

SHORT COURSE ANNOUNCEMENT
SDSU DEPARTMENT OF GEOLOGICAL SCIENCES
FEBRUARY 2 & 3, 2009; 6:00-9:30 pm (Two Evenings)

***How to Recognize Continental Trace Fossils in Outcrop and Core:
Implications to Interpreting Environments of Depositional and Significant Surfaces***



Leader:

Dr. Stephen T. Hasiotis

The University of Kansas–Lawrence
Associate Professor of Geology &
Coeditor of the journal *PALAIOS*

Dr. Hasiotis is a leading expert on continental trace fossils and on interpreting ancient organism–media interactions preserved in the geologic record. This popular short course has been presented to numerous academic and professional organizations.

Prerequisites

The short course is tailored to professional petroleum and academic geologists and students. People interested in this short course are those geologists who work with core and outcrop sections that are or may be of continental origin or that have been overprinted by processes associated with terrestrial and freshwater aquatic conditions; including both clastic and carbonate lithology. A previous course in geology is desired. There is no cost for the course, but participants are requested to obtain a copy of the course text: *Continental Trace Fossils: SEPM Short Course Notes 51*, 130 p. (ISBN 1-56576-092-1). The text can be purchased through SEPM (<http://www.sepm.org>) or onsite during the course for \$40.

Objectives and Content

The type, distribution, and tiering of continental trace fossils are useful tools in outcrop and core for interpreting continental environments of deposition and their postdepositional histories. This short course presents the latest ichnological concepts and provides a comprehensive photoglossary of nearly the entire suite of major terrestrial and freshwater trace fossils that geoscientists will encounter. The short course presentation and notes are divided into two sections: 1) concepts and fundamental principles that explain how terrestrial and freshwater-aquatic trace fossil behavior is interpreted and used to define environments of deposition and to recognize paleosols; and 2) a hands-on study of outcrop and core examples of continental trace fossils using the photoglossary of continental trace fossils with explanations and idealized line drawings.





Part 1: we discuss fundamental concepts of continental ichnology by examining the life cycle of organisms in modern depositional systems. We discuss shortcomings in the new directions in ichnology, and we elaborate on the differences between continental and marine organisms and resultant differences in their traces. Photos and illustrations of modern and ancient trace-making organisms and their traces will be used to illustrate how the controls on behavior and distribution of continental organisms can be applied to interpreting continental environments in the rock record. An ichnological framework for continental systems is presented that is based on analogy to specific environmental controls operating in modern terrestrial and freshwater environments. Alluvial, lacustrine, eolian, and transitional depositional settings form potential ichnofacies, which are defined in detail by their ichnologic composition. The framework uses examples of modern and ancient trace fossils to define specific environments that will be presented as hand samples and rock sectioned specimens.

Part 2: we use section two of the short course notes, which is a photoglossary of outcrop and core examples of continental trace fossils. At the end of this section is a reference sheet that contains representative color photographs and line drawings of each type of trace fossil in the photoglossary. This sheet also includes a list of abbreviations of continental trace fossils to be used when measuring sections in the field or describing core at an offsite location. We work with continental trace fossils in hand specimens, rock section, and few core samples to learn to how to recognize and identify these types of ichnofossils. We will also use examples of ichnofossils as major constituents of paleosols. Many of the continental trace fossils occur in paleosols where the color differences between the trace fossils and surrounding matrix accentuate the morphology of the trace fossil. The combination of text, line drawings, photographs, and figure explanations allows the user to identify the trace fossil as well as to determine the paleoenvironmental, paleohydrologic, and paleoclimatic settings.



FOR MORE INFORMATION OR TO REGISTER FOR THE COURSE, PLEASE CONTACT:

**Dr. Jared Morrow, SDSU Department of Geological Sciences
jmorrow@geology.sdsu.edu, 619-594-1395**

**The course will be held at SDSU Dept. of Geological Sciences
(<http://www.geology.sdsu.edu>); room CSL 422
REGISTRATION DEADLINE IS FEBURARY 1, 2009**