California State University, Fresno, Department of Biology presents

"Post-fire soil carbon dynamics: implications on movement of particulate and dissolved pyrogenic carbon"

Fire, erosion, and soil carbon (C) storage and persistence overlap in space and time. Increased erosion follows fires, and fire-altered or pyrogenic C (PyC, also referred to as black carbon) is redistributed vertically within soil profiles and laterally to lower landform positions along hillslopes, with important implications for post-fire C sequestration trajectory. In this talk, I presents results from our laboratory as well as field experiments in the Sierra Nevada to determine how movement of particulate and dissolved pyrogenic carbon post fire affects its fate in the soil system. Our work uses a combination of elemental, isotopic, and other molecular-scale techniques to determine how fire severity and slope of the landscape interactively determine the nature and rate of SOM and PyC mobilization post-fire. Inferences derived from such investigations are critical for better integration of biogeochemical and geomorphological approaches to derive improved representation of mechanisms that regulate SOM persistence in fire-adapted dynamic landscapes.

Asmeret A. Berhe, PhD

Associate Professor of the Soil Biogeochemistry Life and Environmental Sciences Unit at the University of California, Merced.

Friday, October 6, 2017

3:00 – 4:00 PM

Science 2, room 109

For further information: www.csufresno.edu/biology

Bio: Dr. Berhe is a terrestrial biogeochemist with an undergraduate degree from the University of Asmara in Eritrea, followed by an M.S. from Michigan State University and a Ph.D. from the University of California, Berkeley. The overall goal of her work to improve the integration of biogeochemical and geomorphological approaches to enhance the representation of the mechanisms that regulate organic matter (OM) persistence in soils. A significant focus of her research is towards understanding dynamic landscapes, as most of the terrestrial biosphere is dominated by sloping landscapes where biogeochemical cycling of essential elements is controlled by interaction of geomorphic, pedogenic, and ecological processes. Furthermore, her work seeks to gain better understanding of the dynamic and two-way relationship of human beings with the soil system.