

Gavin McNicol
Postdoctoral Fellow
Stanford University
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EDUCATION

Ph.D.	University of California at Berkeley , Berkeley, CA, USA Environmental Science, Policy, and Management Advisor: Prof. Whendee L. Silver <i>Quantification and Controls of Wetland Greenhouse Gas Emissions</i>	2016
B.Sc.	University of Stirling , Stirling, UK Environmental Science (Graduated with First Class Honors)	2010

PROFESSIONAL APPOINTMENTS

Postdoctoral Fellow	Stanford University, Stanford, CA	2018 – present
Postdoctoral Fellow	University of Alaska Southeast, Juneau, AK	2017 – 2018
Postdoctoral Fellow	University of Hawai‘i at Mānoa, Honolulu, HI	2016 – 2017
Graduate Scholar	Lawrence Livermore National Laboratory, Livermore, CA	2013 – 2016

FELLOWSHIPS

UC President’s Sustainability Student Fellowship (\$3,750) <i>Nominated by department faculty; one of two awardees at UC Berkeley</i>	2015 - 2016
Berkeley University Fellowship (\$52,000) <i>Awarded to top 4% of incoming UC Berkeley doctoral students</i>	2010 - 2012

RESEARCH GRANTS

NSF Doctoral Dissertation Improvement Grant (\$16,330)	2014 - 2016
Pre-doctoral Delta Science Grant (\$102,870) <i>One of three awardees</i>	2012 - 2014

AWARDS

NSF EPSCoR Travel Award (\$3000)	2017 - 2018
Lewis & Ann Resh Endowed Graduate Support in Freshwater Ecology (\$1000)	2015 - 2016
Carolyn Meek Memorial Scholarship in Soil Science	2014 - 2015
University Medal, Royal Scottish Geographical Society	2010

PUBLICATIONS

Scholar Profile: 72 citations, h-index 5

8. **McNicol G.** Bulmer C. D’Amore D. Sanborn P. Saunders S. Giesbrecht I. Gonzalez Arriola S. Bidlack A. Butman D. Buma B. (2018) Large, climate-sensitive soil carbon stocks mapped with pedology-informed machine learning in the North Pacific coastal temperate rainforest. *Environmental Research Letters*, doi:10.1088/1748-9326/aaed52
7. Finstad K. M. Pfeiffer M. **McNicol G.** Tuite M. Williford K. Amundson R. (2018) A late Quaternary paleoenvironmental record in sand dunes of the northern Atacama Desert, Chile. *Quaternary Research*, doi:10.1017/qua.2018.20

6. Yang W. H. **McNicol G.** Teh Y. A. Estera K. Wood T. E. Silver W. L. (2017) Evaluating the classical versus an emerging conceptual model of peatland methane dynamics. *Global Biogeochemical Cycles*, 31: 1435-1453, doi:10.1002/2017GB005622
5. **McNicol G.** Sturtevant C. Knox S. Dronova I. Baldocchi D. D. Silver W. L. (2017) Effects of seasonality, transport pathway, and spatial structure on greenhouse gas fluxes in a restored wetland. *Global Change Biology*, 23: 2768-2782, doi:10.1111/gcb.13580
4. Finstad K. M. Pfeiffer M. **McNicol G.** Barnes J. Demergasso C. Chong G. Amundsen R. (2016) Rates and geochemical processes of soil and salt crust formation in Salars of the Atacama Desert, Chile. *Geoderma* 284: 57-72, doi: 10.1016/j.geoderma.2016.08.020
3. Hall. S. J. **McNicol G.** Natake T. Silver W. L. (2015) Large fluxes and rapid turnover of mineral-associated carbon across three humid tropical soil: Insights from paired ¹⁴C analysis. *Biogeosciences* 12: 2471-2487, doi: 10.5194/bg-12-2471-2015
2. **McNicol G.** Silver W. L. (2015) Non-linear response of carbon dioxide and methane emissions to oxygen availability in a drained Histosol. *Biogeochemistry* 123(1-2): 299-306, doi: 10.1007/s10533-015-0075-6
1. **McNicol G.** and Silver W. L. (2014) Separate effects of flooding and anaerobiosis on soil greenhouse gas emissions and redox sensitive biogeochemistry. *Journal of Geophysical Research Biogeosciences* 119: 557–566, doi:10.1002/2013JG002433.

SUBMITTED PUBLICATIONS

1. Knox S. H. Jackson R. B. Poulter B. **McNicol G.** Fluet-Chouinard E. Zhang Z. Hugelius G. Bousquet P. Canadell J. G. Papale D. *et al* FLUXNET-CH₄ synthesis activity: Objectives, observations, and future directions. *Bulletin of the American Meteorological Society*, *Under Review*.
2. Ryals R. **McNicol G.** Porder S. Kramer S. (2019) Greenhouse gas fluxes from waste management pathways in Haiti. *Journal of Cleaner Production*, *Under Review*.

SPECIALIZED TRAINING

Modeling & /Computation

- 2018 Google Earth Engine, Stanford University (GIS Day)
- 2018 Unmanned Aerial System Mapping for 3D Modeling, US-IALE (J. Jeziorska, workshop)
- 2015 Advanced Quantitative Environmental Problem Solving (Prof. J. Harte, semester class)
- 2015 Hierarchical Modeling, UC Berkeley (Prof. DeValpine, semester class)
- 2014 Software Carpentry Boot Camp for Biologists, UC Berkeley
- 2013 R Workshop, UC Berkeley (semester class)
- 2012 Matlab for Image Analysis, UC Berkeley (semester class)

Biogeochemistry

- 2013 Dissolved Organic Matter (PARAFAC) Workshop, University of Colorado, Boulder
- 2012 LICOR Eddy-Covariance and Eddy-Pro, UC Berkeley (practical workshop)
- 2011 Stable Isotope Ecology, University of Utah (laboratory & lecture)

Communication

- 2016 Haitian Creole (Haiti-Hub, online course)
- 2015 Writing Science (Dr. Joshua Schimel, semester class), UC Berkeley
- 2012 Science Communication (Prof. W. Silver – Stanford Leopold Program), UC Berkeley

PRESENTATIONS

Invited Speaker

What's in a wetland's breath? Quantification and controls of wetland greenhouse gas emissions
Earth and Environmental Sciences Seminar, Lawrence Berkeley National Laboratory (**Dr. Eoin Brodie**),
Berkeley, CA, *Jun 29, 2016*

Beyond the methanogenic black-box: Greenhouse gas (CO₂, CH₄, N₂O) evidence for wetlands as
dynamics redox environments. Lawrence Berkeley National Laboratory Climate Brownbag (**Dr. William
Riley**), Berkeley, CA. *Aug 31, 2015*

Anaerobiosis with and without flooding: The effects of water content on greenhouse gas emissions from a
peatland soil. Climate Science Group Meeting (**Dr. Margaret Torn**), Lawrence Berkeley National
Laboratory, Berkeley, CA. *Mar 26, 2012*

Oral

17. International Arctic Research Center Research Salon, Fairbanks AK. July 18, 2018.
16. US International Association of Landscape Ecology Annual Meeting, Chicago, IL. April 10, 2018.
15. Alaska Coastal Rainforest Center Seminar, University of Alaska Southeast, Juneau, AK. Oct 6, 2017.
14. SOIL Research Seminar, Limonad, Haiti. Mar 3, 2017.
13. SOIL Research Seminar, Limonad, Haiti. Aug 19, 2016.
12. Environmental Science, Policy, & Management Graduating Seminar, UC Berkeley, CA. May 2, 2016.
11. Lawrence Livermore National Laboratory Biogeochemistry Seminar, Livermore, CA. Feb 1, 2016.
10. Silver Lab Meeting, Berkeley, CA. Oct 29, 2015.
9. Lawrence Livermore National Laboratory Biogeochemistry Seminar, Livermore, CA. Jul 30, 2015.
8. 8th Biennial Bay-Delta Science Conference, Sacramento, CA. Oct 30, 2014.
7. Ecological Society of America 99th Annual Meeting, Sacramento, CA. Aug 15, 2014.
6. Joint Aquatic Science Meeting, Portland, Or. May 20, 2014.
5. Lawrence Livermore National Laboratory Biogeochemistry Seminar, Livermore, CA. Jan 23, 2014.
4. Ecological Society of America 98th Annual Meeting, Minneapolis, Minnesota. Aug 6, 2013.
3. American Geophysical Union Fall Meeting, San Francisco, CA. Dec 4, 2012.
2. Climate Group Meeting, Lawrence Berkeley National Laboratory, Berkeley, CA. Mar 26, 2012.
1. Thesis Symposium, University of Stirling, Stirling, UK. May 2010.

Poster

12. American Geophysical Union Fall Meeting, Washington, DC. Dec 10, 2018.
11. American Geophysical Union Fall Meeting, San Francisco, CA. Dec 15, 2015.
10. American Geophysical Union Fall Meeting, San Francisco, CA. Dec 18, 2014.
9. The Sixth International Workshop on Soil and Sedimentary Organic Matter Stabilization and
Destabilization, Kiawah Island, SC. Oct 7, 2014.
8. Postdoc Symposium, Lawrence Livermore National Laboratory, Livermore, CA, Jul 9, 2014.
7. Berkeley Atmospheric Sciences Colloquium, Berkeley, CA. Feb 7, 2014.
6. American Geophysical Union Fall Meeting, San Francisco, CA. Dec 7, 2013.
5. 11th Biennial State of the San Francisco Estuary Conference, Oakland, CA. Oct 29, 2013.
4. Berkeley Atmospheric Sciences Colloquium, Berkeley, CA. Feb 8, 2013.
3. Long Term Ecological Research All Scientists Meeting. Estes Park, Colorado. Sep 10, 2012.
2. Ecological Society of America 97th Annual Meeting, Portland, Oregon. Aug 9, 2012.
1. American Geophysical Union Fall Meeting, San Francisco, CA. Dec 2011.

MENTORING & SERVICE

Training & Mentoring

- 2018 **Stanford Postdoc Teaching Training**
Attended pedagogy journal club meetings on topics including attendance, attrition, diversity and inclusion, and ethical dilemmas in teaching.
- 2018 Postdoc Mentoring (Stanford, 2-day workshop)
- 2018 Mentored a female undergraduate Comp. Sci. student throughout Fall 2018 quarter, overseeing a machine learning project applied to eddy-covariance methane flux data.
- 2017 **Alaska Native Science & Engineering Program (ANSEP), Juneau, AK**
Student mentor at weekly ANSEP meetings.
- 2016 **SOIL Climate and Compost Intern Program, Cap-Haïtien, Haiti**
Trained 6 Haitian agronomy interns and a laboratory assistant in field gas sampling, solid sample collection, and nutrient analyses via collaboration with SOIL. Verbal communication and written protocols in Haitian Creole.
- 2015 Trained a UC Berkeley ROTC student who self-identified as a woman-of-color at Lawrence Livermore National Laboratory in field sampling methods for radiocarbon analyses and cryogenic purification of trace gases.
- 2015 Trained a Berkeley high school student in wetland gas sample collection and mentored during data analysis for a school science project.
- 2014 **Minority Serving Institutions (MSI) Internship Program, Livermore, CA**
Trained University of Puerto Rico student in laboratory techniques for cryogenic purification of trace gases and sample preparation for accelerator mass spectrometer radiocarbon analyses.

Education Outreach

- 2019 AmeriFlux Year of Methane Blog & Forum, Stanford, Lawrence Berkeley Lab., CA
- 2019 FLUXNET Young Scientist Network Coordinator, Stanford/Lawrence Berkeley Lab., CA
- 2018 Contributed a sustainability column to *Juneau Empire* (April 6, 2018) “*Mountains Beyond Mountains*” on ecological sanitation in Alaska and Haiti
- 2018 Discussion Leader at UA Fairbanks Professional Development Workshop, Juneau, AK
- 2016 Demonstrator at Climate Change Expo, Pleasanton High School, CA
- 2015 UC President’s Sustainability Fellowship Symposium, San Francisco
- 2015 Founding member and presenter for Year of the Soils Club, UC Berkeley, CA
- 2014 **Bay Area Scientist in Schools (BASIS) Instructor, Berkeley, CA**
Taught hands-on soil science lesson for local elementary school students
- 2014 Volunteer at the Berkeley Energy and Resources Collaborative (BERC) Symposium

Peer Reviewer

Agricultural and Forest Meteorology, Biogeochemistry, Biogeosciences, Ecology and Evolution, Ecosystems, Environment Development and Sustainability, Journal of Environmental Quality, Journal of Geophysical Research Biogeosciences, Marine Ecology Progress Series, Nutrient Cycling in Agroecosystems, Plant and Soil, PLoS ONE, San Francisco Estuary and Watershed Science, Soil Biology and Biochemistry

PUBLICITY

- 2018 FLUXNET-CH₄ synthesis activity featured in AmeriFlux Year of Methane website launch:
<http://ameriflux.lbl.gov/year-of-methane/year-of-methane/>
- 2017 Sustainable Organic Integrated Livelihoods (SOIL) research collaboration featured in UH Mānoa College of Tropical Agriculture and Human Resources 2017 Q2 Impact Report
- 2016-2017 Research featured in Sustainable Organic Integrated Livelihoods (SOIL) blog posts:
Capturing the conditions of a microbial revolution
<https://www.oursoil.org/capturing-the-conditions-of-a-microbial-revolution-1707/>
Compost and Climate Research Interns
<https://www.oursoil.org/compost-climate-research-interns-staje-klima-ak-konpos-1701/>
Sunscreen or rubber-boots?
<https://www.oursoil.org/sunscreen-or-rubber-boots-1612/>
- 2016 Save the Bay blog article on San Francisco estuary wetland restoration including a summary of wetland greenhouse gas results:
<https://blog.savesfbay.org/2016/01/cutting-edge-research-at-bay-area-wetlands/>
- 2015 UC Division of Agriculture and Natural Resources (UC ANR) news item for UC President's Sustainability Fellowship:
<http://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=17167>
- 2014 Wetland carbon and radiocarbon analyses featured in news article from California Sea Grant:
<https://caseagrant.ucsd.edu/news/source-or-sink-greenhouse-gas-emissions-in-the-delta>
- 2014 Wetland carbon and greenhouse gas accounting research summarized in an online Fellow's Profile from the Delta Science Program (Sea Grant California):
https://caseagrant.ucsd.edu/sites/default/files/news/field_attachment/2014/McNicol.Profile_PDF.pdf