

# Marysa M. Laguë, PhD

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## Research Interests

Land-atmosphere interactions. Climate dynamics. Terrestrial surface energy budget. Land impacts on the global energy budget. Earth system modeling & idealized modeling. Land use impacts on the climate system. Atmospheric feedbacks. Terrestrial controls on atmospheric water vapour. Vegetation impacts on the hydrologic cycle.

## Current Position

JULY 2022-PRESENT **Adjunct Assistant Professor**  
Department of Atmospheric Sciences  
University of Utah  
Salt Lake City, UT, USA

AUGUST 2022 - PRESENT **Research Associate**  
Coldwater Lab, Center for Hydrology  
University of Saskatchewan  
Canmore, Alberta, Canada

## Previous Positions

MARCH 2021-AUGUST 2022 **James S. McDonnell Foundation Postdoctoral Fellow in**

**Dynamic and Multiscale Systems**  
Coldwater Lab, Center for Hydrology  
University of Saskatchewan  
Canmore, Alberta, Canada  
Host: Dr. Martyn Clark

DEC. 2020-FEB. 2021 **Visiting Research Fellow**  
Coldwater Lab  
University of Saskatchewan Center for Hydrology  
Canmore, Alberta, Canada  
Host: Dr. Martyn Clark

OCT. 2019-DEC. 2020 **James S. McDonnell Foundation Postdoctoral Fellow in**  
**Dynamic and Multiscale Systems**  
University of California, Berkeley  
Department of Earth & Planetary Science  
Berkeley, CA, USA  
Host: Dr. William Boos

## Education

- 2019 PhD, Atmospheric Sciences  
**University of Washington**  
*Seattle, WA, USA*  
Department of Atmospheric Sciences  
Advisor: Dr. Abigail Swann  
Supervisory committee: Abigail Swann, Gordon Bonan, Cecilia Bitz, David Battisti,  
Dargan Frierson, Gerard Roe  
Dissertation: *Quantifying the role of individual surface properties on atmospheric feedbacks and land-atmosphere interactions*
- 2018 MSc, Applied Mathematics  
**University of Washington**  
*Seattle, WA, USA*
- 2016 MSc, Atmospheric Sciences  
**University of Washington**  
*Seattle, WA, USA*  
Thesis: *Progressive Mid-latitude Afforestation: Local and Remote Climate Impacts in the Framework of Two Coupled Earth System Models*
- 2013 BSc, Honours Mathematics  
**University of British Columbia**  
*Vancouver, BC, Canada*

## Peer-Reviewed Publications

- T. Kukla, M. Winnick, **M. M. Laguë**, and Z. Xia. The zonal patterns in late Quaternary South American Monsoon precipitation. In Press at *Paleoceanography and Paleoclimatology.*, 2023. ESSOAr Preprint. DOI: 10.1029/2022PA004498.
- W. Kong, K. A. McKinnon, I. R. Simpson, and **M. M. Laguë**. Understanding responses of summer continental daily temperature variance to land surface perturbations through a surface energy balance perspective. *Journal of Climate*, 36(6), 1653-1678 (2023). <https://doi.org/10.1175/JCLI-D-21-1011.1>.
- M. M. Laguë**, G. R. Quetin, and W. R. Boos. Downwind control of oceanic air by land: the land wake and its sensitivity to CO<sub>2</sub>. *Environmental Research Letters*, 17, 104045 (2022). <https://doi.org/10.1088/1748-9326/ac9702>
- J. Scheff, S. Coats, and **M. M. Laguë**. Why do the global warming responses of land-surface models and climatic dryness metrics disagree? *Earth's Future*, 10(8), e2022EF002814 (2022). <https://doi.org/10.1029/2022EF002814>.
- M. M. Laguë**, A. L. S. Swann, W. R. Boos. Radiative feedbacks on land surface change and associated tropical precipitation shifts. *Journal of Climate*, 34, 16 (2021): 6651-6672 (2021). EarthArXiv Preprint. DOI: 10.1175/JCLI-D-20-0883.1
- M. M. Laguë**, M. Pietschnig, S. Ragen, T. Smith, D. S. Battisti. Terrestrial evaporation and global climate: lessons from Northland, a planet with a hemispheric continent. *Journal of Climate*, 34(6), 2253–2276, 2021. EarthArXiv Preprint. DOI: 10.1175/JCLI-D-20-0452.1.
- F. Tromboni, J. Liu, E. Ziaco, D. Breshears, K. Thompson, W. Dodds, K. Dahlin, E. La Rue, J. Thorp, Andrés Viña, **M. M. Laguë**, A. Maasri, H. Yang, S. Chandra, S. Fei. Macrosystems as metacoupled human and natural systems. *Frontiers in Ecology and the Environment*, 20-29, 2021. DOI: 10.1002/fee.2289
- A. J. Rushby, A. L. Shields, E. T. Wolf, **M. M. Laguë**, A. Burgasser. The Effect of Land-Albedo Feedback

on the Climate of Land-Dominated Planets in the TRAPPIST-1 System. *The Astrophysical Journal*, 2020. ArXiv Preprint. DOI:10.3847/1538-4357/abbe04.

L. Boysen, V. Brovkin, J. Pongratz, D. Lawrence, P. Lawrence, N. Vuichard, P. Peylin, S. Liddicoat, T. Hajima, Y. Zhang, M. Rocher, C. Delire, R. Stéférian, V. Arora, L. Nieradzic, P. Anthoni, W. Thiery, **M. M. Laguë**, D. Lawrence, M. Lo. Global climate response to idealized deforestation in CMIP6 models. *Bio-geosciences*, 2020. DOI: 10.5194/bg-2020-229.

C. M. Zarakas\*, A. L. S. Swann, **M. M. Laguë**, K. C. Armour, J. T. Randerson. Plant Physiology Increases the Magnitude and Spread of the Transient Climate Response in CMIP6 Earth System Models. *Journal of Climate*, 33(19), 8561-8578, 2020. DOI: 10.1175/JCLI-D-20-0078.1; EarthArXiv Preprint EMGXB.

**\*Graduate student co-advised by M. M. Laguë & A. L. S. Swann**

J. Kim\*, **M. M. Laguë**, S. Pennypacker, E. Dawson\*, A. L. S. Swann. Evaporative Resistance is of Equal Importance as Surface Albedo in High Latitude Surface Temperatures Due to Cloud Feedbacks. *Geophysical Research Letters*, 47(4). e2019GL085663 DOI: 10.1029/2019GL085663; EarthArXiv Preprint S5M4U.

**\*Undergraduate student co-advised by M. M. Laguë & A. L. S. Swann**

**M. M. Laguë** Quantifying the role of individual surface properties in atmospheric feedbacks and land-atmosphere interactions. University of Washington. 2019. ProQuest PhD Dissertation.

**M. M. Laguë**, G. B. Bonan, and A. L. S. Swann. Separating the impact of individual land surface properties on the terrestrial surface energy budget in both the coupled and un-coupled land-atmosphere system. *Journal of Climate*, 32, 5725-5744, 2019. DOI: 10.1175/JCLI-D-18-0812.1.

A. L. S. Swann, **M. M. Laguë**, E. S. Garcia, J. P. Field, D. D. Breshears, D. J. P. Moore, S. R. Saleska, S. C. Stark, J. C. Villegas, D. J. Law, and D. M. Minor. Continental-scale consequences of tree die-offs in North America: identifying where forest loss matters most. *Environmental Research Letters*, 13(5): 55014, 2018. DOI: 10.1088/1748-9326/aaba0f.

**M. M. Laguë** and A. L. S. Swann. Progressive Mid-latitude Afforestation: Impacts on Clouds, Global Energy Transport, and Precipitation. *Journal of Climate*, 29(15):5561-5573, 2016. DOI: 10.1175/JCLI-D-15-0748.1.

**M. Laguë**, N. Tania, J. Heath, and L. Edelstein-Keshet. The effects of facilitation and competition on group foraging in patches. *Journal of Theoretical Biology*, 310:88-96, 2012. ISSN 00225193. DOI: 10.1016/j.jtbi.2012.06.024.

## Publications Submitted / Under Review

**M. M. Laguë**, G. R. Quetin, S. Ragen, W. R. Boos. Continental configuration controls the base-state water vapor greenhouse effect: lessons from half-land, half-water planets. In Revision at *Climate Dynamics*, 2023.

**M. M. Laguë**, G. R. Quetin, and W. R. Boos. Reduced terrestrial evaporation increases atmospheric water vapour, amplifying surface temperatures.

In Revision at *Environmental Research Letters*: 2022; Copy of manuscript available upon request.

G. E. M. Shum, **M. M. Laguë**, S. Rushley, and A. L. S. Swann. Beautiful Days in the Neighborhood: Land-Atmosphere Interactions as Drivers of Forest Expansion. In Review at *Earth Interactions*, 2022.

## Publications in Preparation

M. M. Laguë, Bonan, G. B., Lawrence, D., and Swann, A. L. S. The contribution of individual land surface properties to the surface temperature response of historical vegetation change.  
Anticipated submission: 2023; Copy of manuscript available upon request.

## Honours and Awards

**Bold** entries indicate awards from National or International competitions.

- 2021            **James R. Holton Award, *American Geophysical Union, Atmospheric Sciences Section.* AGU EOS Announcement, USask News Article**
- 2021            AGU 2021 Editors' Citation for Excellence in Refereeing - Geophysical Research Letters. **AGU EOS Announcement.**
- 2020            IOP Trusted Reviewer - Environmental Research Letters.
- 2019            **Community Earth System Model 2019 Graduate Student Award, *National Center for Atmospheric Research.* <http://www.cesm.ucar.edu/about/awards/2019.html>**
- 2018-present   **James S. McDonnell Foundation Postdoctoral Fellowship in Understanding Dynamic and Multi-scale Systems (Active Fellow from Fall 2019 - present)**
- 2016-2019      **National Science and Engineering Research Council of Canada Postgraduate Studies Doctoral Fellowship**
- 2018            Andrew Slater Award for best student or postdoc presentation (Land Model Working Group Meeting), *National Center for Atmospheric Research*
- 2017            Husky 100 Award, *University of Washington*
- 2017            3<sup>rd</sup> Place, Peter B. Wagner Memorial Award for Women in Atmospheric Sciences
- 2016            Advanced Studies Program (ASP) Visiting Graduate Student Award, *National Center for Atmospheric Research*
- 2013-2014      **National Science and Engineering Research Council of Canada Alexander Graham Bell Canadian Graduate Studies Fellowship/Postgraduate Studies Fellowship**
- 2013            Rotary Youth Leadership Award, *Rotary International, District 5080*
- 2011            Undergraduate Student Research Award (Dept. of Mathematics), *University of British Columbia*
- 2009-2012      Chancellor's Scholarship, *University of British Columbia*
- 2010            Trek Excellence Scholarship, *University of British Columbia*
- 2009            President's Scholarship, *University of British Columbia*
- 2009            Columbia Power Corporation Scholarship
- 2009            Chevron Canada/Molnar Bursary
- 2008            Premier's Excellence Award, Government of British Columbia (for the top graduating high school students in the province)
- 2008            BC Innovation Council / BC Science Teachers' Association Award
- 2008            Cranbrook Lion's Club Scholarship
- 2008            Tembec University Studies Scholarship
- 2008            Dogwood District/Authority Award
- 2008            Scholastic Distinction Scholarship (College of the Rockies)
- 2008            Joanne McWhirter/Helton Scholarship for Physics

2008	British Columbia Provincial Scholarship Award
2008	Top Academic Graduate Award, Mount Baker Senior Secondary

## Presentations

<i>Invited Talk</i>	2023 Rouse Climate Lecture, McMaster University. <i>Hamilton, ON, Canada</i>	2023
<i>Talk</i>	Environment and Climate Change Canada. <i>Dorval, QC, Canada</i>	2023
<i>Talk</i>	Atmospheric Model Working Group Winter Meeting, National Center for Atmospheric Research. <i>Boulder, CO, USA</i>	2023
<i>Invited Talk</i>	Climate, People and the Environment Program Seminar, Nelson Institute Center for Climatic Research. <i>University of Wisconsin-Madison, Madison, WI, USA</i>	2022
<i>Invited Talk</i>	Carnegie Research Workshop – Continental Climate Change: Simple Models to Understand the Future. <i>University of St. Andrews, Scotland, UK</i>	2022
<i>Invited Talk</i>	Caltech Environmental Science and Engineering Seminar. <i>California Institute of Technology, Pasadena, CA, USA</i>	2022
<i>Invited Talk</i>	Department of Environmental Science, Policy, & Management. <i>University of California, Berkeley, CA, USA</i>	2022
<i>Invited Talk</i>	School of Earth. <i>Stanford University, Palo Alto, CA, USA</i>	2022
<i>Invited Talk</i>	Department of Earth & Environmental Science. <i>Virtual / Dalhousie University, Halifax, NS, Canada</i>	2022
<i>Invited Talk</i>	Department of Atmospheric Science. <i>University of Utah, Salt Lake City, UT, USA</i>	2022
<i>Invited Talk</i>	American Geophysical Union Fall Meeting. <i>Virtual / New Orleans, LA, USA</i>	2021
<i>Poster</i>	American Geophysical Union Fall Meeting. <i>Virtual / New Orleans, LA, USA</i>	2021
<i>Invited Talk</i>	College of Earth, Ocean and Atmospheric Sciences Seminar, Oregon State University. <i>Corvallis, OR, USA</i>	2021
<i>Invited Panelist &amp; Speaker</i>	Northern Water Futures Seminar, Wilfred Laurier University. <i>Virtual / Waterloo, ON, Canada</i>	2021
<i>Invited Talk</i>	McGill Atmospheric and Oceanic Sciences Department Seminar, McGill University. <i>Virtual / Montreal, QC, Canada</i>	2021
<i>Invited Panelist &amp; Speaker</i>	Community Earth System Model Workshop, Land Model Working Group Meeting, National Center for Atmospheric Research, <i>Virtual / Boulder, CO, USA</i>	2021
<i>Invited Talk</i>	Land-Atmosphere Seminar Series, University of New South Wales, Australia <i>Virtual / Sydney, Australia</i>	2021
<i>Invited Talk</i>	Yale Earth System Science Seminar <i>Virtual / Yale, USA</i>	2021

<i>Invited Talk</i>	Scripps Institution of Oceanography Climate Journal Club, University of California San Diego, <i>Virtual / San Diego, CA, USA</i>	2021
<i>Invited Talk</i>	Physics of Oceans and Atmospheres Seminar, College of Earth, Ocean, and Atmospheric Sciences, Oregon State University, <i>Virtual / Corvallis, OR, USA</i>	2021
<i>Talk</i>	Land Model Working Group Meeting, National Center for Atmospheric Research, <i>Virtual / Boulder, CO, USA</i>	2021
<i>Invited Talk</i>	Center for Hydrology, University of Saskatchewan, <i>Virtual / Coldwater Lab, Canmore, Alberta, Canada</i>	2020
<i>Invited Talk</i>	American Geophysical Union Fall Meeting, <i>Virtual / San Francisco, CA, USA</i>	2020
<i>Poster</i>	American Geophysical Union Fall Meeting, <i>Virtual / San Francisco, CA, USA</i>	2020
<i>Invited Talk</i>	Department of Atmospheric Sciences Seminar, University of Illinois at Urbana-Champaign, <i>Virtual / Champaign, IL, USA</i>	2020
<i>Invited Talk</i>	Stanford University CLimate, Atmosphere and Ocean Dynamics (CLAOD) Seminar, Stanford University, <i>Virtual / Stanford, CA, USA</i>	2020
<i>Talk</i>	Land Model Working Group Meeting, National Center for Atmospheric Research, <i>Boulder, CO, USA</i>	2020
<i>Poster</i>	Berkeley Atmospheric Sciences Center (BASC) Symposium, University of California, Berkeley <i>Berkeley, CA, USA</i>	2020
<i>Poster</i>	American Geophysical Union Fall Meeting, <i>San Francisco, CA, USA</i>	2019
<i>Invited Talk</i>	Department of Earth & Climate Science Distinguished Speaker Series, San Francisco State University, <i>San Francisco, CA, USA</i>	2019
<i>Invited Instructor</i>	Advanced Climate Dynamics Courses (ACDC, 2 lectures), <i>Yosemite, CA, USA</i>	2019
<i>Invited Talk</i>	Aspen Global Change Institute Land Use Meeting, <i>Snowmass, CO, USA</i>	2019
<i>Invited Talk</i>	24th Annual Community Earth System Model Workshop, National Center for Atmospheric Research, <i>Boulder, CO, USA</i>	2019
<i>Talk</i>	University of Washington Department of Atmospheric Sciences Colloquium (PhD Defence), <i>Seattle, WA, USA</i>	2019
<i>Invited Talk</i>	Seminar, Max Planck Institute for Meteorology, <i>Hamburg, Germany</i>	2019
<i>Invited Talk</i>	Seminar, Department of Earth & Planetary Science, University of California, Berkeley, <i>Berkeley, CA, USA</i>	2019
<i>Invited Talk</i>	Seminar, Department of Earth System Science, University of California, Irvine, <i>Irvine, CA, USA</i>	2019
<i>Invited Talk</i>	Climate & Global Dynamics Seminar, National Center for Atmospheric Research, <i>Boulder, CO, USA</i>	2019
<i>Invited Talk</i>	American Geophysical Union Fall Meeting, <i>Washington, D.C., USA</i>	2018
<i>Talk</i>	Advanced Climate Dynamics Courses Summer School, <i>Finse, Norway</i>	2018
<i>Talk</i>	23rd Community Earth System Model Workshop, National Center for Atmospheric Research, <i>Boulder, CO, USA</i>	2018
<i>Talk</i>	UW Program on Climate Change Spring Symposium, University of Washington, <i>Seattle, WA, USA</i>	2018
<i>Talk</i>	Land Model Working Group Meeting, National Center for Atmospheric Research, <i>Boulder, CO, USA</i>	2018

<i>Poster</i>	National Science Foundation Macrosystems Biology PI Meeting, Washington, DC, USA	2018
<i>Talk</i>	American Geophysical Union Fall Meeting, New Orleans, LA, USA	2017
<i>Invited Talk</i>	Ecological Society of America Annual Meeting, Portland, OR, USA	2017
<i>Talk</i>	Atmospheric Climate and Dynamics Seminar, UW Dept. of Atmospheric Sciences, Seattle, WA, USA	2017
<i>2 Talks</i>	22nd Community Earth System Model Workshop, National Center for Atmospheric Research, Boulder, CO, USA	2017
<i>Talk</i>	UW Program on Climate Change Spring Symposium, University of Washington, Seattle, WA, USA	2017
<i>Talk</i>	Land Model Working Group Meeting, National Center for Atmospheric Research, Boulder, CO, USA	2017
<i>Poster</i>	10th Annual Graduate Climate Conference, Pack Forest, WA, USA	2016
<i>Invited Talk</i>	National Oceanographic and Atmospheric Administration (NOAA), Boulder, CO, USA	2016
<i>Talk</i>	21st Community Earth System Model Workshop, National Center for Atmospheric Research, Breckenridge, CO, USA	2016
<i>Talk</i>	Land Model Working Group Meeting, National Center for Atmospheric Research, Boulder, CO, USA	2016
<i>Talk</i>	American Geophysical Union Fall Meeting, San Francisco, CA, USA	2015
<i>Talk</i>	University of Washington Department of Atmospheric Sciences Dynamics Seminar (Master's Defence), Seattle, WA, USA	2015
<i>Poster</i>	9th Annual Graduate Climate Conference, Woods Hole, MA, USA	2015
<i>Talk</i>	Graduate Student Seminar, Program on Climate Change, University of Washington, Seattle, WA, USA	2015
<i>Talk</i>	Land Model Working Group Meeting, National Center for Atmospheric Research, Boulder, CO, USA	2015
<i>Talk</i>	8th Annual Graduate Climate Conference, Pack Forest, WA, USA	2014
<i>Talk</i>	Undergraduate Student Research Award Seminar, University of British Columbia, Vancouver, BC, Canada	2012
<i>Poster</i>	Applied Mathematics Perspectives Mathematical Biology Workshop, University of Victoria, Victoria, BC, Canada	2012

## Diversity, Equity, & Inclusion Activities

<i>2022</i>	<i>Course – “Four Seasons of Reconciliation.”</i> Multi-week Canadian Indigenous anti-racist education in line with the Truth and Reconciliation Commission’s 94 Calls to Action, University of Saskatchewan.
<i>2022</i>	<i>Computational Hydrology Diversity, Equity, &amp; Inclusion Committee</i>
<i>2021</i>	<i>Workshop – “Speaking Up: How Bystanders Can Change the Conversation about Social Bias and PowerPlay Interactive Development.”</i> Equity, Diversity, and Inclusion for Global Water Futures at the University of Saskatchewan. Participated in 2-part interactive workshop on interrupting bias.
<i>2014-2019</i>	<i>Girls in Science instructor, Burke Museum of Natural History, Seattle, WA.</i> Helped lead 1-3 sessions per year of hands-on lab activities for middle-school aged girls in a women-only environment.

- 2014-2019 *University of Washington Department of Atmospheric Sciences Outreach Group.* Visited schools to give atmospheric science demos and short talks on weather/climate; led visiting school groups on tours of the UW Atmospheric Sciences Department rooftop observatory.
- 2016-2019 *Diversity and Inclusion Group at the Department of Atmospheric Sciences, University of Washington.* Founding member of a graduate-student led group (involving students, staff, and faculty) focussed on tackling projects relating to diversity, equity, and inclusion within our department; my particular focus was on arranging for counsellors to the department to give presentations and facilitate discussions relating to depression, anxiety, and mental health in graduate school.

## Teaching

- 2022 ADVANCED CLIMATE DYNAMICS COURSES (ACDC) SUMMER SCHOOL, RONDVASSBU, NORWAY  
**Invited Lecturer/Instructor:** Summer school theme – “The Global Water Cycle”.
- 2022 DALHOUSIE UNIVERSITY  
**Guest Lecturer:** Environmental Science (Undergraduate)
- 2021 OREGON STATE UNIVERSITY  
**Guest Lecturer:** Climate Data Analysis (Undergraduate)
- 2020 WESTERN WASHINGTON UNIVERSITY  
**Guest Lecturer:** Forest loss and climate change for a “Global Change” graduate course.
- 2020 UNIVERSITY OF CALIFORNIA, BERKELEY  
**Teaching workshop:** Pathways to Scientific Teaching Workshop  
 Participated in a hands-on, two-day workshop on incorporating active learning techniques into teaching in the sciences. Workshop covered theory and resources related to scientifically proven learning methods, and had us (workshop participants) develop and demonstrate examples of teaching with conceptual models.
- 2019 ADVANCED CLIMATE DYNAMICS COURSES (ACDC) SUMMER SCHOOL, YOSEMITE, CA  
**Invited Lecturer/Instructor:** Summer school theme – “The Anthropocene”.  
 Lectured on land-atmosphere interactions, climate controls on vegetation distributions, vegetation impacts on atmospheric processes, historical vegetation change, projections of future vegetation change, and how vegetation may interact differently with the climate under higher CO<sub>2</sub>; discussed vegetation-atmosphere-climate interactions in the field.
- 2017-2019 UNIVERSITY OF WASHINGTON, SEATTLE, WA  
**Guest Lecturer:** *Advanced Physical Climatology* (graduate); *Ecological Climatology* (undergraduate/graduate); *Exploring the Atmospheric Sciences* (undergraduate)
- 2019 UNIVERSITY OF WASHINGTON, SEATTLE, WA  
**Interim Advisor;** Department of Atmospheric Sciences  
 Supervised and assisted with two research projects of two first-year graduate students while their PhD advisor was away for 6 months. Met weekly with the students; helped troubleshoot and guide research. This has led to one student-led publication in *Journal of Climate*, and one student-led publication currently in preparation.
- 2017-2019 UNIVERSITY OF WASHINGTON, SEATTLE, WA  
**Graduate student advisor to two undergraduate research students;** Department of Atmospheric Sciences



Developed and executed a research project involving two undergraduate students and my PhD advisor. I met at least weekly with the undergraduates, sometimes with, sometimes without my PhD advisor, and would frequently have more informal/drop-in meetings with the students. I had an open door policy, and helped the students learn python, learn to run, debug, and use a global Earth system model, analyze results, write AGU abstracts, learn to write scientific manuscripts and respond to reviewer comments. This led to an undergraduate-led journal publication in *Geophysical Research Letters*. Both then-undergraduates are from under-represented backgrounds in STEM; one was a first-generation college student person of colour, while the other is a woman. Both students went on to graduate school in the Earth sciences.

- 2014-2019 BURKE MUSEUM OF NATURAL HISTORY, SEATTLE, WA  
**Instructor:** Girls in Science (middle-school);  
 Led groups of 6-20 middle-school girls through hands-on lab activities exploring the role of vegetation and the carbon cycle in the climate system. Introduced ideas and facilitated discussion relating to plants and climate over 4-8 hour sessions.
- 2016 NATIONAL CENTER FOR ATMOSPHERIC RESEARCH, BOULDER, CO  
**Instructor: CLM Tutorial**  
 Developed and delivered the lecture on “Modifying the code in CLM”; helped students set up and run CESM in practical sessions.
- 2014 UNIVERSITY OF WASHINGTON, SEATTLE, WA  
**Teaching Assistant:** *Global Warming: Understanding the Issues* (undergraduate)  
 Developed homework and test material; grading; developed material for and taught 1-hour “discussion sections” of roughly 20 students each, 4 1-hour sessions per week.
- 2012 UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER, BC  
**Teaching Assistant:** *Differential Calculus* (undergraduate)  
 Taught mini-lectures on example problems at weekly 3-hour “workshop” classes, where students would be given an example problem, then a longer problem that we all worked through as a group (roughly 30 people per class), followed by time to work on a longer, more complicated problem in groups of 4. I would go from group to group to help them develop problem solving skills. After an hour of working through their problem in small groups, the groups would report back to the class to share their approach and solution.

## Service & Outreach

- 2019 Instructor for the Advanced Climate Dynamics Courses summer school, *Yosemite, CA*
- 2014-2019 Girls in Science outreach program, Burke Museum of Natural History, *Seattle, WA*
- 2017-2019 Mentoring undergraduate & early graduate students in Atmospheric Science, *Seattle, WA*
- 2014-2019 Outreach activities with the UW Department of Atmospheric Sciences, *Seattle, WA*
- 2016-2019 Diversity and Inclusion Group, Department of Atmospheric Sciences, University of Washington, *Seattle, WA*
- 2016-2018 Founding member of the Program on Climate Change Graduate Student Steering Committee, University of Washington, *Seattle, WA*
- 2016 Chair of the 10th Annual Graduate Climate Conference (GCC10) Organizing Committee, *Seattle, WA*
- 2016 Community Land Model (CLM) 2016 Tutorial instructor, *Boulder, CO*
- 2010-2012 Undergraduate Mathematics Volunteer Tutoring, *Vancouver, BC, Canada*
- 2012 East Kootenay Regional Science Fair Judge, *Cranbrook, BC, Canada*

## Grant Reviewer for:

National Science Foundation (Climate and Large-Scale Dynamics; Hydrologic Sciences)

2019-2021

## Journal Reviewer for:

Science	Journal of Climate
Nature	Journal of Geophysical Research - Atmospheres
Nature Climate Change	Geophysical Research Letters
Nature Geophysics	Geoscientific Model Development
Nature Communications	Global Planetary Change
Environmental Research Letters*†	Journal of Hydrometeorology
Current Climate Change Reports	Earth System Dynamics

\* IOP Trusted Reviewer based on peer review quality

† Some of my reviews for ERL have been used in their new peer-reviewer online training course

## Programming Languages

PYTHON (primary), FORTRAN 90, MATLAB, MAPLE, TCSH, BASH, NCL, NCO

## Trainings & Certifications

- 2022 Four Seasons of Reconciliation: anti-racist education in line with the Truth and Reconciliation Commission of Canada to promote a renewed relationship between Indigenous Peoples and Canadian Settlers (*University of Saskatchewan*)
- 2022 Remote Wilderness First Aid (*Canadian Red Cross*)
- 2022 Stand up against street harassment bystander intervention training (*StandUp Canada*)
- 2021 Speaking Up: How Bystanders Can Change the Conversation about Social Bias and PowerPlay Interactive Development (*University of Saskatchewan*)
- 2020 Pathways to Scientific Teaching Certificate (*University of California, Berkeley*)

## Conferences & Workshops

- 2022 Carnegie Research Workshop – Continental Climate Change: Simple Models to Understand the Future, *University of St. Andrews, Scotland, UK*
- 2022 26th Community Earth System Model Workshop, National Center for Atmospheric Research, *Virtual*
- 2022 CESM Land Model Working Group Winter Meeting, National Center for Atmospheric Research, *Virtual*
- 2021 American Geophysical Union (AGU) Fall Meeting, *Virtual*
- 2021 25th Community Earth System Model Workshop, National Center for Atmospheric Research, *Virtual*
- 2021 CESM Land Model Working Group Winter Meeting, National Center for Atmospheric Research, *Virtual*
- 2020 American Geophysical Union (AGU) Fall Meeting, *Virtual*

2020 Surface Atmosphere Integrated Field Laboratory (SAIL) Virtual Workshop.

2020 Grant Getting, Santa Fe Institute

2020 CESM Land Model Working Group Winter Meeting, National Center for Atmospheric Research, *Boulder, CO*

2020 Pathways to Scientific Teaching Workshop, University of California, Berkeley *Berkeley, CA*

2020 Berkeley Atmospheric Sciences Colloquium (BASC) Symposium, *Berkeley, CA*

2019 American Geophysical Union (AGU) Fall Meeting, *San Francisco, CA*

2019 Workshop on Entrenchment: "The Point of No Return", Santa Fe Institute, *Santa Fe, NM*

2019 "The Anthropocene", Instructor at the Advanced Climate Dynamics Courses (ACDC) Summer School, *Yosemite, CA*

2019 Impacts of Land Use and Land Management on Earth System Evolution, Biogeochemical Cycles, Extremes and Inter-Sectoral Dynamics, Aspen Global Change Institute, *Aspen, CO*

2019 Postdocs in Complexity Conference VI, Santa Fe Institute, *Santa Fe, NM*

2019 24th Community Earth System Model Workshop, National Center for Atmospheric Research, *Boulder, CO*

2019 Postdocs in Complexity Conference V, Santa Fe Institute, *Santa Fe, NM*

2019 CESM Land Model Working Group Winter Meeting, National Center for Atmospheric Research, *Boulder, CO*

2018 American Geophysical Union (AGU) Fall Meeting, *Washington, DC*

2018 Advanced Climate Dynamics Courses (ACDC) Summer School, *Finse, Norway*

2018 23rd Community Earth System Model Workshop, National Center for Atmospheric Research, *Boulder, CO*

2018 UW Program on Climate Change Spring Symposium, University of Washington, *Seattle, WA*

2018 CESM Land Model Working Group Winter Meeting, National Center for Atmospheric Research, *Boulder, CO*

2018 National Science Foundation Macrosystems Biology PI Meeting, *Washington, DC*

2017 American Geophysical Union (AGU) Fall Meeting, *New Orleans, LA*

2017 Stand Up for Science: Graduate Student Advocacy Training (Union of Concerned Scientists Workshop), *Seattle, WA*

2017 Ecological Society of America Annual Meeting, *Portland, OR*

2017 22nd Community Earth System Model Workshop, National Center for Atmospheric Research, *Boulder, CO*

2017 UW Program on Climate Change Spring Symposium, University of Washington, *Seattle, WA*

2017 CESM Land Model Working Group Winter Meeting, *Boulder, CO*

2017 American Meteorological Society Annual Meeting, *Seattle, WA*

2016 10th Annual Graduate Climate Conference, *Pack Forest, WA*

2016 21st Community Earth System Model Workshop, National Center for Atmospheric Research, *Boulder, CO*

2016 Ecosystem Demographics in the Earth System Workshop, National Center for Atmospheric Research, *Boulder, CO*

2016 Land Model Working Group Winter Meeting & Joint CESM Winter Meeting, National Center for Atmospheric Research, *Boulder, CO*

2015 American Geophysical Union (AGU) Fall Meeting, *San Francisco, CA*

2015 9th Annual Graduate Climate Conference, *Woods Hole, MA*

- 2015 Aosta Alpine Summer School, Course XXIII: Land-Atmosphere Interactions, Institute of Atmospheric Sciences and Climate (ISAC) – CRN (Turin, Italy) & the Centre national de la recherche scientifique (CNRS) – (France), *Valsavarenche, Aosta Valley, Italy*
- 2015 CESM Land Model Working Group Winter Meeting, National Center for Atmospheric Research, *Boulder, CO*
- 2014 8th Annual Graduate Climate Conference, *Pack Forest, WA*
- 2014 Community Land Model (CLM) Tutorial, National Center for Atmospheric Research, *Boulder, CO*
- 2011 Pacific Institute for the Mathematical Sciences - Applied Mathematics Perspectives Mathematical Biology Workshop, University of Victoria, *Victoria, BC, Canada*