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Spatial variation and environmental assessment of soil organic carbon isotopes for tracing sources in a typical contaminated site

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ABSTRACT

The environment of Beijing as the capital city of China is highly affected by industrial pollution. The area of the Capital Iron & Steel Factory of Beijing is a typical example for industrially contaminated sites in the Beijing area. In the present study, we collected topsoil and section samples from the Capital Iron & Steel Factory site and its surrounding area in high resolution, which were analyzed on organic carbon concentrations and carbon isotopic compositions. The results reveal both anthropogenic and natural contributions of carbon to these soils. Three profiles from the vicinity and two profiles from the area surrounding the steel company display vertical patterns in soil organic carbon concentrations and isotopic compositions that resemble more commonly observed downward gradients in soil carbon chemistry and indicate microbial carbon turnover.