Jennifer Horwath Burnham

Augustana College, Department of Geography
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EDUCATION

University of Washington Seattle, Washington	Ph.D., Earth and Space Sciences, January 2007 Advisor: Dr. Ronald S. Sletten Dissertation: Quantification and Spatial Distribution of High Arctic Soil Organic Carbon Storage in Northwest Greenland
University of Illinois Urbana, Illinois	M.S., Environmental Studies in Physical Geography August 2002, Advisor: Dr. Donald L. Johnson Master's Thesis: An Assessment of Mima-type Mounds, Their Soils, and Associated Vegetation, Newton County, Missouri
Augustana College Rock Island, Illinois	A.B. in Liberal Arts, March 1997 Specializing in physical geography and environmental studies Advisors: Dr. Charles Mahaffey and Dr. Norm Moline Senior thesis: Distribution of Garlic Mustard (*Alliaria petiolata)* in Tazewell County, Illinois

EXPERIENCE

Associate Professor, Department of Geography, Augustana College (9/2012 – present)

Assistant Professor, Department of Geography, Augustana College (9/2006 – 8/2012)
Courses taught: Climate Change and Policy, Geography of the Arctic (Spring 2016), Global Weather and Climate, Cartography, Environmental Conservation, Landforms and Landscapes, Environmental Geology, Soil Science, and Introduction to Geographic Research (I and II).

Board of Director, High Arctic Institute (2007– present)

Research Assistant, University of Washington (9/2002 – 8/2006)
Conducted field and laboratory research of soils and physical processes in northwest Greenland to assess soil organic carbon storage in conjunction with a biocomplexity study of carbon fluxes through plants, water, soil, and the atmosphere in the High Arctic. Also assisted with patterned ground and ice lens formation field research in the Dry Valleys of Antarctica.

Teaching Assistant, University of Washington (1/2003 – 6/2005)
Led weekly lab sessions for *Introduction to Geological Sciences* (ESS 101) and *Geology of the Pacific Northwest* (ESS 301). Performed as head TA for both courses, which included writing lab exercises, planning new classroom activities, and scheduling field trips.

Teaching Assistant, University of Illinois (8/2000 – 6/2002)
Led three weekly lab sections for *Earth's Physical Systems* (Geog 103) and *Geography of Developing Countries* (Geog 101). Other duties included creating new lab exercises, creating and grading quizzes and exams, guest lecturing, and one-on-one tutoring of students.

AWARDS AND GRANTS

Presidential Fellowship, Augustana College (summer 2014)

Anne U. White Award
Association of American Geographers, 2010

Augustana College Research Support
Faculty Research Fund, 2014
Faculty Research Fund, 2012
Faculty Research Fund, 2010
Faculty Research Fund, 2008
New faculty research funding, 2008

Dissertation Research Award
Association of American Geographers, 2006

Richard E. Fuller Fellowship
University of Washington, Department of Earth and Space Sciences, 2005

Graduate Student Research Award
University of Washington, Department of Earth and Space Sciences, 2004

Graduate Student Research Grant - Geological Society of America, 2004

Grant-in-Aid Recipient - Arctic Institute of North America, 2004

Dissertation Research Award
Geomorphology Specialty Group, Association of American Geographers, 2004

Graduate Student Research Grant - Geological Society of America, 2001

Grant for Thesis Research - Missouri Department of Conservation, 2001

Fred and Demetra Foster Graduate Fellowship
University of Illinois, Department of Geography, 2001

Graduate Student Research Award (Master's level)
Geomorphology Specialty Group, Association of American Geographers, 2001

Scholastic and Teaching Awards

G.K. Gilbert Award for Excellence in Geomorphological Research – Geomorphology Specialty Group, Association of American Geographers, 2013.

Best Graduate Student Paper Award - Geomorphology Specialty Group, Association of American Geographers Annual Meeting, 2006

Best Poster Award – Soil Science Society of America Division S-7, 2004 Annual Meeting

List of Teachers Ranked as Excellent by Their Students – University of Illinois, 2001 and 2002

Phi Kappa Phi National Honor Society member, 2002

Outstanding Undergraduate Research Award - Augustana College Research Board, 1997

Outstanding Senior Award - Illinois State Geographical Society, 1997

Mortar Board Honor Society member, 1997

Omicron Delta Kappa National Leadership Honor Society member, 1997

PUBLICATIONS

Peer Reviewed Articles

Burnham, J.L., Burnham, K.K, Chumchal, M.M., Welker, J.M, and J.A. Johnson. (*Submitted*) Survey of Mercury Concentration and Stable Isotope Values in Blood of 25 Marine and Terrestrial Avian Species from Northwest Greenland. *Science of the Total Environment*

Burnham, K.K., **Burnham, J.L**., Behnke, C., Phillips, R., and B.W. Konkel. (*In prep*) Spatial Analysis of Migratory Pathways of Black-legged Kittiwakes (*Rissa tridactlya*) from Northwest Greenland Using Geolocator Technology

Burnham, K.K., Johnson, J.A., **Burnham, J.L.**, and B.W. Konkel. (*In prep*) Arctic Tern abundance in northwest Greenland. *Seabird.*

Gabet, E., **Horwath Burnham, J**. and T. Perron. 2016.Critiques of the Seismic Hypothesis and the Vegetation Stabilization Hypothesis for the formation of Mima mounds in the western U.S. *Geomorphology* 269:40–42

Burnham K.K., Sinnett D.R., Johnson J.A., **Burnham J.L**., Baroch J.A., and B.W. Konkel. 2014 New species records and changes in population status for waterfowl in northwest Greenland. *Polar Biology 37(9):1289-1300.*

K.K. Burnham, J. Johnson, B. Konkel and **J.L. Burnham.** 2012. Nesting common eider (*Somateria mollissima*) population quintuples in northwest Greenland. *Arctic 65(4)*.

Horwath Burnham, J., Johnson, D.L., and D.N. Johnson. 2012. The significance of stone layers in mima mounds. *In* Mima Mounds: The Case for Polygenesis and Bioturbation. Horwath Burnham and Johnson. (eds) Geological Society of America Special Paper 490. Boulder, CO.

Johnson, D.L. and **J. Horwath Burnham**. 2012. Introduction chapter to Mima Mounds: The Case for Polygenesis and Bioturbation. Horwath Burnham and Johnson. (editors) Geological Society of America Special Paper 490. Boulder, CO.

Burnham, J.L., and K.K. Burnham. 2010. An ornithological survey of the Carey Islands, northwest Greenland. *Dansk Ornitologisk Forenings Tidsskrift* 104:26-37

Burnham, J.L., and R.S Sletten. 2010. Spatial distribution of soil organic carbon in northwest Greenland and underestimates of High Arctic carbon stores *Global Biogeochemical Cycles.* Vol. 24, GB3012, doi:10.1029/2009GB003660

Horwath, J.L., R.S. Sletten, B. Hagedorn, and B. Hallet. 2008. Spatial and temporal distribution of soil organic carbon in non-sorted striped patterned ground of the High Arctic, *Journal of Geophysical Research: Biogeosciences*, 113, G03S07, doi:10.1029/2007JG000511.

Sullivan, P.F., Welker, J.M., Hagedorn, B., Sletten, R.S., Arens, S. and **J.L. Horwath.** 2008. Energy and water additions give rise to expected and unexpected results in plant canopy and soil microclimates of a High Arctic ecosystem. *Journal of Geophysical Research: Biogeosciences* 113, G03S08, doi:10.1029/2007JG000477

Horwath, J.L, and D.L. Johnson. 2006. Mima-type mounds in southwest Missouri: expressions of point-centered and locally thickened biomantles. *Geomorphology* 77:308-319.

Co-Edited Book

Mima Mounds: The Case for Polygenesis and Bioturbation. (2012) Eds. **Horwath Burnham, J.** and D.L. Johnson. Geological Society of America Special Paper 490. Boulder, CO

Non Peer Reviewed Articles

Horwath, J.L. 2002. The Mima Mound Story. *Missouri Prairie Journal.* 23(3):6-7

Conference Presentations

J.L. Burnham, K.K. Burnham, M. Chumchal, J. Johnson, and J. Welker. 2015. Trophically disparate levels of blood mercury in breeding birds of northwest Greenland. Association of American Geographers Meeting. Chicago, IL. Abstract #66741.

Sletten, R.S., Hagedorn, B., Hallet, B. and **J.L. Burnham**. 2013. Active layer warming and deepening at Thule, Greenland during past decade: a comparison of a polar desert and a polar semi-desert site. *Eos Trans. AGU,* Fall Meet. Suppl.

Horwath Burnham, J. 2013. A man and his mounds: Contributions of Donald L. Johnson to the field of mima mound studies. *GSA Abstracts with Programs*. Denver, CO

Bargmann, N.A., Burnham, K.K., **Burnham, J.L.**, Padula, V.M., Welker, J.M. and D. Causey. 2012. Biogeochemical indicators of change in High- and Low-Arctic marine bird communities: comparative isotopic (13C, 15N, and 34S) studies in Alaska and Greenland. 39th Annual Meeting of the Pacific Seabird Group, 7–12 February, Turtle Bay, HI.

Causey, D., Bargmann, N.A., Padula, V.A., Burnham, K.K., **Burnham, J.L**. and J. Welker. 2012. Biogeochemical indicators of change in Arctic and Subarctic marine bird communities: Alaska and Greenland. Alaska Marine Science Symposium,16–20 January, Anchorage, AK.

Causey, D., Bargmann, N.A., Burnham, K.K., **Burnham, J.L**., Padula, V.A., Johnson, J.A., and J. Welker. 2011. Biogeochemical Indicators in High- and Low-Arctic Marine and Terrestrial Avian Community Changes: Comparative Isotopic (13C, 15N, and 34S) Studies in Alaska and Greenland *Eos Trans. AGU,* Fall Meeting Supplement. GC51F-1079

Johnson, D.L., **Horwath Burnham, J.** and D.N. Johnson. 2011. Historic formation and re-formation of mima mounds. *GSA Abstracts with Programs Vol. 43, No. 5. #197528*, Minneapolis, MN.

Burnham, J.L., Burnham, K., Chumchal, M., and J.Johnson. 2011. Quantification and spatial distribution of mercury in avian species of northwest Greenland. *Abstract with Programs – Association of American Geographers Annual Meeting.* Seattle, WA. April 16, 2011

Schulwitz, S.E., Chumchal, M.M., **Burnham, J.,** Burnham, K. and J.A. Johnson. 2011 Comparison of mercury in birds at temperate, sub-Antarctic and Arctic locations. Ecological Society of America 7-12 August, Austin, TX.

Welker, J. M., Sullivan, P., Rogers, M., Sharp, E. D., Sletten, R., **Burnham, J. L.,** Hallet, B., Hagedorn, B., and Czimiczk, C. 2009. Climate change consequences for terrestrial ecosystem processes in NW Greeland: Results from the High Arctic Biocomplexity project. American Geophysical Union, Fall Meeting 2009, abstract #GC41D-04

Burnham, J.L., and D.L. Johnson. 2008. The biodynamic significance of double stone-layers at Diamond Grove mima moundfield, southwest Missouri. *Abstract with Programs – Geological Society of America Meeting* – Houston, TX.

Horwath, J.L., Sletten, R.S., Hagedorn, B. and B. Hallet. 2006. Ancient carbon buried in patterned ground: soil and soil carbon dynamics based on ^{14}C age of soil carbon, Pituffik NW Greenland (76°N, 68°W). *Eos Trans. AGU, 87*(52), Fall Meet. Suppl., Abstract C44A-03.

Horwath, J.L., R.S. Sletten, and J. Welker. 2006. Associations of soil organic carbon with non-sorted striped patterned ground in northwest Greenland. *Abstract with Programs – Association of American Geographers Annual Meeting.* Chicago, IL.

Horwath, J.L., and R.S. Sletten. 2005. Towards a reassessment of High Arctic soil organic carbon storage: case study northwest Greenland. *Eos Trans. AGU, 86*(52), Fall Meet. Suppl., Abstract C21C-1136.

R.S Sletten, **Horwath, J.L.,** Hagedorn, B., and B. Hallet. 2005. Trenching non-sorted stripes to examine their physical and structural characteristics: Pituffik, Greenland. European Conference on Permafrost. June 12-16, 2005. Potsdam, Germany.

Horwath, J.L., and R.S Sletten. 2005. Assessing organic carbon distribution of High Arctic soils: a multidisciplinary approach. *Abstract with Programs – Association of American Geographers Annual Meeting.* April 5-9, 2005. Denver, CO.

Johnson, D.L., Johnson, D.J., and **J.L. Horwath**. 2005. The genetic link between small fossorial vertebrates, two-layered biomantles, and mima mounds in the Puget Sound Lowlands. *Abstract with Programs – Association of American Geographers Annual Meeting.* April 5-9, 2005. Denver, CO.

Horwath, J.L., Sletten, R.S., and D. Sabol. 2004. Large and small scale mapping of High Arctic vegetation by NDVI: Thule, Greenland. *Eos Trans. AGU, 85*(47), Fall Meet. Suppl., Abstract C43C-0240

Horwath, J.L., and R.S Sletten. 2004. Correlating organic carbon in High Arctic soils with NDVI values from ASTER satellite images: Thule, Greenland. *Abstracts with Programs – Soil Science Society of America Conference*. October 31-November 4, 2004. Seattle, WA.

Horwath, J.L., and R.S Sletten. 2004. Spatial variability of carbon content in High Arctic soils: Thule, Greenland. *Abstracts with Programs -- Association of American Geographers Annual Meeting.* March 14-19, 2004. Philadelphia, PA.

Johnson, D.L., **Horwath, J.L.,** and D.N. Johnson. 2003. Mima and other animal mounds as point-centered biomantles. *Geological Society of America Annual Meeting*. November 2-5, 2003. Seattle, WA.

Horwath, J.L., and R.S. Sletten. 2003. Carbon storage and the role of cryoturbation in the High Arctic: Thule, Greenland. *Study of Environmental Arctic Change (SEARCH) Open Science Meeting.* October 27-31, 2003. Seattle, WA.

Sletten, R.S., Hagedorn, B., **Horwath, J.L.,** and B. Hallet. 2003. Towards an assessment of the role of physical/chemical processes in soil carbon cycling in the High Arctic: Thule, Greenland. *Study of Environmental Arctic Change (SEARCH) Open Science Meeting.* October 27-31, 2003. Seattle, WA.

Horwath, J.L, Johnson, D.L., and A.J. Stumpf. 2002. Evolution of a gravelly mima-type moundfield in Southwestern Missouri. *Abstracts with Programs - Geological Society of Americ*a, 34(6), p.369. October 27-30, 2002. Denver, CO.

Johnson, D.L., Johnson, D.J., and **J.L. Horwath**. 2002. In praise of the coarse fraction and bioturbation: gravelly mima-type mounds as two-layered biomantles. *Abstracts with Programs - Geological Society of America, 34(6), p.369*. October 27-30, 2002. Denver, CO.

SERVICE

Geography Department Chair, winter term 2012-13, and June 2013 to present

Geomorphology Specialty Group (AAG) Awards Committee member, June 2015-2018

Augustana Center for the Study of Ethics Board of Directors, 2012-2015

Faculty Senate, Augustana College, fall 2012-2014

Advisory Committee on Harassment and Discrimination, fall 2012-2014

Honors Committee, Augustana College, fall 2011-2015

Global Affect faculty co-advisor, Augustana College, fall 2011-2016

First year undergraduate advisor, Augustana College, 2010-2011 and 2013-2014

Augustana Center for Polar Studies board member, Augustana College, 2009-present

Environmental Sustainability Committee member, Augustana College, 2007-2010

Ethics of Climate Change community ethics lecture series, Augustana College, 2007

Jaeke Awards Committee, Augustana College, 2007-2009

Academic Assessment Committee member, Augustana College Dec. 2007 - Nov. 2008

Environmental Task Force Committee member, Augustana College, 2006-2007

Preliminary Exam Committee Student Representative, University of Washington, 2004-2005

President, Geography Graduate Student Association, University of Illinois, 2001-2002

STUDENT RESEARCH ADVISING

Served as primary research advisor on these Greenland research projects:

Biesterfeld, Ryan (2010)	The Spatial Distribution of Methyl Mercury in High Arctic Avian Species of Northwest Greenland
Behnke, Claire (2012)	The Migration Patterns of Black-legged Kittiwakes (*Rissa tridactyla*) Breeding in Northwest Greenland
Meyer, Fallon (2014)	Mercury Contamination in Arctic Seabird Eggs from Northwestern Greenland
Zoe Robb (2016)	GIS research on Atlantic Puffin geolocator data from NW Greenland
Sara Baugh (2016-17)	Washed Away: Summer Storm Occurrence Effect on Two Passerine Bird Species in Northern Greenland

CURRENT RESEARCH INTERESTS

Climate change
Polar soils
Soil geomorphology
Periglacial geomorphology
Arctic biogeography
Prairie ecology
Mima mound origins
Mercury contamination in Arctic birds

PROFESSIONAL ASSOCIATIONS

Association of American Geographers
Geological Society of America
Illinois Soil Classifiers Association
Soil Science Society of America
American Geophysical Union
Sigma Xi