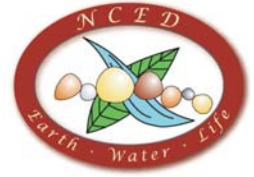




**Patrick Belmont, Ph.D.**  
Postdoctoral Research Associate  
University of Minnesota – National Center for Earth-surface Dynamics



Mailing address:  
Saint Anthony Falls Laboratory  
2 Third Avenue SE  
Minneapolis, MN 55405

Phone: 610-462-7029  
Fax: 612-624-4398  
Email: [belmont@umn.edu](mailto:belmont@umn.edu)  
Web: <http://home.safll.umn.edu/pbelmont>

## RESEARCH AND TEACHING INTERESTS

**Geomorphology:** sediment transport processes and fingerprinting, linking fluvial and hillslope geomorphology, application of terrestrial cosmogenic nuclides to study surface processes and long-term landscape change, quantitative basin morphometric analysis

**Aquatic ecology:** water quality, dissolved organic matter production and transport through watersheds, suspended sediment and ultraviolet radiation in fluvial systems

## EDUCATION

**Lehigh University** – Bethlehem, PA

Ph.D. in Earth and Environmental Sciences *Advisor:* Dr. Frank J. Pazzaglia

*Dissertation Title:* Landscape Evolution and Aquatic Ecology: Long-term Sediment Dynamics and Landscape Influences in Stream Ecosystems.

August 2003 – August 2007

**Lehigh University**, Bethlehem, PA

M.S. in Earth and Environmental Sciences

*Advisor:* Dr. Don P. Morris

*Thesis Title:* An initial inspection of the transparency of streams to ultraviolet radiation in 16 small Pennsylvania watersheds.

July 2001 – July 2003

**Texas Christian University**, Fort Worth, TX

B.S. in Biology

*Senior Thesis Title:* The effects of catalase activity on the life span of *Caenorhabditis elegans*.

September 1996 – May 2000

## EMPLOYMENT

**Postdoctoral Research Associate**, National Center for Earth-surface Dynamics,

University of Minnesota, July 2007 - current

Developing An Integrated Sediment Budget for the Le Sueur River basin, Minnesota

Application of cosmogenic nuclides, fluvial geomorphology and surficial mapping to trace sediment sources and deconvolve anthropogenic vs natural geomorphic drivers of landscape change

**Affiliated Faculty Member**, Department of Environmental Studies

Florida International University, January 2007 - current

**Teaching Assistant**, Department of Earth and Environmental Sciences

Lehigh University, Sep. 2004 – Dec. 2005 & Sep. 2006 – Dec. 2006

**Research Assistant**, Department of Earth and Environmental Sciences

Lehigh University, May 2003 – Sep. 2004 & Dec. 2005 – Aug. 2006

Investigating attenuation of ultraviolet radiation in streams for EPA STAR project

Cosmogenic nuclide geochronology and studying the landscape evolution of the Olympic Peninsula, western Washington State and the Lemhi Range, eastern Idaho

**Graduate Assistant**, Lehigh Earth Observatory,  
Lehigh University August 2001 – May 2003

Supervising a classroom laboratory and numerous undergraduate field projects including:

Weekly monitoring of water quality, discharge and optical properties of the Lehigh River as well as 16 tributary sites; Maintenance/data management of a hydroprobe in the Lehigh River, PA and ISCO autosampler on Saucon Creek, PA; Water quality/hydrology of a fens complex in Mount Bethel, PA; Monthly monitoring of salamander activity in three locations in eastern PA

**Teacher**, DeSmet Jesuit High School, August 2000 – May 2001  
Ninth grade Physical Science teacher  
Cross Country Assistant Coach, Track Head Distance Coach

**Genetics Laboratory Intern**, Dr. Phil Hartman, Texas Christian University

## RESEARCH FUNDING

**Determination of appropriate metric(s) for sediment-related total maximum daily loads (TMDLs).** 2008 Funded by the National Institutes for Water Resources. (\$30,000 PIs: A. Lightbody, P. Belmont, C. Orr, J. Marr)

**TCN, grain size, and the processes of erosion.** 2007 Funded by NSF SGER Geomorphology and Land Use Program (\$24,600 PI: F.J. Pazzaglia)

**Long-term erosion rate response to fault activity in the Lemhi Range, eastern Idaho.** 2006 Funded by Sigma Xi (\$400 PI: P. Belmont)

**Calibrating model for estimating basin-wide erosion rates from in situ terrestrial cosmogenic nuclides.** 2005 Funded by GSA Graduate Student Research Grant (\$3,000 PI: P. Belmont)

**Granulometric analysis of alluvial sediments in the Clearwater River Basin.** 2003 Funded by Palmer Fund, Lehigh University (\$845 PI: P. Belmont)

## TEACHING EXPERIENCE

**Global Environmental Change.** Graduate Teaching Assistant - 3 recitation sections (35 students each). Lehigh University (Fall 2004 and 2005)

**Environmental Systems and Solutions.** Graduate Teaching Assistant - 3 recitation sections (30 students each). Lehigh University (Spring 2005)

**Environmental Science Field Course.** Curriculum development and Instructor - 5 week advanced field-based course taught in northern Rocky Mountains. Lehigh University (July 2005, 2006, 2007)

**The Science of Environmental Issues.** Curriculum development and Instructor - 3 recitation sections (25 students each). Lehigh University (Fall 2006)

Additional lectures include:

**Global Environmental Change (Lecture Section:** 150 students; 3 lectures – Fall 2004, Lehigh University),  
**Environmental Systems and Solutions (Lecture Section:** 150 students; 2 lectures – Spring 2005, Lehigh University),  
**Fluvial Geomorphology** (12 Graduate students; 1 lecture - Spring 2007),  
**University of Minnesota IGERT** (4 students; 1 lecture - Fall 2007)

## PEER-REVIEWED PUBLICATIONS

**Belmont, P.**, Morris, D.P., Pazzaglia, F.J., Peters, S.C. (*submitted to Aquatic Sciences*) Penetration of ultraviolet radiation in streams of eastern Pennsylvania: environmental controls and the role of suspended particulates.

Gran, K., **Belmont, P.**, Day, S., Jennings, C., Johnson, A., Lauer, W., Parker, G., Perg, L., Wilcock, P., (*submitted to GSA Special Paper on Management and Restoration of Fluvial Systems*) Evaluating sediment sources, storage, and policy implications in the agricultural Le Sueur River watershed, central Minnesota.

**Belmont, P.**, Pazzaglia, F.J., Gosse, J.C. (2007) Cosmogenic <sup>10</sup>Be as a Tracer for Hillslope and Channel Sediment Dynamics in the Clearwater River Basin, Western Washington State. *Earth and Planetary Science Letters*. 264: 123-135.

**Belmont, P.**, Hargreaves, B.R., Morris, D.P., Williamson, C.E. (2007) Estimating attenuation of ultraviolet radiation in streams: field and laboratory methods. *Photochemistry and Photobiology*. 83: 1-9.

Hartman, P., **Belmont, P.**, Zuber, S., Ishii, N., Anderson, J. (2003) Relationship between catalase and life span in recombinant inbred strains of *Caenorhabditis elegans*. *Journal of Nematology*. 35 (3) 314-319.

## AWARDS AND HONORS

Commencement Speaker, Lehigh University, Spring, 2007 Graduation Ceremony

Graduate Student Leadership Award, Lehigh University, 2007

TA of the Year, EES Department, 2005

Robert K. Fahnestock Memorial Research Award Recipient for 2005, GSA QG&G Division

J. Hoover Mackin Award Recipient for 2005, GSA QG&G Division

## PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

American Geophysical Union

Geological Society of America

Ecological Society of America

North American Benthological Society

**Peer reviewer for professional journals:** Quaternary Geochronology, American Journal of Science, JGR- Earth Surface

**Co-author** (with Miguel Wong) of **Memorandum of Understanding** establishing formal collaborative relationship between Saint Anthony Falls Laboratory/National Center for Earth-surface Dynamics and Barr Engineering Co. April, 2008.

American Geophysical Union Fall 2008 Meeting, Special Sessions in Hydrology Division "Who Knows How the River Flows? Understanding Sediment Movement Through Fluvial Networks". *Session Co-Organizer and Co-Chair*.

Network of Interdisciplinary Initiatives Collaborative Leadership Working Group member. University of Minnesota Graduate School. 2007 - present.

American Geophysical Union Fall 2006 Meeting, Special Sessions in Hydrology Division "New Tools to Study Drainage Basin Evolution". *Session Co-Organizer and Co-Chair*.

On the Cutting Edge, 2006 Workshops for Geoscience Faculty. Preparing for an Academic Career in the Geosciences: A Workshop for Graduate Students and Post-doctoral Fellows. *Participant*. Sponsored by the National Science Foundation.

Lehigh University Graduate Student Senate, Treasurer 2006 – 2007

Graduate and Research Committee and Graduate Student Life Subcommittee, Lehigh University 2006 – 2007

Co-organizer of NABS graduate student workshop for 2005, 2006 and 2007 annual meetings

Organizer, Saucon Creek Sweep and Canal Cleanup Outreach Program, 2003 - 2007

Lehigh in Iceland 2002 and 2007 Trip Organizer/co-leader, co-author of Lehigh in Iceland Guidebook

Foster Hewitt Lecture Series, Lehigh University Co-organizer for 2002 symposium “Extremophiles in time and space”

## INVITED PRESENTATIONS

**Belmont, P.** (2008) Tracking sediment through drainage networks: A sampling of TCN applications. Invited speaker for Sediment Fingerprinting short course, University of Minnesota. May 2008. Minneapolis, MN.

**Belmont, P.** (2008) Landscape evolution of the Le Sueur River Basin, southern Minnesota. Presented at the University of Minnesota - Duluth Department of Geological Sciences seminar series. April 2008. Duluth, MN.

**Belmont, P.** and C. Jennings (2008) Sediment dynamics, turbidity and TMDLs in agricultural watersheds. Presented at Partnership for River Restoration and Science in the Upper Midwest (PRRSUM) March 2008 symposium. Minneapolis, MN.

**Belmont, P.** (2008) Tracking sediment through drainage networks in theory and practice: applications in southern Minnesota and the Olympic Mountains, western Washington State. Presented at the Georgia Institute of Technology - School of Earth and Atmospheric Sciences seminar series. January 2008. Atlanta, GA.

**Belmont, P.** (2008) Sediment sources and transport in the upper Mississippi and Minnesota Rivers: The science behind the management and policy decisions. Presented at University of North Dakota - Earth System Science and Policy January 2008. Grand Forks, ND.

**Belmont, P.** (2007) Sediment dynamics in the agricultural Le Sueur River watershed, southern Minnesota: An integrated assessment of sediment sources, transport and storage for the purpose of better policy and management. Presented at University of Minnesota - Geology and Geophysics Department Seminar Series. October 2007. Minneapolis, MN

**Belmont, P.** (2007) Landscape evolution in a grain of sand: using cosmogenic nuclides to quantify long-term landscape change. Poster presentation for the inauguration ceremony of President Alice Gast - Lehigh University. April 2007. Bethlehem, PA.

## OTHER PRESENTATIONS AND PUBLICATIONS

**Belmont, P.** (2008) Long-term landscape evolution of the Le Sueur River Basin: putting sediment dynamics into context. Presented to Minnesota Pollution Control Agency. January 2008. St. Paul, MN

Parker, G., **P. Belmont**, K. Gran, C. Jennings, J. Lauer, L. Perg, E. Viparelli, P. Wilcock (2008) Effect on rivers of massive changes in hydrologic regime due to human intervention. European Geosciences Union General Assembly 2008, Vienna, Austria.

**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. AGU*, 88 (52), Fall Meet. Suppl. Abstract H21A-0194.

Day, S., **Belmont, P.**, Perg, L., Jennings, C., Gran, K., Johnson, A., Wilcock, P. (2007) An integrated sediment budget for the Le Sueur River in southern Minnesota. *Eos Trans. AGU*, 88 (52), Fall Meet. Suppl. Abstract H21A-0194.

**Belmont, P.** (2007) Sediment dynamics in the agricultural Le Sueur River watershed, southern Minnesota Presented at National Center for Earth-surface Dynamics Videoconference Seminar Series. October 2007.

**Belmont, P.**, Pazzaglia, F.J., and Morris, D.P. (2007) Strong geomorphic controls on stream optical environments in eastern Pennsylvania. Abstract for GSA Annual meeting, Denver, CO.

**Belmont, P.** (2007) Landscape Evolution and Aquatic Ecology: Long-term Sediment Dynamics and Landscape Influences in Stream Ecosystems. Doctoral Dissertation, Lehigh University.

**Belmont, P.**, Pazzaglia, F.J., Gosse, J. (2006) Using the 10-Be Grain Size Dependency in Alluvial Sediments to Investigate Hillslope and Channel Processes. Abstract for oral presentation at AGU Fall meeting, San Francisco, CA.

**Belmont, P.**, Hargreaves, B.R., and Morris, D.P. (2006) Empirical model for estimating attenuation of ultraviolet radiation in streams. Abstract for oral presentation at North American Benthological Society Annual meeting, Anchorage, AK.

**Belmont, P.** and Pazzaglia, F.J. (2005) Geologic Influences on Downstream Fining in the Clearwater River Basin, western Washington State: Implications for Transient Landscapes, *Eos Trans. AGU*, 86 (52), Fall Meet. Suppl., Abstract H31A-1267.

**Belmont, P.**, Pazzaglia, F.J., and Gosse, J. (2005) In situ terrestrial cosmogenic nuclides in alluvial sediment: grain size matters. Abstract for poster at GSA Annual meeting, Salt Lake City, UT.

Frankel, K.L., Dolan, J.F., Finkel, R.C., Owen, L.A., Knott, J.R., **Belmont, P.**, and Lee, J. (2005) Fault slip rates on the Northern Death Valley Fault Zone and Eastern California Shear Zone kinematics. Abstract for poster at GSA Annual meeting, Salt Lake City, UT.

**Belmont, P.** (2003) An initial inspection of the transparency of streams to ultraviolet radiation in 16 small Pennsylvania watersheds. M.S. Thesis, Lehigh University.