Very-Long-Term Anthropogenic Impacts on Soil Inorganic Carbon. (S05-noller153355-Poster)

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Abstract:

The impact of very-long-term agricultural activities on the soil carbon pool remains terra incognita in our understanding of the global carbon cycle. This study specifically addresses soil inorganic carbon in fields used by numerous civilizations since the Bronze Age ca. 5000 years B.P in the Eastern Korinthia, Southern Greece. All field sites coincide with archaeological data collected by the Eastern Korinthia Archaeological Survey. Carbon stocks considered in our analyses include lithogenic (LIC) and pedogenic (PIC) inorganic carbon. Measured values for soil organic carbon (SOC) are likely not fully indicative of past conditions of land use. Soil inorganic carbon stocks, however, are more resistant to microbial activity and thus are more persistent, yet are more difficult to resolve as these involve fractions of LIC and PIC. Using 13C and 18O isotopic analyses of the inorganic carbon fraction, work to date accurately identifies the LIC and PIC components. Results are compared to control soils, a sequence of buried soils and remote, non-agricultural soils, to calculate the anthropogenic influence on soil inorganic carbon.

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