Ongoing monitoring of soils is essential for detecting, predicting and addressing environmental change. We have established a long-term soil monitoring study on ‘unmanaged’ forested sites in Vermont.

Five 50 x 50 m plots are located in protected areas, three on Mt. Mansfield and two in the Lye Brook Wilderness Area (Fig. 1, Table 1). We have been monitoring carbon, nitrogen, exchangeable cations, and mercury (Hg).

Baseline soil profiles at each site and year have been sampled five times, every five years beginning in 2002. Data from the 2022 sampling is not yet available. There were nonsignificant trends for 

- Average total mercury (THg) concentration in the Oa or A horizon at each site has ranged from 144 mg/kg to 200 mg/kg. Significant increases (p < 0.05) were found in Oa/A carbon at both Lye Road and Mansfield Underhill. The latter site also had significant increases in upper B horizon carbon concentrations and both exchangeable Ca and Al (Fig. 5).
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- Significant trends for THg with increasing soil carbon.
- The latter site also had significant increases in upper B horizon carbon concentrations and both exchangeable Ca and Al (Fig. 5).
- Long-term monitoring of Vermont’s forest soils: early trends and efforts to address innate variability

Results have been published!...

...in the Journal of Environmental Analysis and Assessment [2023] 193:776

Data and methods are also published and available on the FEMC website.