



GRADUATE RESEARCH ASSISTANTSHIP AVAILABLE

Critical Zone Physical Processes

The region of our planet called the Critical Zone reaches from the depths of the aquifers to above the trees. All of the water, nutrient and gas fluxes which sustain terrestrial life occur within this constantly-evolving layer. In the Critical Zone Research Lab we seek to understand and predict complex interactions between soil, water, vegetation and nutrients, so that society may responsibly manage these essential resources.

Assistantship support starting in Fall 2014 is available for incoming doctoral students in the Crop & Soil Environmental Sciences Department at Virginia Tech. The Department offers ample resources for student research in critical zone processes, including extensive laboratory and field equipment, opportunities to collaborate with a wide variety of colleagues within and beyond Virginia Tech, and access to a wide variety of natural and managed ecosystems for study.

Students will work under the advisement of **Dr. Ryan Stewart**, whose background spans soils, mechanical engineering, and development of hydrologic instrumentation. Students will conduct independent research on key topics in critical zone physical processes, focusing on quantifying and scaling interactions between water, soil, and plant communities. Students will use a combination of field work and laboratory techniques such as infiltration testing, tracer studies, porous media characterization, imaging analysis and water quality monitoring. Modeling frameworks may be developed to complement field and laboratory results. The Critical Zone Research Lab utilizes three main approaches: concepts derived from fundamental principles, observations employing novel techniques, and synthesis combining analytical quantification with numerical experiments. Applicants should demonstrate excellence in at least one of these areas and eagerness to develop competency in the remainder.

An academic record of excellence in ecology, plant physiology, environmental science, environmental or civil engineering, or other related field is required, while proficiency in written expression is essential. Experience and aptitude in quantitative techniques and theory are strongly preferred. For more information about this position, please contact: Dr. Ryan Stewart, Department of Crop and Soil Environmental Sciences, Virginia Tech, Blacksburg, VA 24061. E-mail: ryan.stewart@vt.edu or Phone: (540) 231-9775.

To formally apply for this position, go to <https://www.applyweb.com/apply/vtechg/index.html> and supply the following materials and documentation: (a) transcripts of graduate and undergraduate coursework, (b) contact information for three academic or professional references from this field, (c) GRE scores, (d) a written personal statement and (e) a vitae. International students please provide TOEFL scores. For information about the department and research programs see <http://www.cses.vt.edu/>. General inquiries should be directed to W. Lee Daniels (wdaniels@vt.edu; 540-231-7175).

Virginia Tech is an equal opportunity/affirmative action institution.

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