PhD opportunity: Bed load sediment transport, streambed dynamics, and related stuff

We wish to recruit a PhD student who has a strong interest in sediment transport as applied to problems in river geomorphology and engineering, and who is enthusiastic about designing, conducting and connecting experimental work with coordinated efforts on theoretical and computational aspects of sediment transport. This PhD position, starting in Fall 2018, is fully supported as part of a four-year collaborative project aimed at achieving a deeper understanding of the physics of bed load sediment transport, and how the stochastic qualities of bed load transport influence streambed dynamics at bedform-to-reach scales — with implications for transport of tracer particles and particle-borne substances. A principle part of the work will be centered on experiments that involve high-speed and time-lapse imaging of sediment particle motions and transport together with various measurements of flow, sediment and channel conditions — as well as lots of data analysis and synthesis. The experiments will be conducted using really cool flume facilities in laboratories at the Arizona State University (ASU) and the University of British Columbia (UBC).

The position will be centered in the Department of Earth and Environmental Sciences at Vanderbilt University, and the student will be expected to engage with collaborating students, postdoctoral scholars, and faculty at ASU and UBC. We are aimed at candidates who are comfortable with mathematics and physics. Familiarity with probability and statistics and experience with numerical coding is desirable, but not expected. The primary contacts for information are: David Furbish (david.j.furbish@vanderbilt.edu) and Mark Schmeeckle (schmeeckle@asu.edu). We particularly encourage and welcome applications from individuals from underrepresented groups in our science. We will be attending the 2017 meeting of the American Geophysical Union in New Orleans, and welcome discussions of the position.