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Arizona State University
School of Geographical Sciences and Urban Planning
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ACADEMIC TRAINING:

PhD (1998) University of Colorado, Boulder, Geography

M.S. (1992) University of Washington, Seattle, Geophysics

B.S. (1988) University of Washington, Seattle, Geology

PROFESSIONAL APPOINTMENTS:

2015- Professor, School of Geographical Sciences and Urban Planning, Arizona State University

2008-2015 Associate Professor, School of Geographical Sciences and Urban Planning, Arizona State University

2009-2010 U.S. Fulbright Scholar, Hanoi, Vietnam

2003-2008 Assistant Professor, School of Geographical Sciences and Urban Planning, Arizona State University

2000-2003 Assistant Professor, Geological Sciences, Geophysical Fluid Dynamics Institute, Center for Earth Surface Processes Research, Florida State University

1998-2000 NSF and Japanese STA Fellow, Civil Engineering Research Institute, Sapporo, Japan

HONORS:

2009-2010 US Fulbright Scholar to Hanoi, Vietnam

2002 National Science Foundation CAREER Award -Sole recipient in 2002 for the Geology and Paleontology Program

1999 Editor's Citation for Excellence in Refereeing for *Water Resources Research*

FUNDED RESEARCH:

As Principal Investigator:

Sep 2012-Aug 2016, PI, National Science Foundation, \$250,000, "COLLABORATIVE RESEARCH: The statistical mechanics of bed load sediment transport: Meshing theory, experiments and advanced computations of coupled fluid-particle behavior".

Sep 2005-Jun 2011, PI, United States Geological Survey, \$134,000, "Flow, deposition, and erosion of fine-grained, recirculation eddy bars resulting from Beach Habitat Building Flows".

Aug 2011-Sep 2014, PI, United States Geological Survey, \$79,000, "Flow, Sediment Transport, And Morphological Evolution Of Lateral Separation Eddies In The Grand Canyon".

January 2007- December 2008, PI, \$36,000, ExxonMobil Upstream Research, "Suspended sediment research for siliciclastics reservoir characterization".

Jan 2002-Jan 2007, PI, National Science Foundation, \$342,500, "CAREER: Interaction between turbulence structures and suspended sediment in rivers".

March 2002-Feb 2006, PI, National Science Foundation, \$110,000, "COLLABORATIVE RESEARCH: Role of Turbulence Structure in Bedload Transport".

1998, National Science Foundation, \$11,900, International Postdoctoral Fellow Supplementary Award.

As Co-Principal Investigator:

March 2006- March 2008 (with Joe Fernando and Sergey Voropayev) \$98,768, Office of Naval Research, "Ripple Dynamics and Benthic Transformations under Variable Wave Forcing".

March 2004- March 2006, Co-PI (with Joe Fernando and Sergey Voropayev) \$223,000, Office of Naval Research, "Ripple Dynamics and Benthic Transformations under Variable Wave Forcing".

Feb 2002-Jan 2006 (with David Furbish and M. Yousuff Hussaini), National Science Foundation, \$226,759, "Diffusive Soil Transport and Hillslope Evolution".

April 2001-April 2004, Florida State University Research Foundation Cornerstone Center of Excellence Award \$950,000: “Earth Surface Processes: Applications of Advanced Computing in Studies of Flow and Transport in Hydrological and Geomorphic Systems”.

SUBMITTED MANUSCRIPTS: *Italic* indicates graduate student. * indicates undergraduate student. Underline indicates hyperlink or animation supplement to article.

Alvarez, L. V., M.W. Schmeckle, and P.E. Grams (2015), Turbulence-resolving modeling of lateral separation zones along a large canyon-bound river using the detached eddy simulation technique, Journal of Geophysical Research-Earth Surface (revised and resubmitted).

Furbish, D. J., *S. L. Fathel*, and **M. W. Schmeckle** (2015), Particle motions and bed load theory: The entrainment forms of the flux and the Exner equation, *8th International Gravel Bed River Workshop*, 14–18 September, Kyoto, Japan. (*in press*)

JOURNAL ARTICLES: *Italic* indicates graduate student.

Fathel, S. L., D. J. Furbish, and M. W. Schmeckle (2015), [An experimental demonstration of ensemble behavior in bed load sediment transport](#), Journal of Geophysical Research-Earth Surface, 120, doi:10.1002/2015JF003552.

Schmeckle, M.W. (2015), [The role of velocity, pressure, and bed stress fluctuations in bed load transport over bed forms: numerical simulation downstream of a backward facing step](#), [[supplemental videos](#)] *Earth Surface Dynamics*, 3, 105-112, doi:10.5194/esurf-3-105-2015.

Larson, P., R.I. Dorn, R.I., R.E. Palmer, Z. Bowles, E. Harrison, S. Kelley, M.W. Schmeckle, and J. Douglass (2014), [Basin and Range Hydrological Integration and Pediment Evolution in the Southwestern USA](#), Physical Geography, 35(5), 369-389, doi:10.5194/esurfd-2-715-2014.

Schmeckle, M.W. (2014), [Numerical simulation of sediment transport of medium sand](#), [[supplemental videos](#)] *Journal of Geophysical Research-Earth Surface*, 119(6), 1240-1262, doi:10.1002/2013JF002911.

Furbish, D. J. and **M. W. Schmeckle** (2013), [A probabilistic derivation of the exponential-like distribution of bed-load particle velocities](#). *Water Resources Research*, 49, 1537–1551, doi:10.1002/wrcr.20074.

- Yager, E. M., and **M.W. Schmeckle** (2013), [The influence of vegetation on turbulence and bedload transport](#), *Journal of Geophysical Research-Earth Surface*, 118, 1585–1601, doi:10.1002/jgrf.20085.
- Alvarez, L. V. and **M.W. Schmeckle** (2013), [Erosion of river sandbars by diurnal stage fluctuations in the Colorado River in the Marble and Grand Canyons: full-scale laboratory experiments](#). *River Research and Applications*, 29, 839–854. doi: 10.1002/rra.2576.
- Furbish, D. J., P. K. Haff, J. C. Roseberry, and **M. W. Schmeckle** (2012), [A probabilistic description of the bed load sediment flux: 1. Theory](#). *Journal of Geophysical Research-Earth Surface*, 117, F03031, doi:10.1029/2012JF002352.
- Roseberry, J. C., **M. W. Schmeckle**, and D. J. Furbish (2012), [A probabilistic description of the bed load sediment flux: 2. Particle activity and motions](#). [[Supplemental animation files](#)] *Journal of Geophysical Research-Earth Surface*. 117, F03032, doi:10.1029/2012JF002353.
- Furbish, D. J., J. C. Roseberry, and **M. W. Schmeckle** (2012), [A probabilistic description of the bed load sediment flux: 3. The particle velocity distribution and the diffusive flux](#). *Journal of Geophysical Research-Earth Surface*, 117, F03033, doi:10.1029/2012JF002355.
- Furbish, D. J., A. E. Ball*, and **M.W. Schmeckle** (2012), [A probabilistic description of the bed load sediment flux: 4. Fickian diffusion at low transport rates](#). *Journal of Geophysical Research-Earth Surface*. 117, F03034, doi:10.1029/2012JF002356.
- Travis, Q.B., **M.W. Schmeckle**, DM Sebert (2011) [Meta-Analysis of 301 Slope Failure Calculations. I: Database Description](#). *Journal of Geotechnical and Geoenvironmental Engineering*, doi:10.1061/(ASCE)GT.1943-5606.0000461.
- Travis, Q.B., **M.W. Schmeckle**, DM Sebert (2011) [Meta-Analysis of 301 Slope Failure Calculations. II: Database Analysis](#). *Journal of Geotechnical and Geoenvironmental Engineering*, doi:10.1061/(ASCE)GT.1943-5606.0000463.
- Travis, Q.B., Houston, S., Marinho, F. and **Schmeckle, M.W.** (2010) [Unsaturated Infinite Slope Stability Considering Surface Flux Conditions](#). *Journal of Geotechnical and Geoenvironmental Engineering*, 963-974, doi:10.1061/(ASCE)GT.1943-5606.0000301.
- Furbish, D., Childs, E., Haff, P. and **Schmeckle, M.W.** (2009) [Rain splash of soil grains as a stochastic advection-dispersion process, with implications for desert plant-soil interactions and land-surface evolution](#). *Journal of Geophysical Research-Earth Surface*, 114, F00A03, doi:10.1029/2009JF001265.

- Akahori, R., **M. Schmeckle**, S Ikeda (2009). [Numerical Calculation of Suspended Sediment Transport by using a Particle-based Method](#), *Theoretical and Applied Mechanics Japan* 57, 449-460. doi:10.11345/nctam.57.449.
- Douglass, J., N. Meek, R. I. Dorn, and **M. W. Schmeckle** (2009), [A criteria-based methodology for determining the mechanism of transverse drainage development, with application to the southwestern USA](#), *Geological Society of America Bulletin*, 121,586-59. doi:10.1130/B26131.1.
- Akahori, R., **M.W. Schmeckle**, D.J. Topping, and T.S. Melis (2008). [Erosion properties of cohesive sediments in the Colorado River in Grand Canyon](#). *River Research and Applications*. doi:10.1002/rra.1122.
- Furbish, D. J., **M.W. Schmeckle**, J.J. Roering. (2008). [Thermal and force-chain effects in an experimental, sloping, granular shear flow](#). *Earth Surface Processes and Landforms* . doi:10.1002/esp.1655.
- Schmeckle, M. W.**, J. M. Nelson, and R. L. Shreve (2007), [Forces on stationary particles in near-bed turbulent flows](#), *Journal of Geophysical Research-Earth Surface*, 112, F02003, doi:10.1029/2006JF000536.
- Douglass, J.C. and **M. Schmeckle** (2007), [Analogue modeling of transverse drainage mechanisms](#), *Geomorphology*, 84, 22-43, doi:10.1016/j.geomorph.2006.06.004.
- Furbish, D. J., K. K. Hamner*, **M.W. Schmeckle**, M. N. Borosund*, and S.M. Mudd (2007), [Rain splash of dry sand revealed by high-speed imaging and sticky paper splash targets](#), *Journal of Geophysical Research-Earth Surface*, 112, F01001, doi:10.1029/2006JF000498.
- Mango, A.J., **M.W. Schmeckle**, and D.J. Furbish. 2004. [Tidally-induced groundwater circulation in an unconfined coastal aquifer modeled with a Hele-Shaw cell](#). *Geology*. 32(3), 233-236, doi:10.1130/G19922.1.
- Schmeckle, M.W.** and J.M. Nelson. 2003. [Direct numerical simulation of bedload transport using a local, dynamic boundary condition](#). *Sedimentology*, 50, 279–301, doi:10.1046/j.1365-3091.2003.00555.x.
- Schmeckle, M.W.**, J.M. Nelson, J. Pitlick and J.P. Bennett. 2001. [Interparticle collision of natural sediment grains in water](#). *Water Resources Research*, 37(9), 2377–2391, doi:10.1029/2001WR000531.
- Shimizu, Y., **M W. Schmeckle** and J Nelson, 2001, Direct Numerical Simulation of Turbulence Over Two Dimensional Dunes Using CIP Method, *Journal of Hydroscience and Hydraulic Engineering* , Vol. 19, No.2, 85-92, 2001.

Shimizu, Y., **M.W. Schmeckle**, and J.M. Nelson. 2000. Three-dimensional calculation of flow over two-dimensional dunes. *Annual Journal of Hydraulic Engineering, Japan Society of Civil Engineers*. p-623-628.

Nakayama S., Y. Shimizu, **M.W. Schmeckle**, and R. Akahori. 2000. Numerical calculation of suspended sediments over sand waves. *Annual Journal of Hydraulic Engineering, Japan Society of Civil Engineers*. P629-634.

Schmeckle, M.W. 1999. [A dynamic boundary condition for bedload sediment transport in non-uniform, hydraulically rough turbulent boundary layers](#). *Annual Journal of Hydraulic Engineering, Japan Society of Civil Engineers*. p653-658.

REFEREED BOOK CHAPTERS and CONFERENCE PAPERS: *Italic* indicates graduate student.

Akahori, R., and **M.W. Schmeckle**. 2006. Numerical Analysis of Secondary-Flow around a Spur Dike using Three-Dimensional Free Water Surface LES Model. In (G. Parker and MH Garcia eds.) *River Coastal and Estuarine Morphodynamics: RCEM 2005*. Taylor & Francis Group, p. 921-930.

Nelson J.M., *A.R. Burman*, Y. Shimizu, S.R. McLean, R.L. Shreve, and **M.W. Schmeckle**. 2006. Computing Flow and Sediment Transport Over Bedforms. In (G. Parker and MH Garcia eds.) *River Coastal and Estuarine Morphodynamics: RCEM 2005*. Taylor & Francis Group, p 861-872.

Nelson, J. M., **Schmeckle, M.W.**, and Shreve, R. L., 2001, Entrainment revisited: high-frequency measurements of forces on sediment particles in turbulent flow: p. 110-117, ch. XI, in Proceedings of the 7th Federal Interagency Sedimentation Conference, 25-29 March 2001, Reno, Nevada.

Nelson, J.M., **M.W. Schmeckle**, R.L. Shreve, and S.R. McLean. 2001. Sediment entrainment and transport in complex flows. In G. Seminara and P. Blondeux Editors, *River, Coastal, and Estuarine Morphodynamics*. Heidleberg, Springer-Verlag. p.1-26.

Nelson, J.M., **M.W. Schmeckle**, and R.L. Shreve., 2001., Turbulence and Particle Entrainment. In M.P. Mosley Editor: *Gravel Bed Rivers V*. Water Resources Publications, LLC. p. 221-248.

Schmeckle, M.W., Y. Shimizu, K. Hoshi, H. Baba, and S. Ikezaki. 1999. Turbulent structures and suspended sediment over two-dimensional dunes. In *River Coastal and*

Estuarine Morphodynamics, IAHR Symposium, Genova, Italy, p261-270.

Shimizu, Y., **M.W. Schmeckle**, K. Hoshi, and K. Tateya. 1999. Numerical simulation of turbulence over two-dimensional dunes. In River Coastal and Estuarine Morphodynamics, IAHR Symposium, Genova, Italy, p251-260.

Schmeckle, M.W., J.M. Nelson and J. Pitlick. 1998. Direct numerical simulation of bedload sediment transport. In H. Murakami and J.E. Luco, editors, 12th ASCE Engineering Mechanics Conference Proceedings, San Diego. American Society of Civil Engineers.

NON-REFEREED SCHOLARSHIP:

Yager, E.M. and **M.W. Schmeckle**. The influence of emergent vegetation on turbulence and sediment transport in rivers. The Fifth International Symposium on Environmental Hydraulics. Tempe, AZ, Dec 4-7, 2007. 6 pages.

Balasubramanian S., S. Voropayev, H.J.S. Fernando, **M.W. Schmeckle**. Ripple Dynamics and Sediment Transport Under Oscillatory Flow and Turbulence. The Fifth International Symposium on Environmental Hydraulics. Tempe, AZ, Dec 4-7, 2007. 6 pages.

Schmeckle, M. W., & Furbish, D. J. 2007. A Fokker-Planck model of bedload transport and morphodynamics, paper presented at the Stochastic Transport and Emerging Scaling on Earth's Surface (STRESS) work group meeting. *Natl. Cent. for Earth-Surf. Dyn., Univ. of Ill. and Desert Res. Inst., Lake Tahoe, Nev.*

M.W. Schmeckle. 2006. Sediment Transport in Motion. 600 DVD's distributed. Arizona State University, Tempe, USA.

INVITED PRESENTATIONS:

University of Colorado, Boulder, Hydrologic Sciences and Water Resources Engineering Seminar Series, February, 2015

University of California, Davis, Department of Earth and Planetary Sciences, Science Colloquium and Brown Bag talks, April 2014

Washington State University, School of the Environment, Science Colloquium, January 2014

ExxonMobil Upstream Research Corp, Seminar, January 2014

AGU, Annual Meeting, Invited Talk, Connecting Natural Landscapes to Experimental and Numerical Models of Earth and Planetary Surface Evolution, Dec 2013

AGU, Meeting of the Americas, Invited Talk, Progress in Turbidity Current Research, Cancun Mexico, May 2013

NSF Community Surface Dynamics Modeling System, Boulder, CO, Annual meeting, Plenary Keynote Presentation, March 2013

Naval Research Laboratory, Stennis, Mississippi, Colloquium, March 2013

University of Florida, Workshop on Environmental and Extreme Multiphase Flows, Spring 2012

Vanderbilt University, Department of Earth and Environmental Sciences, Colloquium Spring 2011

Arizona Society of Civil Engineers, Monthly Luncheon Keynote, Fall 2011

Fulbright Southeast Asia Mid-Year Conference, Manila, Philippines, *Sedimentation and Flooding in the Face of Climate Change and Development in Vietnam*, Spring 2010

The Institute for Technology development, Media & Community Assistance (IMC), Workshop on "Water Resources and Sustainable Development", Hanoi, Vietnam, *Environmental effects of dams: examples from the southwestern United States*. Winter, 2010

Water Resources University's 50th Anniversary Workshop, Hanoi, Vietnam, *Sandbars in the Colorado River in Grand Canyon, USA downstream of Glen Canyon Dam*, Fall, 2009

St. Anthony Falls Laboratory, University of Minnesota, Fall Seminar, 2008

American Association of Petroleum Geologists Annual Convention, Invited Talk, San Antonio, Texas, Spring 2008

Universities of Minnesota, Illinois, and Nevada, Reno, Invited presentation for the workshop on *Stochastic Transport and Emergent Scaling in Earth Surface Processes*, 2007

Utah State University, Water Initiative, Spring Runoff Conference, Keynote Speech, 2007

University of Arizona, Department of Civil Engineering and Engineering Mechanics,
Colloquium, 2007

Ho Chi Minh City University of Technology, College of Civil Engineering, Colloquium,
2007

Water Resources University of Hanoi, Joint US-Japan-Vietnam Symposium on River
Mechanics, 2007

Johns Hopkins University, Center for Environmental and Applied Fluid Mechanics,
Colloquium, 2006

Arizona State University, Mechanical and Aerospace Engineering, Colloquium, 2006

Spring AGU Meeting, Special Session: Geomorphic and Hydraulic Templates for
Ecological Processes in Streams, Invited Speaker, 2006

Exxon Mobil Upstream Research Co., Invited Seminar, 2006

University of California, Santa Barbara, Center for Interdisciplinary Research in Fluid
Physics, Colloquium, 2006

USGS, Grand Canyon Monitoring and Research Center, Colorado River Ecosystem
Science Symposium, 2005

University of Arizona, Department of Geography and Regional Development,
Colloquium, 2005

Northern Arizona University, Department of Geological Sciences, Colloquium, 2004

Arizona State University, Department of Geological Sciences, Colloquium, 2004

Arizona State University, Environmental Fluid Dynamics, Colloquium, 2004

Spring AGU Meeting, Special Session: Comparison of Aeolian and Fluvial Dynamics
and Sedimentation, Invited Speaker, 2004

USDA ARS, Colloquium, Phoenix, AZ, 2004

Cambridge University, Cambridge, England, Workshop on Geophysical Granular &
Particle-Laden Flows, Invited Participant, 2003

University of California, San Diego, Mechanical and Aerospace Engineering,
Colloquium, 2003

University of Minnesota, Department of Civil Engineering, Colloquium, 2002

United States Geological Survey-National Research Program- Colloquia, Menlo Park, CA, Denver, CO, and Reston, VA, 2002

University of California, Berkeley- Gilbert Club, 2001

Spring AGU Meeting, Special Session: Computational Fluid Dynamics Applications to Rivers, Invited Speaker, 2001

Kyoto University, Japan, Colloquium, 1999

University of Aberdeen, Scotland, Colloquium, Fall 1999

University of Hiroshima, Japan, Colloquium, Summer, 1999

University of Hokkaido, Japan, Colloquium, Summer, 1998

PROFESSIONAL ACTIVITIES:

Grant Reviewer:

US National Science Foundation

Swiss National Science Foundation

US Army Research Office – Terrestrial Research Program

American Chemical Society

US Geological Survey

Manuscript Reviewer:

Computers and Geosciences

Earth Surface Processes and Landforms

Geomorphology

Geophysical Research Letters

International Journal of Multiphase Flow

Journal of Atmospheric and Oceanic Technology

Journal of Coastal Research

Journal of Geophysical Research-Earth Surface

Journal of Geophysical Research- Oceanography

Journal of Hydraulic Engineering

Sedimentology

US Geological Survey

Water Resources Research

Professional Conference Presenter:

35 published abstracts and presentations as author or co-author, American Geophysical Union, Annual Fall Meetings, San Francisco, CA

3 published abstracts and presentations as author, American Geophysical Union, Annual Spring Meetings

1 published abstract and presentation as author, American Geophysical Union, Meeting of the Americas

4 presentations as author or co-author, Association of American Geographers, Annual Meeting

Session Organizer:

AGU Fall Meeting, 2004, “Coupling Sediment Transport and Channel Morphology”

AGU Fall Meeting, 2005, “Coupling Sediment Transport and Channel Morphology”

AGU Fall Meeting, 2012, “Modeling Developments for Sediment Transport and Other Multiphase Flows: From Steep Upland Regions to Riverine, Estuary, and Coastal Environments”

Selected Service:

International Scientific Committee, River Coastal and Estuarine Mophodynamics, 8th Symposium, Santander Spain, 2013

Workshop participant and presenter, USGS Grand Canyon Monitoring and Research Center, Physical Resources Expert Workshop, Knowledge Assessment of the Effects of Glen Canyon Dam on the Colorado River Ecosystem II, Flagstaff, AZ, 2011

Presenter at the USGS Grand Canyon Monitoring and Research Center’s Annual Reporting Meeting to the Technical Work Group of the Glen Canyon Dam Adaptive Management Program, Phoenix, 2009

Presenter and discussion panel member, Colorado River Basin Science and Resource Management Symposium 2008, Scottsdale, AZ, 2008

Poster presentation on high flow experiments in the Grand Canyon, for the 14th Annual Coalition for National Science Funding Exhibition and Reception, US Congress, Washington, DC, 2008.

Briefed the science staff of US Congressman Harry Mitchell, US Congressman Trent Franks and Senator John Kyl on the status of river restoration efforts in Grand Canyon National Park. Washington, DC, 2008.

Workshop participant and presenter, USGS Grand Canyon Monitoring and Research Center, Sediment Transport modeling review workshop, Santa Cruz, Ca, 2007

Workshop participant and presenter, USGS Grand Canyon Monitoring and Research Center, Knowledge Assessment of the Effects of Glen Canyon Dam on the Colorado River Ecosystem, 2005

Program participant, Cambridge University, Isaac Newton Institute for Mathematical Sciences, Granular and Particle-Laden Flows, 2003

GRADUATE STUDENT MENTORING: [**Bold** indicates chair or co-chair]

Leary, Kate, in progress, Ph.D. student in Geology, “Patterns of turbulence and sediment transport over ripples and dunes”.

Zack Bowles, in progress, Ph.D. Geography, “Automated detection of geomorphic features”

Mark Adams, in progress, M.S. Geology, “Experimental study of abrasion by suspended load”

Alvarez, Laura, 2015, Ph.D. Geography, “Turbulence, Sediment Transport, Erosion, and Sandbar Beach Failure Processes in Grand Canyon ”

Wang, Yinlue, 2015, M.S. Geography, “Gnamma Pit Growth and Paleowind Intensity in the Sonoran Desert: Insights from Wind Tunnel Experiments and Numerical Modeling”

Shelby Cave, 2015, Ph.D. Geology, “The Sentinel-Arlington Volcanic Field, Arizona”

Hamdan, Abeer, 2014, Ph.D. Geography, “Damming Ephemeral Streams: Understanding Biogeomorphic Shifts and Implications to Traversed Streams due to the Central Arizona Project (CAP) Canal, Arizona”

Harrison, Emma, 2013, M.S. Geography, “Introducing a terrestrial carbon pool in desert bedrock mountains”

Larson, Phillip, 2013, Ph.D. Geography, “Desert fluvial terraces and their relationship with basin development in the Sonoran Desert, basin and range: case studies from south-central Arizona”

- Alvarez, Laura**, 2011, M.S. Geography, “Erosion of river sandbars by diurnal stage fluctuations in the Colorado River in the Marble and Grand Canyons: Full-scale laboratory experiments”
- Toké, Nathan, 2011, Ph.D. “Geology, Earthquake geology, hazard, urban form and social vulnerability along the San Andreas Fault”
- Hazelton, Andrea, 2011, M.S. Plant Biology, “How will hydrologic change alter riparian plant communities of the arid and semi-arid Southwest?: the problem approached from two perspectives”
- Travis, Q. Brent, 2010, Ph.D. Civil, Environmental, and Sustainable Engineering, “Ebb and flow : preserving regulated rivers through strategic dam operations”
- Hagen, Elizabeth, 2010, Ph.D. Biology, “Spatial and temporal patterns in insectivorous bat activity in river-riparian landscapes”
- Yuill, Brendan, 2009, Ph.D. University of Arizona, “Patterns of grain-size dependent sediment transport in low ordered, ephemeral channels”
- Vance, Marion, 2008, Ph.D. Mechanical Engineering, “On the effects of inter-particle collisions in turbulent channel flow”
- Brand, Brittany, 2008, Ph.D. Geological Sciences, “Mafic phreatomagmatic volcanism and density current dynamics”
- Balasubramanian, Sridhar, 2008, Ph.D. Mechanical Engineering, “Dynamics of sand ripples in heterogeneous sediment beds”
- Burnett, Andrew, 2007, M.S. Geography, “A comparison of spatial pattern analysis techniques for area class maps”
- Akahori, Ryosuke**, 2007, Ph.D. Geography, “Modeling sediment transport in eddy recirculation zones of the Colorado River in Grand Canyon”
- Block, Jessica, 2007, M.S. Geological Sciences, “3-D visualization for water resources planning and for Salt River paleo-geomorphology in central Arizona”
- Oxley, Robert Louis, 2007, M.S. Civil and Environmental Engineering, “A simulated annealing application for the optimal design of a detention basin system”
- Ahmed, El-Said Mohamed Said, 2006, Ph.D. Civil and Environmental Engineering, “Real time optimal operation of reservoir-river system under flooding conditions”
- Zhao, Zhihe, 2006, Ph.D. Mechanical Engineering, “Numerical simulation of scour

around fixed and sagging pipelines using a two-phase model”

Diller, Kristina, 2006, M.S. Geological Sciences, “Numerical modeling of subsurface controls on short-lived volcanic explosions”

Crosby, Christopher, 2006, M.S. Geological Sciences, “A geoinformatics approach to LiDAR data distribution and processing with applications to geomorphology”

Mudd, Simon, 2006, Ph.D. Vanderbilt University, “Reading the recorded history of soil mantled hillslopes”

Balasubramanian, Sridhar, 2005, M.S. Mechanical Engineering, “Ripple dynamics and mine burial in coastal zones : laboratory experiments and model evaluation”

Douglass, John, 2005, Ph.D. Geography, “Criterion approach to transverse drainages”

Li, Guanquan, 2004, Ph.D. Florida State University, “Laboratory simulation of solute transport and retention in a karst aquifer”

Bergmann, Kathleen, 2004. M.S. Geography, “Urban impacts on Rillito Creek”

Mango, Aaron, 2001, M.S. Florida State University, “Tidally-induced pressure wave propagation and attenuation in an unconfined coastal aquifer”

COURSES:

Undergraduate:

Statistics for Geographers

Introduction to Physical Geography

Geomorphology

Honors, Landform Processes

Honors, Physical Geography

Landform Processes

Quantitative Methods in Geography

Geographic Research Methods

Introduction to Geology

Calculus-Physics Shadow tutorial for Geology majors

Graduate:

Fluvial Processes

Nearshore and Fluvial Sediment Transport Mechanics

Earth Surface Transport and Morphodynamics

Advanced Geomorphology