

Simon Marius Mudd

Department of Earth and Environmental Sciences

Vanderbilt University

818 S Douglas Ave Apt A

Nashville, TN 37204

Tel: (615) 943-5069

Email: simon.m.mudd@vanderbilt.edu

Web: http://sitemason.vanderbilt.edu/site/iagyrK/Simon_Mudd/

Education

- 2006 **Vanderbilt University**
Ph.D. in Environmental Engineering with an emphasis in Environmental Science
Thesis title: Reading the Recorded History of Hillslopes: Theory and Practice
Major advisor: David Furbish
- 2001 **University of California, Santa Barbara**
M.A., Department of Geological Sciences
Thesis title: The Interactions Between Flood Wave Propagation and Transmission Losses During Flash Floods: a Numerical Study
Major advisor: Thomas Dunne
- 1999 **University of California, Berkeley**
B.A., Department of Geology (minor in German)

Academic Honors

- 2005 Dissertation Enhancement Grant (awarded by Vanderbilt University Graduate School)
- 2001 George Tunnel Memorial Fellowship (awarded by UCSB department of Geological Sciences)
- 1999-2000 University of California Graduate Opportunity Fellowship

Employment and Experience

- 2006- **Research Associate:** Department of Earth and Environmental Sciences, Vanderbilt University

- 2006 **Co-instructor of Geomorphology** at Vanderbilt University (with David Furbish)
- 2003-2006 **Research Assistant:** with David Furbish at Vanderbilt University department of Earth and Environmental Science
- 2002-2003 **Research Assistant:** with David Furbish at the Center for Earth Surface Processes Research at Florida State University
- 2001 **Research Assistant:** with Thomas Dunne and Daniel Malmon at University of California Santa Barbara and Los Alamos National Laboratory, NM
- 2001 **Teaching Assistant:** Tracer Hydrology at University of California Santa Barbara
- 2001 **Teaching Assistant:** Geological Catastrophes at University of California Santa Barbara
- 2000 **Teaching Assistant:** Earth Surface Processes and Landforms at University of California Santa Barbara
- 2000 **Volunteer Assistant:** USGS debris flow flume, H. J. Andrews Experimental Forest, OR
- 2000 **Field Assistant:** Forest Science Lab, Corvallis OR
- 2000 **Teaching Assistant:** Form, Process, and Human Use of Rivers at University of California Santa Barbara
- 1999 **Teaching Assistant:** Optical Mineralogy at University of California Santa Barbara
- 1998-99 **Volunteer Assistant:** Berkeley Geochronology Center

Invited Talks

- 2006 **University of California, Berkeley**, Department of Environmental Science, Policy, and Management
- 2006 **Boston University**, Department of Earth Sciences
- 2006 **University of Wisconsin at Madison**, Department of Geology and Geophysics

Service

- 2004- **Peer Reviewer:** Journal of Geophysical Research, AGU books, Geology
- 2005- **Seminar Series Committee Member:** Vanderbilt University Department of Earth and Environmental Sciences
- 2004-2006 **Graduate Student Representative:** Vanderbilt University Department of Earth and Environmental Sciences
- 2003 **Graduate Student Representative:** Florida State University department of Geological Sciences

Professional Memberships

American Geophysical Union
Geological Society of America
Sigma Xi

Contributions to External Funding

Participated in writing the following grants:

- 2004-2007 **Ecological effects of sea level rise on coastal North Carolina marshes**
Funding Agency: NOAA
P.I.s: Don Cahoon (USGS), Robert Christian (East Carolina University), David Furbish (Vanderbilt), and James Morris (University of South Carolina)
Participated in writing numerical modeling component of grant proposal.
- In Review* **Collaborative Research: Empirical and Theoretical Integration of Geochemical and Morphologic Evolution of Soil-Covered Hillslopes: Responses to Channel Incision**
Funding Agency: NSF
P.I.s: David Furbish (Vanderbilt), Kyungsoo Yoo (University of Delaware)
Contributed significantly to all aspects of the proposal.

Collaborators

Andrea D'Alpaos (University of Padova, Italy), *Sergio Fagherazzi* (Boston University), *David Furbish* (Vanderbilt University), *Manny Gabet* (University of California, Riverside), *James Morris* (University of South Carolina), *Mark Schmeeckle* (Arizona State University), *Kyungsoo Yoo* (University of Delaware)

Peer Reviewed Publications

In Press

Furbish, D.J., K.K. Hamner, M. Schmeeckle, M.N. Borosund, and **S.M. Mudd** (2006), Rainsplash of dry sand revealed by high-speed imaging and sticky-paper splash targets, *Journal of Geophysical Research-Earth Surface*, in press.

Mudd, S.M., and D.J. Furbish (2006), Responses of soil mantled hillslopes to transient channel incision rates, *Journal of Geophysical Research-Earth Surface*, in press.

2006

D'Alpaos, A., Lanzoni, S., **Mudd, S. M.**, Fagherazzi, S. (2006), Modeling the influence of hydroperiod and vegetation on the cross-sectional formation of tidal channels, *Estuarine, Coastal, and Shelf Science*, 69, 311-324.

Mudd, S.M. and Furbish D.J. (2006), Using chemical tracers in hillslope soils to estimate the importance of chemical denudation under conditions of downslope sediment transport, *Journal of Geophysical Research-Earth Surface*, 111, F02021, doi:10.1029/2005JF000343.

Mudd S.M. (2006), Investigation of the hydrodynamics of flash floods in ephemeral channels: scaling analysis and simulation using a shock capturing flow model incorporating the effects of transmission losses, *Journal of Hydrology*, 324, 65-79.

Gabet, E.J. and **Mudd, S.M.** (2006), The mobilization of debris flows in dilative soils. *Geomorphology*, 74, 207-218.

2005

Mudd, S.M. and Furbish, D.J. (2005), Lateral migration of hillcrests in response to channel incision in soil mantled landscapes, *J. Geophys. Res.*, 110, F004026, doi:10.1029/2005JF000313.

2004

Mudd, S. M. and Furbish, D.J. (2004), Influence of chemical denudation on hillslope morphology, *J. Geophys. Res.*, 109(4), F02001, doi:10.1029/2003JF000087.

Mudd, S.M., S. Fagherazzi, J.T. Morris, and D.J. Furbish (2004), Flow, sedimentation, and biomass production on a vegetated salt marsh in South Carolina: toward a predictive model of marsh morphologic and ecologic evolution, in *The Ecogeomorphology of Tidal Marshes*, edited by S. Fagherazzi, A. Marani, and L.K. Blum, pp. 165-187, American Geophysical Union, Washington, D.C.

Conference Proceedings and Abstracts

2006

Mudd S. M., Howell, S. M., Furbish, D. J., and Morris, J. T., Relationships between sedimentation, plant species, and the proximity to tidal channels in coastal salt marshes,

Eos Trans. AGU, 87, Fall Meet. Suppl., submitted.

Yoo K. And **Mudd S. M.** (2006) Soil Chronosequence as a Special Case of Non-steady State Hillslope Soil: Model Development and Simulation, *Eos Trans. AGU, 87, Fall Meet. Suppl., submitted.*

Furbish, D.J., K.K. Hamner, M. Schmeekle, M.N. Borosund, and **S.M. Mudd** (2006), Rainsplash of dry sand revealed by high-speed imaging and sticky-paper splash targets, *Eos Trans. AGU, 87, Fall Meet. Suppl., submitted.*

Howell, S.M., Furbish, D. J., and **Mudd, S. M.** (2006), Ecogeomorphic Properties of Flood-ebb Flows on a Coastal North Carolina Salt-marsh Platform, *Eos Trans. AGU, 87, Fall Meet. Suppl., submitted.*

Mudd, S. M., Iobst, B. R., and Furbish, D. J. (2006), Predicting the Distribution of Gravel Bars in Tennessee Streams. *16th Tennessee Water Resources Symposium.* (Talk)

Furbish, D.J. and **Mudd, S. M.** (2006), Probabilistic Behaviors of Soil Particles on Hillslopes, *Eos Trans. AGU, 87(36), Jt. Assem. Suppl., Abstract H53A-02.* (Talk given by Furbish)

2005

Mudd, S. M. (2005), Changes in Sediment and Nutrient Fluxes from Hillslopes in Response to Anthropogenically Disturbed Channels. *15th Tennessee Water Resources Symposium.* (Talk)

Furbish, D. J. and **Mudd, S. M.** (2005), Signatures of Coupled Physical-Biogeochemical Processes Contained in Soil-Mantled Hillslopes: Bridging Mineralogical to Landscape Scales, presented at the NSF Sponsored Workshop: Frontiers in Exploration of the Critical Zone, University of Delaware, Newark, Delaware, October 24-26, 2005. (Talk given by Furbish)

Yoo, K., **Mudd, S. M.**, and Amundson, R. (2005), The rates and processes of mass removal and soil formation along a Mediterranean grass-covered hillslope in Coastal California, presented at the NSF Sponsored Workshop: Frontiers in Exploration of the Critical Zone, University of Delaware, Newark, Delaware, October 24-26, 2005. (Poster)

Mudd, S. M. and Furbish, D.J. (2005), Discrete particle simulations of sediment transport and chemical weathering in hillslope soils, presented at the NSF Sponsored Workshop: Frontiers in Exploration of the Critical Zone, University of Delaware, Newark, Delaware, October 24-26, 2005. (Poster)

Mudd, S. M. and Furbish, D.J. (2005), Hillslope soils as recording devices in transient landscapes, *Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract H34A-02.* (Talk)

Lanzoni S., D'Alpaos, A., **Mudd, S. M.**, and Fagherazzi, S. (2005), Modeling the influence of hydroperiod and vegetation on the cross-sectional formation of tidal channels, *Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract H53D-0511.* (Poster)

2004

Mudd, S. M. and Furbish, D. J. (2004), Location and lateral migration of drainage divides, *Eos Trans. AGU*, 85(47), Fall Meet. Suppl., Abstract H51C-1134. (Poster)

Fagherazzi, S., **Mudd, S. M.**, Morris, J.T., and Furbish, D. J. (2004), Flow, sedimentation, and biomass production on a vegetated salt marsh: toward a predictive model of marsh morphologic and ecologic evolution, *Eos Trans. AGU*, 85(47), Fall Meet. Suppl., Abstract H33I-02. (Talk, presenting author)

2003

Mudd, S. M. and Furbish, D. J. (2003), Chemical denudation, hillslope morphology, and the long-term persistence of unchanneled valleys, *Eos Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract H416-02. (Talk)

2002

Mudd, S. M. and Furbish, D. J. (2002), Feedbacks between flow, sedimentation, and standing biomass on salt-marsh platforms, *Eos Trans. AGU*, 83(47), Fall Meet. Suppl., Abstract H52A-0847. (Poster)

1999

Renne, Paul R., **Mudd, S. M.**, Gatdula, J., Carmichael, I. S. E. (1999), Age of the Benton Range dike swarm revisited, Geological Society of America, Cordilleran Section, 95th annual meeting, *Abstracts with Programs - Geological Society of America*, 31 (6), p. 87. (Poster)