

Project # 51537

Characterization of simplified soil communities with high and low carbon use efficiency across differing moisture treatments

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Abstract:

This project is directed under the "Terrestrial Microbial Carbon Cycling" SFA project awarded to Los Alamos National Laboratory. The goal of the SFA is to interrogate how soil microbial community variation contributes to the fate of carbon in the environment across differing moisture treatments. Here, we propose a set of integrated experimental approaches to characterize simplified microbial communities we have identified that have high or low carbon use efficiency (CUE). We posit that microbial communities with high CUE will favor metabolic pathways to create recalcitrant dissolved organic carbon (DOC) metabolites. By characterizing the metabolic pathways and metabolites present in high and low CUE communities, we will be able to better understand which microbial pathways lead to carbon sequestration versus CO₂ emission leading to better C cycle modeling.