

Enhancing Deep Carbon Storage: Manipulation Strategies to Enhance Stable Subsurface Organic C Pools

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Quantify the magnitude of enhanced organic C accumulation in deep Ultisol and Inceptisol subsoils that have been treated with amendment strategies designed to accelerate the mineralization and dissolution of surface organic matter.

Use of two highly instrumented pedons to assess coupled hydrological and geochemical processes on the fate and transport of solubilized organic C in different pore domains.

Application of a novel stable isotope technique (^{13}C and ^{15}N) for tracking old vs. new carbon and nitrogen in solution and on the solid phase.

Provides significant advances in the current conceptual understanding and quantitative relationships needed to predict organic C inventories and budgets in soil systems.

Provides new quantitative information on the significance of carbon credits in deep soil resulting from manipulation.

Jardine, P.M., J. Tarver, D.E. Todd, and C.C Brandt. 2005. Fate and transport of storm driven organic C in structured humid region soils (in prep).

Jardine, P.M., M.A. Mayes, J. R. Tarver, P. J. Hanson, P.J. Mulholland, G.V. Wilson, and J.F. McCarthy. 2005. Exploring Vadose Zone Flow and Transport of Dissolved Organic Carbon at Multiple Scales in Humid Regimes. *Vadose Zone Journal* (in press).

