

# CFAES

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES SEMINAR SERIES

THURSDAY, OCT. 17, 2019 | 4:10 P.M. | 103 KOTTMAN HALL



## DR. ERIKA MARIN-SPIOTTA

**Professor**  
**Department of Geography at**  
**University of Wisconsin-Madison**

### **Out of sight, out of mind: Geographic variability in belowground carbon response to landscape disturbance across time**

The world's soils play a major role in carbon and nutrient storage, in the exchange of greenhouse gases with the atmosphere, in sustaining primary production on land and in water, and in providing food security. Despite this, the sensitivity of soils to landscape change and disturbance events is highly uncertain. One reason for this is geographic variability in the importance of different factors influencing biogeochemical processes, as well as historic geographic biases in our current knowledge. Most of our understanding of factors influencing soil organic matter dynamics and nutrient cycling comes from research in northern and mid-latitude soils and shallow depths, despite the global importance of tropical soils and the presence of potentially biologically active carbon in deep soil. Here I discuss results from my research group's work in the Caribbean and in the US Central Great Plains to highlight the importance of environmental heterogeneity and past disturbance on the distribution of organic matter and nutrient pools and cycling rates at the landscape and regional scale. I contextualize this work with results from recent syntheses that describe current advances in our understanding of how belowground biogeochemical cycles respond to large-scale disturbances such as soil erosion and land-use change over time. I focus on geographic variability in state factors to improve predictions of feedbacks between the terrestrial biosphere and the climate system. I also discuss recent work by ADVANCEGeo to empower geoscientists to transform workplace climate



**THE OHIO STATE UNIVERSITY**

COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information, visit [cfaesdiversity.osu.edu](http://cfaesdiversity.osu.edu). For an accessible format of this publication, visit [cfaes.osu.edu/accessibility](http://cfaes.osu.edu/accessibility).