

# Global warming won't boost carbon storage in tundra

BY SCIENCE NEWS STAFF

The notion that warmer tundra ecosystems will capture additional carbon dioxide—a favorite argument among skeptics of global warming—isn't supported by new field data.

For more than 20 years, researchers have been adding plant nutrients to patches of tundra near Toolik Lake, Alaska. Since 1981, each square meter of soil in the research plots received 10 grams of nitrogen and 5 g of phosphorous per year, says Michelle C. Mack, an ecologist at the University of Florida in Gainesville.

Those dosages are roughly equivalent to the additional amounts of these nutrients that decaying organic matter in the soil would release if temperatures in the region were to rise around 5°C, the temperature increase predicted for the region over the next half-century by some climate models.

As expected, the nutrient applications led to denser growth of grasses and shrubs, which in turn, sopped up more carbon dioxide. Between 1981 and 2001, this above-ground carbon storage increased by 1.5 kilograms per square meter.

However, the carbon content of the soil dropped by 3.5 kg/m<sup>2</sup> over the same period, says Mack. The math indicates that every square meter of tundra could lose 2 kg of stored carbon.

The finding, reported by Mack and her colleagues in the Sept. 23 *Nature*, suggests that temperature increases in arctic regions could spur the release of massive amounts of planet-warming carbon dioxide. More than one-third of the carbon in the world's soils is now stored in those high-latitude areas, she notes. —S.P.