

Effects of Fire on Soil Carbon Mobility and Transport

A lecture by

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Abstract: Fire is a common, widespread phenomenon in many parts of the world, and has multiple, complex effects on the cycling and composition of organic matter and nutrients in terrestrial and aquatic ecosystems. Fire can transform the chemical composition of bulk soil organic matter (SOM) and its soluble component and convert organic matter into more stable forms of organic carbon collectively known as pyrogenic carbon. Although much progress has been made in describing the thermal transformations in bulk SOM, there is limited data available on the thermally induced chemical changes of the soluble portion of SOM and on how time since fire and fire severity affect streamwater chemistry. In this talk, I will present results from my research work that examined: 1) changes in the chemical composition of water-extractable organic matter from soils heated at low and intermediate temperatures; and 2) the effects of fire severity and time since fire on dissolved organic carbon (DOC) concentration and composition in streamwater. I argue that we need to bridge terrestrial and aquatic sciences to better understand the effects of fire on the transport of DOC from soils to streams.

Bio: Fernanda Santos received her bachelor's degree in Geography from the State University of Rio de Janeiro, Brazil. Fernanda earned her MA degree in Physical Geography from Hunter College, City University of New York, and Ph.D. degree in Earth and Environmental Science from The Graduate Center, also part of the City University of New York. As a recipient of the UC Chancellor's Postdoctoral Fellowship, Fernanda investigates the impact of fires on the biogeochemistry of soils and streams.