

Marion A. McKenzie

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RESEARCH INTERESTS

I am a glacial geomorphologist with expertise in sedimentology, stratigraphy, geochronology, glaciology, and quantitative geomorphology. My research interests focus on connecting paleo and modern glaciology research and landscape evolution.

EDUCATION

Ph.D. in Environmental Sciences

A.B.D. Expected May 2023

University of Virginia, Charlottesville, VA

Dissertation: *Ice-sheet sensitivity to Earth's surface: an assessment of landscape records*, Advised by Dr. Lauren Simkins

B.S. in Environmental Studies, Mathematics Minor

May 2019

Gettysburg College, Gettysburg, PA

Summa Cum Laude, Honors Thesis: *Using streamlined landforms to reconstruct and compare paleo-ice flow paths in Bárðardalur, north Iceland and northwestern Pennsylvania*, Advised by Dr. Sarah Principato

PEER-REVIEWED PUBLICATIONS

McKenzie, M.A., Simkins, L.M., Slawson, J.S., MacKie, E.J., Wang, S. (*in re-review*). [Differential impact of isolated topographic bumps on glacial ice flow and subglacial processes](#). *The Cryosphere*.

McKenzie, M.A., Simkins, L.M., Principato, S., Munevar-Garcia, S. (2022). [Subglacial bedform sensitivity to bed characteristics across the deglaciated Northern Hemisphere](#). *Earth Surface Processes and Landforms*.

McKenzie, M.A., Simkins, L.M., Lepp, A.P. (*in prep*). Outcrop perspective on spatial and temporal effects of topography on the marine-terminating Puget Lobe of the Cordilleran Ice Sheet. *Sedimentology*.

RESEARCH FUNDING

Moore Graduate Student Award, 2022

\$5,000

Department of Environmental Sciences, University of Virginia
Project: *Leveraging deglaciated landscapes to inform ice flow behavior of the Greenland Ice Sheet*

Graduate Student Internship, 2022

\$1,540*

National Ocean Science Accelerator Mass Spectrometry Laboratory
Project: *Getting the timing right: Pairing optically stimulated luminescence and radiocarbon dating techniques to provide marine reservoir corrections for the Puget Lowland, WA*

*analytical cost covered by program

[Double Hoo Research Grant, 2021](#)

\$6,000

University of Virginia, co-written with undergraduate student Medha Prakash
Project: *Glacial or marine? Utilizing a novel research approach to characterize stratigraphic units in the Puget Lowland, Washington state*.

Exploratory Research Grant, 2020

\$1,425

Department of Environmental Sciences, University of Virginia

MENTORING

Co-mentor for Coastal NSF REU	2022
University of Virginia Coastal Research Center, Cape Charles, VA	
Renee Hebert, University of Virginia	
Project: <i>"Assessing legacy Blue Carbon in a restored seagrass meadow"</i> conducted with Drs. Peter Berg and Karen McGlathery	
Undergraduate Research Mentor	2019- Present
University of Virginia, Charlottesville, VA	
Marion Donald, Maya Weiss	
Project: <i>Characterizing a subglacial lake through sedimentology in the Puget Lowland, Washington state</i>	
Medha Prakash	2021-Present
Project: <i>Morphometric comparison of terrestrial eskers and martian sinuous ridges</i>	
Jacob Slawson, now: PhD student, Colorado School of Mines	2020-2021
Project: <i>Just a bump in the road? Assessing the influence of topographic relief on Cordilleran Ice Sheet flow from deglaciated landscapes</i>	
Alumnae College Mentor	2022
Linden Hall School for Girls, Lititz, PA	

RESEARCH EXPERIENCE

<u>PaleoCAMP Student</u>	2022
PaleoCAMP Organization, Mammoth, CA	
NSF funded Research Experience for Undergraduates Student	2018
Geophysical Institute at the University of Alaska, Fairbanks, AK	
Project: <i>The impact of permafrost forecasting accuracy on Predicting the influence of Arctic vegetation type and Disturbance events on permafrost degradation</i>	
Cross-Disciplinary Science Institute Research Assistant	2017
Environmental Studies Department at Gettysburg College, Gettysburg, PA	
Project: <i>Using streamlined landforms to reconstruct and compare paleo-ice flow paths in Bárðardalur, north Iceland and northwestern Pennsylvania</i>	

TEACHING

University of Virginia	
<i>Environmental Sciences Teaching Assistant</i>	2020-Present
Fundamentals of Geology Lecture and Lab (3 semesters)	
Applied Statistics for Environmental Science (1 semester)	
Polar Environments Teaching Assistant (1 semester)	
<i>Cavalier Athletics Support Team Content Tutor</i>	2021-2022
Environmental Science Content Tutor (2 semesters)	
<i>School of Education Summer Enrichment Program Instructor</i>	2020-2021
Middle School Course "The Cool Cryosphere!" (2 summers)	
Gettysburg College	
<i>Environmental Studies Peer Learning Associate</i>	2017-2018
Earth System Science (2 semesters)	
<i>Mathematics Department Tutor</i>	2017-2018
Calculus I, II, and III (3 semesters)	

HONORS AND AWARDS

University of Virginia		
Graduate Student Association Award		2021
Henry W.A. Hanson Scholarship Award		2019
Gettysburg College		
Gertrude Lawrence Ledford Scholarship Award		2019
David Wills Academic Scholar		2015-2019
Deans List Scholar		2015-2019
Gettysburg Senior Scholarship Award		2018
Dean Frank B. Williams Memorial Prize		2018

PROFESSIONAL ENGAGEMENT

Referee Service		
Journals: <i>Polar Science</i> co-review		
Community Engagement		
CryoCommunity co-development of "Graduate Student Resources" Article		2023
Conference Service		
West Antarctic Ice Sheet Workshop co-development of community college lesson plan		2022
Northeast Geological Society of America student volunteer		2022
Certificates		
Fundamentals of Learning for Science Mentors Course		2020
University of Virginia PhD+ Professional Seminar		2020
Graduate Student Association Co-President		2022-2023
Department of Environmental Sciences, University of Virginia, Charlottesville, VA		
Diversity, Equity, and Inclusion Committee Representative		2020-2022
Department of Environmental Sciences, University of Virginia, Charlottesville, VA		
ESIP Community Data Cluster Fellow		2020-2021
Earth Science Information Partners Federation, Remote		

INVITED TALKS

[3] Differential impacts of subglacial bed conditions on paleo-ice flow and subglacial processes.		
<i>Pal(a)eoPERCS Seminar Series</i> , Virtual		8 Nov. 2022
[2] Ice-sheet sensitivity to Earth's surface: an assessment of Cordilleran Ice Sheet behavior across the Puget Sound		
<i>Friday Harbor Labs Seminar Series</i> , San Juan Island, WA		30 Nov. 2022
[1] Building Bridges in Community Engagement Panel		
<i>ESIP 2022 Winter Meeting</i> , Virtual		19 Jan. 2022

SELECT CONFERENCE ABSTRACTS

[8] McKenzie, M. , Simkins, L.M. Outcrop Perspectives on Spatially Variable Retreat of the Marine-terminating southern Cordilleran Ice Sheet. American Geophysical Union 2022, Chicago, IL, USA. Session: PP014 - Ice-sheet variability and behavior through the lens of geologic data and numerical modeling.

- [7] **McKenzie, M.A.**, Slawson, J., Simkins, L.M., Wang, S., MacKie, M. 2022. Influence of bed highs on ice flow as determined by bedform morphology. Northeast GSA Annual Meeting Abstract, Lancaster, PA, USA.
- [6] Berg, P., Hebert, R., **McKenzie, M.**, Groff, L., Wiman, C., Fiss, M., McGlathery, K., Munoz, S., Stubbins, A. Legacy Blue Carbon below Modern Seagrass Beds. Submitted, upcoming Association for the Sciences of Limnology and Oceanography 2023, Palma de Mallorca, Spain. Session TBD.
- [5] Dellert, C.D., Reynolds, L., **McKenzie, M.**, Simkins, L.M., Kennedy, W. Carbon Content of Coastal Lake sediments from Whidbey Island, Washington State. American Geophysical Union 2022, Chicago, IL, USA. Session: PP015 - Limnology, Paleolimnology, and Limnogeology - Lakes as Archives of Climate and Environment Variability and Geohazards.
- [4] Prakash, M., Simkins, L. **M.**, **McKenzie, M.**, Smith, J.W., Limaye, A.B. Morphometrics of Terrestrial Eskers and Martian Sinuous Ridges Reveal Persistent Pathways of Subglacial Meltwater Drainage. American Geophysical Union 2022, Chicago, IL, USA. Session EP024 - Surface Processes on Rocky and Icy Bodies across the Solar System.
- [3] **McKenzie, M.A.**, Simkins, L.M., Principato, S. 2021. Streamlined bedform sensitivity to bed characteristics from deglaciated landscapes. West Antarctic Ice Sheet Workshop Talk Abstract, Sterling, VA.
- [2] **McKenzie, M.A.**, Romanovsky, V. E., Kholodov, A. L. 2019. The impact of permafrost forecasting accuracy on predicting the influence of Arctic vegetation type and disturbance events on permafrost degradation. Arctic Workshop Annual Meeting Abstract, Stockholm, Sweden.
- [1] **McKenzie, M.A.**, Principato, S.M., Benediktsson, I.O. 2017. Geomorphic evidence for a paleo-ice stream near Bárðardalur, north Iceland. GSA Annual Meeting Abstract, Seattle, WA, USA.