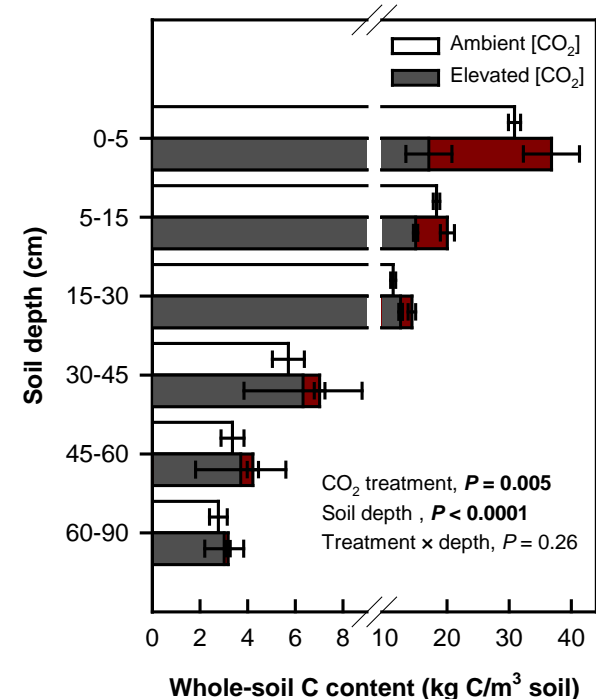


# Final FACE harvest reveals increased soil carbon and nitrogen storage under elevated [CO<sub>2</sub>]

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- A common response of trees growing in elevated CO<sub>2</sub> is increased production of fine roots, especially in relatively deep soil.
- Final harvest of the Oak Ridge National Laboratory free-air CO<sub>2</sub>-enrichment (FACE) experiment in 2009 allowed quantification of the effects of increased fine-root production and mortality on soil carbon (C) and nitrogen (N) cycling.
- Biogeochemical and isotopic analyses of soil samples to 90-cm depth revealed that elevated [CO<sub>2</sub>] increased soil C and N contents throughout the soil profile, including in deeper soils where turnover rates of soil organic matter are reduced.
- Expanded representation of biogeochemical cycling throughout the soil profile may improve model projections of forest responses to rising atmospheric [CO<sub>2</sub>].



Carbon fixed during fumigation with elevated [CO<sub>2</sub>] (which was depleted in stable <sup>13</sup>C isotope, red bars) led to increased soil C content throughout the soil profile.

**Citation:** Iversen CM, Keller JK, Garten CT, Norby RJ (2012) Soil carbon and nitrogen cycling and storage throughout the soil profile in a sweetgum plantation after 11 years of CO<sub>2</sub>-enrichment. *Global Change Biology*, DOI: 10.1111/j.1365-2486.2012.02643.x.