

KAREN BOBBITT GRAN
Department of Geological Sciences
University of Minnesota, Duluth
1114 Kirby Dr., Duluth, MN 55812
218-726-7406
kgran@umn.edu

EDUCATION:

Ph.D. in Geology, University of Washington, Department of Earth & Space Sciences, 2005.
M.S. in Geology, University of Minnesota, Department of Geology & Geophysics, 2000.
B.A. in Geology, *summa cum laude*, Carleton College, 1996.

EXPERIENCE:

Assistant Professor, 2007- present, Department of Geological Sciences, University of Minnesota, Duluth.
Research Fellow & Graduate Program Coordinator, 2006 – 2007, National Center for Earth-surface Dynamics, University of Minnesota, Minneapolis.
Graduate Research/Teaching Assistant, 2000 – 2005, Department of Earth & Space Sciences, University of Washington.
Visiting Instructor, Spring 2000, Department of Geology, University of St. Thomas.
Acting Technical Director, Fall 1999, Department of Geology, Carleton College.
Graduate Research/Teaching Assistant, 1997 – 1999, Department of Geology & Geophysics, University of Minnesota, Minneapolis.
Geologist/Technician, 1996 – 1997, Foth & Van Dyke, Eagan, Minnesota.

TEACHING INTERESTS:

Introductory geology, geomorphology, fluvial geomorphology, surface processes, stream restoration, soils, environmental geology, hydrology, geologic hazards, glacial geomorphology, sediment transport, GIS, remote sensing, physical geography, regional geology

PROFESSIONAL TEACHING EXPERIENCE:

Assistant Professor, Department of Geological Sciences, University of Minnesota, Duluth.
Fluvial Geomorphology, Fall 2008
Geomorphology, Fall 2007, Fall 2008
Natural Hazards & Civilization, Spring 2008.
Program Coordinator, Graduate Program in Stream Restoration Science & Engineering, National Center for Earth-surface Dynamics, University of Minnesota, Minneapolis.
Stream Restoration Practice, May 2007.
Introduction to Stream Restoration, Fall 2006.
Adjunct Faculty, Department of Geology, University of St. Thomas, St. Paul, Minnesota.
Geomorphology, Spring 2000.

GRADUATE TEACHING EXPERIENCE

- Teaching Assistant**, Department of Earth & Space Sciences, University of Washington.
Fluvial Geomorphology, Spring 2000, Spring 2001.
Introduction to Geology, Fall 2000.
Geomorphology, Winter 2001.
- Teaching Assistant**, Department of Geology & Geophysics, University of Minnesota.
General and Physical Hydrogeology, Fall 1998.
-

RESEARCH INTERESTS:

Fluvial processes and sediment transport, disturbed systems, stream restoration, geologic hazards, volcanic geomorphology, interactions between physical landscape and ecological systems, landscape evolution, watershed history

FUNDING HISTORY:

- 2008 National Science Foundation, PI, Decadal-scale channel evolution at Mount Pinatubo, Philippines (\$118,000)
- 2008 University of MN Grant-in-Aid, PI, Riparian vegetation controls on channel planform evolution (\$27,726)
- 2008 VCAA Office at Univ. of MN, Duluth, Co-Investigator, A Preliminary Investigation of In-Stream Light Quality and Photochemistry at Amity Creek (\$10,600).
- 2007 Chancellor's Small Grant for stream table construction, Univ. of MN, Duluth (\$740)
- 2006 Minnesota Pollution Control Agency, Co-Investigator, Le Sueur River integrated sediment budget (\$482,000)
- 2006 Minnesota Pollution Control Agency, Co-Investigator, Little Fork River geomorphology (\$31,000)
- 2005 Graduate Research Grant, Dept. of Earth & Space Sciences, Univ. of WA (\$1400)
- 2005 Travel award to attend NAGT/SERC workshop from Department of Earth & Space Sciences, University of Washington, and SERC Workshop (\$500)
- 2001 Co-author on NSF grant with PIs David Montgomery and Chris Newhall: River recovery at Mount Pinatubo, Philippines (\$193,000)
- 2001 Graduate Research Grant, Dept. of Earth & Space Sciences, Univ. of WA (\$870)
- 2001 Geological Society of America Research Grant (\$2800)
- 2000 Stephens Graduate Research Grant, Geological Sciences Dept., Univ. of WA (\$1500)
-

FELLOWSHIPS, SCHOLARSHIPS, AND AWARDS:

- 2005-2006 Joseph A. Vance Fellowship
- 2001-2004 EPA STAR Graduate Fellowship
- 2000-2001 Outstanding Teaching Award, Dept. of Earth & Space Sciences, Univ. of WA
- 1998-1999 Francis Gibson Fellowship, Dept. of Geology & Geophysics, Univ. of MN
- 1997-1998 Graduate School Fellowship, University of Minnesota
- 1995-1996 Duncan Stewart Fellowship, Department of Geology, Carleton College
- 1992-1996 BP America National Merit Scholarship
- 1992-1996 Texas Academic Decathlon Scholarship
- 1992-1996 Mary Gibbs Jones Scholarship

PROFESSIONAL EXPERIENCE:

Graduate Program Coordinator, National Center for Earth-surface Dynamics, University of Minnesota, Minneapolis, MN, 2006 - 2007.

- Developed curricula for graduate program in stream restoration science & engineering.
- Administered program, including recruitment, admissions, and advertising.
- Co-taught new Introduction to Stream Restoration course in Fall 2006 and Stream Restoration Practice in May 2007.

Acting Technical Director, Carleton College Geology Dept., Northfield, MN, Fall 1999.

- Maintained physical lab space and equipment.
- Supervised 2-4 student workers.
- Organized field trips, including week-long departmental field trip to Michigan.
- Assisted faculty with course equipment and software.

Geologist and Technician, Foth and Van Dyke, Eagan, Minnesota, 1996 – 1997.

- Assisted with landform-sediment assemblage mapping for MnDOT projects.
- Collected soil cores and operated Giddings hydraulic rig as member of field crew.
- Described and analyzed soil cores using standard protocols.
- Mapped cross-sections using CADD and GIS.

PROFESSIONAL AFFILIATIONS:

Geological Society of America

American Geophysical Union

Association for Women in Science, Lake Superior Chapter

National Association of Geoscience Teachers

PUBLICATIONS:

Gran, KB, Belmont, P, Day, SS, Jennings, C, Johnson, A, Parker, G, Perg, L, Wilcock, PR, in press, Geomorphic evolution of the Le Sueur River, Minnesota, and implications for current sediment loading. Submitted to GSA Special Paper on *Management and Restoration of Fluvial Systems with Broad Historical Changes and Human Impacts*, 20 msp + figures.

Gran, KB, Montgomery, DR, and Sutherland, DG, 2006, Channel bed evolution and sediment transport under declining sand inputs. *Water Resources Research*, v. 42, W10407.

Gran, KB, 2005, Fluvial recovery following basin-wide sediment loading at Mount Pinatubo, Philippines. Ph.D. Thesis, University of Washington, 203 p.

Gran, KB, and Montgomery, DR, 2005, Spatial and temporal patterns in fluvial recovery following volcanic eruptions: Channel response to basin-wide sediment loading at Mount Pinatubo, Philippines. *GSA Bulletin*, v. 117, n. 1/2, p. 195-211.

Tal, M, **Gran, KB**, Murray, AB, Paola, C, and Hicks, M, 2004, Riparian vegetation as a primary control on channel characteristics in multi-thread rivers. Eds. Bennett, SH, Collison, AJC, Simon, A, *Riparian Vegetation and Fluvial Geomorphology*, Water Science and Application, v. 8, p. 43-58.

- Gran, KB**, and Paola, C, 2001, Riparian vegetation controls on braided stream dynamics. *Water Resources Research*, v.37, n.12, p.3275-3284.
- Montgomery, DR, and **Gran, KB**, 2001, Downstream variations in the width of bedrock channels. *Water Resources Research*, v.37, n.6, p.1841-1846.
- Gran, KB**, 2000, Effects of riparian vegetation on braided stream dynamics: Experimental results. M.S. Thesis, University of Minnesota, 141 p.
- Jacobson, RB and **Gran, KB**, 1999, Gravel routing from widespread, low-intensity landscape disturbance, Current River Basin, Missouri. *Earth Surface Processes and Landforms*, v. 24, n. 10, p. 897-917.

ABSTRACTS:

- Gran, KB**, 2008, Role of historic land cover change vs. post-glacial recovery on current sediment loading in two rural Minnesota watersheds. MYRES III Conference (Meeting of Young Researchers in Earth Sciences), New Orleans, Louisiana, May 20-23, 2008.
- Gran, KB**, Day, SS, Jennings, C, Johnson, A, Lauer, JW, Parker, G, Perg, L, Wilcock, P, 2007, Evaluating sediment sources, storage, and policy implications in the agricultural Le Sueur River watershed, central Minnesota. *GSA Abstracts with Programs*, v. 39, n. 6, p. 32.
- Belmont, P, Perg, L, Day, S, Jennings, C, **Gran, K**, Johnson, A, Wilcock, P, 2007, Characterization of sediment sources in the Le Sueur River watershed, southern Minnesota. *EOS Trans. of the AGU, Fall Meeting Suppl.*, v. 88, n. 52, Abstract H21A-0194.
- Day, SS, Belmont, P, Perg, L, Johnson, A, **Gran, K**, Jennings, C, Wilcock, P, 2007, An integrated sediment budget for the Le Sueur River in southern Minnesota. *EOS Trans. of the AGU, Fall Meeting Suppl.*, v. 88, n. 52, Abstract H21A-0195.
- Day, SS, Johnson, AL, **Gran, KB**, Jennings, C, Perg, L, 2007, Sediment loading in the Le Sueur River, Minnesota River watershed. *GSA Abstracts with Programs*, v. 39, n. 6, p. 243.
- Gran, KB**, Montgomery, DR, and Daag, A, 2006, Basin-scale erosion at Mount Pinatubo, Philippines, and implications for long-term sediment yield following volcanic eruptions. *GSA Abstracts with Programs*, Fall Meeting, Paper No. 71-10.
- Jennings, CR, Regan, C, Blumentritt, DJ, **Gran, K**, Gunderson, L, Kuehner, K, Perg, L, Schottler, S, Thorleifson, LH, and Wright, H, 2006, Turbidity in the Minnesota River – coordinating a basin-wide study. *GSA Abstracts with Programs*, Fall Meeting, Paper No. 112-22.
- Gran, KB**, Montgomery, DR, Sutherland, D, and Lisle, T, 2004, Experiments in eruption recovery: Channel bed and sediment transport adjustments as sand inputs decline. *EOS Trans. of the AGU*, v. 85, n.47, Fall Meeting Supplement, Abstract H34A-0360.
- Balco, G, Anders, A, Finnegan, N, **Gran, K**, Mitchell, S, Stone, JOH, 2002, Be-10 measurements of soil balance and landscape stability in the Pacific Northwest. *EOS Trans. of the AGU*, v. 83, n. 47, Fall Meeting Supplement, Abstract H22B-0895.
- Gran, KB**, and Montgomery, DR, 2002, Watershed and channel recovery on the east flank of Mount Pinatubo. *GSA Abstracts with Programs*, Vol. 34, No. 6.
- Gran, KB**, Tal, M, and Paola, C, 2002, (INVITED) Riparian vegetation controls on channels formed in non-cohesive sediment. *EOS Trans. of the AGU*, v. 83, n. 19, Spring Meeting Supplement, Abstract OS21A-02.
- Gran, KB**, and Montgomery, DR, 2001, Watershed recovery following extreme sediment loading at Mount Pinatubo, Philippines. *EOS Trans. of the AGU*, v.82, p.F17.

- Tal, M, **Gran, K**, and Paola, C, 2001, Riparian vegetation: Controls on channel planform in noncohesive beds. *EOS Trans. of the AGU*, v.82, p.F415.
- Gran, KB**, and Montgomery, DR, 2000, Channel-bed recovery following extreme sediment loading at Mount Pinatubo. *EOS Trans. of the AGU*, v.81, n.48, p.F491.
- Gran, KB**, and Paola, C, 1999, Effects of riparian vegetation on braided stream dynamics: Experimental results. *EOS Trans. of the AGU*, v. 80, n. 46, p. F446.
- Bobbitt, KE**, and Jacobson, RB, 1996, Controls on channel instability at the drainage-basin scale, Current River basin, Missouri. *EOS Trans. of the AGU*, v.77 n.17, p. S 125.
- Bobbitt, KE**, Doswell, K, and Twining, K, 1995, Lithologic mapping with Landsat TM band ratioed images, Dagger Mountain, Big Bend National Park, Texas. *The Eighth Keck Research Symposium in Geology (Abstracts Volume)*, v. 8, p. 130-133.
- Garrettson, M, Bodrie, V, and **Bobbitt, K**, 1995, Organic carbon content of soils: Variations in crop type and soil texture. *Journal of the Minnesota Academy of Science*, v. 59 n. 3, p. 4.

INVITED TALKS:

- March 2008, Twin Ports Freshwater Folks Meeting, Duluth, Minnesota: *Watershed geomorphology as a tool for understanding sediment problems in the Twin Ports, Greater Minnesota and Beyond*.
- July 2006, Minnesota River TMDL and Lake Pepin TMDL Joint Meeting, Southern Research and Outreach Center, Waseca, Minnesota: *Causes and consequences of stream instability*.
- July 2006, National Center for Earth-surface Dynamics Stream Restoration Partners Group Meeting, Richmond, California: *Current status of graduate education in stream restoration*.
- March 2006, Stream Restoration Training Summit Workshop, Heber Valley, Utah: *Graduate certificate program in Stream Restoration Science & Engineering (SRSE)*.
- March 2006, University of Minnesota, Duluth, Department of Geological Sciences, Duluth, Minnesota: *Fluvial recovery following extreme sediment loading at Mount Pinatubo, Philippines*.
- February 2005, Washington State Department of Natural Resources, Olympia, Washington: *Channel recovery following extreme disturbances at Mount Pinatubo, Philippines*.
- October 2004, Center for Water and Watershed Studies, University of Washington, Seattle, Washington: *Channel recovery following extreme disturbances at Mount Pinatubo, Philippines*.
- February 2004, Humboldt State University, Arcata, California: *Channel bed recovery following extreme sediment loading at Mt. Pinatubo, Philippines*.
- May 2003, Terrestrial Environment Research Center, University of Tsukuba, Japan: *Channel recovery from extreme disturbances, Mt. Pinatubo, Philippines*.
- February 2003, Terrestrial Environment Research Center, University of Tsukuba, Japan: *Riparian vegetation controls on braided river morphology*.
- May 2002, Spring AGU Meeting, Washington, DC: *Riparian vegetation controls on channels formed in non-cohesive sediment*.