

WeThaw: Mineral Weathering in Thawing Permafrost

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Enhanced thawing of the permafrost in response to warming of the Earth's high latitude regions exposes previously frozen soil organic carbon (SOC) to microbial decomposition, liberating carbon to the atmosphere and creating a dangerous positive feedback on climate warming. Thawing the permafrost may also unlock a cascade of mineral weathering reactions. These will be accompanied by mineral nutrient release and generation of reactive surfaces which will influence plant growth, microbial SOC degradation and SOC stabilisation. Arguably, weathering is an important but hitherto neglected component for correctly assessing and predicting the permafrost carbon feedback. The goal of the project *WeThaw* is to provide a comprehensive assessment of the mineral weathering response in permafrost regions subject to thawing, including ice-rich permafrost subjected to abrupt disturbances called thermokarst, and permafrost with lower ground-ice content subjected to a gradual but persistent deeper thaw of the active layer. The aim is to contribute to augment our capacity to develop models that can accurately predict the permafrost carbon feedback.

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