Name: Dr. Asmeret Asefaw Berhe

Title: Professor of Soil Biogeochemistry, and Falasco Chair in Earth Sciences at the Department of Life and Environmental Sciences, University of California, Merced.

Other appointments: Chair of the US National Committee on Soil Science at the National Academies; Associate Editor of AGU's Journal of Geophysical Research – Biogeosciences.

Education: Ph.D. in Biogeochemistry from the University of California (UC), Berkeley; M. Sc. in Resource Development (Political Ecology) from Michigan State University, and B. Sc. in Soil and Water Conservation from University of Asmara, Eritrea. Postdoc: University of California President's Postdoctoral Fellow at UC Berkeley and UC Davis.

Research focus: biogeochemical cycling of essential elements (esp. carbon, nitrogen, and phosphorus) in the soil system.

Recognitions: recipient of several awards and honors, including the National Science Foundation's CAREER award, the Geological Society of America's Bromery Award, and is a member of the inaugural class of the US National Academies of Science, Engineering and Medicine's New Voices in Science, Engineering, and Medicine.

Title: Looking deeper: role of sub-soils in Organic Matter Dynamics

Abstract: Deep soil layers (below 30cm or A-horizon) account for up to 70% of the carbon (C) stored in soils. Decomposition of deep soil organic matter (SOM) contributes to surface carbon dioxide efflux, and is controlled by climate, soil physico-chemical properties, and geomorphology of the landscapes and associated hydrology. This presentation will include synthesis of our past and ongoing projects on deep SOM dynamics, including SOM in weathered bedrock and how climate regulates SOM storage, chemical composition, persistence, and stabilization mechanisms using results from the NSF funded Southern Sierra Critical Zone Observatory, and agricultural systems in California. Our work contributes to improve our: understanding of mechanisms that control deep SOM persistence and ability to predict the vulnerability of soil carbon to climate change.