

Shaun A. Marcott

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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

PROFESSIONAL APPOINTMENTS

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

Affiliate Faculty, Atmospheric and Oceanic Sciences, University of Wisconsin-Madison (2017–Present)

Affiliate Faculty, American Indian Studies, University of Wisconsin-Madison (2017 – 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)

PUBLICATIONS (*student, postdocs; citation and download links on [Google Scholar](#))

Batchelor, C.J., Orland, I.J., **Marcott, S.A.**, Slaughter, R., Edward, R.L., and Cheng, H. (2019-in revision at *Geophysical Research Letters*) Permafrost conditions across two glacial periods from Mid-Latitude North America.

Menking, J. A., Brook, E. J., Shackleton, S. A., Severinghaus, J. P., Dyonisius, M. N., Petrenko, V., McConnell, J. R., Rhodes, R. H., Bauska, T. K., Baggenstos, D., **Marcott, S.A.** and Barker, S., 2019, Spatial pattern of accumulation at Taylor Dome during Marine Isotope Stage 4: stratigraphic constraints from Taylor Glacier, *Climate of the Past*, 15(4), 1537–1556, doi:10.5194/cp-15-1537-2019.

Reilly, B. T., Stoner, J. S., Mix, A. C., Walczak, M. H., Jennings, A., Jakobsson, M., Dyke, L., Glueder, A., Nicholls, K., Hogan, K. A., Mayer, L. A., Hatfield, R. G., Albert, S., **Marcott, S.A.**, Fallon, S. and Cheseby, M., 2019, Holocene break-up and reestablishment of the Petermann Ice Tongue, Northwest Greenland, *Quaternary Science Reviews.*, 218, 322–342, doi:10.1016/j.quascirev.2019.06.023.

Shackleton, S., Bereiter, B., Baggenstos, D., Bauska, T.K., Brook, E.J., **Marcott, S.A.**, and Severinghaus, J.P., 2019, Is the Noble Gas-Based Rate of Ocean Warming During the Younger Dryas Overestimated? *Geophysical Research Letters*, doi:10.1029/2019GL082971.

- Marcott, S.A.**, Clark, P.U., Shakun, J.D., Brook, E.J., Davis, P.T., and Caffee, M.W., 2019, ^{10}Be age constraints on latest Pleistocene and Holocene cirque glaciation across the western United States: *npj Climate and Atmospheric Science*, v. 2, doi:10.1038/s41612-019-0062-z.
- *Ceperley, E.G., **Marcott, S.A.**, Rawling, J.E., Zoet, L.K., and Zimmerman, S.R.H., 2019, The role of permafrost on the morphology of an MIS 3 moraine from the southern Laurentide Ice Sheet: *Geology*, v. 47, p. 440–444, doi:10.1130/G45874.1.
- *Barth, A.M., **Marcott, S.A.**, Licciardi, J.M., and Shakun, J.D., 2019, Deglacial thinning of the Laurentide Ice Sheet in the Adirondack Mountains, New York, USA revealed by ^{36}Cl exposure dating: *Paleoceanography and Paleoclimatology*, doi:10.1029/2018PA003477.
- *Reusche, M.M., **Marcott, S.A.**, *Ceperley, E.G., *Barth, A.M., Brook, E.J., Mix, A.C., and Caffee, M.W., 2018, Early to Late Holocene Surface Exposure Ages From Two Marine-Terminating Outlet Glaciers, *Geophysical Research Letters* in Northwest Greenland, 45, 7028–7039. doi.org/10.1029/2018GL078266.
- Bauska, T.K., Brook, E.J., **Marcott, S.A.**, Shackelton, S., Baggenstos, D., Severinghaus, J.P., Petrenko, and V.V., 2018, Controls on Millennial-Scale Atmospheric CO_2 Variability During the Last Glacial Period, *Geophysical Research Letters*, 45, 7731–7740. doi.org/ 10.1029/2018GL077881
- Zhu, J., Liu, Z., Brady, E.C., Otto-Bliesner, B.L., **Marcott, S.A.**, Zhang, J., Wang, X., Nusbaumer, J., Wong, T.E., Jahn, A., and Noone, D., 2018, Investigating the direct meltwater effect in terrestrial oxygen-isotope paleoclimate records using an isotope-enabled Earth system model, *Geophysical Research Letters*, doi.org/10.1002/2017GL076253.
- *Barth, A.M., Clark, P.U., Clark, J., Roe, G.H., **Marcott, S.A.**, McCabe, A.M., Caffee, He, F., M. Cuzzone, J.K., and Dunlop, P., 2018, Persistent millennial-scale glacier fluctuations in Ireland between 24 ka and 10 ka, *Geology*, v. 46, p. 151-154.
- Marcott, S.A.** and Shakun, J.D., 2017, A record of ice sheet demise, *Science*, v. 358, p. 721-722 doi:10.1126/science.aag1179.
- Zhang, J., Liu, Z., Brady, E.C., Jahn, A., Oppo, D.W., Clark, P.U., **Marcott, S.A.**, Lindsay, K., 2017, Asynchronous warming and $\delta^{18}\text{O}$ evolution of deep Atlantic water masses during the last deglaciation, *Proceedings of the National Academy of Sciences*, doi.org/10.1073/pnas.1704512114.
- 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., 2017, Young People’s Burden: Requirement of Negative CO_2 Emissions, *Earth System Dynamics*, 8, 577-616, https://doi.org/10.5194/esd-8-577-2017.
- 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, ¹⁰Be 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.** and Shakun, J.D., 2015, Holocene climate change and its context for the future, *PAGES News*, 23, p. 28
- 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 pCO₂ and Δ¹⁴C suggest rapid, ocean-derived pCO₂ fluctuations at the onset of Younger Dryas” by Steinhilber et al, *Quaternary Science Reviews*, 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 States, *Quaternary Research*, v. 71, p. 181-189.

Papers in Preparation (not yet submitted):

- Marcott, S.A.**, Bauska, T.K., and Brook, E.J. (2019-in prep.) The ice core record of atmospheric CO₂ variability on the centennial-scale: insights from timing and isotopic tracing.
- *Liu, H., Meyers, S.R., and **Marcott, S.A.** (2019-in prep.) A Sediment Mixing Model for Better Assessing Paleoclimate Data from Marine Records.
- *Ceperley, E.G., **Marcott, S.A.**, *Reusche, M.M., *Barth, A.M., Brook, E.J., Mix, A.C., and Caffee, M.W. (2019-in prep.) Deglaciation of Nares Strait and Washington Land, northwest Greenland.
- *Becker, R., *Barth, A.M., **Marcott, S.A.**, and Tikoff, B.(2019-in prep.) Constraining the timing and magnitude of deglaciation in the west-central portion of the Sierra Nevada Mountains (USA)

from the LGM to the Holocene

Goring, S., *Marsicek, J., **Marcott, S.A.**, *Ye, S., Meyers, S.R., Williams, J.W., Peters, S., Singer, B.S. (2019- in prep.) Automated Ice-Rafted Debris site locations over the Plio-Pleistocene with GeoDeepDive technology.

ABSTRACTS (*student, postdocs) (2014-present)

- Brook, E.J., Yan, Yuzhen, Higgins, J., Bender, M., Severinghaus, J., Bauska, T.K., **Marcott, S.A.**, and Menking, A. (2019) International Conference on Paleoceanography. Multiple Time Scales of Atmospheric CO₂ variability in the late Quaternary.
- Severinghaus, J., Abernathy, R., Anderson, R., Shackleton, S., Bereiter, B., Putnam, A., Denton, G., **Marcott, S.A.**, and Brook, E.J.. (2019) Goldschmidt. Five geochemical time series support a southward shift of the Earth's thermal equator, causing better ventilation of the deep ocean, as the cause of the rise in atmospheric CO₂ at the end of the last glacial period.
- Davis, P.T., **Marcott, S.A.**, *Vavrus, C., *Barth, A.M., Shakun, J.D., and Caffee, M.W. (2019) Geologic Society of America. Precise Cosmogenic Measurements in Support of a Younger Dryas Age for Fourth of July Cirque Outer Moraine, Colorado Front Range, USA.
- Quinn, D.P., Schaen, A., Sundell, K.E., Gehrels, G., Goring, S., **Marcott, S.A.**, Meyers, S.R., Peters, S.E., Ross, J., Schmitz, M.D., Singer, B.S., Williams, J.W. (2019) Geologic Society of America. SPARROW: A Data Management System and Cyberinfrastructure Component Targeted at Geochronology Laboratories.
- Anderson, K., Osterberg, E., Winski, D., Kreutz, K., Cole-Dai, J., Ferris, D., Thundercloud, Z., Cheslter, A., Steig, S., Brook, E.J., Buizert, C., Markle, B., **Marcott, S.A.**, Koffman, B. (2019) American Geophysical Union. Left in the Dust? South Pole Ice Core Dust Record of Southern Westerly Winds during Dansgaard-Oeschger Events.
- Bauska, T.K., **Marcott, S.A.**, Brook, E.J. (2019) American Geophysical Union. The ice core record of atmospheric CO₂ variability on the centennial-scale: insights from timing and isotopic tracing.
- Gorin, D. Shakun, J.D., Goehring, B., **Marcott, S.A.**, Bromley, G., Clark, D., Hein, A., Kelly, M., Menounos, B.. (2019) American Geophysical Union. Holocene glacier length variations along the American Cordillera from the ¹⁴C-¹⁰Be chronometer.
- Marcott, S.A.**, *Ceperley, E.G., *Reusche, M.M., *Barth, A.M., Brook, E.J., Mix, A.C., and Caffee, M.W. (2019) American Geophysical Union. Rapid and widespread Early Holocene deglaciation of Washington Land, northwest Greenland.
- *Batchelor, C.J., Orland, I.J., and **Marcott, S.A.** (2019) American Geophysical Union. Interglacial and glacial climate variability in the mid-continent of North America from Wisconsin speleothems.
- Mixon, E.E., Singer, B.S., Jicha, B.R., **Marcott, S.A.**, Moreno, H., and Ramiraz, A. (2019) American Geophysical Union. ⁴⁰Ar/³⁹Ar Geochronology and Geochemical Evolution of Calbuco Volcano (41°S): An Investigation of Trans-Crustal Magma System Response to Glacial Loading from 0-200 ka.
- *Ceperley, E.G., **Marcott, S.A.**, Caffee, M.W. (2019) American Geophysical Union. Paired cosmogenic isotopes reveal Early Pleistocene glacial history in northwest.
- *Ceperley, E.G., **Marcott, S.A.**, Rawling, J.E., Zoet, L.K., Zimmerman, S.K. (2019) North Central Geological Society of America. The role of permafrost on the morphology of an MIS 3 moraine

from the southern Laurentide Ice Sheet.

- Morency, M.J., Ullman, D.J., Fitz, T.J., **Marcott, S.A.**, *Barth, A.M., *Ceperley, E.G., Breckenridge, A.J., Caffee, M.W. and Prince, K.K. (2018) American Geophysical Union. Establishing a New Chronology of Glacial Lake Duluth and its Implications for Ice Sheet Retreat in the Lake Superior Basin.
- Prince, K.K., Morency, M.J., Ullman, D.J., Fitz, T.J., *Barth, A.M., *Ceperley, E.G., **Marcott, S.A.** and Caffee, M.W. (2018) American Geophysical Union. Deglaciation of the Huron Mountains in Northern Michigan and the Implications for Continental Meltwater Routing
- *Liu, H., Meyers, S.R., and **Marcott, S.A.** (2018) American Geophysical Union. A Sediment Mixing Model for Better Assessing Paleoclimate Data from Marine Records
- Brook, E.J., Bauska T.K., Lee, J., Rhodes, R., Schmitt, J., Fischer, H., **Marcott, S.A.**, Edwards, J.S., Menking, J.A., Ahn, J., and Kalk, M. (2018) American Geophysical Union. A synthesis of fast changes in greenhouse gases in ice cores.
- * Batchelor, C.J., Orland, I.J., **Marcott, S.A.**, Slaughter, R., and Edward, L. (2018) American Geophysical Union. A high-precision U-Th chronology of calcite deposition at Cave of the Mounds, Wisconsin, and its implications for climate and permafrost in the late Pleistocene.
- *Ceperley, E.G., **Marcott, S.A.**, *Reusche, M.M., *Barth, A.M., Brook, E.J., Mix, A.C., and Caffee, M.W. (2018) American Geophysical Union. Deglaciation of Nares Strait and Washington Land, northwest Greenland
- *Batchelor, C.J., Orland, I.J., **Marcott, S.A.**, Slaughter, R., and Edward, L. (2018) North Central Geological Society of America. A high-precision U-Th chronology of calcite deposition at Cave of the Mounds, Wisconsin, and its implications for climate and permafrost in the late Pleistocene.
- *Ceperley, E.G., **Marcott, S.A.**, and Rawling, J.E. III (2018) North Central Geological Society of America. A 10-Be based chronology for the Arnott Moraine of the Laurentide Ice Sheet, central Wisconsin
- *Marsicek, J.P. and **Marcott, S.A.** (2018) European Geophysical Union. Global-to-Regional Scale Climate Trends and Variability over the Holocene
- *Ceperley, E.G., **Marcott, S.A.**, Reusche, M.M., Barth, A.M., Brook, E.J., Mix, A.C., and Caffee, M.W. (2017) Geological Society of America. Deglaciation of Nares Strait and Washington Land, northwest Greenland
- *Batchelor, C.J., Orland, I.J., **Marcott, S.A.**, Slaughter, R., and Edward, L. (2017) Geological Society of America. A high-precision U-Th chronology of calcite deposition at Cave of the Mounds, Wisconsin, and its implications for climate and permafrost in the late Pleistocene
- *Vavrus, C.E., *Barth, A.M., **Marcott, S.A.**, *Ceperley, E.G., Shakun, J.D., and Caffee, M.W. (2017) Geological Society of America. A late Holocene ¹⁰Be based glacial chronology for the Beartooth Mountains, southwestern Montana
- *Becker, R., *Barth, A.M., **Marcott, S.A.**, and Tikoff, B. (2017) Geological Society of America. Constraining the timing and magnitude of deglaciation in the west-central portion of the Sierra Nevada Mountains (USA) from the LGM to the Holocene
- *Barth, A.M., **Marcott, S.A.**, Shakun, J.D., Licciardi, J.M., and *Horvath, A. (2017) Geological Society of America. Early deglacial thinning of the Laurentide Ice Sheet followed by rapid regional

deglaciation.

- *Barth, A.M., Clark, P.U., Clark, J., **Marcott, S.A.**, McCabe, A.M., Caffee, M., Cuzzone, J.K., and Dunlop, P. (2017) PAGES Open Science Meeting. Persistent millennial-scale cirque-glacier fluctuations in Ireland between 24,000 and 10,000 years ago.
- Bauska, T.K., Brook, E.J., **Marcott, S.A.**, Baggenstos, D., Shackelton, S., Severinghaus, J.P., Petrenko, and V.V. (2017) PAGES Open Science Meeting. Abrupt climate change events and atmospheric CO₂: constraints from ice core δ¹³C-CO₂ during the last glacial period.
- Brook, E.J., Rhodes, R., **Marcott, S.A.**, Lee, J., Edwards, J., Bauska T.K., Ahn, J., Kalk, M., Schmitt, J., and Fischer, H. (2017) PAGES Open Science Meeting. New observations of past, fast changes in greenhouse gases.
- *Ceperley, E.G. and **Marcott, S.A.** (2017) PAGES Open Science Meeting. A Late Pleistocene Meltwater Routing Record from the Gulf of Mexico.
- Marcott, S.A.**, *Marsicek, J., Rouston, C., Shakun, J.D., Kaufman, D., and McKay, N. (2017) PAGES Open Science Meeting. Holocene Climate Change: A Data Perspective.
- *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}.

GRANTS RECEIVED

- 2019.06 Cluster Hire Competition and Initiative, Office of the Provost, University of Wisconsin-Madison: The Emerging Polar Regions, \$1,710,000 (co-PI with Tikoff, Zoet, Vimont, Williams, Hotchkiss, Dugan, and others)
- 2019.05 Reid Bryson (CPEP) Exploratory Research Grant University of Wisconsin-Madison: Toward Resolving the Holocene Climate Conundrum: A Global Data-Model Evaluation and Synthesis, \$10,060 (PI with He)
- 2018.09 National Science Foundation: Collaborative Research: Holocene glacier length variations along the spine of the American Cordilleras and their climatic significance, \$98,515 (co-PI with Shakun and Goehring).
- 2018.09 National Science Foundation: Speleothem records of permafrost and climate from an ice-proximal, mid-continent cave, \$358,171 (PI with Orland).
- 2018.06 WARF Fall Competition, University of Wisconsin-Madison: Holocene Climate Change: Improving Geochronologic Infrastructure for Paleoclimate and Volcanology Research at UW-Madison, \$39,585 (PI with Singer)
- 2017.09 National Science Foundation: Collaborative Research: Collaborative Proposal: EarthCube Integration: Geochronology Frontier at the Laboratory-Cyberinformatics Interface, \$1,499,532 (co-PI with Singer, Goring, Meyers, Peters, and Williams).
- 2017.06 WARF Fall Competition, University of Wisconsin-Madison: Holocene Climate Change: The Holocene Climate Conundrum, \$37,410 (PI with Liu)
- 2016.06 WARF Fall Competition, University of Wisconsin-Madison: Holocene Climate Change: A Global Synthesis, \$37,170
- 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: An Evaluation of the Oxygen Isotope Paleo-Proxy in the North Atlantic Ocean During the Last Glacial Period, \$5,120
- 2014.09 National Science Foundation: Workshop – Past as Prologue: Holocene Climate as Context for Future Climate Change, \$49,993 (co-PI with Shakun)
- 2014.09 PAGES Science Office: Workshop: Past as Prologue – Holocene Climate as Context for Future Climate Change, \$10,000 (co-PI with Shakun)

HONORS AND AWARDS

- 2018 Excellence in Graduate Teaching, University of Wisconsin-Madison
- 2016 Madison Teaching and Learning Excellence (MTLE) Faculty Fellowship, University of Wisconsin-Madison
- 2015 Kavli Frontiers of Science Fellow, National Academy of Sciences
- 2014 Nellie McKay Fellowship, University of Wisconsin-Madison
- 2010 Outstanding Student Paper Award, American Geophysical Union
- 2010 Lance Forsythe Memorial Fellowship, Oregon State University
- 2008 Robert Lynn Patterson Memorial Research Fellowship, Oregon State University
- 2006 Glassman Teaching Fellowship, Oregon State University
- 2005 Taubeneck Teaching Fellowship, Oregon State University
- 2005 John Eliot Allen Award, Portland State University
- 2004 Howell & Rockie Memorial Scholarship, Portland State University
- 1999 W.R. Randall Memorial Scholarship, Oregon State University
- 1998 Debach Scholarship, Oregon State University

PROFESSIONAL PRESENTATIONS

- 2020.02 University of Wisconsin-Madison, CPEP Lecture Series, Madison, WI (*Invited Speaker*).
- 2019.03 University of Illinois Urbana-Champaign: Deglacial Thinning of the Laurentide Ice Sheet in the Adirondack Mountains, New York (*Invited Speaker*).
- 2018.12 American Geophysical Union. Washington DC: Deglacial Thinning of the Laurentide Ice Sheet in the Adirondack Mountains, New York, Revealed by ³⁶Cl exposure dating.
- 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*).
- 2016.10 University of Wisconsin-Madison, CPEP Lecture Series, Madison, WI (*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.

MEMBERSHIP

American Geophysical Union
Geologic Society of America
The American Quaternary Association
American Indian Science and Engineering Society
Rosebud Sioux Tribe

TEACHING EXPERIENCE

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

Geosci / Atm-Oce 105: Oceanography (3cr, undergrad)
Geosci 140: Natural Hazards (3cr, undergrad)
Geosci / Geog 335: Climatic Environments of the Past (3cr, undergrad/grads)
Geosci 420: Glacial & Pleistocene Geology (3cr, undergrad/grads)
Geosci 551: Paleoenvironmental Geology (3cr, undergrad/grads)
Geosci 875: Tectonics and Glaciers of New Zealand Field Exercise (2cr, grad)
Geosci 875: Glaciers and Glacial Geology of Iceland Field Exercise (2cr, grad)
Geosci 875: Latest Pleistocene Abrupt Climate Change (3cr, grad)
Geosci 875: Advanced Paleoclimatology (3cr, grad)
Geosci 920: Glacial and Pleistocene Geology Seminar (1cr, grad)
Atm-Ocn 980: Earth System Science Seminar (1cr, grad)

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)

STUDENT AND POSTDOCTORATES SUPERVISED

Graduate student supervision (degree in progress)

2019 – present	Sole Advisor	Andrew Jones (M.S.)
2018 – present	Co-Advised	Shan Ye (PhD.)
2016 – present	Sole Advisor	Cameron Batchelor (M.S. completed; PhD. in progress)

Graduate student supervision (degrees completed)

2016-2019	Co-Advised	Harmony Liu (PhD, Atmospheric and Oceanic Sciences) Climate and Statistical Reconstruction using Data Assimilation [Currently research scientist at Nanjing Technical Science University, China]
2015-2019	Sole Advisor	Elizabeth Ceperley (PhD.) Laurentide and Greenland Ice Sheet Dynamics [Currently visiting faculty member at Oberlin College, Oberlin, OH]
2016-2018	Co-Advised	Richard Becker (PhD.) Tectonic and Glacial History of Sierra Nevada [Currently visiting faculty member at Boston College, Boston, MA]
2016-2018	Sole Advisor	Cameron Batchelor (M.S.) Paleoclimate Reconstructions at Cave of the Mound, Wisconsin [Continuing PhD student, Madison, WI]

2015-2017 Sole Advisor Melissa Reusché (M.S.)
Neoglacial advances of the Greenland Ice Sheet at Petermann Glacier
[Currently Geologist at Hess Corporation, Houston, TX]

Postdoctoral fellow supervision

2016-present Primary Supervisor Jeremiah Marsicek (Postdoctoral researcher)
Cyberinfrastructure Building in the Geosciences

Postdoctoral fellow supervision (completed)

2016-2018 Primary Supervisor Aaron Barth (Postdoctoral researcher)
Northern and Southern Hemisphere Alpine Glaciation
[Currently Assistant Professor at Northern Virginia Community College]

Undergraduate student thesis supervision (completed)

2016-2018 Sole Advisor Claire Vavrus (B.S. Geologic Engineer and Geology)
Holocene Alpine Glacial Histories in the western U.S.
[Currently PhD student at Colorado School of Mines, Golden, CO]

SERVICE AND OUTREACH (2014-present)

Departmental Services

(2019-2020) Department of Geoscience, Cluster Search Committee in Ice Sheet Modeling (Chair)
(2016-2020) Department of Geoscience, Lecture Committee
(2016-2020) Department of Geoscience, Graduate Committee
(2017-2018) Department of Geoscience, Search Committee in Isotope Geochemistry

University Services

(2019-2020) Atmospheric and Ocean Sciences, Cluster Search Committee in Polar Climate
(2017-2018) Space Science and Engineering Center, Search Committee for Director
(2014) University of Wisconsin-Madison, Workshop Panelist, Interviewing for Faculty Positions Panel Discussion

Professional Services

(2019) Meeting Convener – American Geophysical Union. San Francisco, CA. Feedbacks Between Volcanism, Topography & Climate (Volcanology Session).
(2016) Meeting Convener – American Geophysical Union. San Francisco, CA. Abrupt Climate Change: Causes, Mechanisms and Consequences (Paleoclimate and Paleoceanography Session).
(2014) Lead Meeting Convener – American Geophysical Union. San Francisco, CA. The Carbon Cycle on Millennial to Annual Timescales (Union Session).
(2014) Lead Workshop Organizer – Timberline Lodge, Mt. Hood, OR: Holocene Climate as Context for Future Climate Change.

Student Committee Services

(2019-present) PhD., Jai Beeman, Laboratoire Institut des Géosciences de l'Environnement, University of Grenoble
(2019-present) PhD., David Fastook, Dept. Geography, University of Wisconsin-Madison
(2019-present) M.S., Emily Mixon, Dept. Geoscience, University of Wisconsin-Madison
(2018-present) PhD., Nathan Stephens, Dept. Geoscience, University of Wisconsin-Madison
(2018-present) PhD., Kai Hu, Dept. Geoscience, University of Wisconsin-Madison

- (2017-present) PhD., Jacob Woodard, Dept. Geoscience, University of Wisconsin-Madison
- (2015-2017) PhD., Sifan Gu, Dept. Atmospheric and Ocean Sciences, University of Wisconsin-Madison
- (2015-2017) PhD., Jiang Zhu, Dept. Atmospheric and Ocean Sciences, University of Wisconsin-Madison
- (2015-2016) PhD., Jiayu Zhang, Dept. Atmospheric and Ocean Sciences, University of Wisconsin-Madison
- (2015-2017) PhD., Jody Wycech, Dept. Geoscience, University of Wisconsin-Madison
- (2015-2017) M.S., Jacob Woodard, Dept. Geoscience, University of Wisconsin-Madison
- (2015-2016) M.S., Benjamin Watson, Dept. Geography, University of Wisconsin-Madison

Educational Services

Media releases and outreach for public media outlets; speaker and presenter at local K-12 schools (e.g. Muireka Science Fair, Muir Elementary 2nd Grade Class – Polar Rocks); supervised group outreach projects including tours and science related events at the Geology Museum on the University of Wisconsin-Madison campus, mentoring middle school girls interested in pursuing degrees in science after high school (Madison Middle School Science Symposium), maintaining science booths at Wisconsin Science Festival and UW-Madison’s Science Expeditions, educational activities for private tour businesses that provide science related material, and scientific reviewers for websites and other educational outlets such as NOAA Climate.gov: “What’s the hottest Earth has been “lately”?”.

Public Outreach and Media Interviews (2014-present)

- 2019 National Geographic - These Arctic glaciers are smaller than ever before in human history.
- 2018 Arstechnica – Are we already warmer than any time since the Ice Age ended?
- 2017 US Open: Kettle Moraine
- 2016 Daily Mail: America’s national icons underwater
- 2016 CarbonBrief: Climate Scientists React to Donald Trump’s Victory
- 2016 On Wisconsin Magazine: Climate Change to the Last Millenia
- 2016 UW-Madison News: Long-term picture offers little solace on climate change
- 2016 CNN 60 Minutes: Greenland Ice Sheet Changes
- 2015 77th Parallel Productions: Petermann Glacier, NW Greenland
- 2014 ClimateWire – Atmospheric CO₂ increased in 3 bursts after last ice age
- 2014 Science Daily – They know the drill: UW leads the league in boring through ice sheets
- 2014 Reportingclimatescience.com – Abrupt CO₂ pulses in the last deglaciation
- 2014 Arstechnica – As Earth left the last ice age, CO₂ rose in fits and starts
- 2014 UWToday – New study shows three abrupt pulses of CO₂ during the last deglaciation
- 2014 Scripps Institute of Oceanography – New study shows three abrupt pulses of CO₂ during the last deglaciation
- 2014 BioPortfolio.com – Centennial-scale changes in the global carbon cycle during the last deglaciation
- 2014 ScienceBlog.com – Three abrupt pulses of CO₂ led to ending of last ice age
- 2014 Phys.org – New study shows three abrupt pulse of carbon dioxide during last deglaciation.
- 2014 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)