientists thought. In a 20-year experiment that warmed patches of chilly ground, tundra soil kept its stored carbon, researchers report.

Almost half of the world's soil carbon is stored at high latitude, in the form of dead and decaying organisms. Some scientists worry that rising temperatures could accelerate decomposition, which unleashes carbon dioxide.

In 1989, ecologists set up greenhouses on plots of tundra in northern Alaska. Air temperature inside the greenhouses was on average 2 degrees Celsius warmer than outside.

Over two decades, the team reports, mosses and lichens gave way to woody shrubs. Decomposition slowed in surface soil while it sped up deeper underground. Warmer soils may have allowed plant roots and plant litter to penetrate farther into the ground, increasing both the deep soil's carbon stocks and its rates of decomposition, the researchers suggest. Overall, though, there was no difference in total soil carbon in the greenhouse plots compared with plots that had no greenhouses.

Seeta Sistla of the University of California, Santa Barbara and colleagues report May 15 in *Nature* that they don't know whether the study's results can be extrapolated over longer periods of time.

COMMENT



CITATIONS

S.A. Sistla et al. Long-term warming restructures Arctic tundra without changing net soil carbon storage. *Nature*. Published online May 15, 2013. doi: 10.1038/nature12129. [Go to]

SUGGESTED READING

M. Rosen. Fungi pull carbon into northern forest soils. *Science News*. Vol. 183, May 4, 2013, p. 13. [Go to]

C. Petit. Soil's hidden secrets. *Science News*. Vol. 181, January 28, 2012, p. 16. [Go to]

J. Raloff. Forest invades tundra. *Science News*. Vol. 174, July 5, 2008, p. 26. [Go to]

S. Perkins. Global warming won't boost carbon storage in tundra. *Science News*. Vol. 166, October 9, 2004, p. 238. [Go to]



ENLARGE

TRUE GREENHOUSE GASES

Researchers used greenhouses to artificially warm tundra (shown, in autumn) for 20 years. They found no net change in the amount of carbon stored in the soil.

Sadie Iverson

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