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UF/IFAS
Soil and Water Sciences Department

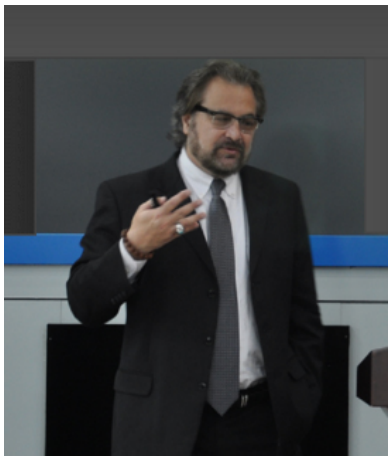
2181 McCarty Hall A
PO Box 110290
Gainesville, FL 32611-0290
352-294-3151
352-392-3399 Fax

Soil and Water Sciences Distinguished Speaker Seminar

Presented at the 18th Annual Soil and Water Sciences Research Forum

[Co-Sponsored by the UF Water Institute]

Speaker: **Dr. Thomas S. Bianchi**
Jon and Beverly Thomson Endowed Chair
Department of Geological Sciences
University of Florida
E-Mail: tbianchi@ufl.edu



Title: **Carbon Remineralization and Burial in the Coastal Margin: Linkages in the Anthropocene**

Date: **Monday, November 13, 2017**

Time: **9:00 am – 10:30 am**

Location: **J. Wayne Reitz Union – Rion Ballroom**

Continental margin systems collectively receive and store vast amounts of organic carbon (OC) derived from primary productivity both on land and in the ocean, thereby playing a central role in the global carbon cycle. The land-ocean interface is however extremely heterogeneous in terms of terrigenous inputs, marine primary productivity, sediment transport processes and, depositional conditions such as bottom water oxygen levels. Continental margins are also highly dynamic, with processes occurring over a broad range of spatial and temporal scales. The rates of organic carbon burial and oxidation are consequently variable over both space and time, hindering our ability to derive a global picture of OC cycling at the land-ocean interface. Here, I review the processes controlling the fate of organic matter in continental margin sediments with a special emphasis on "hot spots" and "hot moments" of OC burial and oxidation. I present a compilation of compositional data from a set of illustrative settings, including fjords, small mountainous river margins, large deltaic systems and upwelling areas. Bulk organic carbon stable isotope and radiocarbon compositions reveal the diversity and complexity characteristic of organic carbon buried in marginal seas. This primarily relates to the differences in marine and terrestrial inputs, the composition of the terrestrial component (e.g. vascular plant OC, soil, and petrogenic OC inputs), and processes modulating the fate of organic carbon within the marine environment (e.g., priming). This widely contrasting behavior illustrates that the reactivity of organic carbon is a product of its chemical composition and ecosystem properties. Interpreted in the context of bulk compositional data as well as that obtained on specific molecular markers (e.g., lignin-derived phenols), the possibility exists to tease apart complex mixtures of terrestrial and marine inputs, and to shed light on the role of the myriad depositional and post-depositional processes.

If you can't attend the seminar, we will also have a live stream of Opening Remarks and Keynote Speaker presentations. For additional details about the 18th Annual Soil and Water Sciences Department Research Forum, please contact Michael Sisk at mjsisk@ufl.edu or Dr. James Jawitz – jawitz@ufl.edu.