

JONATHAN M STELLING

CURRICULUM VITAE

EDUCATION

- Lehigh University, Bethlehem, PA
Ph.D. Earth and Environmental Sciences 2020
Dissertation title: *Climatic and Topographic Influence on the Dynamics of Peat-Forming Ecosystems and Implications for Paleoenvironmental Reconstructions in the Antarctic Peninsula and Patagonia*
- Ramapo College of New Jersey, Mahwah, NJ
B.S. Environmental Science 2014
Honors: Summa cum laude
- Bergen County Community College, Paramus, NJ
A.S. Business Administration 2011

RESEARCH EXPERIENCE

POSTDOCTORAL

- 2020 USDA US Forest Service & University of Minnesota, Grand Rapids, MN
Postdoctoral Research Associate
Project description: Understanding hydrological processes and water budget of the Marcell Experimental Forest peatland catchments. Analyses include:
Using water stable isotopes (δD & $\delta^{18}O$) as tracers for components of peat bog water budget as well as water table fluctuation analysis of Spruce and Peatland Responses Under Changing Environments (SPRUCE) experimental plots.

GRADUATE LEVEL

- 2019 Lehigh University, Bethlehem, PA
Research Fellow/Research Assistant
Responsibilities include: Writing manuscripts for peer-reviewed publication (*Antarctica*). Geographic information systems (GIS) analysis of peatland UAS (drone) data including products from digital elevation model (DEM) of the landscape surface (*Patagonia*).
- 2018 Patagonia – Tierra del Fuego, Chile
Field Research- Support funded by Doctoral Travel Grant for Global Opportunities and EES Graduate Instruction Committee research grants Responsibilities include: GIS location of field and study sites, liaison with Wildlife Conservation Society-Chile, peatland image acquisition using UAS “drone”, basal peat coring, depth probe measurements, surface bryophyte sample transects.
- 2017 Lehigh University, Bethlehem, PA
College of Arts and Sciences Summer Research Fellow
Antarctic peat core analysis; macrofossil analysis, cellulose extraction for $\delta^{13}C$ and $\delta^{18}O$ of moss.
- 2016 Patagonia – Tierra del Fuego, Chile
Field Assistant – Supported by NSF Funded project P2C2 EAR 1502891

Logistics - GIS location of field and study sites. Liaison with local authorities and the public. Peat coring and transportation. Surface bryophyte sample transects. GPS logging and annotated field notes.

2015 Lehigh University, Bethlehem, PA

Research Assistant- Supported by NSF funded project Antarctic Earth Sciences Program (PLR 1246190 and 1246359)

Antarctic peat core analysis; Loss-on-ignition, macrofossil analysis, geochemical Analysis, cellulose extraction, ¹⁴C dating.

UNDERGRADUATE LEVEL

2013 Lamont-Doherty Earth Observatory, Columbia University, Palisades, NY

Research Experience for Undergraduates Summer Internship

Sediment core analysis; wet sieving, grain size analysis, foraminifera/macrofossil picking for SEM and ¹⁴C dating.

RESEARCH FUNDING

Williams-Upton Summer Research Fellowship. Funding source: Williams Upton fellowship committee. Fellowship proposal: *Analysis of high-latitude peat from Antarctic and Patagonia*. Amount: Summer stipend 2-months support, 2018

Doctoral Travel Grant for Global Opportunities. Funding source: Lehigh University International Affairs Department. Grant proposal for research: *Understanding carbon accumulation and ecosystem development of peatlands in Patagonia/Tierra del Fuego-Chile*. Amount awarded: \$2000, 2017

College of Arts and Sciences summer research Fellowship. Funding source: Lehigh University College of Arts and Sciences. Research proposal: *Antarctic moss-isotopes as archives of ecosystem response to climate*. Amount: Summer stipend 2-months support, 2017

Graduate Research Funding. Funding source: Lehigh University Earth and Environmental Sciences Graduate Instruction Committee. Research proposal to expand on Antarctic and Patagonia research. Awarded: 2015: \$2000, 2016: \$1700, 2018: \$2000

TEACHING EXPERIENCE

Teaching Assistant – EES-80 “Introduction to the Earth System” Fall 2017, Spring 2018

Study of the integrated Earth system, including atmosphere, biosphere, geosphere, and hydrosphere—Supervising laboratory activities; grading student assignments; organization of field trips.

Teaching Assistant – EES-250 “Terrestrial Ecosystems” Fall 2016, 2018

Biogeochemical cycles of terrestrial ecosystems, focused on carbon cycling in forests. Supervising field and laboratory activities including use of; LICOR 6400xt leaf photosynthesis, LICOR 8100 soil C flux, C:N analyzer, Gas Chromatograph, modeling using ecological surveys, and analysis of Ameriflux data. Trained students in use of the following software & languages: R-programming language, SPSS, Stella, and Netlogo.

Teaching Assistant – Geology Field Camp 2016, 2017, 2018

Geology Field Course—Supervising and mentoring in field activities; geologic mapping, stratigraphy, soil analysis, sedimentology, glacial and geomorphic processes. Field Sites include Badlands SD, Big Horn Basin and Yellowstone, WY, Lost-River Range, ID.

Teaching Assistant – EES-200 “Earth History” Spring 2015, 2016, 2017

History of the geology and biology of the Earth—Supervising laboratory activities including fossil identification, phylogenies and systematics, and evolution of early-earth ecosystem processes (photosynthesis and respiration); grading student assignments and quizzes; Organization of field trips including Paleozoic interpretations of eastern PA, and Museum of Natural History, NYC.

AWARDS AND FELLOWSHIPS

Williams-Upton Summer Research Fellowship	July-August 2018
College of Arts and Sciences Summer Research Fellowship	July-August 2017
P.B. Meyers Best Teaching Assistant Award	2016
Kravis Fellowship	Fall 2014, 2015

PUBLICATIONS

Xia, Z. Zheng, Y, **Stelling, JM**, Loisel, J, Huang, Y, Yu, Z. 2020 Environmental controls on the carbon and water (H and O) isotopes in peatland Sphagnum mosses. *Geochimica et Cosmochimica Acta*. 265-284

Stelling, JM and Yu, Z. Influence of peatland microforms and patterning on carbon-accumulation dynamics in Patagonia. *JGR Biogeosciences*- in preparation

Stelling, JM, and Yu, Z. 2019. Regional Climate Change Recorded in Moss Oxygen and Carbon Isotopes from a Late Holocene Peat Archive in the Western Antarctic Peninsula. *Geosciences*, 9, 282; <https://dx.doi.org/doi:10.3390/geosciences9070282>

Stelling, JM, Yu, Z, Loisel, J, Beilman, DW, 2018. Peatbank response to late Holocene temperature and hydroclimate change in the western Antarctic Peninsula. *Quaternary Science Reviews*. 188, Pp 77-89 <https://doi.org/10.1016/j.quascirev.2017.10.033>

Claire C. Treat, Thomas Kleinen, Nils Broothaerts, April S. Dalton, René Dommain, Thomas A. Douglas, Judith Drexler, Sarah A. Finkelstein, Guido Grosse, Geoff Hope, Jack Hutchings, Miriam C. Jones, Peter Kuhry, Terri Lacourse, Outi Lähteenoja, Julie Loisel, Bastiaan Notebaert, Richard Payne, Dorothy Peteet, A. Britta K. Sannel, **Jonathan M. Stelling**, Jens Strauss, Graeme T. Swindles, Julie Talbot, Charles Tarnocai, Gert Verstraeten, Christopher J. Williams, Zhengyu Xia, Zicheng Yu, Minna Väliranta, Martina Hättestrand, Helena Alexanderson, Victor Brovkin. Widespread global peatland establishment and persistence over the last 130,000 years. *Proceedings of the National Academy of Sciences* Feb 2019, 201813305; DOI: 10.1073/pnas.1813305116

PROFESSIONAL PRESENTATIONS

Stelling, JM, Yu, Z. 2018. Relationship Between Peatland Microtopography and Carbon Dynamics Over the Holocene in Karukinka Park, Tierra Del Fuego, Chile. American Geophysical Union (AGU) Fall Meeting, Washington, D.C., 10-14 December. Oral Presentation.

Stelling, JM, Yu, Z, Beilman, DW. 2018, Terrestrial archives of paleoecological change over the last 2,000 years on the western Antarctic Peninsula. at the Climate Variability in Antarctica and the Southern Hemisphere in the past 2000 years (CLIVASK2k) workshop. British Antarctic Survey. Cambridge, UK, 4-5 September. Oral Presentation.

Stelling, JM, Yu, Z, Beilman, D., Loisel, J. 2017. Are signals of westerly wind strength and hydroclimate change during the late Holocene preserved in Antarctic peatbanks? American Geophysical Union (AGU) Fall Meeting, New Orleans, Louisiana, 11-15 December. Poster Presentation.

Stelling, JM, Yu, Z, Beilman, D. 2016. Dynamic response of peatbank moss communities to hydroclimate over the last 2000 years in the western Antarctic Peninsula. American Geophysical Union (AGU) Fall Meeting, San Francisco, California, 12-16 December. Poster Presentation.

Stelling, JM, Yu, Z, Beilman, D., Loisel, J. 2016. Late-Holocene Ecosystem History of Two Contrasting Moss Peatbanks On Litchfield Island, Western Antarctic Peninsula. The VIII Southern Connection Congress, Punta Arenas, Chile, 18-23 January. Oral Presentation

Stelling, JM, Yu, Z, Beilman, D., Loisel, J. 2015. Late Holocene Ecological and Climatic Change from Peat Records in the Western Antarctic Peninsula. Geologic Society of America Annual Meeting (GSA), Baltimore, MD. 1-4 November. Oral Presentation

Stelling, JM, Abbott, DH, Breger, D. 2013. Foraminifera of the Hudson River Estuary: Interpretations of Paleoenvironment and Catastrophic Events. Geologic Society of America (GSA) Annual Meeting, Denver, CO 27-30 October. Poster Presentation

Service & Volunteerism

Peer-reviewer: The Holocene (2019), Czech Science Foundation (2020)

Graduate Student Senate: Unit Senator for Earth and Environmental Science and Environmental Initiative '17-18

The graduate student senate (GSS) is the convening body of graduate students that addresses graduate student concerns. *Responsibilities include:* Representation of EES/EI unit, participation in bi-monthly meetings, communication of meeting material to peers, and voting member

Earth and Environmental Sciences Graduate Student Symposium planning committee chair 2016

The graduate student symposium annually showcases research for the EES and EI graduate program. The event is organized and produced entirely by the graduate student population due to the efforts of volunteer service. *Responsibilities include:* Organization of planning committee, liaison with guest speakers and oversee planning efforts, review of abstracts, and coordination with departmental office.

Earth and Environmental Sciences Graduate Student Symposium planning committee 2014, 2015

Responsibilities include: coordination of abstract submission, review and program planning.

New York New Jersey Trail Conference Trail Maintenance: Rockcores trail 2014-2020

The NYNJTC is a non-profit, primarily volunteer organization, responsible for trail maintenance, environmental awareness, and getting people outdoors in NY and NJ. *Responsibilities include:* Recruitment of volunteers for general trail maintenance; vegetation trimming, check-dam building, culvert clearing, trail marker management, blowdown clearing, and planning of larger projects. Specialized projects include; service with West Jersey Trail crew for major re-route of beginning half-mile of trail to reduce trail degradation and increase hiker interest and construction of bridge in coordination with the New Jersey State Forest Rangers in Worthington State forest and West Jersey Trail crew.

MEMBERSHIPS & EXTRACURRICULAR

American Geophysical Union Member	2014
Geologic Society of America Member	2013
Catskill 3500 Club Member	2013
NY-NJ Trail Conference Member & Trail Maintenance Supervisor	2011
Eagle Scout	2002