

Lauren Elizabeth Miller*

Associate Professor of Environmental Sciences, University of Virginia in Charlottesville, Virginia, United States

EDUCATION

University of California Santa Barbara	2010 - 2014
Doctor of Philosophy in Geological Sciences, NSF LSAMP Bridge to Doctorate Fellow	
Oklahoma State University	2005 - 2009
Bachelor of Science in Geology and Spanish, NSF LSAMP Scholar	

PROFESSIONAL APPOINTMENTS

Associate Professor , Department of Environmental Sciences, University of Virginia	2024 -
Assistant Professor , Department of Environmental Sciences, University of Virginia	2018 - 2024
Postdoctoral Research Associate , Department of Earth Science, Rice University	2014 - 2018

ELECTED APPOINTMENTS

Secretary of the <u>American Geophysical Union Cryospheric Sciences Section</u>	2022-2026
Appointed member of the National Academies of Sciences, Engineering, and Medicine <u>Polar Research Board</u>	2022-2027

RESEARCH NARRATIVE

Miller's research investigates the dynamic interactions among ice, water, sediment, and topography to better understand the behavior of glaciers and ice sheets across timescales. Her work integrates geomorphology, sedimentology, and geophysical data to reveal how subglacial hydrology, bed roughness, and topographic controls shape ice flow, sediment transport, and retreat patterns—from paleo-ice sheet landscapes to rapidly changing systems like Thwaites Glacier. Through collaborative, multi-proxy studies, she has helped identify the signatures of meltwater drainage, quantify ice flow sensitivity to subglacial topography, and uncover episodes of glacier retreat in the pre-satellite era. Collectively, her publications advance a process-based framework for interpreting past and present ice-sheet change.

SELECTED PEER-REVIEWED PUBLICATIONS SINCE 2021 (ADVISEES ARE UNDERLINED)

- Jones RS, **Miller LE**, Westoby MJ, 2024. How can geomorphology facilitate a better understanding of glacier and ice sheet behaviour? *Earth Surface Processes and Landforms*.
- Lepp, A.P., **Miller, L.E.**, Anderson, J.B., O'Regan, M., Winsborrow, M.C.W., Esteves, M., Smith, J.A., Hillenbrand, C.-D., Wellner, J.S., Prothro, L.P., and Podolskiy, E.A., 2024. Insights into subglacial hydrology and sediment transport processes from grain micromorphology. *The Cryosphere*.
- Munear Garcia, S., **Miller, L.E.**, Stearns, L.A., Falcini, F., 2023. Quantifying paleo-subglacial bed roughness on the Antarctic continental shelf. *Journal of Glaciology*, 1-12.
- Clark, R.C., Wellner, J., Hillenbrand, C.-D., Totten, R., Smith, J.A., **Miller, L.E.**, Larter, R.D., Hogan, K.A., Graham, A.G.C., Nitsche, F.O., Lehrmann, A.A., Lepp, A.P., Kirkham, J.D., Fitzgerald, V.T., Garcia-Barrera, G., Ehrmann, W., Wacker, L., 2024. Synchronous retreat of Thwaites and Pine Island glaciers in response to external forcings in the pre-satellite era. *Proceedings of the National Academy of Sciences*, 121 (11) e2211711120.
- Herbert, L., Lepp, A., Munear Garcia, S., Browning, A., **Miller, L.E.**, Wellner, J., Severmann, S., Hillenbrand, C.-D., Johnson, J., Sherrell, R.M., 2023. Volcanogenic fluxes of iron from the seafloor in the Amundsen Sea, West Antarctica. *Marine Chemistry*, 104250.
- McKenzie, M.A., **Miller, L.E.**, Slawson, J.S., MacKie, E.J., Wang, S., 2023. Differential impact of isolated topographic bumps on glacial ice flow and subglacial processes. *The Cryosphere*, 17, 2477–2486.
- Simkins, L.M.**, Greenwood, S.L., Winsborrow, M.C.M., Bjarnadóttir, L.R., Lepp, A.P., 2023 Advances in understanding subglacial hydrology from past ice sheets. *Annals of Glaciology*, 1-5.
- Graham, A.G.C., Wahlin, A., Hogan, K.A., Nitsche, F.O., Heywood, K.J., Minzoni, R., Smith, J.A., Hillenbrand, C.-D., **Simkins, L.M.**, Wellner, J.S., Larter, R.D., 2022. Rapid tidally modulated retreat of Thwaites Glacier from a pinning point in the pre-satellite era. *Nature Geoscience*, 15, 706–713.
- Lepp, A.P., **Simkins, L.M.**, Anderson, J.B., Wellner, J.S., Clark, R., Lehrmann, A., Hillenbrand, C.-D., Smith, Minzoni, R., Graham, A., Hogan, K., Nitsche, F., Larter, R., Wacker, L., 2022. Sedimentary Signatures of Persistent Subglacial Meltwater Drainage from Thwaites Glacier, Antarctica. *Frontiers in Earth Science*, 10.

*Formerly Lauren Miller Simkins

- McKenzie, M., Simkins, L.M., Principato, S., 2022. [Subglacial bedform sensitivity to bed characteristics across the deglaciated Northern Hemisphere](#). *Earth Surface Processes and Landforms*.
- Robel, A., Pegler, S., Catania, G., Felikson, D., Simkins, L.M., 2022. [Ambiguous stability of glaciers at bed peaks](#). *Journal of Glaciology*, 1-8.
- Simkins, L.M., Greenwood, S.L., Munevar Garcia, S., Eareckson, E.A., Anderson, J.B., Prothro, L.O., 2021. [Topographic controls on channelized meltwater in the subglacial environment](#). *Geophysical Research Letters*, 48, e2021GL094678.
- Simms, A.R., Bentley, M., Simkins, L.M., Zurbuchen, J., Reynolds, L.C., DeWitt, Regina, 2021. Evidence for a “Little Ice Age” glacial advance within the Antarctic Peninsula – examples from glacially-overrun raised beaches. *Quaternary Science Reviews*, 271, 107195.
- Greenwood, S.L., Simkins, L.M., Winsborrow, M.C.M., Bjarnadóttir, L.R., [equal authorship] 2021. Exceptions to bed-controlled ice sheet flow and retreat from glaciated continental margins worldwide. *Sciences Advances*, 7, eabb6291.

NOMINATIONS, AWARDS, FELLOWSHIPS, & RECOGNITION

Visiting Fellow at Hokkaido University in Sapporo, Japan, hosted by Dr. Shin Sugiyama (Dec. 2023 – Jan. 2024)

Award for Excellence in Teaching from the Jefferson Scholars Foundation in 2023.

Recognition for Nature Geoscience paper at the UVA VPR and President’s **Research Achievement Awards** for 2022.

Mead Honored Faculty (2020-2021), awarded for outstanding educational engagement with students in and outside of class.

CURRENT SERVICE AT THE UNIVERSITY OF VIRGINIA

Department of Environmental Sciences

Undergraduate Seminar Chair (2020-2021, 2026 – present)

Summer Session Chair (2025 – present)

Undergraduate Academic Review Committee (2022 – present)

College & Graduate School of Arts and Sciences

Committee on Academic Freedom and Professional Ethics (2026 – present)

Undergraduate Academic Adviser (2019 – present)

Interdisciplinary PhD in Indigenous Studies STEM Mentor (2023 – present)

Committee on Educational Policy and the Curriculum (CEPC; 2023 – present)

University

Success in Science, Departmental Co-Lead (2024 – present)

Faculty Mentor, University Mentoring Program, Center for Faculty Wellbeing and Development (2026 – present)

Democracy Initiative – Indigenous Studies working group member (2022 – present)

Steering Committee of the Native & Indigenous Relations Community (NIRC; 2023 – 2025; member since 2021 – present)

LSAMP Virginia-North Carolina Alliance Governing Board (2020 - 2025)

RESEARCH COMMUNITY SERVICE

Editorial Service: Geological Society of London **Books Editor** (2018-2022), **Associate Editor** of Special Research Topic “Past Ice Sheet and Ice-Ocean Interactions from Deglaciated Continental Margins” in *Frontiers of Earth Science* (2021-2022), **Associate Editor** of Special Issue “Glaciated landscapes: geomorphology as a tool for understanding past, present and future glacier and ice sheet behaviour” in *Earth Surface Processes and Landforms* (2022-2023), **Review Editor** of *Frontiers in Earth Science Cryospheric Sciences* (2023-present)

Proposal Referee: NSF Geomorphology and Land-use Dynamics Program, NSF Polar Programs: Antarctic Earth Sciences, NSF Polar Programs: Antarctic Glaciology, National Environmental Research Council (NERC), Programa Polar Português (PROPOLAR)

Review Panel NSF Polar Programs (2019, 2020)

Chair of Awards Canvassing Committee for the AGU Cryospheric Sciences section (2026 – present)

Chair of Awards Communications Working Group for the AGU Cryospheric Sciences section (2026 – present)

Participant in [Unlearning Racism in Geosciences \(URGE\)](#) Glaciology Pod (2021)

Team member of [CryoCommunity](#), a resource hub for Cryospheric sciences students and researchers

PROFESSIONAL ORGANIZATIONS

American Geophysical Union (AGU), WAIS Workshop, American Indian Science and Engineering (AISES), National Association of Geoscience Teachers (NAGT)