

GEOSCIENCES

at Virginia Tech

Weekly Newsletter #5, Sept. 29, 2014



PHOTO (Aida Faraough): A future geoscientist studies erosion at the stream table at the 2013 Geofair. If you would like to participate in the upcoming Geofair on 10/4, please contact Llyn Sharp at llyn@vt.edu.

UPCOMING EVENTS

Department Seminar, 10/3: *Paleoenvironments and paleoclimates of the Continental Permian-Triassic boundary among the Karoo (South Africa), Tarim (China), and Palo Duro (Texas) basins*

- **WHO:** Neil J. Tabor (Southern Methodist University). Learn more about Dr. Tabor's research [here](#)
- **WHEN:** Friday, October 3, 4:00 pm. Refreshments served at 3:45 pm in the 4th floor lounge.
- **WHERE:** Room 4069, Derring Hall
- **ABSTRACT:** Permian-Triassic boundary (PTB) marine strata record important lithologic, chemical and biological changes that suggest a catastrophic end of the Paleozoic followed by an Early Triassic period of prolonged ecological recovery. Yet, the terrestrial record of environmental conditions in continental environments through the PTB has remained largely elusive. Here is presented lithologic, magnetostratigraphic, geochronologic and chemostratigraphic information, which serve to identify the position of the PTB, assess environmental conditions based upon the lithological composition of strata and paleosols, and constrain environmental conditions such as atmospheric pCO₂ and paleotemperature based upon the stable isotope composition of authigenic minerals among the study sites. Among the most important conclusions from the study areas are (1) lithological observations suggest variable environmental and climatic conditions both temporally and spatially, (2) carbon-stable-isotope compositions of paleosol calcite and

co-existing organic matter indicate relatively low values of atmospheric PCO_2 (~modern) in the latest Permian and substantially higher values (perhaps 5X modern) in the earliest Triassic, and (3) oxygen isotope values of early-formed carbonate minerals indicate substantially higher temperatures during deposition of PTB and cooler temperatures in Lower Triassic strata. These new data provide a view of the PTB that is substantially different from that typically presented in work from contemporaneous marine strata; continental environmental conditions did not exclude biological productivity in the manner that is typically portrayed in studies of marine PTB strata.

Geofair and Mineral Sale, Virginia Science Festival

- **Geofair and Mineral Sale - CALL FOR VOLUNTEERS:** The Geofair and Mineral Sale will be taking place on Saturday, October 4 from 10 am to 4 pm at the Museum of Geosciences. This is a charter VT event of the first-ever Virginia Science Festival, which features interactive activities, exhibits, and programs throughout a number of venues on the VT campus. The goal of the [Virginia Science festival](#) is to fascinate families from all over the Commonwealth and provide hands-on, interactive inspiration at a time when STEM careers offer the most opportunity for future employment, social, and financial advancement. Our role will be to use museum facilities to educate families about the processes that have (and continue to) shape our planet (and others). Come out and represent VT Geosciences! **We need volunteers for this event to be successful. This is a very unique outreach opportunity to engage the public with our science.** Contact Llyn Sharp (llyn@vt.edu) for more information, or if you would like to volunteer.
- As part of the “Meet the Scientist” program of the Virginia Science Festival, **Nancy Ross** will conduct an interactive session on “Seeing Things in a Different Light: Celebrating the Centennial of X-ray Crystallography” (3-4 pm, Oct. 4, 2014, The Inn, Smithfield Room)

NEWS AND ANNOUNCEMENTS

- **Shuhai Xiao**'s research describing new evidence of ancient multicellular life setting the evolutionary timeline back 60 million years was recently published in *Nature* and highlighted in VT News: <http://www.vtnews.vt.edu/articles/2014/09/092514-science-cellfossil.html>.
- A recent paper co-authored by **Michelle Stocker** and **Sterling Nesbitt** was featured on a *National Geographic* blog ([link](#)) as well as a paleo-focus blog ([link](#)). It was also featured in Virginia Tech news ([link](#))
- The **Fossil Preparation Lab** was recently featured on the Virginia Science Festival [facebook page](#).

ALUMNI NEWS

- **J. M. (JOE) REILLY** has been appointed Chief Research Geoscientist of ExxonMobil Upstream Research Company (URC). Over the course of his 33-year career, Joe has acquired a diverse background and global expertise through numerous domestic and international assignments. He has held key technical and leadership positions in technology, research, and operating affiliates. Over the last thirteen years, Joe has contributed to the ExxonMobil geophysics community through his tenure as Manager of Geophysical Applications and Seismic Processing, and Manager of Integrated Seismic Research at ExxonMobil URC. Most recently, as a Senior Technical Consultant, Joe has impacted the business through geophysics research at URC and geophysical operations at ExxonMobil operating affiliates. Joe's illustrious career in the petroleum industry will be highlighted in the December *VT Geosciences Magazine*.

RECENT VT GEOS PUBLICATIONS

Chen, L., **S. Xiao**, K. Pang, C. Zhou, and X. Yuan, Cell differentiation and germ-soma separation in Ediacaran animal embryo-like fossils, *Nature*, *advance online publication SP - EP* -, doi:Letter.

Drumheller, S., **Stocker, M.**, and **Nesbitt, S.**, 2014, Direct evidence of trophic interactions among apex predators in the Late Triassic of western North America: *Naturwissenschaften*, p. 1-13.

Have a picture and short caption, or news that you want to send for next week's newsletter? Email your news items to Victor Guevara at vguevara@vt.edu.