

# JANE KATHRYN WILLENBRING

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Geosciences Research Division (GRD)  
Scripps Institution of Oceanography (SIO)  
University of California, San Diego (UCSD)  
9500 Gilman Drive-0220, La Jolla, CA 92093-0244  
Phone: 858-534-0717, E-mail: jwillenbring@ucsd.edu

## EDUCATION

**Ph.D.** (Earth Sciences) Degree conferred: **May 2006**

**Dalhousie University, Halifax, NS, Canada**

Thesis: *Glacial Erosion in Arctic and Atlantic Canada Determined  
by Terrestrial in situ Cosmogenic Nuclides and Ice Sheet Modelling*

Adviser: Dr. John C. Gosse

Committee members: Dr. Shawn Marshall, Dr. Chris Beaumont, Dr. Lawrence Plug

**M.A.** (Earth Science) Degree conferred: **January 2002**

**Boston University, Boston, MA, U.S.A.**

Thesis: *Glacial History of Vernier Valley, Dry Valleys, Antarctica:  
Implications for Climate and East Antarctic Ice Sheet Stability*

Adviser: Dr. David R. Marchant

Committee members: Dr. Duncan Fitzgerald, Dr. Guido Salvucci, Dr. Richard Murray

**B.Sci.** (Major: Geosciences/Soil Science) Degree conferred: **May 1999**

**North Dakota State University, Fargo, ND, U.S.A.**

McNair Honors Thesis: *Fossil Coleoptera as Paleoindicators of  
Climate Change at Sixmile Creek, Ithaca, New York*

Adviser: Dr. Allan C. Ashworth

## PROFESSIONAL EXPERIENCE

July 2016 – present Associate Professor, Scripps Institution of Oceanography,  
University of California – San Diego  
Jul 2010-Jun 2016 Assistant Professor, University of Pennsylvania  
Apr 2014-present Co-Director, University of Pennsylvania Interdisciplinary Training  
Program in Earth and Environmental Health Sciences  
Mar 2012-present Member, Center for Excellence in Environmental Toxicology  
Jan 2011-present Affiliated Scientist, National Center for Earth-surface Dynamics  
Jul 2013-Jan 2014 Blaustein Visiting Professor, Stanford University  
Jan 2011-Jun 2013 Hill College House Faculty Fellow, University of Pennsylvania  
Jan 2010-Jul 2010 GFZ-Potsdam Research Scientist  
2009-2010 Alexander von Humboldt Postdoctoral Fellow, GFZ-Potsdam  
2008 Alexander von Humboldt Postdoctoral Fellow, University of Hannover  
2006-2007 Research Associate, National Center for Earth-surface Dynamics  
2005 Professional Geologist, CCPG  
Summer 2003 Geologist, North Baffin Project, Canada-Nunavut Geosciences Office

*Updated: July 2016*

**AWARDS**

US National Science Foundation, Career Award	2016
Antarctic Service Medal	2015
Blaustein Visiting Professorship, Stanford University	2013
Alexander von Humboldt Postdoctoral Fellowship	2008-2010
Izaak Walton Killam Memorial Pre-doctoral Scholarship	2002-2005
Helen Shull P.E.O. Scholar Award	2003-2004
John Montagne Student Geological Society of America Award	2002
Boston University Outstanding Teaching Assistant Award	2000
Ronald E. McNair Scholar	1996-1999

**RESEARCH****INTERESTS**

I am interested in understanding the evolution of the Earth's surface – especially how landscapes are affected by tectonics, climate change, and life. I use geochemical techniques, high-resolution topographic data, field observations, and, when possible, I couple these data to landscape evolution numerical models and ice sheet models. The geochemical tools I use and develop often include cosmogenic nuclide systems, which provide powerful, novel methods to constrain rates of erosion and mineral weathering. I have also started to organize citizen science campaigns and apply basic science principles to problems of human health with an ultimate broader impact goal of cleaning up urban environments.

**PEER-REVIEWED PUBLICATIONS** GOOGLE SCHOLAR: <http://tinyurl.com/qe9cpvc>**EDITED VOLUMES**

*Elements* Thematic Issue “Cosmogenic Nuclides: Earth's Surface Clock” Guest Editors  
Friedhelm von Blanckenburg and **Jane Willenbring**. October 2014 volume.  
<http://www.elementsmagazine.org/> <https://db.tt/kABFUkka>

**PEER-REVIEWED ARTICLES**

\*\*Trainee publication

Boschi\*\*, V., **Willenbring, J.K.** 2016. Beryllium Desorption from Minerals and Organic Ligands Over Time. *Chemical Geology* 439(7) 52–58. [10.1016/j.chemgeo.2016.06.009](https://doi.org/10.1016/j.chemgeo.2016.06.009)

Salamatipour\*\*, A., Mohanty\*\*, S.K., Pietrofesa, R.A., Vann, D., Christofidou-Solomidou, M., Willenbring, J.K. 2016. Asbestos fiber preparation methods affect fiber toxicity. *Environmental Science & Technology Letters* 3: 270-274. [10.1021/acs.estlett.6b00174](https://doi.org/10.1021/acs.estlett.6b00174)

Brocard\*\*, G.Y., **Willenbring, J.K.**, Miller, T., Scatena, F.N. 2016. Resilience of a transport-limited relict landscape to dissection by upstream migrating knickpoints. *Journal of Geophysical Research – Earth Surface* 121(6): 1182–1203. [10.1002/2015JF003678](https://doi.org/10.1002/2015JF003678)

Boschi\*\*, V., **Willenbring, J.K.** 2016. The role of pH, organic matter composition and mineralogy on the sorption behavior of beryllium. *Environmental Chemistry* 13(4) 711-722. [10.1071/EN15107](https://doi.org/10.1071/EN15107)

**PEER-REVIEWED ARTICLES (CONTINUED)**

- Willenbring, J.K.**, Jerolmack, D.J. 2016. The null hypothesis: steady rates of erosion, weathering and sediment accumulation during Late Cenozoic mountain uplift and glaciation. *Terra Nova INVITED 'Debates' article*. 28(1): 11-18. 10.1111/ter.12185
- Valletta\*\*, R.D., **Willenbring, Jane K.**, Lewis, A.R., Ashworth, A.C., Caffee, M. 2015. Extreme decay of meteoric Be-10 absence in Friis Hills suggests polar aridity in Taylor Valley since the Mid-Miocene. *Nature: Scientific Reports* 5:17813 10.1038/srep17813
- Carrasco, R.M., Pedraza, J., Domínguez-Villar, D., **Willenbring, J.K.** 2015. Sequence and chronology of the Cuerpo de Hombre paleoglacier (Iberian Central System) during the Last Glacial Cycle. *Quaternary Geochronology* 129:163-177.
- Jelinski\*\*, N.A., **Willenbring, J.K.**, Schumacher, T.E. Li, S. Lobb, D.A. Papiernik, S.K. Yoo. K. 2015. Meteoric Beryllium-10 as a tracer of cumulative erosion due to post-settlement land use in west-central Minnesota, USA. *Journal of Geophysical Research-Earth Surface*.
- Wu\*\*, L., Ortiz, C., Xu, Y., **Willenbring, J.K.**, Jerolmack, D.J. 2015. In situ liquid-cell observations of asbestos fiber diffusion in water. *Environmental Science and Technology* 49 (22): 13340-13349. 10.1021/acs.est.5b03839
- McClintock, M.A. Brocard, G., **Willenbring, J.K.**, Porder, S., Pett-Ridge, J.C. 2015. Spatial variability of African dust in a montane tropical landscape in Puerto Rico. *Chemical Geology* 412: 69–81. 10.1016/j.chemgeo.2015.06.032.
- Brocard,\*\* G.Y., **Willenbring, J.K.**, Scatena, F, Johnson, A.H. 2015. Origin and effect of river knickpoints on denudation rates and erosion processes in the tropical mountain of El Yunque, Puerto Rico, from detrital <sup>10</sup>Be and LiDAR DEM analysis. *Applied Geochemistry Special Issue*. 10.1016/j.apgeochem.2015.03.008
- Scholl, M.A. Shanley, J.B., Murphy, S.F., **Willenbring, J.K.**, Occhi\*\*, M.E., González, G. 2015. Stable-isotope and solute-chemistry approaches to flow characterization in a forested tropical watershed, Luquillo Mountains, Puerto Rico. *Applied Geochemistry Special Issue*. 10.1016/j.apgeochem.2015.03.008
- Belmont, P. **Willenbring, J.K.**, Schottler, S. Marquard, J., Kumarasamy, K., Hemmis, J. 2014. Toward generalizable, geomorphically-informed sediment fingerprinting. *Journal of Soils and Sediments* 14(8): 1479-1492.
- von Blanckenburg, F. and **Willenbring, J.K.** 2014. Cosmogenic Nuclides – Dates and Rates of Earth-surface change. *Elements* 10 (5), 341-346.
- Willenbring, J.K.**, Codillian, A., McElroy, B. 2014. Reply: Earth is (mostly) Flat: Apportionment of Continental Erosion at Millennial Timescales. *Geology* 42: 1.
- Willenbring, J.K.**, Gasparini, N., Crosby, B., Brocard, G. 2013. What Does a Mean Mean? The temporal evolution of detrital cosmogenic denudation rates in a transient landscape. *Geology*. 10.1130/G34746.1

**PEER-REVIEWED ARTICLES (CONTINUED)**

- Stout, J., Belmont, P., Schottler, S., **Willenbring, J.K.** 2013. Identifying sediment sources and sinks in the Root River, southeastern Minnesota. *Annals of the Association of American Geographers*. 10.1080/00045608.2013.843434
- Hoffmann, T., Mudd, S. M., van Oost, K., Verstraeten, G., Erkens, G., Lang, A., Middelkoop, H., Boyle, J., Kaplan, J. O., **Willenbring, J.** 2013. Short Communication: Humans and the missing C-sink: erosion and burial of soil carbon through time. *Earth Surface Dynamics* 1: 93-112. <http://dx.doi.org/10.5194/esurfd-1-93-2013>
- Granger, D. Lifton, N., **Willenbring, J.** 2013. Cosmic Trip: 25 years of cosmogenic nuclides in geology. *25<sup>th</sup> Anniversary special issue of Geological Society of America Bulletin*. <http://dx.doi.org/10.1130/B30774.1>
- Domínguez-Villar, D., Carrasco, R.M., Pedraza, J. Cheng, H., Edwards, R.L. **Willenbring, J.K.** 2013. Early maximum extent of paleoglaciers from Mediterranean mountains during the last glaciation. *Nature: Scientific Reports* 3: 2034
- Willenbring, J.**, Codillian, A., McElroy, B. 2013. Earth is (mostly) Flat: Apportionment of Continental Erosion at Millennial Timescales. *Geology* 41 (3), 343-346.
- Carrasco, R.M., Pedraza, J., Domínguez-Villar, D., **Willenbring, J.K.** and Villa, J., 2013. Supraglacial debris supply in the Cuerpo de Hombre paleoglacier (Spanish Central System): reconstruction and interpretation of a rock avalanche event. *Geografiska Annaler Series A: Physical Geography*, <http://dx.doi.org/10.1111/geoa.12010>
- Carrasco, R.M., Pedraza, J., Domínguez-Villar, D., Villa, J., **Willenbring, J.K.** 2013. The plateau glacier in the Sierra de Béjar (Spanish Central System) during the maximum extent of the ice mass: reconstruction and chronology. *Geomorphology* 196: 83–93.
- Brocard\*\*, G., **Willenbring, J.**, Suski, B., Audra, P., Teyssier, C., Holliger, K., Cosenza-Murales, B., Rochette, P., Demory, F., Authemayou, C. 2012. Reorganization of a deeply incised drainage by normal faulting and importance of river capture, groundwater flow and drainage reversal: Evidence from <sup>10</sup>Be-<sup>26</sup>Al burial dating, magnetic polarity, and geoelectrical imaging. *American Journal of Science* 312: 449-507.
- Ebert\*\*, K., **Willenbring, J.**, Norton, K., Hättestrand C., Hall, A. 2012. <sup>10</sup>Be inventories from Sweden: implications for dating till and saprolite. *Quaternary Geochronology*. 12: 11–22.
- Belmont, P., Gran, K.B., Schottler, S.P., Wilcock, P.R., Day, S.S., Jennings, C., Lauer, J.W., Viparelli, E., **Willenbring, J.K.**, Parker, G. 2011. Large Shift in Source of Fine Sediment in the Upper Mississippi River. *Environmental Science and Technology* 45: 8804–8810.
- Lauer, J.W., **Willenbring, J.K.** 2010. Steady state reach-scale theory for radioactive tracer concentration in a simple channel/floodplain system. *Journal of Geophysical Research-Earth Surface*: 115(4): F04018. <http://dx.doi.org/10.1029/2009JF001480>
- Willenbring, J.K.**, von Blanckenburg, F. 2010. Long-term Stability of Global Erosion Rates and Weathering during late Cenozoic Cooling. *Nature* 465: 211-214.

**PEER-REVIEWED ARTICLES (CONTINUED)**

- Willenbring, J.K.**, von Blanckenburg, F. 2010. Meteoric cosmogenic Beryllium-10 adsorbed to river sediment and soil: applications for Earth-surface dynamics. *Earth Science Reviews*. <http://dx.doi.org/10.1016/j.earscirev.2009.10.008>
- Fuller, T.K., Perg, L.A., **Willenbring, J.K.**, Lepper, K. 2009. Field evidence for climate-driven changes in sediment supply leading to strath terrace formation. *Geology* 37: 467-470.
- Lewis, A.R., Marchant, D.R., Ashworth, A.C., Hedenäs, L, Hemming, S.R., Johnson, J.V., Leng, M.J., Machlus, M.L., Newton, A.E., **Willenbring, J.K.**, Williams, M., Wolfe, A.P. 2008. The Mid-Miocene Climate Transition in Continental Antarctica. *Proceedings of the National Academies of Science* 105 (31): 10676-10680.
- Johnson, J.V., **Willenbring, J.K.\*** 2007. Modeling long-term stability of the Ferrar Glacier, East Antarctica: Implications for interpreting cosmogenic nuclide inheritance. *Journal of Geophysical Research- Earth Surface* 112: F03S30. doi: 10.1029/2006JF000599.
- Willenbring, J.K.\***, Gosse, J., Toracinta, R., Oglesby, B., Fastook, J. Johnson, J.V. 2007. Atmospheric scaling of cosmogenic nuclide production: Climate effect. *Journal of Geophysical Research-Solid Earth* 112: B02205. doi:10.1029/2005JB003811.
- Willenbring, J.K.\***, Gosse, J.C., Little, E.C., Utting, D.J., Finkel, R., Johnson, J.V., Fastook, J. 2006. Glacial Erosion and Sediment Dispersion from Detrital Cosmogenic Nuclide Analyses of Till. *Quaternary Geochronology* 1(1): 29-42. \*Originally published under Jane Staiger
- Willenbring, J.K.\***, Marchant, D.R., Oberholzer, P., Schaefer, J.M., Johnson, J.V., Lewis, A.R. 2006. Plio-Pleistocene history of Ferrar Glacier, Antarctica: Implications for climate and ice sheet stability. *Earth and Planetary Science Letters* 243(3-4): 489-503.
- Willenbring, J.K.\***, Gosse, J.C., Johnson, J., Fastook, J., Gray, J.T., Stockli, D.F., Stockli, L., Finkel, R. 2005. Relief generation by polythermal glacier ice. *Earth Surface Processes and Landforms* 30(9): 1145-1159. 10.1002/esp.1267 \*Originally published under Jane Staiger

**NON-PEER REVIEWED ARTICLES AND FOREIGN-LANGUAGE ARTICLES**

- Willenbring, J.K.** 2015. Rain revs the crustal conveyor. *Nature Geoscience News and Views*. *Nature Geoscience* 8, 424–425. doi:10.1038/ngeo2450.
- Willenbring, J.K.** Meteoric <sup>10</sup>Be entry in the *Encyclopedia of Scientific Dating Methods* Edited by W. Jack Rink, Jeroen W. Thompson, A.J. Timothy Jull, James B. Paces, and Larry Heaman in the *Encyclopedia of Earth Sciences Series*, by Springer 2014. [http://dx.doi.org/10.1007/978-94-007-6326-5\\_179-1](http://dx.doi.org/10.1007/978-94-007-6326-5_179-1)
- Carrasco, R.M., Villa, J., Pedraza, J., Domínguez-Villar, D., **Willenbring, J.K.** 2011. Reconstrucción y cronología del glaciar de meseta de la Sierra de Béjar (Sistema Central Español) durante el máximo glaciar. *R. Soc. Esp. Hist. Nat. Sec. Geol.*, 105 (1-4): 125-135.
- Carrasco, R.M., Pedraza, J., Sanz, M.A., Domínguez-Villar, D., **Willenbring, J.** 2010. El glaciar de Cuerpo de Hombre (sierra de Gredos) durante la deglaciación: génesis primaria del till supraglaciar de Los Hermanitos. *Geogaceta* 49: 39-42.

Reinhardt, L., Jerolmack, D., Campbell, K., Kim, W., Lightbody, A., Orr, C.H., Strong, N., Tal, M., **Willenbring, J.**, 2008. *White Paper for USA National Research Council: A Frontier in Earth Surface Processes: Dynamic Interactions of Life and its Landscape.*

Ashworth, A.C., **Willenbring, J.K.** 1998. Fossil Beetles and Climate Change at Sixmile Creek, Ithaca, New York. *American Paleontologist*: 6(1) 2-5.

## INVITED CONFERENCE PRESENTATIONS

**Willenbring, J.K.**, Jerolmack, D.J. 2015. The null hypothesis: steady rates of erosion, weathering and sediment accumulation during Late Cenozoic mountain uplift and glaciation. *American Geophysical Union Fall Meeting*. INVITED

**Willenbring, J.K.**, Gasparini, N., Crosby, B., Brocard, G.Y. 2015. Persistent Landscape Transience Recorded by in situ-produced  $^{10}\text{Be}$  and Numerical Modeling. *Pardee Keynote Symposia at Geological Society of America* INVITED

**Willenbring, J.K.** 2015. Natural or Anthropogenic: (Mis?)interpreting Floodplain Grain-size Structure, Flood Recurrence and Sedimentation Rates. *Geological Society of America* INVITED

**Willenbring, J.K.**, Hoffmann, T., Sadler, P., Kaplan, J.O., Chiverrell, R. C., Erkens, G., von Blanckenburg, F. 2014. Time-scale bias in evidence for anthropogenic acceleration of soil erosion and floodplain accretion. *American Geophysical Union Fall Meeting*. INVITED

**Willenbring, J.K.**, Brocard, G.Y. 2014. The Tool-size Effect: old weathered soils limit the erosive power of bedrock streams. *American Geophysical Union Fall Meeting*. INVITED

**Willenbring, J.K.**, Gasparini, N., Crosby, B., Brocard, G.Y., Belmont, P. 2013. Isotopic hysteresis in detrital cosmogenic nuclide-derived denudation rate studies. *American Geophysical Union Fall Meeting*. INVITED

**Willenbring, J.K.**, Codilean, A.T., Kirchner, J., McElroy, B. 2013. Earth is (mostly) flat: Apportionment of continental mass flux over millennial time scales. A reappraisal. *American Geophysical Union Fall Meeting*. INVITED

**Willenbring, J.K.** 2013. Meteoric cosmogenic  $^{10}\text{Be}$  - Progress and Prospect. *Geological Society of America Abstracts with Programs*. Vol. 45, No. 7. INVITED

**Willenbring, J.K.**, Codilean, A.T., Kirchner, J., McElroy, B. 2013. Earth is Mostly Flat: Apportionment of the rates of Continental Mass Removal over Millennial Timescales: a Reappraisal. *Geological Society of America Abstracts with Programs*. Vol. 45, No. 7. INVITED

**Willenbring, J.K.**, Brocard, G.Y., Scatena, F. 2013. Long-term controls on sediment export in Puerto Rico. *Geological Society of America Abstracts with Programs*. Vol. 45, No. 7. INVITED

**Willenbring, J.K.**, Gasparini, N., Crosby, B., Brocard, G.Y. 2013. What does a Mean Mean? The Temporal Evolution of Detrital Cosmogenic Denudation Rates in a Transient Landscape. *Geological Society of America Abstracts with Programs*. Vol. 45, No. 7. INVITED

**INVITED CONFERENCE PRESENTATIONS (CONTINUED)**

- Willenbring, J.K.**, Washington, K., Casper, B. 2013. Bioweathering of Chrysotile asbestos. *Center for Excellence in Environmental Toxicology Annual Symposium* INVITED
- Willenbring, J.K.** 2013. The Birth, Life, and Fate of Continental Sediments. *Soil to Sea Geomorphology Symposium*. INVITED
- Willenbring, J.K.** 2013. The Birth, Life, and Fate of Continental Sediments. *DIMACS Research Symposium* on “Paleo-environmental reconstructions and the character of the sedimentary record”. INVITED
- Willenbring, J.** 2011 *Pardee Keynote Symposia at Geological Society of America* in Minneapolis, MN - October 9-12: The Frontiers of Quaternary Geochronology (<http://www.geosociety.org/meetings/2011/sessions/pardee.htm>) INVITED
- Willenbring, J.** 2011. Keynote lecture, *European Science Foundation research conference. Cosmogenic Nuclides*, August 8-13 in the Universitätszentrum Obergurgl, Obergurgl, Austria INVITED
- Willenbring, J.** 2011. Keynote lecture, *PHAROS workshop "Sediment and carbon fluxes under human impact and climate change"* Sponsored by the PAGES (Past Global Changes) *LUCIFS (Land Use and Climate Impacts on Fluvial Systems) working group*. INVITED
- Willenbring, J.**, von Blanckenburg, F. 2011. Neogene erosion and accumulation rate increase: revisited. European Geophysical Union. *Annual Meeting Geophysical Research Abstracts* Vol. 13: EGU2011-8211. INVITED
- Willenbring, J.K.** 2010. Soil Production from Above and Below: Implications for Cosmogenic Nuclide Denudation Rate Estimates. *American Geophysical Union, Fall Meeting 2010*, abstract #EP33D-04. INVITED
- Willenbring, J.** 2010. Stable global erosion and weathering rates over the last 10 My derived from ocean  $^{10}\text{Be}/^9\text{Be}$ . *10th International Conference on Paleoceanography*. INVITED
- Willenbring, J.**, von Blanckenburg, F., Hoffmann, T. 2010. Deciphering the anthropogenic Holocene floodplain sedimentation rate increases from natural bias. *Geophysical Research Abstracts* Vol. 12. EGU2010-14615. INVITED

**INVITED SEMINAR PRESENTATIONS**

- 2016: Tulane University; White House - Office of Science and Technology Policy (*forthcoming*); MIT (*forthcoming*)
- 2015: Scripps Institution of Oceanography; University of North Carolina; Purdue University; University of Bonn, Germany
- 2014: Syracuse University; Temple University; University of New Hampshire; Steepest Descent meeting (<http://steepestdescent.blogspot.ch/>)

**INVITED SEMINAR PRESENTATIONS (CONTINUED)**

- 2013: California Institute of Technology; Center for Excellence in Environmental Toxicology, University of Pennsylvania; University of Wisconsin, Madison; Stanford University; Rutgers University
- 2012: Pennsylvania State University; University of Wyoming; University of California – Santa Cruz; University of Pennsylvania, Institute for Environmental Studies
- 2011: Princeton University; University of Delaware; Lehigh University; European Science Foundation workshop on Cosmogenic Nuclides; LUCIFS Workshop Keynote Talk on Anthropogenic Erosion
- 2010: University of Calgary, Canada; Temple University; Philadelphia Geological Society at Bryn Mawr; Northern Arizona University, Flagstaff, AZ; International Paleoclimate Conference 10, La Jolla, CA
- 2009: Woods Hole Oceanographic Institute; University of British Columbia, Vancouver; University of Pennsylvania; Exeter University, UK; University of Münster, Germany
- 2008: Stockholm University, Sweden; Leibniz Universität Hannover, Germany; University of Potsdam, Germany
- 2007: Center for Remote Sensing of Ice Sheets, Lawrence, Kansas; University of Toronto, Canada
- 2006: Federal Bureau of Reclamation, Sediment Transport Group; National Center for Earth-surface Dynamics, SAFL; North Dakota State University, Fargo, ND; Paleoclimate Lecture Series, University of Minnesota, MN
- 2005: University of Minnesota, Minneapolis, MN; Vrije Universiteit, Amsterdam, Netherlands

**SELECTED PRESS**

Highlighted in *Science* 339(6118)-374. 2013. Editor's Choice – Flat Weathering  
<http://www.sciencemag.org/content/339/6118/374.3.short>

Highlighted in *Science* News Science Shots – Erosion in Flatland, 2013.  
<http://news.sciencemag.org/sciencenow/2013/02/scienceshot-erosion-in-flatland.html>

Highlighted in News and Views, *Nature* 495, 318–319, 2013. Mainly on the Plain  
<http://dx.doi.org/10.1038/495318a>

Highlighted in *Science* 334(6054): 290-291. 2011. Editor's Choice – Rolling Down the River  
<http://www.sciencemag.org/content/334/6054/twil.full>

Highlighted in News and Views, *Nature* 465, 169–171. 2010. Mountains without erosion  
<http://dx.doi.org/10.1038/465169a>

Highlighted in *Science* 320(6054): 1152-1153. 2009. News Focus – Freeze-Dried Findings Support a Tale of Two Ancient Climates



<http://www.sciencemag.org/content/320/5880/1152>

Highlighted in News and Views *Nature Geoscience* 1, 646. 2009. A long-lost tundra  
<http://dx.doi.org/10.1038/ngeo319>

## FUNDING

### CURRENT GRANTS

NSF, CAREER “Meteoric Beryllium Mobility in Soil and Sedimentary Systems” \$515k

NSF, DEB “Linking ecosystem and geomorphic processes to understand the large-scale dynamics of tropical mountains mediated by landsliding” Co-PI with Carla Restrepo (PI)

NSF, GLD: "Collaborative Research: The legacy of transience: Understanding dynamic landscape adjustment following mountain uplift in two CZO field areas, PI, Period: 7/01/2014-6/30/17. Total: \$197,925

NSF, Continental Dynamics: "Central Anatolian Tectonics (CD-CAT) Surface to mantle dynamics during collision to escape," PI, Period: 11/01/2011-10/31/2016. Total: \$262,310  
<http://www.geo.umn.edu/orgs/whitney/CD-CAT-index.html>

NSF, Antarctic Research: "Collaborative Research: Activation of high-elevation alluvial fans in the Transantarctic Mountains - a proxy for Plio-Pleistocene warmth along East Antarctic ice margins" PI, Period: 08/01/2011-07/31/2014. Total grant award: \$287,416.

NSF, Geosciences, "Luquillo CZO: The role of hot spots and hot moments in tropical landscape evolution and functioning of the critical zone" Investigator, Period: 10/01/2013-09/30/2018.

University of Pennsylvania Research Funds “Early Career: Acquisition of a BET specific surface area analyzer” 7/30/14-8/1/15. Total: \$45,000

University of Pennsylvania – Year of Discovery “Soil Kitchen 2016” Start Date: 01-Nov-2015 - 31-May-2016. Direct: \$500

German Science Foundation (Schwerpunkt-Program), start date 2010-06: ~\$57,000 (41,000 Euro) with co-PI: Georg Schwarmborm (Alfred Wegener Institute) “Dating Pliocene–Quaternary permafrost accumulation with <sup>26</sup>Al and <sup>10</sup>Be and meteoric – application to northern Siberia

### COMPLETED GRANTS

NIEHS Superfund Research and Training Program "Superfund Asbestos Fate, Exposure, Remediation and Adverse Health Effects" Period: 4/01/2014-3/31/2018.

#### Core Involvement

Co-Director, Interdisciplinary Training Core in Earth and Environmental Health Sciences  
 Core Direct \$400,000 Indirect: \$240,000 Total: \$640,000

#### Environmental Science Projects

Principle Investigator, Project 1: Remediation of Asbestos Particles, with Brenda Casper,  
 Project 1 Direct \$795,959 Indirect: \$477,575 Total: \$1,273,534

Principle Investigator, Project 2: Mobility and Fate of Asbestos Particles, with Doug Jerolmack, Project 2 Direct \$810,241 Indirect: \$486,144 Total: \$1,296,385

University of Pennsylvania Fund to Encourage Women (FEW) Grant Program, submitted 12-14-12 “Panel Discussion: Advice from the Track.” \$2,500

University of Pennsylvania – “Soil Kitchen 2014” and “Soil Kitchen 2015” \$1,500

Center for Excellence in Environmental Toxicology, Superfund Seed Proposal “Asbestos Particle Transport, Alteration and Fate” (Period: 06/2012-06/2013). Sole PI. Direct: \$25,000

School of Arts and Sciences, University of Pennsylvania, 2011-12: \$5,000 “Soil to Sea Geomorphology – 2012” Small Inaugural conference grant for Geomorphology community building.

Minnesota Department of Agriculture, start date 2010-03: ~\$112,000 USD as co-PI. Dr. Patrick Belmont (Utah State U.) as PI “Tracing ravine and bluff erosion with multiple fallout radionuclides adsorbed to sediment in Maple River”

Minnesota Department of Agriculture, start date 2009-03: ~\$75,000 USD with co-PI: Dr. Patrick Belmont (National Center for Earth Surface Dynamics) “Tracing ravine and bluff erosion with meteoric <sup>10</sup>Be adsorbed to sediment: Linking erosion and the hydrograph”

## CAREER ENHANCING ACTIVITIES

### PROGRAMS ATTENDED

Goethe Institut – German language training, Berlin, Germany – 8 weeks	2007
Preparing Future Faculty Retreat: <i>Active Learning, Active Lecturing and Creating Discussions that Work</i> , University of Minnesota, Minneapolis, MN	2006
<i>Getting Started as a Successful Grant-Writer and Academician</i>	2005
Geological Society of America Research Grant Writing Workshop/NSF Grant Writing Workshop, Denver, CO	2004
GIS and LiDAR short courses, Dalhousie University, Halifax, NS	2004

### PROGRAMS PRESENTED

Earthscope Geochronology GSA Short Course – cosmogenic nuclides	2014
European Science Foundation workshop on Cosmogenic Nuclides	2011
<i>New Applications in Cosmogenic Nuclide Applications</i>	2010
University of Potsdam, German Science Foundation-funded Workshop <i>Cosmogenic nuclides and their applications in erosional settings</i>	2009
University of Potsdam, German Science Foundation-funded Workshop <i>Terrestrial in situ Cosmogenic Nuclide Applications for Fluvial Systems</i>	2005
National Center for Earth-surface Dynamics retreat, Angelo Reserve, CA	
Career Panel for Women in Science organization, Minneapolis, MN	2005
<i>Terrestrial in situ Cosmogenic Nuclide methods and applications</i> CANQUA	2004

**TEACHING****University of Pennsylvania**

ENVS399 – Junior Research Methods	2016
ENVS657 – Introduction to Superfund Sites and Health Effects of Hazardous Waste	2015
GEOL750 – Topics in Earth Science	2015-2016
GEOL423 – Advanced Cosmogenic Nuclide Techniques	2013-2014
GEOL125 – Earth and Life through Time	2011-2016
GEOL422 – Rates and Dates: Modern Geochronology Applications	2011-2014

**Stanford University**

Processes of Soil and Saprolite Formation (seminar co-taught with Arjun Heimsath)	Fall 2013
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**University of Minnesota**

Advanced Geodynamics – guest lecturer	2005, 2006
Glacial Geology – lecturer and field trip leader	2005, 2006

**Dalhousie University**

Quaternary Geochronology – guest lecturer	2003
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**Dalhousie University**

Structural Geology Laboratory	2002
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**Boston University**

Geomorphology Field Training, Western Ireland Field Camp	2000
Hydrology Laboratory – Received the ‘Outstanding TA Award: 2000’	2000
Environmental Geology Laboratory	1999

**North Dakota State University**

Invertebrate Paleontology Laboratory	1998
Historical and Physical Geology Laboratories	1997

**SUPERVISING****POSTDOCTORAL RESEARCHERS**

Sanjay Mohanty	Postdoctoral supervisor (Penn EES), Started Nov. 2014
Lei Wu	Postdoctoral co-supervisor (Penn EES), Started Aug. 2014
Kathryn Clark	Postdoctoral co-supervisor (Penn EES), Started Jan. 2014
Gilles Brocard	Postdoctoral supervisor (Penn EES), Started Jan. 2011

**DOCTORAL STUDENTS**

Vanessa Boschi	Dissertation adviser (Penn EES PhD graduate), Defended April 2016
Rachel Valletta	Dissertation adviser (Penn EES PhD candidate), Started Sept. 2012
Emma Harrison	Dissertation adviser (Penn EES PhD student), Started Sept. 2014
Tierra Moore	Dissertation committee member (Penn-EES PhD student)
Chris Thom	Dissertation committee member (Penn-EES PhD student)
Kieran Dunne	Dissertation committee member (Penn-EES PhD student)
Dylan Lee	Dissertation committee member (Penn-EES PhD candidate)
Liz Coward	Dissertation committee member (Penn-EES PhD candidate)
Colin Phillips	Dissertation committee member (Penn-EES PhD alumni)
Raleigh Martin	Dissertation committee member (Penn-EES PhD alumni)
Kim Litwin	Dissertation committee member (Penn-EES PhD alumni)
Tina Dura	Dissertation committee member (Penn-EES PhD alumni)
Kathryn Derego	Dissertation committee member (Univ. of British Columbia PhD candidate)
Nic Jellinski	Dissertation committee member (Univ. of Minnesota PhD student)

**MASTERS STUDENTS**

Kirstin Washington    Research adviser (Masters of Applied Geosciences)  
 Kambiri Cox            Capstone adviser (Masters of Applied Geosciences)

**UNDERGRADUATE STUDENTS**

Melanie Murphy, Bowen Chang, Vanessa Eni, Indigo Catton, Hyejung Lee, Shirley Leung

**HIGH SCHOOL STUDENTS**

Michelle Moffa, Rebecca Composto

**SERVICE****RESEARCH-RELATED SERVICE**

Inaugural Associate Editor for Earth Surface Dynamics <a href="http://www.earth-surface-dynamics.net/index.html">http://www.earth-surface-dynamics.net/index.html</a>	2013-present
Editorial Board Member for Nature: Scientific Reports ( <i>resigned</i> )	2010-2015
NSF Panel Reviewer – 6 separate panels in 4 different programs	2012-present
EarthCube member, Geochronology Focus Group: Cosmogenic Nuclides	2013-present
NSF Proposal Reviewer for National Science Foundation Office of Polar Programs - Antarctic Division, GEO-Geomorphology and Land-use Dynamics and GEO- Sedimentary Geology and Geobiology	2009-present
Proposal Reviewer for Swiss and German National Science Foundations	2011-present
Purdue Rare Isotope Measurement Experimental Lab User Advisory Panel <i>with Bob Anderson, John Southon, and Anders Carlson</i>	March 2012
Co-organizer of Soil to Sea Geomorphology: ('Amtrak Club') <a href="https://sites.google.com/site/soiltosea2012/home">https://sites.google.com/site/soiltosea2012/home</a>	2012-2013
Goldschmidt Geochemistry Conference Session Organizer	2012- 2014
American Geophysical Union Session PP015 Organizer:	December 2012
Journal Article Peer Reviewer <i>Nature, Science, Geology, Nature – Geoscience, Geophysical Research Letters, Journal of Geophysical Research- Earth Surface, American Journal of Science, Geomorphology, Geological Society of America Bulletin, Annals of Glaciology, Earth and Planetary Science Letters, Earth Surface Processes and Landforms, Antarctic Science, Quaternary Geochronology, Biogeochemistry, Geochimica et Cosmochimica Acta, Earth Science Reviews</i>	2006-present
“Dynamic Interactions of Life and its Landscape” Conference - Co-Organized MYRES 2008 ( <a href="http://www.myres.org/myres3/">http://www.myres.org/myres3/</a> )	May 2008

**UNIVERSITY-RELATED SERVICE**

Faculty Curriculum Committee – UPenn Masters of Applied Geosciences	2010-2016
Faculty Senate Committee on Students and Educational Policy (SCSEP)	2014-2015
Soil Kitchen organizer (Community Service event)	2011-2016
Early Science Career Discussion Panel Organizer	2012, 2013

**UNIVERSITY-RELATED SERVICE (CONTINUED)**

Penn-EES Majors Dinner organizer	2011-2015
<i>Evolution</i> cluster-hire committee	2012-2013
Hill College House Faculty Fellow	2010-2013
Women in Science Career Panel Participant and Academic Adviser	2005-2007
Junior High School guest lecturer, Minneapolis Public Schools - Performed dam removal sediment transport demonstrations	2005-2007
Dalhousie Association of Graduate Students, Geology Representative	2002-2005
Girls in Science Summer Program teacher, Dalhousie University	2004
North Dakota State University Self-defense course co-teacher	1998-1999
Fargo High School Science Fair judge and W. Fargo Science Club co-adviser	1999

**PROFESSIONAL ORGANIZATION MEMBERSHIP**

Geological Society of America (current), American Geophysical Union (lifetime)  
Geochemical Society (lifetime), Association for Women Geologists (lifetime)