

LAUREN M SIMKINS
Department of Environmental Sciences
University of Virginia
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Charlottesville, Virginia 22904
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EDUCATION

Doctor of Philosophy in Geological Sciences 2010-2014

University of California Santa Barbara - Santa Barbara, CA

- Dissertation title: Antarctic raised beaches: Insight on geochronology, relative sea level, and coastal processes
- Under the advisement of Alexander Simms (UCSB) and Regina Dewitt (ECU)

Bachelors of Science in Geology 2005-2009

Oklahoma State University - Stillwater, OK

RESEARCH INTERESTS

Glacial geology, Geomorphology, Sedimentology, Coastal and marine processes, Paleoclimate, Quaternary geochronology

PROFESSIONAL APPOINTMENTS

Assistant Professor 2018-present

Department of Environmental Sciences

University of Virginia - Charlottesville, VA

Postdoctoral Research Associate 2014-2018

Department of Earth Science

Rice University - Houston, TX

RESEARCH APPOINTMENTS

Graduate Research Assistant 2010-2014

Department of Geological Sciences

University of California Santa Barbara - Santa Barbara, CA

Graduate Research Assistant 2010

Department of Physics

Oklahoma State University - Stillwater, OK

Undergraduate Research Assistant 2008-2010

Boone Pickens School of Geology

Oklahoma State University - Stillwater, OK

UNIVERSITY TEACHING

Instructor of Record

The Cryosphere, upper-division and graduate course, Rice University

Spring 2018

Spring 2016

Laboratory Instructor

Coastal Processes and Management, upper-division course, UCSB

Spring 2014

Dinosaurs, lower-division course, UCSB

Spring 2014

Paleoclimate, upper-division and graduate course, UCSB

Fall 2013

Physical Geology, lower-division course, UCSB
Environmental Geology, lower-division course, OSU

Spring 2012
2009

Guest Lecturer

Society and Climate Change, lower-division course, Rice University
Paleoceanography, upper-division and graduate course, Rice University
Sedimentology, upper-division course, Rice University
Antarctic Geology, graduate course, Rice University
Sedimentology and Stratigraphy, upper-division course, UCSB
Coastal processes and management, upper-division course, UCSB
Physical Geology, lower-division course, UCSB
Geologic Hazards, lower-division course, UCSB

RESEARCH MENTORSHIP

Rice University

Christine Kendrick (Summer Intern)	2017
Bethany Fowler (Undergraduate)	2016-2017
Adlai Fonesca (Summer Intern)	2015-2016
Kelsey Crocker (Undergraduate)	2015

University of California Santa Barbara

<i>Internships in Nanosystems Science, Engineering and Technology</i>	2012-2014
Angela Roman (Santa Barbara City College & UCSB)	
<i>Jack Kent Cooke Bridges for Engineering and Science Transfers Program</i>	2013
Adrian Gallardo (Summer Intern, Santa Barbara City College)	
Gustavo Muro (Summer Intern, Ventura City College)	
Eugene Wang (Summer Intern, Santa Barbara City College)	
Richard Mata (Summer Intern, Mount San Antonio College)	
<i>Condor Techs Program</i>	2013
Francisco Contreras (Summer Intern, Oxnard City College)	
Anna Lovelace (Summer Intern, Oxnard City College)	
Masoud Razavi (Summer Intern, Oxnard City College)	
Stacia Ott (Summer Intern, Oxnard City College)	

RESEARCH PROPOSALS

Simkins, L.M. (PI), Anderson, J.B. (Co-I), *NSFPLR-NERC: Thwaites Glacier Offshore Research (THOR)*, NSF Division of Polar Programs: Antarctic Glaciology, **\$242,494**, 5 years, 4/2018-3/2023.

*With collaborators at the University of Houston, Rice University, University of Alabama, LDEO, University of Exeter, and the British Antarctic Survey.

Simkins, L.M. (PI), Anderson, J.B. (Co-I), *Collaborative Research: Topographic controls on Antarctic Ice Sheet grounding line behavior - integrating models and observations*. NSF Division of Polar Programs: Antarctic Glaciology, **\$300,433**, 3 years, 9/2018-8/2021.

*With collaborators at the University of Kansas and Rice University.

Bjarnadottir, L., Greenwood, S.L., **Simkins, L.M.**, Winsborrow, M. (Co-Is), *CMP1602P: Retreat dynamics of marine-based ice sheets*. International Union for Quaternary Research (INQUA), \$9,000, 6/2016-6/2018.

TRAVEL AWARDS, FELLOWSHIPS & AWARDS

Travel Awards

West Antarctic Ice Sheet (WAIS) Workshop travel award	2016
PALSEA2 Workshop travel award	2016
IODP Antarctic Cenozoic Ice and Climate History Workshop travel award	2016
West Antarctic Ice Sheet (WAIS) Workshop travel award	2015

Fellowships

Philip and Aida Siff Educational Foundation Graduate Fellowship, UCSB	2013-2014
NSF Louis Stokes Alliance for Minority Participation Bridge to Doctorate, UCSB	2010-2012
NASA Oklahoma Space Grant Fellowship, OSU	2010
NSF Louis Stokes Alliance for Minority Participation Scholar, OSU	2008-2009
NSF International Research Experience for Students in Turkey, OSU	2008

Academic Awards

Alumni Graduate Award for Research Excellence, UCSB	2014
Coastal Geological Society Scholarship Award, UCSB	2013
Devon Energy Scholarship Award, OSU	2009
GSA-Subaru Minority Student Scholarship Award	2009

PUBLICATIONS

- Simkins, L.M.**, Greenwood S.L., Anderson, J.B., 2018. Diagnosing ice sheet grounding line stability from landform morphology. *The Cryosphere*, 12, 2707-2726. [doi: 10.5194/tc-12-2707-2018]
- 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. [doi: 10.1038/s41467-018-05625-3]
- 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. [doi: 10.1016/j.margeo.2017.09.012]
- Anderson, J.B., **Simkins, L.M.**, Bart, P.J., De Santis, L., Halberstadt, A.R.W., Olivo, E. and Greenwood, S.L., 2018. Seismic and geomorphic records of Antarctic Ice Sheet evolution in the Ross Sea and controlling factors in its behaviour. *Geological Society, London, Special Publications*, 475, SP475-5. [doi: 10.1144/SP475.5]
- 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. [doi: 10.1038/ngeo3012]
- 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. [doi:10.1130/2017.0049(03)]
- 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. [doi: 10.1144/M46.168]
- 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. [doi: 10.1016/j.quageo.2016.09.002]
- 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. [doi:10.5194/tc-10-1003-2016]
- 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. [doi: 10.1073/pnas.1516908113]
- 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. [doi: 10.1002/jqs.2782]
- Simkins, L.**, Simms, A., DeWitt, R., 2013. Relative sea-level history of Marguerite Bay derived from optically stimulated luminescence-dated raised beaches: *Quaternary Science Reviews* 77, 141-155. [doi: 10.1016/j.quascirev.2013.07.027]

- Simkins, L.**, DeWitt, R., Simms, A., 2013. Methods to reduce sample carrier contamination for luminescence measurements: *Ancient TL* 31 (1), 19-27. [http://www.ecu.edu/cs-cas/physics/Ancient-Timeline/upload/ATL_31-1_Simkins.pdf]
- 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. [[doi:10.1016/j.palaeo.2012.05.024](https://doi.org/10.1016/j.palaeo.2012.05.024)]
- 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. [[doi:10.1016/j.quascirev.2012.05.013](https://doi.org/10.1016/j.quascirev.2012.05.013)]
- 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. [[doi: 10.1111/j.1365-3091.2009.01111.x](https://doi.org/10.1111/j.1365-3091.2009.01111.x)]

SUBMITTED MANUSCRIPTS

- Halberstadt, A.R., **Simkins, L.M.**, Anderson, J.B., Prothro, L.O., Bart, P.J. Characteristics of the deforming bed: Till properties on the deglaciated Antarctic continental shelf, *Journal of Glaciology*, *in revision*.
- Demet, B.P., Nittrouer, J.A., Anderson, J.B., **Simkins, L.M.**, Sedimentary processes at ice sheet grounding-zone wedges: examples from Antarctica and Washington state. *Earth Surface Processes and Landforms*, *in revision*.
- Simms, A., Whitehouse, P., **Simkins, L.**, Nield, G., DeWitt, R., Bentley, M. Late Holocene Relative Sea-Level Reconstructions across the Antarctic Peninsula may record Late Holocene Ice Mass Changes not LGM Glacial Isostatic Adjustment, *Quaternary Science Reviews*, *in revision*.

CONFERENCE PRESENTATIONS (*Last four years*)

- Simkins, L.**, Carter, S., Schroeder, D., Greenwood, S., 2017. Meltwater drainage beneath ice sheets: What can we learn from uniting observations of contemporary and paleo-subglacial hydrology? AGU. (talk)
- Greenwood, S., **Simkins, L.**, Anderson, J., 2017. Diagnosing ice sheet grounding line stability from landform morphology. AGU. (talk)
- Prothro, L., Yokoyama, Y., **Simkins, L.**, Anderson, J., Majewski, W., 2017. Marine evidence of a deconvolving Antarctic Ice Sheet during post-LGM retreat of the Ross Sea sector. AGU.
- Steel, E., **Simkins, L.**, Reynolds, L., Fidler, M.K., 2017. Insights into alluvial fan dynamics: Evolution of the Miocene Elephant Trees Formation, Anza Borrego Desert, CA. AGU.
- Anderson, J., **Simkins, L.**, Greenwood, S., Demet, B., Halberstadt, A.R., Prothro, L., 2017. Role of Grounding Zone Wedges in Grounding Line Stabilization: Case Study from Ross Sea. GSA. (talk)
- Prothro, L., Yokoyama, Y., **Simkins, L.**, Anderson, J., Majewski, W., 2017. Timing and sea level contributions of the deconvolving Antarctic Ice Sheet during post-LGM retreat of the Ross Sea sector. GSA.
- Prothro, L., **Simkins, L.**, Anderson, J., Majewski, W., 2017. Sedimentary processes at paleo-grounding lines: glacial and oceanographic interactions during ice-sheet retreat. GSA. (talk)
- Demet, B., Nittrouer, J., Anderson, J., **Simkins, L.**, 2017. Sedimentary processes at ice sheet grounding zone wedges: Examples from Antarctica and Washington State (U.S.A.). GSA. (talk)
- Simkins, L.**, Anderson, J., 2017. Uncovered anatomy of a subglacial hydrological system coupled to past ice sheet grounding lines. SCAR Past Antarctic Ice Sheet Dynamics Meeting, Trieste, Italy. (talk)
- Horton, B.P., Peltier, W.R., Roy, K., Ashe, E., Shaw, T., Engelhart, S.E., Khan, N.S., Kopp, R.E., **Simkins, L.**, Vacchi, M., Woodworth, S.A., 2017. Holocene sea-levels from Greenland to Antarctica. EGU. (talk)
- Simkins, L.**, Greenwood, S., Anderson, J., 2016. C21D-06: Signatures of ice-marginal landforms formed at marine-based grounding lines. AGU. (talk)
- Greenwood, S., **Simkins, L.**, Halberstadt, A.R., Prothro, L., Anderson, J., 2016. C41B-0656: Holocene reconfiguration and readvance of the East Antarctic Ice Sheet. AGU. (talk)
- 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. PP11E-04: Widespread collapse of the Ross Ice Shelf during the late Holocene reconstructed from compound specific C-14 and meteoric Be-10, AGU. (Invited talk)

- Anderson, J., **Simkins, L.**, Prothro, L., 2016. C51F-03: Sedimentological fingerprint of modern and ancient meltwater outbursts across Antarctic continental shelves and slopes. AGU. (*talk*)
- Horton, B., Ashe, E., Engelhart, S., Khan, N., Kopp, R., Long, A., Peltier, R., Roy, K., Shaw, T., **Simkins, L.**, Vacchi, M., 2016. PP44A-01: A 'pole to pole' database of relative sea-level records. AGU. (*talk*)
- Halberstadt, A.R., **Simkins, L.**, Anderson, J., Prothro, L., Demet, B., Greenwood, S., Yokoyama, Y., 2016. C53C-0730: Post-LGM Retreat History in Ross Sea Reflects Changing Controls on Marine Ice Sheet Behavior. AGU.
- Prothro, L., Anderson, J., **Simkins, L.**, Majewski, W., 2016. C53C-0736: Glaciomarine Sediment Facies: Using Geomorphic Contexts and Multi-Proxy Analysis to Build Ice-Sheet Retreat Models. AGU.
- Simkins, L.**, Anderson, J., Prothro, L., Greenwood, S., Halberstadt, A.R., Stearns, L., Pollard, D., DeConto, R., Gonnermann, H., 2016. Antarctic Ice Sheet retreat influenced by subglacial meltwater outbursts. West Antarctic Ice Sheet Initiative Workshop, Sterling, Virginia. (*talk*)
- Anderson, J., Halberstadt, A.R., Yokoyama, Y., **Simkins, L.**, Prothro, L., Greenwood, S., 2016. Complex post-LGM ice sheet retreat history in Ross Sea: Changing controls on marine ice sheet stability. West Antarctic Ice Sheet Initiative Workshop, Sterling, Virginia. (*talk*)
- Simkins, L.**, Bjarnadóttir, L., Greenwood, S., Winsborrow, M., 2016. Retreat dynamics of marine-based ice sheets: What can we learn from merging Arctic and Antarctic continental shelf records. PALSEA2 Meeting, Mt. Hood, Oregon.
- Simkins, L.**, Anderson, J., Greenwood, S., Halberstadt, A.R., Prothro, L., Stearns, L., Demet, B., 2016. Signatures of meltwater influence on ice-sheet retreat from Antarctic continental shelves. Geologic Society of London Glaciated Margins Meeting, London, England. (*talk*)
- Anderson, J., **Simkins, L.**, Halberstadt, A.R., Demet, B., Prothro, L., Greenwood, S., Bart, P., 2016. Variable styles and rates of grounding line retreat revealed by high-resolution multibeam data from Ross Sea, Antarctica. Geologic Society of London Glaciated Margins Meeting, London, England. (*talk*)
- Prothro, L., Demet, B., **Simkins, L.**, Halberstadt, A.R., Anderson, J., Majewski, W., 2016. Contribution of localized processes to large-scale ice-margin instability. Geologic Society of London Glaciated Margins Meeting, London, England. (*talk*)
- Yokoyama, Y., Anderson, J., Yamane, M. **Simkins, L.**, Miyairi, Y., Yamazaki, T., Koizumi, M., Suga, H., Kushara, K., Hasumi, H., Southon, J.R., Ohkouchi, N., 2016. Widespread collapse of the Ross Ice Shelf during the late Holocene. Goldschmidt, Yokohama, Japan. (*talk*)
- Simkins, L.**, Greenwood, S.L., Anderson, J.B., Prothro, L.O., Halberstadt, A.R., Stearns, L.A., Demet, B.P., 2015. Geologic evidence of a leaky Antarctic Ice Sheet: Tracking meltwater influence on ice-sheet retreat in the Ross Sea, Antarctica since the Last Glacial Maximum. AGU. (*talk*)
- Halberstadt, A.R., **Simkins, L.**, Anderson, J.B., Prothro, L.O., Bart, P.J., 2015. Ross Sea till properties: Implications for ice-bed interactions. AGU.
- Demet, B., Anderson, J., Nittrouer, J., **Simkins, L.**, Halberstadt, A.R., Prothro, L.O., 2015. Sedimentary processes of unstable ice sheet grounding zones: Comparing polar and temperate grounding zone wedges using maring geophysical data and outcrop studies. AGU.
- Prothro, L., **Simkins, L.**, Anderson, J., Halberstadt, A.R., Yokoyama, Y., Majewski, W., Minzoni, R., 2015. Refining our understanding of sediment retreat facies and geomorphology for an accurate deglacial history of the Ross Sea. GSA, Baltimore, MD.
- Simkins, L.**, Greenwood, S.L., Anderson, J.B., Halberstadt, A.R., Prothro, L.O., Demet, B.P., Stearns, L.A., 2015. Evidence of meltwater influence on rapid ice-sheet retreat in the Ross Sea, Antarctica. West Antarctic Ice Sheet Initiative Workshop, Loveland, CO. (*talk*)
- Halberstadt, A.R., Greenwood, S.L., **Simkins, L.**, Anderson, J.B., 2015. Ross Sea ice stream paleodrainage: retreat scenarios and changing controls. West Antarctic Ice Sheet Initiative Workshop, Loveland, CO.
- Prothro, L., **Simkins, L.**, Anderson, J., Halberstadt, A.R., Yokoyama, Y., Majewski, W., Minzoni, R., 2015. Refining our understanding of sediment retreat facies and geomorphology for an accurate deglacial history of the Ross Sea. West Antarctic Ice Sheet Initiative Workshop, Loveland, CO.
- Simkins, L.**, Halberstadt, A., Greenwood, S., Anderson, J., Mayewski, W., Minzoni, R., Prothro, L., Demet, B., Demianiuk, E., Muñoz, Y., 2015. Geomorphic and sedimentological record of complex and episodic post-LGM ice-sheet retreat in the western Ross Sea, Antarctica. International Union for Quaternary Research, Nagoya, Japan. (*talk*)

- Greenwood, S., **Simkins, L.**, Halberstadt, A., Anderson, J., Demet, B., Muñoz, Y., Prothro, L., 2015. Time-varying configuration of ice flow in the western Ross Sea reveals competing West and East Antarctic ice sources during the last glacial period. International Union for Quaternary Research, Nagoya, Japan. (*talk*)
- Simkins, L.**, Simms, A., DeWitt, R., 2015. Antarctic raised beaches as a storm proxy: assessing the link between coastal morphology and climate change throughout the Holocene. International Union for Quaternary Research, Nagoya, Japan. (*talk*)

INVITED TALKS

University of Illinois, Chicago, IL	2018
University of Virginia, Charlottesville, VA	2018
Scripps Institution of Oceanography, University of California San Diego, CA	2017
Department of Earth and Atmospheric Sciences, University of Houston, Houston, TX	2017
School of Earth Sciences, Ohio State University, Columbus, OH	2017
EcoTeen Lecture, Houston Museum of Natural Science, Houston, TX	2016
Boone Pickens School of Geology, Oklahoma State University, Stillwater, OK	2016
Louis Stokes Midwest Center of Excellence Voices of Success Panelist, Lisle, IL	2016
Department of Geology, Occidental College, Los Angeles, CA	2016
Department of Geological Sciences, California State University Fullerton, Fullerton, CA	2014
Department of Earth Sciences, Rice University, Houston, TX	2014
Earth Research Institute, University of California Santa Barbara, Santa Barbara, CA	2013
Aera Energy, Bakersfield, California	2013

ACADEMIC SERVICE

Advisory Board Member **2016-present**
 Boone Pickens School of Geology
 Oklahoma State University

Conference Organization

Convener, Session T42: Glacier and Ice Sheet Grounding Lines: Contemporary and Past Observation of Grounding Line Processes, Behavior, and Landforms, GSA 2017.
 Field Trip Leader, Grounding line processes of the southern Cordilleran Ice Sheet: Whidbey Island, Puget Lowlands, GSA 2017.
 Convener, Sessions C51F, C52B, C53C: Geophysical and Geological Records of Glaciated Margins I-III, AGU 2016.

Referee

Journals

Journal of Quaternary Research, Geology, GSA Today, Physical Geography, Sedimentary Geology, The Cryosphere, Quaternary Science Reviews, Science Advances

Proposals

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

Other

- AGU Global Environmental Change Student Travel Grants Applications 2018
- Science content in media article [climatefeedback.org] published by The Guardian, The Wall Street Journal, The New York Times, USA Today