

Lauren M. Simkins
Assistant Professor
Department of Environmental Sciences
University of Virginia
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Research expertise

Glacial geology, glaciology, geomorphology, marine geology, sedimentology, geochronology

Education

University of California Santa Barbara 2010-2014
Doctor of Philosophy in Geological Sciences
NSF Louis Stokes Alliance for Minority Participation Bridge to Doctorate Fellow

Oklahoma State University 2005-2009
Bachelor of Science in Geology
NSF Louis Stokes Alliance for Minority Participation Scholar

Professional appointments

Assistant Professor
Department of Environmental Sciences, University of Virginia, 2018- present

Postdoctoral Research Associate
Department of Earth Science, Rice University, 2014-2018

Research appointments

Graduate Research Assistant 2010-2014
Department of Geological Sciences, University of California Santa Barbara

Graduate Research Assistant 2010
Department of Physics, Oklahoma State University

Undergraduate Research Assistant 2008-2010
Boone Pickens School of Geology, Oklahoma State University

Teaching (Instructor of Record)

[University of Virginia](#)

Polar Environments (Spring 2019, Spring 2020)
EVSC 2850 (formerly EVSC 2559), ~30 students, targeted for non-majors

Fundamentals of Geology (Fall 2019, Fall 2020)
EVSC 2800, ~80 students, targeted for majors

Fundamentals of Geology Laboratory (Fall 2019, Fall 2020)
EVSC 2801, 5 sections, ~70 students, targeted for majors

Glaciers and Ice Sheets (Fall 2019, Fall 2020)
EVSC 4559, ~20 students, targeted for majors
EVSC 7559, ~10 students, targeted for EVSC graduate students

Beaches Coasts and Rivers (Fall 2018)
EVSC 2900, ~30 students, targeted for non-majors

[Rice University](#)

The Cryosphere (Spring 2016, Spring 2018)

ESCI 503, ~10 students, targeted for majors and graduate students

Research mentorship

University of Virginia

Current: Cesar Garcia (PhD, primary adviser), Allison Lepp (PhD, primary adviser), Marion McKenzie (PhD, primary adviser), Santiago Munevar (PhD, primary adviser), Morgan Shelby (MS, committee member), Delaney Buskard (BS, research adviser), Jacob Slawson (BS, research adviser)

Former: Mackenzie Carter (BS, research adviser), Sarah Lang (BS, research adviser), Catherine Leigh (BS, research adviser), Sean Penaparanda (BS, research adviser), Alan Zhai (BS, research adviser)

Rice University

Former: Christine Kendrick (HS, research adviser), Bethany Fowler (BS, research adviser), Adlai Fonesca (Visiting MS student, research adviser), Kelsey Crocker (BS, research adviser), Brian Demet (MS, as informal mentor), Anna Ruth Halberstadt (MS, as informal mentor), Lindsay Prothro (PhD, as informal mentor)

University of California Santa Barbara

Former: Angela Roman (Santa Barbara City College, research adviser), Adrian Gallardo (Santa Barbara City College, research adviser), Gustavo Muro (Ventura City College, research adviser), Eugene Wang (Santa Barbara City College, research adviser), Richard Mata (Mount San Antonio College, research adviser), Francisco Contreras (Oxnard City College, research adviser), Anna Lovelace (Oxnard City College, research adviser), Masoud Razavi (Oxnard City College, research adviser), Stacia Ott (Oxnard City College, research adviser)

Grants & proposals

Awarded, ongoing

WAIS Workshops 2020 and 2021: A transdisciplinary forum to accelerate NASA-funded research of marine-based ice sheet systems, [NASA Cryosphere Program](#) (\$125,000), PI: Matthew Siegfried (Colorado School of Mines), Co-Is: Lauren Simkins, Joseph MacGregor, Brook Medley, Indrani Das, Knut Christianson.

WAIS Workshops 2019–2021: A transdisciplinary forum for studies of the West Antarctic Ice Sheet by the next generation of polar scientists, [NSF Division of Polar Programs](#) (\$125,000), PI: Matthew Siegfried (Colorado School of Mines), Co-Is: Lauren Simkins, Joseph MacGregor, Brook Medley, Indrani Das, Knut Christianson.

NSFPLR-NERC: Thwaites Glacier Offshore Research (THOR), [NSF Division of Polar Programs: Antarctic Glaciology](#), \$242,494, 4/2018-3/2023, Subaward to Lauren Simkins (Co-I, as part of international project).

NSF Collaborative Research: Topographic controls on Antarctic Ice Sheet grounding line behavior - integrating models and observations, [NSF Division of Polar Programs: Antarctic Glaciology & Earth Sciences](#), \$300,433, 9/2018-8/2021, PI: Lauren Simkins.

Paleo-coastal response to higher-than-present sea level, [The University of Virginia Committee on Sustainability](#), \$8,000, 1/2019-present, PI: Lauren Simkins.

Solid Earth-Ice Sheet Interactions, [The H.G. Goodell Endowment](#), University of Virginia, \$11,000, 3/2020-present, PI: Lauren Simkins.

Awarded, concluded

CMP1602P: Retreat dynamics of marine-based ice sheets, [International Union for Quaternary Research \(INQUA\)](#), \$9,000, 6/2016-6/2019, Co-Is: Lilja Bjarnadottir, Sarah Greenwood, Lauren Simkins, Monica Winsborrow.

Educational Materials for EVSC 2801, [The H.G. Goodell Endowment](#), University of Virginia, \$1,000, 11/2019-1/2020, PI: Lauren Simkins.

Washington State Field Trip for Undergraduate Majors, [The H.G. Goodell Endowment](#), University of Virginia. \$4,800, 11/2018-8/2019, PI: Lauren Simkins.

Submitted

Learning from the past: rates of ice sheet decay and pulses of sea level rise, [The Center for Global Inquiry and Innovation](#), University of Virginia (\$2,500), PI: Lauren Simkins.

Professional awards

Mead Honored Faculty, The University of Virginia

2020-2021

Nominated and awarded for outstanding educational engagement with students in and outside of class, after just two years as faculty at UVA [MeadEndowment.org]

Invited seminars

Old Dominion University (Sept 2020), Georgia Tech (2020), University of Delaware (2019), College of William and Mary (2018), University of Illinois, Chicago (2018), University of Virginia (2018), Scripps Institution of Oceanography (2017), University of Houston (2017), Ohio State University (2017), Houston Museum of Natural Science (2016), Oklahoma State University (2016), Louis Stokes Midwest Center of Excellence Voices of Success Panelist (2016), Occidental College (2016), California State University Fullerton (2014)

Publications

Greenwood, S.L., [Simkins, L.M.](#), Winsborrow, M.C.M., Bjarnadóttir, L.R. Exceptions to bed-controlled ice sheet flow and retreat from glaciated continental margins worldwide. *Sciences Advances*, in re-review. [equal author contributions]

Hogan, K., Larter, R., Graham, A., Arthern, R., Kirkham, J.D., Minzoni, R.T., Jordan, T., Clark, R., Fitzgerald, V., Anderson, J.B., Hillenbrand, C.D., Nitsche, F.O., [Simkins, L.M.](#), Smith, J.A., Gohl, K., Arndt, J.E., Hong, J., Wellner, J., 2020. Revealing the former bed of Thwaites Glacier using sea-floor bathymetry. *The Cryosphere*. [[link](#)]

Majewski, W., Prothro, L.O., [Simkins, L.M.](#), Demianiuk, E.J., Anderson, J.B., 2020. Foraminiferal patterns in deglacial sediment in the western Ross Sea, Antarctica: life near paleo-grounding lines. *Paleoceanography and Paleoclimatology*, 35(5), e2019PA003716. [[link](#)]

Prothro, L.O., Majewski, W., Yokoyama, Y., [Simkins, L.M.](#), Anderson, J.B., Yamane, M., Miyairi, Y. and Ohkouchi, N., 2020. Timing and pathways of East Antarctic Ice Sheet retreat. *Quaternary Science Reviews*, 230, 106166. [[link](#)]

Demet, B.P., Nittrouer, J.A., Anderson, J.B., [Simkins, L.M.](#), 2019. Sedimentary processes at ice sheet grounding-zone wedges: examples from Antarctica and Washington state. *Earth Surface Processes and Landforms*, 44(6), 1209-1220. [[link](#)]

Anderson, J.B., [Simkins, L.M.](#), Bart, P.J., De Santis, L., Halberstadt, A.R.W., Olivo, E. and Greenwood, S.L., 2019. Seismic and geomorphic records of Antarctic Ice Sheet evolution in the Ross Sea and controlling factors in its behaviour. *Geological Society of London, Special Publications*, 475, SP475-5. [[link](#)]

Halberstadt, A.R., [Simkins, L.M.](#), Anderson, J.B., Prothro, L.O., Bart, P.J., 2018. Characteristics of the deforming bed: Till properties on the deglaciated Antarctic continental shelf. *Journal of Glaciology*, 1-14. [[link](#)]

King, B.L., Simms, A., [Simkins, L.M.](#), 2019. The Stratigraphic Architecture of Small Incised Valleys Along an Active Margin: Examples from the Oceanside Littoral Cell of the Southern California Coast. *Journal of Sedimentary Research*, 17(1), 78-86. [[link](#)]

Simms, A., Whitehouse, P., [Simkins, L.](#), Nield, G., DeWitt, R., Bentley, M., 2018. Late Holocene relative sea levels near Palmer Station, northern Antarctic Peninsula, strongly controlled by late Holocene ice-mass changes. *Quaternary Science Reviews*, 199, 49-59. [[link](#)]

[Simkins, L.M.](#), Greenwood S.L., Anderson, J.B., 2018. Diagnosing ice sheet grounding line stability from landform morphology. *The Cryosphere*, 12, 2707-2726. [[link](#)]

Greenwood, S.L., [Simkins, L.M.](#), Halberstadt, A.R.W., Prothro, L.O., Anderson, J.B., 2018. Holocene reconfiguration and readvance of the East Antarctic Ice Sheet. *Nature Communications*, 9, 3176. [[link](#)]

Prothro, L.O., [Simkins, L.M.](#), Majewski, W., Anderson, J.B., 2017. Glacial retreat patterns and processes determined from integrated sedimentology and geomorphology records. *Marine Geology*, 395, 104-119. [[link](#)]

[Simkins, L.M.](#), Anderson, J.B., Greenwood, S.L., Gonnermann, H., Prothro, L.O., Halberstadt, A.R.W., Stearns, L.A., Pollard, D., DeConto, R.M., 2017. Anatomy of a meltwater drainage system beneath the ancestral East Antarctic Ice Sheet. *Nature Geoscience*, 10, 691-697. [[link](#)]

[Simkins, L.M.](#), Anderson, J.B., Demet, B.P., 2017. Grounding line processes of the southern Cordilleran Ice Sheet in the Puget Lowland. *Geological Society of America Field Guide* 49, 53-65. [[link](#)]

[Simkins, L.M.](#), Anderson, J.B., Greenwood, S.L., 2016. Glacial landform assemblage reveals complex retreat of grounded ice in the Ross Sea, Antarctica. *in* Dowdeswell, J. A., Canals, M., Jakobsson, M., Todd, B. J., Dowdeswell, E. K. & Hogan, K. A. (eds). *Atlas of Submarine Glacial Landforms: Modern, Quaternary and Ancient*. Geological Society of London, *Memoirs*, 46, 353-356. [[link](#)]

- Simkins, L.M.**, DeWitt, R., Simms, A.R., Briggs, S., Shapiro, R., 2016. Investigation of optically stimulated luminescence behavior of crystalline rock surfaces: A look forward. *Quaternary Geochronology*, 36, 161-173. [[link](#)]
- Halberstadt, A.R.W., **Simkins, L.M.**, Greenwood, S.L., Anderson, J.B., 2016. Paleo-ice sheet behaviour: retreat scenarios and changing controls in the Ross Sea, Antarctica. *The Cryosphere*, 10, 1003-1020. [[link](#)]
- Yokoyama, Y., Anderson, J.B., Yamane, M., **Simkins, L.M.**, Miyairi, Y., Yamazaki, T., Koizumi, M., Suga, H., Kusahara, K., Hasumi, H., Southon, J.R., Ohkouchi, N., 2016. Widespread collapse of the Ross Ice Shelf during the late Holocene. *Proceedings of the Academy of National Sciences*, 113(9), 2354-2359. [[link](#)]
- Simkins, L.**, Simms, A., Regina DeWitt, 2015. Assessing the link between coastal morphology, wave energy, and sea ice throughout the Holocene from Antarctic raised beaches. *Journal of Quaternary Science*, 30, 335-348. [[link](#)]
- Simkins, L.**, DeWitt, R., Simms, A., 2013. Methods to reduce sample carrier contamination for luminescence measurements. *Ancient TL* 31 (1), 19-27. [[link](#)]
- Simkins, L.**, Simms, A., Cruse, A., Troiani, T., Atekwana, E., Puckette, J., Yokoyama, Y., 2012. Correlation of early and mid-Holocene events using magnetic susceptibility in estuarine cores from the Gulf of Mexico. *Palaeogeography, Palaeoclimatology, and Palaeoecology*, 346-347, 95-107. [[link](#)]
- Simms, A., Ivins, E., DeWitt, R., Kouremenos, P., **Simkins, L.**, 2012. Timing of the Little Ice Age in the Antarctic Peninsula from optically stimulated luminescence of cobble surfaces within raised beaches. *Quaternary Science Reviews*, 47, 41-55. [[link](#)]
- Simms, A., Aryal, N., **Miller, L.**, Yokoyama, Y., 2010. The Incised Valley of Baffin Bay, Texas: A Tale of Two Climates. *Sedimentology* 57, 642-669. [[link](#)]

Conference presentations (2018-2020; underline denotes student mentees)

- Majewski, W., Bart, P., Prothro, L.O., **Simkins, L.M.**, Anderson, J.B., Sub-fossil foraminifera in the Ross Sea, Antarctica: Life near grounding lines, Submitted, International Polar Symposium 2020, Toruń, Poland.
- Wellner, J.S., Larter, R.Graham, A., Hillenbrand, C.-D., Hogan, K., Minzoni, R., Nitsche, F., Smith, J. Anderson, J., **Simkins, L.**, Clark, R., Fitzgerald, V., Hopkins, R., Lehrmann, A., Lepp, A., Marschalek, J., Mawbey, E., Kirkham, J., Muneevar, S., Taylor, L., Initial Geologic Results from Thwaites Glacier Offshore Research (THOR) 2019 and 2020 Field Seasons, Submitted, Scientific Committee on Antarctic Research 2020, Hobart, Tasmania.
- Simms, A., Zurbuchen, J., Gernant, C., Theilen, B., DeWitt, R., Garcia, C., and **Simkins, L.**, How sensitive are Antarctic Holocene relative sea-level records to late-Holocene glacial fluctuations?, Submitted, Scientific Committee on Antarctic Research 2020, Hobart, Tasmania.
- Majewski, W., Bart, P., Prothro, L.O., **Simkins, L.M.**, Anderson, J.B., Foraminifera in deglacial sediments: Where can we find in situ calcareous microfossils to date Grounding Zone Wedges?, Submitted, Scientific Committee on Antarctic Research 2020, Hobart, Tasmania.
- Larter, R., Graham, A., Hogan, K., Minzoni, M., Wåhlin, A., Queste, B., Mazur, A., Boehme, L., Kirkham, V., Fitzgerald, R., Clark, R., Welzenbach, L., Wellner, J., Smith, J., **Simkins, L.**, Pettit, E., Nitsche, F., Hillenbrand, C.D., Heywood, K., Anderson, J., and NBP1902 scientific party, 2020, Initial results from International Thwaites Glacier Collaboration cruise, European Geophysical Union.
- Hogan, K., Larter, R., Graham, A., Arthern, R., Kirkham, J.D., Minzoni, R.T., Jordan, T., Clark, R., Fitzgerald, V., Anderson, J.B., Hillenbrand, C.D., Nitsche, F.O., **Simkins, L.M.**, Smith, J.A., Gohl, K., Arndt, J.E., Hong, J., Wellner, J., 2020, Lessons learnt from the former bed of Thwaites Glacier: a new multibeam-bathymetric dataset, European Geophysical Union.
- Greenwood, S.L., **Simkins, L.M.**, Winsborrow, M.C.M., Bjarnadóttir, L.R., 2019. Bed controls on the retreat dynamics of marine-based ice sheets. *Nordic Geology Winter Meeting*, Oslo, Norway.
- Lepp, A., **Simkins, L.**, Minzoni, R., Larter, R., Graham, A., Hogan, K., Wellner, J., Hillenbrand, C.D., Smith, J., Anderson, J., Nitsche, F., NBP1902 Science Party, 2019. Thwaites Glacier's recent meltwater history recorded in ice shelf proximal sediment cores. *WAIS Workshop*, Julian, CA.
- Simkins, L.M.**, 2019. Sinuous grounding lines often point to large retreat events to come. *WAIS Workshop*, Julian, CA.
- Prothro, L.O., Anderson, J.B., Yokoyama, Y., Majewski, W., **Simkins, L.M.**, 2019. The association of subglacial meltwater with grounding-line retreat. *WAIS Workshop*, Julian, CA. (talk)
- Larter, R., Graham, A., Hogan, K., Minzoni, M., Wåhlin, A., Queste, B., Mazur, A., Boehme, L., Kirkham, V., Fitzgerald, R., Clark, R., Welzenbach, L., Wellner, J., Smith, J., **Simkins, L.**, Pettit, E., Nitsche, F., Hillenbrand, C.D., Heywood, K., Anderson, J., and

NBP1902 scientific party, 2019. Influence of bathymetry on Thwaites Glacier ice shelf thinning, calving and grounding line retreat from new high-resolution data. FRISP 2019: Forum for Research into Ice Shelf Processes, Oxford, England.

[Simkins, L.M.](#), Bjarnadóttir, L.R., Greenwood, S.L., Winsborrow, M.C.M., 2019. Retreat dynamics of marine-based ice sheets: perspectives from diverse high-latitude continental margins. International Union for Quaternary Research, Dublin, Ireland. [oral]

Simms, A., Whitehouse, P., Zurbuchen, J., [Simkins, L.](#), Nield, G., DeWitt, R., Bentley, M., 2019. Late Holocene increases in the rate of sea-level fall across the Antarctic Peninsula point to a weak Earth rheology. International Union for Quaternary Research, Dublin, Ireland. (talk)

Larter, R., Graham, A., Hogan, K., Minzoni, M., Wåhlin, A., Queste, B., Mazur, G., Boehme, L., Kirkham, V., Fitzgerald, V., Clark, R., Welzenbach, L., Wellner, J., Smith, J., [Simkins, L.](#), Pettit, E., Nitsche, F., Hillenbrand, C.D., Heywood, K., Anderson, J., and NBP1902 scientific party, 2019. Insights into controls on Thwaites Glacier retreat from new high-resolution bathymetry and related data. International Symposium on Antarctic Earth Sciences, Songdo Convensia, Incheon, Republic of Korea. (talk)

[Simkins, L.M.](#), Bjarnadóttir, L.R., Greenwood, S.L. and Winsborrow, M.C.M., 2018, December. Retreat dynamics of marine-based ice sheets: perspectives from diverse high-latitude continental margins. AGU, Washington DC. (talk)

Prothro, L.O., Majewski, W., Yokoyama, Y., [Simkins, L.M.](#), Anderson, J.B., Yamane, M. and Ohkouchi, N., 2018. Duration of the maximum extent of the East Antarctic Ice Sheet grounding line in the Ross Sea, Antarctica, and subsequent complex retreat. AGU, Washington DC. (talk)

Hogan, K., Larter, R.D., Nitsche, F.O., Graham, A.G., Wellner, J., [Simkins, L.](#), Gohl, K., Arndt, J.E., Hillenbrand, C.D., Smith, J.A. and Minzoni, R., 2018. What we know about the bed in front of Thwaites Glacier: existing marine geophysical datasets. The WAIS Workshop. (talk)

Service at the University of Virginia

Departmental

Graduate Admissions Committee (2019-present)

H.G. Goodell Endowment Committee (2019-present)

Environmental Science Organization (ESO) Faculty Sponsor (2019-present)

College & Graduate School of Arts and Sciences

LSAMP Summer Program Panelist (2019, 2020)

LSAMP Bridge to Doctorate Mentor (2019-present)

GSAS Mentoring Institute Mentor (2019-present)

College Science Scholars Seminars (4/2019, 2/2020, 4/2020)

Undergraduate Academic Adviser (~26 students; 6/2019-present)

University

Meeting with Racial Equity Task Force for Indigenous Studies @ UVA (7/2020)

Indigenous Studies @ UVA, Member (3/2020-present)

Undergraduate Research Symposium, Judge (4/2019)

Research community service

Editorial Service Geological Society of London Books Editorial Committee (2018-present)

Journal Referee Journal of Quaternary Research, Geology, GSA Today, Physical Geography, Sedimentary Geology, The Cryosphere, Quaternary Science Reviews, Science Advances, Journal of Geophysical Research: Earth Surface

Proposal Referee NSF Geomorphology and Land-use Dynamics Program, NSF Polar Programs: Antarctic Earth Sciences, NSF Polar Programs: Antarctic Glaciology

Review Panel NSF Polar Programs

Conference Organization [WAIS Workshop](#) Organizing Committee (2019-present), [AGU 2018 Grant Review](#) for Global Environmental Change student travel, [GSA 2017 Session](#) 'Glacier and Ice Sheet Grounding Lines,' [GSA 2017 Field Trip Leader](#) 'Grounding line processes of the southern Cordilleran Ice Sheet: Whidbey Island, Puget Lowlands,' [AGU 2016 Session](#) 'Geophysical and Geological Records of Glaciated Margins'

Outreach & education

Educational Products: Glaciers: an introduction to Earth's icy regions (a lesson plan for upper elementary students, [link](#))

Climate Feedback Review for Media Outlets: The Guardian, The Wall Street Journal, The New York Times, USA Today ([link](#))

Mass Media Commentary: [Nature](#), [Popular Science](#)

Co-leader, Saturday Series Workshops @ Community Middle, free monthly science + art workshops for upper elementary school students in the Charlottesville-Albemarle area ([link](#))

Host, Math4Science Program @ UVA, class trip for alternative high school students from Brooklyn to learn about math-science integration, research activities, and university life ([link](#))