

Brent M. Goehring

Lamont-Doherty Earth Observatory and Department of Earth and Environmental Science
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Research and Teaching Interests

Research: Application of terrestrial cosmogenic nuclides to questions in climate change, glacial geology, geomorphology and paleoseismology. Development and manager of third operational *in situ* ^{14}C extraction lab; refine extraction techniques of *in situ* ^{14}C . Apply ^{14}C with long-lived cosmogenic nuclides (e.g. ^{10}Be , ^{26}Al , ^{36}Cl , ^3He). Refine cosmogenic nuclide systematics.

Education

- 2009 PhD, Geological Sciences, Columbia University (expected 12/09)
Dissertation Title: Investigating Climate Change and Glacial Erosion with Cosmogenic Nuclides
- 2009 MPhil, Geological Sciences, Columbia University
- 2006 MS, Geology, Oregon State University
Thesis Title: ^{10}Be Exposure Ages of Erratic Boulders in Southern Norway and Implications for the History of the Fennoscandian Ice Sheet
- 2004 BS, Geological Sciences with distinction, University of Washington
Thesis Title: Numerical Ages of Glacier Retreat at Emmons Glacier, Mount Rainier using Lichenometry

Professional Experience

- 2009- Post-doctoral Research Scientist, Geosciences Department, Pennsylvania State University.
- 2009- Post-doctoral Research Scientist, University Corporation for Atmospheric Research, Boulder, CO.
- 2006- Graduate Research Assistant, Lamont-Doherty Earth Observatory
- 2007-2009 Graduate Teaching Assistant, Columbia University for Earth's Environmental Systems: Solid Earth (2007), Field Trip to Death Valley (2008, 2009)
- 2004-2006 Graduate Teaching Assistant, Oregon State University for Introduction to Geology (2004, 2005), History of the Earth (2005, 2006), Earth System Science (2005)
- 2005 Graduate Research Assistant, Oregon State University

Honors and Awards

- 2003 Fuller Scholarship in Earth Sciences, University of Washington
- 2004 Robbins Field Camp Scholarship, University of Washington
- 2004 Taubeneck Fellowship, Oregon State University
- 2005 Mundorff Fellowship, Oregon State University
- 2006 Outstanding Graduate Teaching Assistant, Oregon State University
- 2006 Faculty Fellow, Columbia University
- 2007 NSF CRONUS-Earth Graduate Research Fellowship
- 2007 NSF CRONUS-Earth/CRONUS-EU International Fellowship
- 2008 Goodfriend Prize, Columbia University
- 2009 NOAA Climate & Global Change Post-doctoral Fellowship

Publications (including those in prep)

- Sasnett, P.J., Goehring, B.M., Christie-Blick, N., Schaefer, J.M., in prep. Eruptive Timing of Ubehebe Crater, Death Valley, CA and Potential Links to Holocene Hydroclimate. *Geology*.
- Goehring, B.M., Schaefer, J.M., Schluechter, C., Lifton, N.A., Finkel, R.C., in prep. Extended Periods of a Retracted Rhone Glacier, Switzerland, During the Holocene. *Science*.
- Goehring, B.M., Lohne, O.S., Svendsen, J.-I., Mangerud, J., Gyllencreutz, R., Schaefer, J.M., Finkel, R.C., in prep. Beryllium-10 Production Rates for Late-Glacial and Holocene western Norway. *Quaternary Geochronology*.
- Siddall, M., Kaplan, M.R., Schaefer, J.M., Putnam, A., Kelly, M.A., and Goehring, B., in review. The bipolar switch - changing influence of Antarctic and Greenland temperature records on sea level over the last glacial cycle. *Quaternary Science Reviews*.
- Goehring, B.M., Kelly, M.A., Schaefer, J.M., Lowell, T., and R. Finkel, accepted. Evidence for Minimal Erosion Under the Greenland Ice Sheet Through the Last Glacial Cycle derived from Beryllium-10 Depth Profile Based Modeling. *Journal of Quaternary Science*.
- Putnam, A., Schaefer, J., Vandergoes, M., Kaplan, M., Barrell, D., Goehring, B.M., Schwartz, R., Finkel, R., Kelley, S., and Denton, G., in revision. A precise beryllium-10 production-rate calibration for the Southern Hemisphere middle latitudes. *Quaternary Geochronology*.
- Goehring, B.M., Kurz, M.D., Balco, G., Schaefer, J.M., and Licciardi, J.M. and Lifton, N.A., in review. A reevaluation of cosmogenic Helium-3 production rates. *Quaternary Geochronology*.
- Kelly, M.A., Lowell, T.V., Hall, B.L., Schaefer, J.M., Finkel, R., Goehring, B.M., Alley, R.A., and Denton, G.H., 2008. A ¹⁰Be chronology of late-glacial and Holocene mountain glaciation in the Scoresby Sund region, east Greenland: Implications for seasonality during late-glacial time. *Quaternary Science Reviews*. 27, 2273-2282.
- Goehring, B.M., Brook, E.J., Linge, H.C., and Raisbeck, G.M., 2008. Beryllium-10 Exposure ages of erratic boulders in southern Norway and implications for the history of the Fennoscandian Ice Sheet. *Quaternary Science Reviews*. 27, 320-336.

Abstracts

- Goehring, B.M., Schaefer, J.M., Schluechter, C., Lifton, N.A., Finkel, R.C., Jull, A.J.T., Alley, R.B. Deciphering the Duration of Periods of a Retracted Rhone Glacier, Switzerland, Using *in situ* ^{10}Be and ^{14}C : Current Status and Future Possibilities. AGU 2009 Fall Meeting. [Invited]
- Goehring, B.M., Lohne, Ø., Mangerud, J., Svendsen, J.I., Schaefer, J.M., Gyllencreutz, R., Finkel, R.C. Beryllium-10 Production Rates for Late-Glacial and Holocene western Norway. AGU 2009 Fall Meeting.
- Mangerud, J., Lohne, Ø.S., Goehring, B.M., Svendsen, J.-I., Gyllencreutz, R., Schaefer, J. The chronology and rate of ice-margin retreat in the major fjords of Western Norway during the Early Holocene. AGU 2009 Fall Meeting.
- Sasnett, P.J., Goehring, B.M., Christie-Blick, N., Schaefer, J.M.. Eruptive Timing of Ubehebe Crater, Death Valley, CA and Potential Links to Holocene Hydroclimate. Geological Society of America Annual Meeting 2009.
- Goehring, B.M., Kurz, M.D., Balco, G., Schaefer, J.M., and Licciardi, J.M. and Lifton, N.A.. A reevaluation of cosmogenic Helium-3 production rates. Geological Society of America Annual Meeting 2009.
- Lifton, N.A., Caffee, M., Finkel, R., Schaefer, J., Stone, J., Goehring, B.M., Phillips, F., Oviatt, C.G., Rood, D., 2009. A new estimate of the spallogenic production rate of *in situ* cosmogenic ^{10}Be from Lake Bonneville shoreline features, Promontory Point, Utah. Geological Society of America Annual Meeting 2009.
- Putnam, A., Schaefer, J.M., Vandergoes, M., Barrell, D., Kaplan, M., Finke, R., Goehring, B., Schwartz, R., and Denton, G., 2009. Precise Be-10 production rate calibration in New Zealand's Southern Alps for the Holocene and Last Glacial Maximum periods. Goldschmidt 2009 Meeting.
- Goehring, B.M., Schaefer, J.M. Finkel, R.M., and Schwartz, R., 2009. Dating late Holocene glacier advances with ^{10}Be : Enchantment Lakes Basin, Washington, USA. Goldschmit 2009 Meeting.
- Goehring, B.M., Schaefer, J.M., Lifton, N., and Jull, A.J.T., 2008. Progress and Initial Results from the Lamont-Doherty Earth Observatory *in situ* Carbon-14 Extraction Laboratory, AMS 11 Meeting.
- Goehring, B.M., Kelly, M.A., Schaefer, J.M., Lowell, T.V., and Finkel, R.C., 2008. Cosmogenic Nuclide Inheritance and Surface Ages of Glacial Geomorphologies in Scoresby Sund, east Greenland. AMQUA 2008 Biennial Meeting.
- Goehring, B.M., Schaefer, J.M., and Kelly, M.A., 2007. Constraining Glacial Chronologies Using Beryllium-10 Exposure Age Depth Profiles. AGU 2007 Fall Meeting.
- Goehring, B.M., Brook, E.J., Linge, H.C., and Raisbeck, G.M., 2006. Transitions in glacial erosion under a thick Fennoscandian ice sheet: Evidence from cosmogenic nuclides. EOS, Trans. AGU, 87(52), Fall Meeting Suppl., Abstract C33A-1255.
- Jean, J., Burks, T., Danoff, M.E., Goehring, B.M., Reynolds, J.H., 2003. GSA'S FIRST STUDENT ORIENTED GEOVENTURES TRIP: ICELAND—2002. Abstracts with Programs-Geological Society of America, 35(4), 82.
- Goehring, Brent M., 2003. Numerical Ages of Glacier Retreat at Emmons Glacier, Mount Rainier using Lichenometry. Abstracts with Programs-Geological Society of

America, 35(6), 425.

Professional Affiliations

- American Geophysical Union
- Geological Society of America
- American Quaternary Association

Professional Service

2003-2004 UW ESS Curriculum Committee Undergraduate Representative
2005 OSU Geosciences Seminar Speaker Committee Member
2004-2006 Cosmogenic Nuclide Lab Manager, OSU
2006- In situ ¹⁴C Lab Manager, LDEO
2008- Web Advisory Committee, LDEO
2008- Excellence in Mentoring Award Committee, LDEO
2008-2009 CRONUS-Earth Steering Committee

Reviewer For: National Science Foundation, Quaternary Research

Teaching Experience

- Teaching Assistant for Introduction to Geology Fall 2004 and Fall 2005. Led laboratory exercises for approximately 30 students per class. Responsible for grading lab assignments, exams, and essays.
- Teaching Assistant for Earth System Science Winter 2005. Taught two lab sections for approximately 30 per class. Responsible for grading lab assignments and exams. Assisted in development of laboratory exercises. Lead field trip to Oregon Coast to look at Tertiary Stratigraphy and active geomorphology.
- Head teaching assistant for History of Earth during Spring 2005 and Spring 2006. In charge of two teaching assistants, as well as developing and setting up lab exercises. Taught total of five classes with 30 students per class. Gave main course lectures when needed and lead field trip to Eastern Oregon. Responsible for grading assignments and lab exercises.
- Teaching Assistant for Earth System Science: The Solid Earth at Columbia University for Fall 2007. Duties include grading labs and homework, running lab and giving lab lecture, setting up and developing labs. Also assist in the development of co-TA who has no previous teaching experience.
- Teaching Assistant for field trip to Death Valley, Spring 2008, 2009. My duties were to assist the faculty in pre-trip preparation of the students and pre-trip logistics. However, my main duties were during the field trip when I assisted with logistics and answering student questions while in the field. I also gave some short lectures on the geomorphology of the Death Valley region.

Outreach

Oregon State University Discovery Days, April 2005

Discovery Days is public community event hosted by the university. The university invites local schools as well as city residents to come and learn about research and/or themes

selected by the various departments on campus. Geosciences selected the topic “Volcanoes in Our Backyard.” My participation in the event included constructing a poster on volcanic eruptions and climate change and answering questions for students, teachers, and community members.

Lamont-Doherty Earth Observatory Open House, October 2006, 2007, 2008

Open house is a day-long event where Lamont is open to the general public to explore the campus, facilities, and visit booths where scientists display their research and provide demonstrations of basic scientific principles. Much of the research is local in nature, providing a strong connection to the neighboring communities. My part the past three years has been participation in the booth set up by the LDEO Exposure Dating group.

Advisors

Undergraduate: Derek Booth, Michael O’Neal

Graduate: Edward Brook, MS; Joerg Schaefer, Peter Schlosser, PhD

Post-doctoral: Richard Alley