



Dr. Benjamin T. Crosby
 crosbenj@isu.edu
 208-282-2949

Idaho State University
 Department of Geosciences
 Campus Box 8072
 Pocatello, ID 83209-8072

Research Interests and Skills

I am fascinated by the physical and biological processes by which the Earth’s surface responds to climatic, tectonic and anthropogenic disturbance. I enjoy exploring the response time and morphology of landscape adjustment (rivers, hillslopes, coastlines and the species that inhabit them) and the implications of this adjustment over both human and geologic timescales. To accomplish these tasks, I utilize field observations, numerical modeling, physical experimentation and remote sensing (LiDAR, Landsat, ASTER sensors). Through strong collaborative ties with terrestrial, riparian and aquatic ecologists, I enjoy studying ecosystem sensitivity to physical surface processes.

Professional Preparation

University of California at Berkeley	Geology (with honors)	B.A.	1999
Massachusetts Institute of Technology	Geology/Geomorphology	Ph.D.	2006

Appointments

Assistant Professor, Dept. of Geosciences, Idaho State University	(2006 -)
Research Assistant, Dept. of Earth, Atmospheric and Planetary Sciences, MIT	(2003-2006)
Teaching Assistant, Dept of Earth, Atmospheric and Planetary Sciences, MIT	(2000-2003)
Teaching Assistant, Dept of Earth Sciences, Harvard University	(2003)
Exploration Geologist: Cominco Alaska, Red Dog Pb/Zn Mine	(1999-2000)
Geologic Curriculum Developer: National Parks Service, Kotzebue, Alaska	(1999-2000)
Geologic Curriculum Developer: FOSS Science, Lawrence Berkeley National Labs	(1997-1999)

Recent Academic Awards and Honors:

INRA, D. O. Energy, “Tools for Monitoring Arctic River Processes and Fluxes, Northwest, AK”	(2009-2011)
\$40,000; Graduate student, monitoring equipment, travel	
US Fish& Wildlife Service, “Selawik River Retrogressive Thaw Slump, Northwest, AK”	(2009-2012)
\$150,489; Graduate student support, Water quality and quantity monitoring eqp.	
NSF; OPP Grant, “Influence of Hillslope Instability (Thermokarst) on Arctic Landscapes”	(2008-2012)
\$251,570; Graduate Student Supervision, Interdisciplinary	
NSF; EPSCOR Grant, “Hydrologic and Ecologic Implications of Climate Change in Idaho”	(2008-2013)
\$500,000; Post-Doc and Graduate Student Supervision, Interdisciplinary	
NASA, Id Space Grant Consort., “Lunar Volcanic Geomorph, Lithosphere Struct., Composition”	(2008-2009)
\$60,710; Supervision of 2 Undergraduate Students, Travel to meetings	
State of Idaho: Division of Public Works, “Flume Facility Renovation at ISU”	(2008-2009)
\$112,400; Modernization and expansion of existing departmental flume facility	
DeVlieg Foundation; Research Grant, “Topographic Control on Basin Hydrology, Big Creek, ID”	(2008-2010)
\$40,000; Master’s Student Supervision	
DeVlieg Foundation; Undergraduate Research Opps., “Suspended Sediments in Big Creek, ID”	(2008-2009)
\$5,000; Undergraduate Thesis Supervision	
Idaho State University; Undergraduate Research Grant: Fire and Sediment Production, Big Creek	(2008-2009)
\$2,000; Undergraduate field and thesis supervision	
DeVlieg Foundation; Visiting Professional Travel Grant: To Teach “Digital Tools” Workshop	(2007)
\$1000; Travel and Accommodation to Taylor Ranch to teach a Shortcourse	
Idaho State University; Faculty Research Grant: Arctic River Response to Climate Change	(2006-2007)
\$5000; Funds to initiate research in Alaska and travel to present results	

Previous Academic Awards and Honors:

NSF; Awarded distinction "Person of Excellence" for work done during GRF fellowship	(2006-2007)
N.S.F. Graduate Research Fellowship (GRF)	(2000-2005)
N.S.F. Research Grant, "Knickpoint Migration: Processes, Rates and Form"	(2002-2005)
M.I.T. Departmental Award for 'Excellence in Teaching'	(2004-2005)
M.I.T. Presidential Graduate Fellowship	(2000-2001)
7 E.A.P.S. Research Grants: Allowed attendance of meetings / short courses outside thesis topic:	(2002-2005)
• "The Physics and Predictability of Rainfall and Floods," Aosta, Italy	
• "Tectonics, Climate and Landscape Evolution," Taroko, Taiwan	
• "NSF-MARGINS Workshop on the Waipaoa River System," New Zealand	
• "Cryosphere / Hydrology / Climate processes," Montreal, Canada	
• "Arctic Climate & Terrestrial Ecosystems," U.A.F., Fairbanks, AK	
• "NCED conference on Mountain Rivers"	
• "Hydrologic Responses to Degrading Permafrost," U.A.F., AK	
Thesis Research Grant: Northern California Geological Society	(1998-1999)
McDonald Foundation: Academic Achievement Scholarship	(1998-1999)

Graduate and Undergraduate Student Supervision

- *Graduate Thesis Advisor*
 - Neil F Olson, M.S. candidate in Geology
 - Kelly Whitehead, M.S. candidate in Geology
 - Brad J. Gamett, M.S. candidate in Geographic Information Science
 - Linda Tedrow, M.S. candidate in Geographic Information Science
 - Chris Tennant, M.S. candidate in Geology
 - Kacy Kreiger, M.S. candidate in Geology
- *Graduate Thesis Committee Member*
 - Allen Anselmo, M.S. candidate in Geographic Information Science
 - Ted Dunsford, Ph.D. in Engineering and Applied Science
 - Eric Rafn, M.S. candidate in Geographic Information Science
 - Elijah Eversole, M.S. candidate in Geology
 - Caleb Stroup, M.S. candidate in Geology
 - Hazel Reynolds, M.S. candidate in Geology
 - Amanda Kern, M.S. candidate in Geology
 - Sarah Schoen, M.S. candidate in Biology
 - Heidi Albano, M.S. candidate in Biology
 - Joseph Benjamin, Ph.D. candidate in Biology (Stream Ecology Lab)
 - Madeleine Mineau, Ph.D. candidate in Biology (Stream Ecology Lab)
 - Kerry Riley, M.S. candidate in Geology, Boise State University
 - Julia Larouch, Ph.D. candidate in Natural Resources
 - Melissa Foster, M.S. candidate in Geology, Humboldt State Univ., CA
- *Undergraduate Thesis Supervision*
 - Kacy Kreiger; B.S. Geology, Reconstruction of a topographic surface using aerial imagery and GIS, Waipaoa, NZ
 - Eric Carlson; B.A. Geology, Sediment Delivery Following Wildfire: How Long Does Big Creek Feel the Burn?
 - Liam Junk; B.S. Geology, Temporal and Spatial Variation in Suspended Sediment Delivery in Big Creek

Publications

- Crosby, B. T., Willenbring, J., in prep., Transient Response of the South Fork Eel River to the Northward Migration of the Mendocino Triple Junction; Evidence from Knickpoints and Cosmogenic Isotope Erosion Rates, for submission to *Geology*, 2009
- Whipple, K. X., Crosby, B. T., Dibiase, R. in prep., Bedrock Rivers; Treatise in *Fluvial Geomorphology*, for submission November, 2009
- Crosby, B. T., and Whipple, K. X., in prep., Knickpoint Initiation at Tributary Junctions: a field-based comparison of trunk and tributary response to incision; for submission to *GSA Bulletin*, 2009
- Mackey, B.H., Roering, J.J., McKean, J.A., Crosby, B.T., Dietrich, W.E., in revision, Long-term landslide response to channel network dynamics: Spatial analysis using airborne laser swath mapping, SF Eel River, CA, *Geophysical Research Letters*.
- Ames, D.P., E. Rafn, R. Van Kirk, and B. Crosby, 2009. Estimation of Stream Channel Geometry in Idaho using GIS-Derived Watershed Characteristics. *Environmental Modeling and Software*, vol. 24, no. 3, p. 444-448
- Ouimet, W.B., Whipple, K.X., Crosby, B.T. Johnson, J.P. Schildgen, T.F., 2008, Epigenetic Gorges in Fluvial Landscapes, *Earth Surface Processes and Landforms*, vol. 33, no. 13, p. 1993-2009
- Crosby, B. T., Whipple, K. X., Gasparini, N. M. and Wobus, C. W., 2007, Formation of Fluvial Hanging Valleys: Theory and Simulation, *Journal of Geophysical Research-Earth Surface*, vol. 112, F03S10, doi:10.1029/2006JF000566
- Crosby, B.T., Whipple, K.X., 2006, Knickpoint initiation and distribution within fluvial networks: 236 waterfalls in the Waipaoa River, North Island, New Zealand, *Geomorphology*, v. 82, no. 1-2.
- Wobus, C.W., Crosby, B.T., Whipple, K.X., 2006, Hanging valleys in fluvial systems: Controls on occurrence and implications for landscape evolution, *Journal of Geophysical Research-Earth Surface*, v. 111, no. F2, F02017, 10.1029/2005JF000406.
- Wobus, C.W., Whipple, K.X., Kirby, E., Snyder, N.P., Johnson, J., Spyropolou, K., Crosby, B.T., Sheehan, D., 2006, Tectonics from topography: Procedures, promise and pitfalls. in Willett, S.D., Hovius, N., Brandon, M.T., and Fisher, D. M., eds., Tectonics, Climate and Landscape Evolution: Geological Society of America Special Paper 398, Penrose Conference Series, p. 55-74.
- Crosby, B. T., 2006, Transient Response of Bedrock River Networks to Sudden Base Level Fall, Ph.D. Thesis, Massachusetts Institute of Technology, Cambridge, MA, USA.

Conference Presentations

- Crosby, B. T., 2009, Progressive Growth, Modulated Supply: How coupling and decoupling between an enormous retrogressive thaw slump and its depositional fan impacts sediment delivery to the Selawik River, Northwest Alaska, *Eos Trans. AGU*, XX(XX), Fall Meet. Suppl., Abstract U41C-0043.
- Krieger, K., Crosby, B. T., Phillips, C., Godsey, S., Jerolmack, D. J., 2009, Slump Scaling: Common Geometries Observed from Retrogressive Thaw Slumps in Three Different Environments in Arctic Alaska, *Eos Trans. AGU*, XX(XX), Fall Meet. Suppl., Abstract U41C-0044.
- Pierce, J. L. Baxter, C. V., Yager, E. M., Fremier, A. K., Crosby, B. T., Smith, A. M., Kennedy, B., Hicke, J. A., Feris, K., 2009, Forests, fire, floods and fish: nonlinear biophysical responses to changing climate U13B-0074.
- Tang, C., Crosby, B. T., Wheaton, J. M., 2009, From Snow to Rain: Assessing streamflow sensitivity to changes in climate using a hydrologic model for the Salmon River Basin, Idaho, *Eos Trans. AGU*, XX(XX), Fall Meet. Suppl., Abstract H33E-0928.
- Tennant, C. J., Crosby, B. T., 2009, Distinct Regimes: Using Hypsometry and Field Observations to Predict the Hydrologic and Geomorphic Response to Changes in Precipitation Phases within the Salmon River, Idaho, *Eos Trans. AGU*, XX(XX), Fall Meet. Suppl., Abstract U43A-0064.
- Crosby, B. T., 2009, The Interplay Between Storage and Delivery: An Examination of Temporally Varying Sediment Flux to the Selawik River from an Enormous Retrogressive Thaw Slump, NW Alaska; Geological Society of America *Abstracts with Programs*, Vol. 41, No. 7, p. 574.
- Olson, N. F., Crosby, B. T., 2009, Influences of Topography on Spring Runoff, Geological Society of America *Abstracts with Programs*, Vol. 41, No. 7, p. 290.
- Tennant, C. J., Crosby, B. T., 2009, Distinct Regimes: The Hydrology and Geomorphology of Twelve Tributaries to the Salmon River, Geological Society of America *Abstracts with Programs*, Vol. 41, No. 7, p. 289.
- Whitehead, K. M., Crosby, B. T., Mahar, J., 2009, Using High-Resolution DEMs to Identify Spatial Correlations Between Topographic Form and Hillslope Failure Mechanisms, Southern California, Geological Society of America *Abstracts with Programs*, Vol. 41, No. 7, p. 677.
- [Carlson, E. J.](#), Crosby, B. T. and Olson, N. F., 2008, Temporal and Spatial Variation in Tributary and Mainstem Suspended Sediment Fluxes in Big Creek, a Recently Burned Sub-Alpine Idaho Catchment, *Eos Trans. AGU*, 89 (53), Fall Meet. Suppl., Abstract H53C-1089 .
- [Crosby, B. T.](#), and C. V. Baxter, 2008, Scaling the Geomorphic and Ecological Consequences of Contemporary Climate Change Within the Salmon River Watershed, Central Idaho: A View From Taylor Ranch Field Station, *Eos Trans. AGU*, 89 (53), Fall Meet. Suppl., Abstract H13C-0947.
- [Olson, N. F.](#) and B. T. Crosby, 2008, Topographic Controls on the Distribution and Timing of Spring Runoff in a Snow- Dominated Basin in Central Idaho, *Eos Trans. AGU*, 89 (53), Fall Meet. Suppl., Abstract H31E-0920.
- [Whitehead, K.](#), B. T. Crosby, and J. Mahar, 2008, Variation in Geologic and Topographic Setting Cause Spatial Correlations Between Hillslope Failure Mechanisms in the Ridge Basin, California, *Eos Trans. AGU*, 89 (53), Fall Meet. Suppl., Abstract H51F-0905.
- Crosby, B. T., and N. F. Olson (2007), Quantifying River Morphology in Arctic Streams: Remote Sensing and Field Based Measurement of Fluvial Response to Climate Change in Northern Alaska, *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H41D-0769.
- Olson, N. F., and B. T. Crosby (2007), Digital Mapping of Coastal Erosion on the Baldwin Peninsula, NW Alaska: Past Rates, Present Processes and Future Implications, *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract GC33A-0962.
- Crosby, B. T., and N. F. Olson (2007), Landscape-Scale Geomorphic Responses to Permafrost Degradation in NW Alaska: Impacts on sediment dynamics, fish habitat and the sustainability of river villages., 15th Annual Conference on the Arctic, Pocatello, ID.
- Crosby, B. T., and J. S. Willenbring (2007), Evaluating the Crustal Conveyor: an analysis of terraces and channel profiles along the South Fork Eel River, Northern California, Geological Society of America *Abstracts with Programs*, Vol. 39, No. 6, p. 262.
- Knoop, P., D. Mogk, B. T. Crosby, M. Helper, M. Manone, N. Niemi, J. Snyder, B. Van Der Pluijm, T. Wawrzyniec, and D. Walker (2007), Using Digital Information Technologies in Geoscience Field Courses, Geological Society of America *Abstracts with Programs*, Vol. 39, No. 6, p. 622.
- Crosby, B. T., and Whipple, K. X., 2006, Application of Digital Field Tools for Geomorphic Analysis to Incisional River Networks: EOS AGU, v. 87, no. 52, p. Fall Meet. Suppl., Abstract H13E-1446, San Francisco, CA.

- Crosby, B. T., and Whipple, K. X., 2006, Knickpoints and Terraces: Delays in the upstream transmission of fluvial incision signals, *in* NSF MARGINS Theoretical Institute 2006: Teleconnections Between Source & Sink in Sediment Dispersal Systems, Eureka, CA.
- Crosby, B. T., Whipple, K.X., Gasparini, N.M., Wobus, C.W., 2005, Knickpoint Generation and Persistence Following Base-Level Fall: An Examination of Erosional Thresholds in Sediment Flux Dependent Erosion Models, AGU, Fall Meeting, San Francisco, CA (INVITED)
- Crosby, B. T., Whipple, K.X., 2005, Bedrock River Incision Following Aggradation: Observations from the Waipaoa River Regarding Tributary Response to Mainstem Incision and the Role of Paleotopography, AGU, Fall, San Francisco, CA
- Whipple, K.X., Heimsath, A., Ouimet, W.B., Crosby, B.T., Wobus, C.W., 2005, The Relation Between Topography and Millennial Erosion Rates in the San Gabriel Mountains, California, AGU, Fall, San Francisco, CA
- Crosby, B. T., Whipple, K.X., 2004, Knickpoints in Fluvial Systems: Comparing Models of Basin-Wide Propagation and Initiation at Erosional Thresholds, AGU, Fall Meeting, San Francisco, CA
- Wobus, C.W., Crosby, B.T., Whipple, K.X., 2004, Hanging Valleys in Fluvial Systems: A Failure of Stream Power and Implications for Landscape Evolution, AGU, Fall Meeting, San Francisco, CA
- Crosby, B.T., Whipple, K.X., 2004, Knickpoint Initiation and Distribution within Fluvial Networks: two models for distributing a pulse of incision in a fluvial network, GSA Meeting,, Denver, CO
- Crosby, B. T., Whipple, K., 2002, Knickpoint Migration in the Waipaoa River: An Examination of the Rate and Form of Transient Behavior in Fluvial Networks, AGU, Fall Meeting, San Francisco, CA
- Crosby, B. T., Dietrich, W.E., 1999, Terraces on the South Fork of the Eel River, California: Geological Society of America, Cordilleran Section, 95th annual meeting abstracts, 31(6), p.48

University Service:

- Idaho State University / Pocatello, ID (2006-2008)
 - Departmental Representative for “Evening of Opportunity,” Ug. Recruitment
 - Member of University Sabbatical Review Committee
 - Member of University General Education Committee
 - Faculty Representative for the Digital Mapping Laboratory
 - Presenter within Docents Program at the ISU Museum of Natural History (2 years)
 - Invited as panel member for discussion with Academic Affairs Office
 - Member of Tenure Review Committee
 - Member of Search Committee for Geospatial Analyst Hire
 - Reviewer for J. of Geophysical Research, Geology, J. of Geology, NSF
- MIT / Boston, MA
 - 1 of 15 MIT students selected to advise the new MIT President (2004-2005)
 - Vice-President of “EGSAC,” MIT departmental student organization, (2002-2005)
 - Member of departmental mentoring program: advising jr. grad. students. (2003-2005)
 - Course Mentor, ‘Earthscope’ freshman research initiative: “ANWR and/or Oil?” (Fall 2003)
- UC Berkeley, Berkeley, CA
 - Student Rep. of the Curriculum Committee, Geology Department (1997-1999)
 - Founder and President of “Berkeley Rocks”: student advocacy group for Earth Science undergraduates. (1996-1999)

Public Service:

- Idaho State University / Pocatello, ID (2006-2008)
 - Design and construction of Parade Float for Jefferson Elementary (2 years)
 - Participant and educator for natural science field trips: Jefferson Elementary
 - Occasional builder with Habitat for Humanity
- MIT / Boston, MA (2000-2006)
 - Guest Lecturer / Thesis Advisor Milton Academy (high school) (2002-2004)
 - Website design for St. Christopher’s Preschool
- UC Berkeley, Berkeley, CA (1995-1999)
 - Public Relations for Cooperative Student Housing, City of Berkeley, CA

Synergistic activities

- Author of website and computational tools for topographic analysis* (2003-present)
Tools were developed to allow users to extract topographic data from digital elevation maps using the combined computational efficiency of ArcGIS and MATLAB. These tools are currently in use at numerous institutions by research groups in Geology, Biology and Engineering departments. The tools are now freely available (<http://geomorphtools.org>) and an [oversubscribed short course](#) (#506) was taught at the 2007 GSA Meeting in Denver. Discussion forum added to website in Jan, 2009. Open to public Feb, 2009.
- Innovation and publication of a new curriculum for digital field geology.* (2005-present)
Developing classroom and field exercises to train undergraduate and graduate students from numerous institutions on the best methods of doing data collection and analysis using modern mobile GIS tools. This curriculum has been utilized at numerous other schools and presented at conferences and shortcourses. It is currently in use at MIT's and ISU's field geology camp. Courses have also been taught at the Univ. of Idaho. Materials created are available at: (<http://web.mit.edu/12.114/>) and (http://serc.carleton.edu/research_education/geopad/).
- Presentation of Seminars and Shortcourses Regarding Arctic Research, Kotzebue, AK* (2006, 2007)
Following each field season, I meet with agency managers and staff at the NPS, US FWS and Native Corporations to present the findings of my summer research. I also receive direction from these groups regarding which concerns are of greatest importance to their missions. I also provide public lectures open to the general community to share our research findings.
- Management of Digital Mapping Laboratory, ISU-Geosciences* (2006-present)
I oversee the operation of [this facility](#) and the maintenance of the hardware and software therein. Though my students are the most intensive users of the facility, I am responsible for assuring that all researchers in the department have the optimum equipment to complete the geospatial or computational components of their work.
- Advisor within departmental mentoring program (graduate and undergraduate students).* (2003-2006)
- Geologic curriculum development for Native Alaskan students, N.P.S., Kotzebue, Alaska* (1999-2000)
- Advisor within MIT mentoring program (graduate and undergraduate students).* (2003-2006)

Teaching Experience

Assistant Professor: Idaho State University

Geol 100, Earth System Science: Responsible for creating new curriculum, Lectures and assisting with creation of new labs (~80 students) (F 06, S 08, F 09)

Geol 315, Evolution of the Earth's Surface, Undergraduate Lecture, Lab, Field. New offering with all new curriculum and exercises (Spring 2009)

Geol 402/502, Geomorphology: Mixed Grad/undergrad class Lecture, lab and field course with emphasis on GIS and quantitative tools (11 students) (Fall 06, 07, 08)

Geo 491, Advanced Field Seminar; Mixed Grad/undergrad class Planning and execution of 9 day field excursion to Death Valley and Owens Valley (Spring 2007)

Geol 450, Field Geology; Mixed Grad/undergrad class Instructed 25 students on field techniques for geologic mapping and structural interp. (Summer 07, 08)

Geol 599, Surface Processes Seminar; All Graduate Students Reading and synthesis seminar for incoming and senior graduate students (Fall 2008)

Geol 599, Quantitative Tools for Earth Scientists; Graduate Students Development of modeling and analytical skills in MATLAB (Spring 2009)

Geol 599, River Mechanics and Field Techniques; Graduate Students In-depth study for stream ecology/geomorphology/civil engineering students (Fall 2009)

Geol 601, Advance Physical Geology; All graduate students Required for all incoming students, research and discussion skills, with Dr. Rodgers (Fall 07, 08)

Geol 602, Advanced Geomorphology: Climate, Tectonics and Erosion; Graduate Lectures, Labs and one week field excursion. Interdisciplinary focus, with Dr. Thackray (Spring 2007)

Geol 602, Geomorphology of Managed Rivers; Graduate Level Study of land use impacts on rivers (dams, forestry, urbanization, fire, restoration) (Spring 2008)

Teaching Assistant: M.I.T.

Field Geology I and II: Traditional & Digital Tools: Lectures, labs, field trips, 4-week field course, GIS tool development, web design. (2005-2006)

Surface Processes & Landscape Evolution: Lectures, labs, field trips, GIS tools development, web design. (Fall 02, 04)

Senior Thesis Course: Advised students on research projects and supervised thesis writing. Authored the departmental 'Undergraduate Handbook for Thesis Preparation.' (Spring 2004)

Teaching Assistant: U.C. Berkeley

Fluvial Geomorphology in River Restoration Lectures, documentation preparation, field and lab exercises. (Fall, 2004)

Teaching Assistant: Harvard University, Extension School

Earth Surface Processes Occasional Lecture, Laboratories, Advised students during research projects (Spring, 2003)

Technical Skills

GIS Software: the ArcGIS family: [ArcMap, ArcToolbox, ArcScene, ArcCatalog], ArcINFO

GPS hardware and software: Trimble GeoXT, XH; Pro XT, XH; Trimble Software Packages

Remote Sensing Software: RSI's ENVI, ERDAS Imagine, PCI Geomatica

Computational Software: Matlab (preferred language), Excel

Graphic Design: Premier Pro (digital video), Dreamweaver (web design), Illustrator, Photoshop, etc.

Surveying tools: Leica Total Stations, Integrated hand-held computer/laser rangefinder/GPS, DGPS, Rod-Level, etc.

Professional Society Memberships:

American Geophysical Union

Geologic Society of America

Sigma Xi

Collaborators and Other Affiliations

Collaborators and Co-Editors

Dr. Colden Baxter, Assistant Professor of Biology, Idaho State University

Dr. Nicole Gasparini, Post-Doctoral Student, Arizona State University

Dr. Jane Willenbring, Post-Doctoral Student, Leibniz Universität Hannover

Dr. Cameron Wobus, Post-Doctoral Student, University of Colorado Boulder

Graduate Advisors

Dr. Rafael Bras, Professor of Civil and Environmental Engineering, MIT

Dr. David Mohrig, Associate Professor of Geology, University of Texas at Austin

Dr. Leigh Royden, Professor of Geophysics, MIT

Graduate Thesis Advisor

Dr. Kelin Whipple, Professor of Geology, Thesis advisor, now at ASU

References

Kelin Whipple; Thesis Advisor and Professor at MIT

- kxw@mit.edu
- 617-253-2578
- M.I.T. – 54-1026 / Cambridge, MA 02126

David Mohrig; Thesis Committee Member and Professor at MIT

- mohrig@mit.edu
- 617-253-9429
- M.I.T. – 54-816 / Cambridge, MA 02126

Bill Dietrich; Undergraduate Thesis Advisor and Professor at UC Berkeley

- bill@geomorph.berkeley.edu
- 510-642-2633
- UCB – Dept. EPS / 313 McCone Hall / Berkeley, CA 94720-4767

Daniel Sheehan; Director of GIS @ M.I.T., Spatial Data Specialist

- dsheehan@mit.edu
- 617-252-1475
- M.I.T. – N42-250A / Cambridge, MA 02126

Scott Hughes; Dean of College of Arts and Sciences, ISU

Dave Rodgers; Chair of Department of Geosciences, ISU

Research Experience

Arctic Alaska, Toolik Field Station and NW Brooks Range (2007 -)

Coastal California, Eel River, CA (1998 -))

Thesis field work, Waipaoa River, New Zealand (2000-2005)

Tasks: Six field seasons of detailed topographic analysis: (1) measurement of over 30 channels using both traditional and digital surveying techniques, (2) monitoring of elevation change in cross-sectional profiles across bedrock channels above and below knickpoints, (3) high resolution mapping of relations between terrace fill and strath elevations along an incising channel (4) sampling and dating of ancient landforms to determine river incision rates. Also developed tools for river profile extraction and analysis from DEM data

Research Assistant: field work with Dr. Cameron Wobus, M.I.T. (Fall, 2001)

tasks: Field assistant for geologic mapping, geochemical / geochronological sample collection and geomorphic landscape analysis in the Nepalese Himalaya.

Field work and geochemical sample analysis, M.I.T., Naukluft Mountains, Namibia (Spring, 2001)

tasks: mapping of tufa deposits/facies and collection for petrologic and geochemical analysis

Research Assistant: with Dr. Paul Renne and Dr. John Glen, U.C. Berkeley (1997- 1999)

tasks: field mapping and analysis of rift behavior using flood basalt and dike systems, Namibia

Research Assistant: with Dr. Walter Alvarez, UC Berkeley (1996- 1999)

tasks: developed and implemented a paleomagnetic study of Paleocene limestones, Italy

Shortcourses, Seminars and Chaired Sessions:

- Session Chair for “Response of the Arctic Landscape to a Warming Climate” at the annual meeting of the American Geophysical Union, 2009
- Session Chair for “Watersheds” at the Intermountain Conference for the Environment, 2009
- Session Chair for “Deformation and the landscape: Quantitative approaches to tectonic geomorphology,” at the annual meeting of the Geological Society of America, 2007
- Co-Author Short-Course: computational tools for Geomorphology/GIS/Stream Profile Extraction
 - (To be released through workshops at GSA professional meeting in 2007)
- Authored Shortcourse on Digital Tools for Field Science, July, 2007 Taylor Ranch
- Utah State University, 2009
- University of Montana, 2008
- Utah State University, 2007
- Boise State University, 2007
- GIS Day Presentation, “GIS Tools for Digital Field Geology”, 2006
- GeoPads Conference, 2007
- Cutting Edge Workshop for Early Career Faculty, 2007
- Thesis presentation: NSF-MARGINS Workshop on the Waipaoa Focus Area (Source-to-Sink Initiative), Wellington, New Zealand: May, 2003.
- Thesis presentation: France/New Zealand Cooperative Project: A Workshop on Sediment Management in River Systems: Gisborne, New Zealand, February, 2003