GEOSCIENCES

at Virginia Tech

Weekly Newsletter #4, Fall 2014

PHOTO (Sterling Nesbitt): A skull of a dicynodont (a close relative of mammals) found by Sterling Nesbitt this summer in Upper Permian fossil beds in Zambia, Africa

UPCOMING EVENTS

Department Seminar, 9/26: *Tracking the fate of carbon in serpentinite-hosted systems*

- **WHO:** Susan Lang (University of South Carolina).
- **WHEN:** Friday, September 26, 4:00 pm. Refreshments served at 3:45 pm in the 4th floor lounge.
- **WHERE:** Room 4069, Derring Hall
- **ABSTRACT:** The reaction of ultramafic mantle rocks with water to produce serpentinite at moderate- to low-temperatures results in alkaline fluids, which characteristically have elevated concentrations of abiotically produced hydrogen, methane, and low molecular weight hydrocarbons. These highly reactive systems have major consequences for lithospheric cooling, global geochemical cycles, carbon sequestration, and microbial activity. The continuous flux of reduced compounds provides abundant thermodynamic energy to drive microbial chemolithoautotrophy but – paradoxically for systems characterized by large carbonate deposits and high methane concentrations – a lack of carbon availability may limit microbial growth. This seminar will focus on synthesizing what is known about the source and fate of both organic and inorganic carbon in serpentinization systems, and will incorporate recent data from mineralogical and petrographic studies with geochemical and isotopic characterization of fluids, rocks, and deposits from multiple serpentinization environments. The primary goals of are to (1) identify potential zones of microbial activity along the entirety of hydrothermal fluid circulation pathways and (2) characterize the differing fates of mantle carbon and inorganic carbon in these environments.

NEWS AND ANNOUNCEMENTS

- **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! Contact Llyn Sharp (llyn@vt.edu) for more information, or if you would like to volunteer.

  For more information on the Virginia Science Festival visit:
  http://virginiasciencefestival.org/

  For more information on the Museum of Geosciences visit:
  http://www.outreach.geos.vt.edu/museum/

- **Sterling Nesbitt**'s work on early dinosaurs and their close relatives was highlighted in the magazines *Bild der Wissenschaft* and in *National Geographic*'s "When Dinosaurs Ruled."

- **Aida Farough**'s poster, titled *Evolution of permeability and fluid chemistry during serpentinization of ultramafic rocks* won the 3rd place poster award at the eastern section AAPG student expo held in Columbus, OH, September 19-20, 2014.

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.