

Shaun A. Marcott

Assistant Professor
Department of Geoscience
1215 W. Dayton St., Weeks Hall
University of Wisconsin-Madison
Madison, WI 53706

Email: smarcott@wisc.edu
Ph. 608.262.2368
Web. <http://proglacial.com>

EDUCATION

Postdoc, CEOAS, Oregon State University, Corvallis, OR (2011-2014)

Advisor: Edward J. Brook

Ph.D., Department of Geosciences, Oregon State University, Corvallis, OR (2011)

Advisor: Peter U. Clark *Major: Geology & minor in Oceanography*

M.S., Department of Geology, Portland State University, Portland, OR (2005)

Advisor: Andrew G. Fountain *Major: Geology*

B.S., Department of Geosciences, Oregon State University, Corvallis, OR (2002)

Major: Geology & minor in Mathematics

RESEARCH EXPERIENCE

Assistant Professor, University of Wisconsin-Madison (2014 – Present)

Postdoctoral Researcher, College of Earth, Ocean, and Atmospheric Sciences (2011 – 2014)

Research Assistant, Department of Geosciences, Oregon State University (2006 – 2011)

Research Assistant, Department of Geology, Portland State University (2003 – 2005)

Research Assistant, Department of Geosciences, Oregon State University (2001)

TEACHING EXPERIENCE

Assistant Professor, University of Wisconsin-Madison (2014 – Present)

Latest Pleistocene Abrupt Climate Change, Paleooceanography, Glacial Geology, and Oceanography.

Teaching Assistant, Department of Geosciences, Oregon State University (2005 – 2007)

Teaching Assistant, Department of Geology, Portland State University (2003 – 2005)

Teaching Assistant, Department of Geosciences, Oregon State University (2002)

GRANTS RECEIVED

2015.06 National Science Foundation: Collaborative Research: POISE (Petermann Ocean Ice Shelf Experiment) - Paleo Perspectives on the Petermann Gletscher System, North Greenland, \$1,530,263 (\$280,579 to Marcott as sub-contract).

2015.04 Reid Bryson (CPEP) Exploratory Research Grant, University of Wisconsin-Madison, \$5,120

2014.09 National Science Foundation: Workshop – Past as Prologue: Holocene Climate as Context for Future Climate Change, \$49,993

2014.09 PAGES Science Office: Workshop: Past as Prologue – Holocene Climate as Context for Future Climate Change, \$10,000

PROFESSIONAL PRESENTATIONS

- 2017.05 PAGES Open Science Meeting. Zaragoza, Spain: Holocene Climate Change (*Invited Speaker*).
- 2017.04 Northwestern University: Holocene Changes in the Greenland Ice Sheet (*Invited Speaker*).
- 2016.05 University of Wyoming: Northwest Greenland Deglaciation (*Invited Speaker*).
- 2015.11 University of Albany: Holocene Climate Change as Context for the Future (*Invited Speaker*).
- 2015.06 National Academy of Sciences, Kavil Frontiers of Science. Seoul, South Korea: Holocene Climate Change (*Invited Speaker*).
- 2015.04 University of Wisconsin-Madison, Geoscience Graduate Symposium: Holocene Climate Change and the Future of the Planet (*Keynote Speaker*).
- 2015.03 Leopoldina German National Academy of Sciences Meeting – Global Carbon Transfer Between Ocean, Atmosphere, and Land. Halle, Germany: Centennial Scale Changes in Atmospheric CO₂ over the last 70,000 years (*Invited Speaker*).
- 2015.03 University of Wisconsin-Madison, Climate Change Research Symposium: Holocene Climate Change as Context for the Future (*Invited Speaker*).
- 2015.02 University of Wisconsin-Milwaukee: Late Pleistocene Cirque Glaciation – No Neoglaciation in the western United States? (*Invited Speaker*).
- 2014.12 American Geophysical Union. San Francisco, CA: Long-term perspective underscores need for stronger near-term policies on climate change.
- 2014.12 National Institute of Polar Research Fifth Symposium on Polar Science. Tokyo, Japan: Abrupt Changes in the Global Carbon Cycle Over the Past 70ka (*Invited Speaker*).
- 2014.09 West Antarctic Ice Divide Meeting. La Jolla, California: Abrupt Changes in the Global Carbon Cycle Over the Past 70ka.

PROFESSIONAL REVIEWS

Climate of the Past	Earth and Planetary Science Letters
Geology	Geophysical Research Letters
Global and Planetary Change	Nature
Nature Geoscience	Nature Climate Change
Quaternary Research	The Holocene
German Research Foundation	National Geographic
Swiss National Science Foundation	U.S. National Science Foundation

MEMBERSHIP

American Geophysical Union
Geologic Society of America
Rosebud Sioux Tribe

PROFESSIONAL SERVICES

- 2016.12 Meeting Convener – American Geophysical Union. San Francisco, CA. Abrupt Climate Change: Causes, Mechanisms and Consequences (PP Session).
- 2014.12 Lead Meeting Convener – American Geophysical Union. San Francisco, CA. The Carbon Cycle on Millennial to Annual Timescales (Union Session).
- 2014.10 Lead Workshop Organizer. Timberline Lodge, Mt. Hood, OR: Holocene Climate as Context for Future Climate Change.

2014.10 Workshop Panelist – Interviewing for Faculty Positions, University of Wisconsin-Madison.

THESES AND POSTDOCTORATES SUPERVISED

2016.09 Cameron Batchelor, TBD in Fall 2016 (M.S. expected 2018)
2016.05 Claire Vavrus, Holocene Alpine Glacial Histories in western U.S. in (B.S. expected 2018)
2015.09 Melissa Reusche, Neoglacial advances of the Greenland Ice Sheet (M.S. expected 2017)
2015.09 Elizabeth Ceperley, Laurentide and Greenland Ice Sheet Dynamics (PhD. expected 2019)
2015.01 Alexander Horvath, Deglacial History of the Adirondack Mountains (B.S. expected 2017)

2016.10 Jeremiah Marsicek, The Holocene Climate Conundrum (Postdoc. 2016-present)
2016.08 Aaron Barth, Northern and Southern Alpine Glaciation (Postdoc. 2016-present)

PUBLIC OUTREACH AND MEDIA

2016.05 On Wisconsin Magazine: Climate Change to the Last Millenia
2016.02 UW-Madison News: Long-term picture offers little solace on climate change
2016.02 CNN 60 Minutes: Greenland Ice Sheet Changes
2015.07 77th Parallel Productions: Petermann Glacier, NW Greenland
2014.10 ClimateWire – Atmospheric CO₂ increased in 3 bursts after last ice age
2014.10 Science Daily – They know the drill: UW leads the league in boring through ice sheets
2014.10 Reportingclimatescience.com – Abrupt CO₂ pulses in the last deglaciation
2014.10 Arstechnica.com – As Earth left the last ice age, CO₂ rose in fits and starts
2014.10 UWToday – New study shows three abrupt pulses of CO₂ during the last deglaciation
2014.10 Scripps Institute of Oceanography – New study shows three abrupt pulses of CO₂ during the last deglaciation
2014.10 BioPortfolio.com – Centennial-scale changes in the global carbon cycle during the last deglaciation
2014.10 ScienceBlog.com – Three abrupt pulses of CO₂ led to ending of last ice age
2014.10 Phys.org – New study shows three abrupt pulse of carbon dioxide during last deglaciation.
2014.09 Scientific Reviewer – NOAA Climate.gov: “What’s the hottest Earth has been “lately”?”

Also, interviewed by several media outlets for ongoing and prior research (e.g. National Public Radio, New York Times, Associated Press, Wall Street Journal, Christian Science Monitor, CNN, NBC).

PUBLICATIONS

Bill, N.S., Clark, P.U., Kurz, M.D., **Marcott, S.A.**, Caffee, M.W., and Lifton, N.A. (*in preparation for Nature Geoscience*) Early and sustained deglaciation of the McMurdo Sound region, West Antarctic Ice Sheet.

Barth, A.M., Clark, P.U., Clark, J., McCabe, A.M., Cuzzone, J.K., **Marcott, S.A.**, Dunlop, P., and Caffee, M. (*in preparation for Nature Geoscience*) Persistent millennial-scale cirque-glacier fluctuations in Ireland between 24,000 and 10,000 years ago.

Hansen, J., Sato, M., Kharecha, P., von Schuckmann, K., Beerling, D.J., Cao, J., **Marcott, S.A.**, Masson-Delmotte, V., Prather, M.J., Rohling, E.J., Shakun, J.D., and Smith, P. *submitted*, Young People’s Burden: Requirement of Negative CO₂ Emissions.

- Zhang, J., Liu, Z., Brady, E.C., Jahn, A., Oppo, D.W., Clark, P.U., **Marcott, S.A.**, Lindsay, K., (*submitted PNAS*), Dynamic warming of deep Atlantic water masses during the last deglaciation.
- Wycech, J., Kelly, D.C., and **Marcott, S.A.**, 2016, Effects of Seafloor Diagenesis on Planktic Foraminiferal Radiocarbon Ages, *Geology*, v. 44, p. 551-554.
- Cuzzone, J.K., Clark, P.U., Carlson, A.E., Ullman, D.J., Rinterknecht, V.R., Lunka, J.P., Wohlfarth, B., **Marcott, S.A.**, and Caffee, M., 2016, Final deglaciation of the Scandinavian Ice Sheet and Holocene sea-level implications, *Earth and Planetary Science Letters*, v. 448, p.34-41.
- Bauska, T.K., Baggenstos, D., Brook, E.J., **Marcott, S.A.**, Mix, A.C., Severinghaus, J.P., Petrenko, V.V., Schaefer, H., and Lee, J.E., 2016, Carbon isotopes characterize rapid changes in atmospheric carbon dioxide during the last deglaciation, *Proceedings of the National Academy of Science*, doi: 10.1073/pnas.1513868113.
- Clark, P.U., Shakun, J.D., **Marcott, S.A.**, Mix, A.C., Bard, E., Eby, M., Kulp, S., Levermann, A., Milne, G.A., Pfister, P.L., Santer, B.D., Schrag, D.P., Solomon, S., Stocker, T.F., Strauss, B.H., Weaver, A.J., Winkelmann, R., Archer, D., Bard, E., Goldner, A., Lambeck, K., Pierrehumbert, R.T., and Plattner, G.-K., 2016, Consequences of twenty-first-century policy for multi-millennial climate and sea-level change, *Nature Climate Change*, doi: 10.1038/nclimate2923.
- Shakun, J.D., Clark, P.U., **Marcott, S.A.**, Brook, E.J., and Caffee, M.W., 2015, ^{10}Be constraints on the timing of the Last Glacial Maximum and deglaciation in the northern Peruvian Andes, *Journal of Quaternary Science*, v. 30, p. 841-847.
- WAIS-Divide Project Members**, 2015, Precise inter-polar phasing of abrupt climate change during the last ice age: *Nature*, v. 520, p. 661–665, doi: 10.1038/nature14401.
- Marcott, S.A.**, Bauska, T.K., Buizert, C., Steig, E.J., Rosen, J.L., Cuffey, K.M., Fudge, T.J., Severinghaus, J.P., Ahn, J., Kalk, M.L., McConnell, J.R., Sowers, T., Taylor, K.C., White, J.W.C. and Brook, E.J., 2014. Centennial Scale Changes in the Global Carbon Cycle During the Last Deglaciation, *Nature*, doi:10.1038/nature13799.
- Köhler, P., Fischer, H., Schmitt, J., Brook, E.J., and **Marcott, S.A.**, 2014, Comment on “Synchronous records of pCO_2 and $\Delta^{14}\text{C}$ suggest rapid, ocean-derived pCO_2 fluctuations at the onset of Younger Dryas” by Steinhilber et al, *Quaternary Science Reviews*, <http://dx.doi.org/10.1016/j.quascirev.2014.09.024>.
- Marcott, S.A.**, Shakun, J.D., Clark, P.U., and Mix, A.C., 2013, A Reconstruction of Regional and Global Temperature for the past 11,300 Years. *Science*, doi 10.1126/science.1228026.
- Shakun, J.D., Clark, P.U., He, F., **Marcott, S.A.**, Mix, A.C., Liu, Z., Otto-Bliesner, B.L., Schmittner, A., and Bard, E. 2012. Global warming preceded by increasing carbon dioxide concentrations during the last deglaciation. *Nature*, doi:10.1038/nature10915.
- Marcott, S.A.**, Clark, P.U., Padman, L., Klinkhammer, G.P., Springer, S., Liu, Z., Otto-Bliesner, B.L., Carlson, A.E., Ungerer, A., Padman, J., He, F., Cheng, J. and Schmittner, A., 2011, Ice-shelf collapse from subsurface warming as a trigger for Heinrich events, *Proceedings of the National Academy of Sciences*, doi:10.1073/pnas.1104772108.
- Marcott, S.A.**, Fountain, A.G., O'Connor, J.E., Sniffen, P.J., and Dethier, D.P., 2009, A latest Pleistocene and Holocene glacial history and paleoclimate record at Three Sisters Volcanoes, Oregon, United

ABSTRACTS (*student, postdocs)

- *Reusché, M.M., *Ceperley, E.G., **Marcott, S.A.**, Brook, E.J., and Mix, A.C. (2016) American Geophysical Union, Surface Exposure dating of glaciated landscapes in Washington Land, northwest Greenland.
- Brook, E.J., Lee, J., Edwards, J., Bauska, Rhodes, R., T.K., Buffen, A., **Marcott, S.A.**, Ahn, J., Petrenko, V., Schmitt, J., and Fischer, H. (2016), American Geophysical Union, Abrupt changes in atmospheric carbon dioxide and methane during Heinrich Stadials from very high resolution ice core data.
- Brook, E.J., **Marcott, S.A.**, Bauska, T.K., Buffen, A., Edwards, J.S., Ahn, J., Rhodes, R., Severinghaus, J., Petrenko, V., Menking, A., Kalk, M. (2016), International Polar Ice Core Meeting: Links between abrupt change in tropical hydroclimate, high-latitude climate change, and atmospheric greenhouse gases during the last ice age.
- Ahn, J., Brook, E.J., and **Marcott, S.A.** (2015), American Geophysical Union: Atmospheric CO₂ and carbon cycle during the late Holocene.
- Brook, E.J., Rhodes, R., **Marcott, S.A.**, Bauska, Edwards, J.S., Rosen, J., Severinghaus, J., Petrenko, V., Menking, A., Kalk, M. (2015), American Geophysical Union: Links between abrupt change in tropical hydroclimate, high-latitude climate change, and atmospheric greenhouse gases during the last ice age.
- Davis, P.T., **Marcott, S.A.**, Bucci, G., Clark, P.U., Caffee, M.W., and Cuzzone, J.C. (2015), International Quaternary Association: Age of the Type Satanta Peak Moraine, Colorado Front Range, USA.
- Hoffman, J.S., Clark, P.U., Pisias, N.G., **Marcott, S.A.**, and Shakun, J.D. (2015), International Quaternary Association: Reconstructing global sea surface temperatures during the last interglaciation.
- Ahn, J., Brook, E.J., and **Marcott, S.A.** (2014), European Geophysical Union: Atmospheric CO₂ and carbon cycle during the late Holocene.
- Hoffman, J.S., Clark, P.U., Pisias, N.G., **Marcott, S.A.**, and Shakun, J.D. (2014), American Geophysical Union: Estimating age model uncertainties for the last interglaciation.
- Bill, N., Clark, P.U., Kurz, M.D., Marcott, S.A., and Caffee, M. (2014), American Geophysical Union: Constraints on the last deglaciation of the Ross Sector of the West Antarctic Ice Sheet (WAIS) from ¹⁰Be dating
- Schmitt, J., Eggleston, S., **Marcott, S.A.**, Brook, E.J., Chappellaz, J.A., Köhler, P., Joos, F., and Fischer, H. (2014), American Geophysical Union: Atmospheric CO₂ Reconstructions from Polar Ice: What Do High-Resolution CO₂ Records and δ¹³CO₂ Analyses Tell Us about Past Climate and Global Carbon Cycle Processes?
- Cuzzone, J.K., Clark, P.U., **Marcott, S.A.**, Carlson, A.E., Ullman, D.J., Lunkka, J.P., Wohlfarth, B., and Caffee, M.W. (2014), American Geophysical Union: Holocene deglaciation of the Scandinavian Ice Sheet and Implications for Late-Glacial Sea-Level Rise
- Fischer, H., Schmitt, J., Schneider, R., Eggleston, S., Joos, F., Bauska, T., **Marcott, S.A.**, Brook, E.J., Köhler, P., and Chappellaz, J. (2014), Leopoldina German National Academy of Sciences Meeting: Last insights into past carbon cycle changes from CO₂ and δ¹³C_{atm}.