

Enhanced weathering with agriculture for atmospheric CO₂ removal at scale: long-term field trial performance

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Terrestrial enhanced rock weathering (EW), involving the amendment of agricultural soils with crushed silicate rocks, is an emerging carbon dioxide removal (CDR) technique. Recent advances in the science and investment by the commercial sector are accelerating the prospect of EW's implementation at scale. However, there is a need for long-term (5+ years) instrumented EW field trials to evaluate its performance, the processes that regulate CDR efficiency, and document agronomic benefits for soils and crops. In this presentation, I will discuss the performance of long running large-scale EW field trials at temperate and tropical agricultural sites over the past 7 years. Carbon removal time lags are a fundamental feature of many CDR technologies, including EW and forestry projects. I will consider approaches to assessing delays in CDR with EW due to immobilization of weathered cations on soil exchange sites, and more broadly, how these link to the two field sites and the implications for carbon markets.