A Method for Experimental Heating of Intact Soil Profiles for Application to Climate Change Experiments

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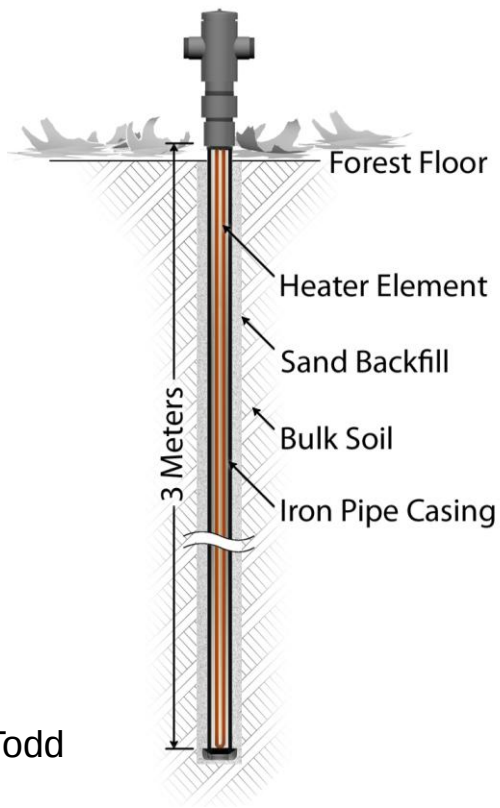
- Experiments designed to test the responses of ecosystems to increases in air and soil temperature are a prerequisite for the evaluation of climate model projections.
- Such studies have been conducted, but further advances in mechanistic understanding require innovative approaches to exposing ecosystems to increased temperatures.
- A new approach for simulating future soil temperature increases was conceived, simulated, constructed and tested in a temperate deciduous forest. It uses a series of low-wattage, 3-m deep heaters to achieve a set soil temperature differential within the treatment area.
- Long-term research programs may be able to apply this new heating method that captures expected future warming and temperature dynamics throughout the soil profile to address uncertainties in process-level responses of microbial, plant, and animal communities in whole, intact ecosystems.



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