



Controls of soil organic material stability in coastal wetland soils

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In this study, we utilize ramped pyrolysis to identify relative stability differences in bulk soil organic material (SOM) from three wetland types (fresh, brackish, and salt marshes). Wetland soils are responsible for the storage of 500-700 Pg of carbon, globally. Understanding the stability of this carbon is important for predicting its role as source or sink in the global carbon cycle and with various changes in climate. By comparing and relating our ramped pyrolysis stability index to the SOM depth, TOC, composition, and source, we are able to determine which of these factors plays the larger role in controlling its stability. Preliminary results indicate that, of these factors, the source of OM has the most control over SOM stability in these wetland environments, with fresh marsh SOM being more stable than salt and brackish marsh SOM. As fresh marshes are replaced by salt marshes accompanying sea-level rise, our results imply that this will initiate the accumulation of less stable OM in these soils.