

KELIN X. WHIPPLE

School of Earth and Space Exploration
Arizona State University
PO Box 871404
Tempe, AZ 85287-1404
(480) 965-9508

February, 2010

CURRENT POSITION	Professor, Arizona State University
EDUCATION	B.A. 1985 University of California, Berkeley (Geology) M.S. 1989 University of Washington (Geological Sciences) Ph.D. 1994 University of Washington (Geological Sciences)
HONORS	Fellow, American Geophysical Union, 2010 Fellow, Geological Society of America, 2010 Bagnold Medal, European Geosciences Union, 2008 Canadian Institute for Advanced Research, Associate Member Earth System Evolution Program: 2001-present Cecil and Ida Green Career Development Professorship: 1997-2002 Mackin Award, Geological Society of America, 1990 Scholarships for academic achievement (U.W. Geological Sciences Department): 1987; 1988; 1989; 1990; 1992

RESEARCH INTERESTS

Landform evolution in active tectonic settings. Current research activities focus on the geomorphic evolution of fluvial bedrock channel and alpine glacial valley systems. Active projects and interests span a range from small-scale modeling and investigation of the physics of bedrock channel erosion, to reach-scale modeling of the dynamics of bedrock channel evolution, to neotectonic studies of active deformation using geomorphic tools, and to quantitative investigation of linkages between tectonics, climate, and surface processes at mountain range scale. These work efforts integrate field, experimental, remote sensing, and numerical approaches.

Additional interests and experience include rheology of fine-grained debris flows, mass wasting processes in the submarine environment, the transition of subaqueous debris flows into turbidity currents, kinematics of chemical weathering in soils, controls on alluvial fan sedimentation and morphology, and applications of remote sensing in geomorphology.

EMPLOYMENT HISTORY

2006 – present	Professor, School of Earth and Space Exploration, Arizona State University
2004 - 2006	Professor, Dept. of Earth, Atmospheric and Planetary Sciences, MIT
2000 - 2004	Associate Professor, Dept. of Earth, Atmospheric and Planetary Sciences, MIT
1995 - 2000	Assistant Professor, Dept. of Earth, Atmospheric and Planetary Sciences, MIT
1994 - 1995	Postdoctoral Research Associate, St. Anthony Falls Hydraulic Lab, University of Minnesota
1986 - 1993	Research/Teaching Assistant, Dept. of Geol. Sciences, University of Washington.

PROFESSIONAL SERVICE

2007-present	NRC Committee on Challenges and Opportunities in Earth Surface Processes
2005 – 2007	Journal of Geophysical Research, Earth Surface: Associate Editor

2002 – 2007	Editor, AGU Editor’s Choice: Surface Processes online Journal
2001 – 2005	Journal of Geophysical Research, Solid Earth: Associate Editor
2002	NSF Workshop Participant: New Departures in Structural Geology and Tectonics
2000 – 2002	Tectonics: Associate Editor
2004 – 2007	American Geophysical Union: Sediment and Landscape Dynamics Committee, Chair
1997 – 2008	American Geophysical Union: Erosion and Sedimentation Committee
1997 – present	Organized and chaired 10 special sessions at annual AGU, GSA and AAPG/SEPM meetings
1996 – 1998	Geology: Editorial Board

RECENT RESEARCH

2001-2009	<p>Theoretical study of the interaction of climate, erosion, and tectonics in active mountain belts. Tectonic geomorphology and thermochronology of the Nepal Himalaya and the Southern Alps of New Zealand.</p> <p>Rates and processes of knickpoint migration and their role in river incision and landscape evolution (North Island New Zealand, Dead Sea Rift, Utah).</p> <p>Transient evolution of river profiles along the eastern margin of the Tibetan Plateau.</p> <p>Study of rock property and sediment controls on river profiles and incision rates (Utah).</p>
1996-2000	<p>Field, theoretical, and modeling study of channel incision into bedrock.</p> <p>Tectonic geomorphology of the eastern margin of the Tibetan Plateau (a neotectonic inverse problem using geomorphic tools).</p> <p>Response of coastal streams to known, rock uplift histories (King Range, California).</p> <p>Rates of bedrock channel incision (Ukak River, AK).</p> <p>Impact of glacial erosion on the relief structure of mountainous topography (Sierra Nevada, CA; Sangre de Cristo Range, CO; Southern Alps, New Zealand).</p> <p>Experimental study of debris-flow mechanics.</p>
1994 - 1995	<p>Experimental studies of fluvial fans: relations between discharge, sediment size, supply, morphology and avulsion behavior of channels, and fan slope.</p> <p>Experimental studies of the transition of subaqueous debris flows into turbidity currents.</p>

RECENT GRANTS

1995 - 1997	Co-Investigator with Dr. R.S. Anderson (UCSC): "Bedrock Incision by Rivers", National Science Foundation Grant (Subcontract to MIT through UCSC).
1997 - 2001	“The recent structural, morphologic, and dynamic evolution of the Eastern Tibetan Plateau: a multi-disciplinary study of processes in continental deformation”, NSF Continental Dynamics, Co-PI with colleagues at MIT.
1998-2001	“Relationship between E-W extension and N-S shortening in the Himalayas and Tibet”, NSF Tectonics, Co-PI with Hodges and Grotzinger.
1997-1998	“Development of an Integrated Geoscience Remote Sensing and GIS Laboratory”, NASA Equipment Grant, Co-PI with Burchfiel.
1998-2001	“Dynamic response of bedrock fluvial systems to tectonic forcing”, NSF, MIT PI (Collaborative research with D. Merritts (Franklin and Marshall)).
2000-2002	“Relief Evolution at the Fluvial-Glacial Transition”, NSF, MIT PI (Collaborative research with D. Granger (Purdue University)).
2001-2002	“Relief Production in Tectonically Active Mountain Ranges”, NASA, PI.

- 2001-2003 “Constraining the Architecture of Active Thrust Systems of the Central Nepalese Himalaya”, NSF, PI (Hodges Co-PI).
- 2001-2005 “Collaborative Research in Eastern Tibet: Evolution and Dynamics of Crust, Mantle, and Surface Topography”, NSF, Co-PI with Burchfiel, Royden, Hodges, Van der Hilst, King.
- 2002-2004 “Knickpoint Migration: Processes, Rates, and Form”, NSF.
- 2003-2005 “Constraining Landform Response to Tectonic and Climatic Change in an Active Orogen: A Multi-disciplinary Approach”, Australian Research Council, Co-PI with Braun, J. (ANU), Beaumont, C. (Dalhousie), and Batt, G (Yale).
- 2003-2006 “Long-term Evolution of Bedrock Channels along the Arid Escarpments of the Dead Sea Transtensional Basins”, BSF, Co-PI with Enzel, Y. (Hebrew University of Jerusalem) and Stone, J. (University of Washington).
- 2004-2007 “Uplift History of the Cordillera Occidental, Southern Peru, from Canyon Geomorphology”, NSF, Co-PI with Hodges, K.
- 2004-2007 “Collaborative Research: Bedrock and Sediment Controls on River Incision, Henry Mountains and Navajo Mountain, Utah”, Co-PI with Sklar, L. (San Francisco State)
- 2005-2009 “Experimental Study of Bedrock Incision by Abrasion: Interface Evolution, NSF
- 2005-2009 “Collaborative Research: Tectonics and Topography in the Transverse Ranges”, NSF
- 2007-2010 “Extensional fault systems in the Ama Drime Range, Southern Tibet, NSF, Co-PI with Hodges, K.
- 2009-2012 “Quantifying Climatic Control of Erosional Efficiency”, \$366k NSF.
- 2010-2012 “Abrasion by Bedload and Suspended Load: Experimental Study”, \$129k NSF

SUPERVISORY DUTIES

Graduate Students Supervised

- 1998 Stephen Lancaster, Ph.D. (co-supervisor with Rafael Bras)
Title: “River Meandering”
Current Position: Associate Professor at Oregon State University
- 2000 Eric Kirby, Ph.D. (co-supervisor with Clark Burchfiel)
Title: “Structural, Thermal, and Geomorphic Evolution of the Min Shan Range: Implications for Processes of Continental Deformation, Tibetan Plateau, China”
Current Position: Associate Professor at Pennsylvania State University
- 2001 Noah P. Snyder, Ph.D.
Title: “Landscape Response to Tectonic and Eustatic Forcing, King Range, California”
Current Position: Postdoctoral Researcher with USGS, Pacific Science Center, Santa Cruz, CA; starting as Assistant Professor at Boston College, Fall 2004
- 2002 Simon H. Brocklehurst, Ph.D.
Title: “Glacial Erosion and Relief Production: Implications for Coupling Between Climate and Tectonics”

Current Position: Lecturer at University of Manchester, United Kingdom

- 2003 Katerina Spyropoulou, M.Sc.
Title: "Interpretation of Tectonics from Digital Elevation Data in the San Gabriel Mountains, CA: Evaluation of Methods and Data Sources"
- 2004 Leah Windhorst, M.Sc.
Title: "Tributary Junctions and Longitudinal Profile Form in Mixed Bedrock-Alluvial Channels"
Current Position: K-12 teaching, Minnesota.
- 2005 Cameron Wobus, Ph.D. (co-supervisor with Kip Hodges)
Title: "Geomorphic and Thermochronologic Study of Active Thrust Systems of the Central Nepalese Himalaya"
Current Position: Postdoctoral researcher, CIRES, University of Colorado, Boulder.
- 2006 Benjamin Crosby, Ph.D.
Title: "Knickpoint Migration: Rates and Processes"
Current Position: Assistant Professor, Idaho State University, Pocatello.
- 2007 Joel Johnson, Ph.D.
Title: "Physics of River Incision Processes: Field and Experimental Study"
Current Position: Mendenhall postdoctoral researcher, USGS Menlo Park, CA; Assistant Professorship at UT Austin in Fall, 2009
- 2007 William Ouimet, Ph.D.
Title: "Large Landslides and the Transient Response of Bedrock Channels on the Eastern Tibetan Plateau"
Current Position: Lecturer, Colorado College for 2008-2009.
- 2007 Katrina Cornell, M.S.
Title: "Experimental Investigation of Suspended Load Abrasion in Bedrock Rivers"
Current Position: River guide, western US and Peru/Chile.
- 2007 Taylor Schildgen, Ph.D. (co-supervisor with Kip Hodges)
Title: "Surface uplift, fluvial incision, and geodynamics of plateau evolution, from the western margin of the Central Andean plateau", 154 p.
Current Position: Postdoctoral researcher, Potsdam University, Germany.
- 2008 Melinda Shimizu, M.S. (2008)
Title: "Controls on Glacial Hanging Valley Height"
Current Position: Ph.D. student in Geography, ASU.
- 2008 Kristen Paris, M.S. (2008)
Title: "Canyon Systems of Athabasca Valles, Mars"
Current Position: Research Assistant, LROC Mission, ASU.
- 2009 Kelli Wakefield, M.S. (2009, co-supervisor with Phil Christensen)
Title: "Alluvial Fans on Mars: Implications for Climate and Water Budget"
- 2011 Roman DiBiase, Ph.D. (in progress)
Title: "Tectonics and Topography in the San Gabriel Mountains, CA"
- 2011 Jeni McDermott, Ph.D. (in progress, co-supervisor with Kip Hodges)
Title: "Exhumation of the Ama Drime Range, Southern Tibet"

- 2012 Byron Adams, Ph.D. (in progress, co-supervisor with Kip Hodges)
Title: "Tectonic Geomorphology of Bhutan"
- 2012 Matthew Rossi, Ph.D. (in progress)
Title: "Climatic Control of Erosional Efficiency"

Postdoctoral Researchers Supervised

Gregory E. Tucker (co-supervised with Rafael Bras).
Current Position: Associate Professor, University of Colorado, Boulder

Jeffery Parsons (co-supervised with John Grotzinger and John Southard)
Current Position: Associate Professor, University of Washington

Nicole Gasparini (2006-2007)
Current Position: Assistant Professor, Tulane University

Drew Stolar (2006-2007)
Current Position: Postdoc, Yale University

Stephen Delong (2007-2008)
Current Position: Mendenhall postdoctoral researcher, USGS Menlo Park, CA

Phairot Chatanantavet (2009-present)

PUBLICATIONS

Refereed Articles:

- ¹Johnson, J., and Whipple, K., 2010, Evaluating the controls of shear stress, sediment supply, alluvial cover and channel morphology on experimental bedrock incision rate, *Journal of Geophysical Research – Earth Surface*, 115, F02018, doi:10.1029/2009JF001335.
- ¹Johnson, J., Whipple, K., and Sklar, L., 2010, Contrasting bedrock incision rates from snowmelt and flash floods in the Henry Mountains, Utah, *Geological Society of America, Bulletin*, 122, 1600-1615.
- ¹Ouimet, W., Whipple, K., Royden, L., Reiners, P., Hodges, K., and Pringle, M., 2010, Regional Incision of the Eastern Margin of the Tibetan Plateau, *Lithosphere*, v. 2, no. 1, p. 50-63, doi:10.1130/L57.1
- ¹DiBiase, R., Whipple, K., Heimsath, A., Ouimet, W., 2010, Landscape form and millennial erosion rates in the San Gabriel Mountains, CA, *Earth and Planetary Science Letters*, v. 289, p. 134-144.
- Whipple, K., 2009, Landscape texture set to scale – News and Views, *Nature*, v. 460, 23 July, p. 468-469.
- ¹Schildgen, T., Hodges, K., Whipple, K., Pringle, M., van Soest, M., Cornell, K., 2009, Late Cenozoic structural and tectonic development of the western margin of the Central Andean Plateau in southwest Peru, *Tectonics*, v. 28, TC4007, doi:10.1029/2008TC002403.
- ¹Schildgen, T. F., T. A. Ehlers, D. M. Whipp, Jr., M. C. van Soest, K. X. Whipple, and K. V. Hodges (2009), Quantifying canyon incision and Andean Plateau surface uplift, southwest Peru: A thermochronometer and numerical modeling approach, *J. Geophys. Res.*, 114, F04014, doi:10.1029/2009JF001305
- ¹Johnson, J.P., Whipple, K., Sklar, L., Hanks, T., 2009, Transport slopes, sediment cover, and bedrock channel incision in the Henry Mountains, Utah, USA, *Journal of Geophysical Research*, v. 114, F02014. doi: 10.1029/2007JF000862.

- ¹Ouimet, W., Whipple, K., Granger, D., 2009, Beyond threshold hillslopes: Channel adjustment to baselevel fall in tectonically active mountain ranges, *Geology*, v. 37, p. 579-582.
- ¹Cook, K., Whipple, K., Heimsath, A., Hanks, T., 2009, Rapid incision of the Colorado River in Glen Canyon – insights from channel profiles, local incision rates, and modeling of lithologic controls, *Earth Surface Processes and Landforms*, doi: 10.1002/esp.1790, v. 34, p. 994-1010.
- Whipple, K., 2009, The influence of climate on the tectonic evolution of mountain belts, *Nature Geoscience*, v. 2, p. 97-104, doi 10.1038/ngeo413.
- Kirby, E., Whipple, K., Harkins, N., 2008, Topography reveals seismic hazard, *Nature Geoscience*, v. 1, p. 485-487, doi 10.1038/ngeo265.
- Roe, G., Whipple, K., Fletcher, J., 2008, Feedbacks among climate, erosion, and tectonics in a critical wedge orogen, *American Journal of Science*, v. 308, p. 815-842, doi 10.2475/07.2008.01.
- Wobus, C., Pringle, M., Whipple, K., Hodges, K., 2008, A Late Miocene acceleration of exhumation in the Himalayan crystalline core, *Earth and Planetary Science Letters*, v. 269, p. 1-10, doi 10.1016/j.epsl.2008.02.019.
- ¹Ouimet, W., Whipple, K., ¹Crosby, B., ¹Johnson, J., ¹Schildgen, T., 2008, Epigenetic gorges in fluvial landscapes, *Earth Surface Processes and Landforms*, doi 10.1002/esp.1650.
- ¹Brocklehurst, S. H., and K. X. Whipple (2007), Response of glacial landscapes to spatial variations in rock uplift rate, *J. Geophys. Res.*, 112, F02035, doi:10.1029/2006JF000667.
- Brocklehurst, S., Whipple, K., and ¹Foster, D., 2007, Ice thickness and topographic relief in glaciated landscapes of the western USA, in Stroeve, A., and Swift, D., eds., *Glacial landscape evolution: Implications for glacial processes, patterns and reconstructions: Geomorphology*, doi: 10.1016/j.geomorph.2007.02.037.
- ¹Crosby, B., Whipple, K., ²Gasparini, N., ¹Wobus, C., 2007, Formation of fluvial hanging valleys: Theory and simulation: *Journal of Geophysical Research*, v. 112, F03S10, doi: 10.1029/2006JF000566.
- ¹Ouimet, W., Whipple, K., Royden, L., Zhiming, S., and Chen, Z., 2007, The influence of large landslides on river incision in a transient landscape: Eastern margin of the Tibetan plateau (Sichuan, China): *Geological Society of America Bulletin*, v. 119, no. 11/12, p. 1462–1476, doi: 10.1130/B26136.1.
- ¹Johnson, J., and Whipple, K.X., 2007, Feedbacks between erosion and sediment transport in experimental bedrock channels: *Earth Surface Processes and Landforms*, doi: 10.1002/esp.1471.
- ¹Schildgen, T., Hodges, K., Whipple, K., Reiners, P., 2007, Uplift of the western margin of the Andean plateau revealed from canyon incision history, *Southern Peru, Geology*, v. 35, no.6, pg. 523-526.
- ²Gasparini, N., Whipple, K., Bras, R., 2007, Predictions of steady-state and transient landscape morphology using sediment-flux-dependent river incision models: *Journal of Geophysical Research*, v. 112, F03S09, doi: 10.1029/2006JF000567.
- ¹Haviv, I., Enzel, Y., Whipple, K., Zilberman, E., Stone, J., Matmon, A., Fifield, L., 2006, Amplified erosion above waterfalls and oversteepened bedrock reaches, *Journal of Geophysical Research*, 111, F04004, doi:10.1029/2006JF000461.
- ¹Lamb, M. P., Howard, A. D., ¹ Johnson, J., Whipple, K. X., Dietrich, W. E., ¹Perron, J. T., 2006, Can springs cut canyons into rock?, *Journal of Geophysical Research*, 111, E07002, doi:10.1029/2005JE002663.

- ¹Wobus, C.W., Whipple, K.W., and Hodges, K.V., 2006, Neotectonics of the central Nepalese Himalaya: Constraints from geomorphology, detrital ⁴⁰Ar/³⁹Ar thermochronology and thermal modeling: *Tectonics*, 25, TC4001, doi:10.1029/2005TC001935.
- ¹Wobus, C.W., ¹Crosby, B.T., and Whipple, K.W., 2006, Hanging valleys in fluvial systems: Controls on occurrence and implications for landscape evolution: *Journal of Geophysical Research*, 111, F02017, doi:10.1029/2005JF000406.
- Whipple, K.X., Meade, B.J., 2006, Orogen response to changes in climatic and tectonic forcing, *Earth and Planetary Science Letters*, 243, p 218-228.
- ¹Brocklehurst, S., Whipple, K. 2006, Assessing the relative efficiency of fluvial and glacial erosion through simulation of fluvial landscapes, *Geomorphology*.
- ¹Crosby, B. T., Whipple, K. X., 2006, Knickpoint initiation and distribution within fluvial networks: 236 waterfalls in the Waipaoa River, North Island, New Zealand, *Geomorphology*, 82, p. 16-38, doi:10.1016/j.geomorph.2005.1008.1023.
- ¹Clark, M. K., Royden, L. H., Whipple, K. X., Burchfiel, B. C., Zhang, X., and Tang, W., 2006, Use of a regional, relict landscape to measure vertical deformation of the eastern Tibetan Plateau: *Journal of Geophysical Research*, 111, F03002, doi:10.1029/2005JF000294.
- ¹Clark, M. K., House, M.A., Royden, L. H., Whipple, K. X., Burchfiel, B. C., Zhang, X., and Tang, W., 2005, Late Cenozoic uplift of southeastern Tibet: *Geology*, v. 33, 6, 525-528.
- ¹Wobus, C.W., Whipple, K.W., Kirby, E., Snyder, N.P., ¹Johnson, J., ¹Spyropolou, K., ¹Crosby, B.T., and Sheehan, D., 2006, Tectonics from topography: Procedures, promise, and pitfalls, *in* Willett, S.D., Hovius, N., Brandon, M.T., and Fisher, D., eds., *Tectonics, Climate, and Landscape Evolution: Geological Society of America Special Paper 398: Penrose Conference Series: Boulder, CO, Geological Society of America*, p. 55-74.
- ¹Gasparini, N. M., Bras, R.L., Whipple, K. X., 2006, Numerical modeling of non-steady-state river profile evolution using a sediment-flux-dependent incision model, *in* Willett, S. D., Hovius, N., Brandon, M. T., Fisher, D., eds., *Tectonics, Climate, and Landscape Evolution: Geological Society of America Special Paper 398, Boulder, CO, Geological Society of America*, 127-141
- Safran, E. B., Bierman, P.R., Aalto, R., Dunne, T., Whipple, K., Caffee, M., 2005, Erosion rates driven by channel network incision in the Bolivian Andes, *Earth Surface Processes and Landforms*, 30, 1007-1024
- ¹Wobus, C.W., Heimsath, A.M., Whipple, K.X., and Hodges, K.V., 2005, Active out-of-sequence thrust faulting in the central Nepalese Himalaya: *Nature*, v. 434, p. 1008-1011.
- ¹Brocklehurst, S., and Whipple, K., 2004, Hypsometry of glaciated landscapes: *Earth Surface Processes and Landforms*, 29, 907-926.
- Hodges, K., ¹Wobus, C., ¹Ruhl, K., ¹Schildgen, T., Whipple, K., and Ojha, T., 2004, Quaternary deformation, river steepening, and heavy precipitation at the front of the Higher Himalayan ranges: *Earth and Planetary Science Letters*, v. 7012, p. 1-11.
- Whipple, K. and ¹Meade, B., 2004, Controls on the strength of coupling among climate, erosion, and deformation in two-sided, frictional orogenic wedges at steady state: *Journal of Geophysical Research*, v. 109, F01011, doi:10.1029/2003JF000019.
- Whipple, K., 2004, Bedrock Rivers and the Geomorphology of Active Orogens: *Annual Reviews of Earth and Planetary Science*, v. 32, p. 151-185.

- ¹Clark, M.K., L. M. ¹Schoenbohm, L. H. Royden, K. X. Whipple, B. C. Burchfiel, X. Zhang, W. Tang, E. Wang, and L. Chen, 2004, Surface uplift, tectonics, and erosion of eastern Tibet from large-scale drainage patterns, *Tectonics*, 23, TC1006, doi:10.1029/2002TC001402.
- ¹Schoenbohm, L., Whipple, K., Burchfiel, B., Chen, L., 2004, Geomorphic constraints on surface uplift, exhumation, and plateau growth in the Red River region, Yunnan Province, China: *Geological Society of America, Bulletin*, v. 116, no. 7/8, p. 895–909; doi: 10.1130/B25364.1
- ¹Wobus, C., Hodges, K.V., and Whipple, K.X., 2003, Has focused denudation sustained active thrusting at the Himalayan topographic front?: *Geology*, v. 31, p. 861-864.
- ¹Snyder, N.P., Whipple, K.X., ²Tucker, G.E., and Merritts, D., 2003, Importance of a stochastic distribution of floods and erosion thresholds in the bedrock river incision problem: *Journal of Geophysical Research*, v. 108, B2, 2117, doi: 10.1029/2001JB001655.¹
- ¹Snyder, N.P., Whipple, K.X., ²Tucker, G.E., and Merritts, D., 2003, Channel response tectonic forcing: Field analysis of stream morphology and hydrology in the Mendocino triple junction region, northern California: *Geomorphology*, v. 1315, p. 1-31.
- ¹Kirby, E., Whipple, K.X., Tang, W., and Chen, Z., 2003, Distribution of active rock uplift along the eastern margin of the Tibetan Plateau: Inferences from bedrock river profiles: *Journal of Geophysical Research*, v. 108, doi:10.1029/2001JB000861.
- ¹Baldwin, J.A., Whipple, K.X., and ²Tucker, G.E., 2003, Implications of the stream-power channel incision model for the post-orogenic decay of topography: *Journal of Geophysical Research*, v. 108, doi:10.1029/2001JB000550.
- ¹Snyder, N.P., Whipple, K.X., ²Tucker, G.E., and Merritts, D., 2002, Interactions between onshore bedrock-channel incision and nearshore wave-base erosion forced by eustasy and tectonics: *Basin Research*, v. 14, p. 105-127.
- Whipple, K., and ²Tucker, G., 2002, Implications of sediment-flux dependent river incision models for landscape evolution: *Journal of Geophysical Research*, v. 107, B2, doi: 10.1029/2000JB000044.
- ²Tucker, G., and Whipple, K., 2002, Topographic outcomes predicted by stream erosion models: sensitivity analysis and intermodel comparison: *Journal of Geophysical Research*, v. 107, B9, doi: 10.1029/2001JB000162.
- ¹Kirby, E., Reiners, P., Krol, M., Hodges, K., Whipple, K., Farley, K., Tang, W., and Chen, Z., 2002, Late Cenozoic evolution of the eastern margin of the Tibetan Plateau: Inferences from ⁴⁰Ar/³⁹Ar and (U-Th)/He thermochronology: *Tectonics*, v. 21, doi: 10.1029/2000TC001246.
- ¹Brocklehurst, S., and Whipple, K., 2002, Glacial erosion and relief production in the eastern Sierra Nevada, California: *Geomorphology*, v. 42, p. 1-24.
- Hodges, K.V., ¹Hurtado, J.M., and Whipple, K.X., 2001, Southward extrusion of Tibetan crust and its effect on Himalayan tectonics: *Tectonics*, v. 20, p. 799-809.
- Whipple, K., 2001, Fluvial landscape response time: How plausible is steady state denudation?: *American Journal of Science*, v. 301, p. 313-325.

¹ Student co-author

² Postdoctoral co-author

- ¹Kirby, E., and Whipple, K., 2001, Quantifying differential rock-uplift rates via stream profile analysis: *Geology*, v. 29, p. 415-418.
- ¹Parsons, J., Whipple, K., and ¹Simoni, A., 2001, Experimental study of the grain-flow, fluid-mud transition in debris flows: *Journal of Geology*, v. 109, p. 427-447.
- ¹Hurtado, J., Hodges, K., and Whipple, K., 2001, Neotectonics of the Thakkhola Graben and implications for recent activity on the South Tibetan Fault System in the Central Nepal Himalaya: *Geological Society of America Bulletin*, v. 113, p. 222-240.
- Whipple, K., ¹Snyder, N., and ¹Dollenmayer, K., 2000, Rates and processes of bedrock channel incision by the Upper Ukak river since the 1912 Novarupta Ash Flow in the Valley of Ten Thousand Smokes, Alaska: *Geology*, v. 28, no. 9, p. 835-838.
- ¹Snyder, N., Whipple, K., ²Tucker, G., and Merritts, D., 2000, Landscape response to tectonic forcing: DEM analysis of stream profiles in the Mendocino triple junction region, northern California: *Geological Society of America Bulletin*, v. 112, no. 8, p. 1250-1263.
- Whipple, K., ¹Hancock G., and Anderson, R., 2000, River incision into bedrock: mechanics and relative efficacy of plucking, abrasion, and cavitation: *Geological Society America Bulletin*, v. 112, no. 3, p. 490-503.
- ¹Kirby, E., Whipple, K.X., Burchfiel, B.C., ¹Tang, W., Berger, G., Sun, Z., and Chen, Z., 2000, Neotectonics of the Min Shan, China: Implications for mechanisms driving Quaternary deformation along the eastern margin of the Tibetan Plateau: *Geological Society of America, Bulletin*, v. 112, no. 3, p. 375-393.
- Whipple, K., ¹Kirby, E., and ¹Brocklehurst, S., 1999, Geomorphic limits to climatically induced increases in topographic relief: *Nature*, v. 401, p. 39-43.
- Whipple, K. and ²Tucker, G., 1999, Dynamics of the stream power river incision model: Implications for height limits of mountain ranges, landscape response timescales and research needs: *Journal of Geophysical Research*, v. 104, no. B8, p. 17661-17674.
- Paola, C., Parker, G., ²Mohrig, D., and Whipple, K., 1999, The influence of transport fluctuations on spatially averaged topography on a sandy, braided fluvial fan, *in* Harbaugh, J., Watney, W., Rankey, E., Slingerland, R., Goldstein, R., and Franseen, E., eds., *Numerical experiments in stratigraphy; recent advances in stratigraphic and sedimentologic computer simulations*, Special Publication - Society for Sedimentary Geology, v. 62, p. 211-218.
- ²Hancock, G., Anderson, R., and Whipple, K., 1998, Beyond power: bedrock river incision process and form *in* E. Tinkler, K. and Wohl, E., eds., *Rivers over Rock: Fluvial Processes in Bedrock Channels*. Geophysical Monograph 107, AGU Press, p. 35-60.
- Whipple, K., Parker, G., Paola, C., and ²Mohrig, D., 1998, Channel dynamics, sediment transport, and the slope of alluvial fans: experimental study: *Journal of Geology*, v. 106, p. 675-691
- ³Mohrig, D., Whipple, K., ²Hondzo, M., Ellis, C., and Parker, G., 1998, Hydroplaning of subaqueous debris flows: *Geological Society of America Bulletin*, v. 110, no. 3, p. 387-394.

¹Student co-author

²Postdoctoral co-author

² Student co-author

- Parker, G., Paola, C., Whipple, K., and ²Mohrig, D., 1998, Alluvial fans formed by channelized fluvial and sheet flow: theory: *J. Hydraulic Engineering*, ASCE.
- Parker, G., Paola, C., Whipple, K., ²Mohrig, D., ²Toro-Escobar, C., ¹Ruffner, R., Halvorsen, M., and Skoglund, T., 1998, Alluvial fans formed by channelized fluvial and sheet flow: application to a fan-delta in a mine tailings basin: *J. Hydraulic Engineering*, ASCE.
- Whipple, K.X., 1997, Open-channel flow of Bingham fluids: applications in debris-flow research: *Journal of Geology*, v. 105, p. 243-262.
- Whipple, K.X., and ¹Trayler, C.R., 1996, Tectonic controls on fan size: the importance of spatially variable subsidence rates: *Basin Research*, v. 8, no. 3, p. 351-366.
- Whipple, K.X., Parker, G., and Paola, C., 1995, Experimental study of alluvial fans, *in* Sonu, J.H., Lee, K.S., Seo, I.W., and Bhowmire, N.G., eds., *Proceedings of the International Joint Seminar on Reduction of Natural and Environmental Disasters in Water Environment*: Seoul National University, Korea, July 18-21, p.282-295.
- Juteau, T., Bideau, D., Dauteuil, O., ¹Manac'h, G., ¹Naidoo, D., ²Nehlig, P., ¹Ondreas, H., Tivey, M., Whipple, K., 1995, A submersible study in the Western Blanco Fracture Zone, N.E. Pacific: Structure and evolution during the last 1.6 MA: *Marine Geophysical Researches*, v.17, no. 5, p.399-430.
- Dunne, T., Whipple, K.X., and Aubry, B.F., 1995, Microtopography and the initiation of channels by Horton overland flow, *in* Costa, J.E., Miller, A.J., and Wilcock, P., eds., *Natural and Anthropogenic Influences in Fluvial Geomorphology: The Wolman Volume*: Geophysical Monograph, American Geophysical Union.
- Whipple, K.X., 1993, Interpreting debris-flow hazard from study of fan morphology, *in* Shen, H.W., Su, S. T., and Wen, F., eds., *Hydraulic Engineering '93*: Proceedings of the 1993 Conference Sponsored by the Hydraulics Division/ASCE, July 25-30, San Francisco, California, p. 1302-1307.
- Whipple, K.X., and Dunne, T., 1992, The influence of debris-flow rheology on fan morphology, Owens Valley, California: *Geological Society of America, Bulletin*, v. 104, p. 887-900.
- Whipple, K.X., 1992, Predicting debris-flow runout and deposition on fans: the importance of the flow hydrograph, *in* Walling, D., Davies, T., Hasholt, B., eds., *Erosion, debris-flow and environment in mountain regions*: Proceedings of the International Association of Hydrological Sciences Symposium, Chengdu, China, July 5-9, IAHS Publication # 209, p. 337-345.

Articles in Review:

- ¹Haviv, I., Enzel, Y., Whipple, K., Zilberman, E., Stone, J., Matmon, A., Fifeld, K., in review, Erosion of vertical knickpoints (waterfalls) with resistant caprock: insights from numerical modeling, *Journal of Geophysical Research*.
- ¹Haviv, I., Enzel, Y., Whipple, K., Zilberman, E., Stone, J., Matmon, A., Fifeld, K., in review, Form, process and evolution of vertical knickpoints (waterfalls) with resistant caprock: A case study along the Dead Sea western escarpment, *Geological Society of America, Bulletin*.

Guidebooks and Technical Reports:

- ¹Bierman, P.R., Gillespie, A.R., Whipple, K.X., and ¹Clark, D., 1991, Quaternary geomorphology and geochronology of Owens Valley, California, *in* Walawender, M.J., and Hanan, B.B., eds., *Geological excursions in southern California and Mexico*: Geological Society of America, 1991 Annual Meeting, San Diego, California, Guidebook, p. 199-223.

Booth, D.B., ¹Bell, K., Whipple, K.X., 1991, Sediment transport along the south fork and mainstem of the Snoqualmie River, Washington: King County Surface Water Management Division, Basin Planning Technical Report.