

Brian E. J. Rose

Associate Professor

Department of Atmospheric & Environmental Sciences

University at Albany (SUNY)

ES 35I, 1400 Washington Ave., Albany NY 12222, U.S.A.

Phone: (518) 442-4477

Email: brose@albany.edu

Web: <http://www.atmos.albany.edu/facstaff/brose/>

Canadian citizen, lawful permanent resident of the USA, fluent in English and French

EDUCATION

- 2010 PhD, Climate Physics and Chemistry, Massachusetts Institute of Technology
Oceanic control of the sea ice edge and multiple equilibria in the climate system (Advisor: J. Marshall. Awarded 2010 Rossby Prize.)
- 2002 MSc, Atmospheric & Oceanic Sciences, McGill University
A diagnostic scheme for global precipitation based on vertical motion (Advisor: C.A. Lin)
- 1999 BSc, Atmospheric & Oceanic Sciences, McGill University
Numerical simulation of a mesoscale vortex over the Beaufort Sea (Advisor: M.K. Yau)

ACADEMIC EMPLOYMENT

- 2019 – Associate Professor (with tenure), Atmospheric & Environmental Sciences, University at Albany (SUNY)
- 2013 – 2019 Assistant Professor, Atmospheric & Environmental Sciences, University at Albany (SUNY)
- 2012 – 2013 Research Associate, Atmospheric Sciences, University of Washington
- 2010 – 2012 NOAA Climate and Global Change Postdoctoral Fellow, Atmospheric Sciences, University of Washington. Host: David S. Battisti
- 2010 Postdoctoral Associate, Earth, Atmospheric and Planetary Sciences, MIT
- 2005 – 2010 Research Assistant, Earth, Atmospheric and Planetary Sciences, MIT
- 2003 – 2004 Research Assistant, Atmospheric and Oceanic Sciences, McGill University
- 2000 Research Assistant, McGill University and *Centre de recherche en calcul appliqué*, Montreal

PUBLICATIONS

** indicates student co-author.*

Reprints available at links below or from <http://www.atmos.albany.edu/facstaff/brose/>

PEER-REVIEWED PUBLICATIONS WITH UALBANY AFFILIATION

2020

Dai, A., D. Huang, B.E.J. Rose, J. Zhu and X. Tian (2020), Improved Methods for Estimating Equilibrium Climate Sensitivity from Transient Warming Simulations. *Climate Dynamics*, accepted.

Rencurrel, M.C.* and B.E.J. Rose (2020), The Efficiency of the Hadley Cell Response to Wide Variations in Ocean Heat Transport. *J. Climate* 33, 1643–1658, doi:10.1175/JCLI-D-19-0334.1

2018 Rencurrel, M.C.* and B.E.J. Rose (2018), Exploring the climatic response to wide variations in ocean heat transport on an aquaplanet. *J. Climate* 31, 6299–6318, doi:10.1175/JCLI-D-17-0856.1

Rose, B.E.J. (2018), CLIMLAB: a Python toolkit for interactive, process-oriented climate modeling. *J. Open Source Software*, 3(24), 659, doi:10.21105/joss.00659

2017 Hoffman, P.F., D.S. Abbot, Y. Ashkenazy, D.I. Benn, J.J. Brocks, P.A. Cohen, G.M. Cox, J.R. Creveling, Y. Donnadieu, D.H. Erwin, I.J. Fairchild, D. Ferreira, J.C. Goodman, G.P. Halverson, M.F. Jansen, G. Le Hir, G.D. Love, F.A. Macdonald, A.C. Maloof, C.A. Partin, G. Ramstein, B.E.J. Rose, C.V. Rose, P.M. Sadler, E. Tziperman, A. Voigt, and S.G. Warren (2017), Snowball Earth climate dynamics and Cryogenian geology–geobiology. *Science Advances* 3:e1600983, doi:10.1126/sciadv.1600983

Singh, H.A., P.J. Rasch and B.E.J. Rose (2017), Increased Ocean Heat Convergence into the High Latitudes with CO₂-Doubling Enhances Polar-Amplified Warming. *Geophys. Res. Lett.* 44, doi:10.1002/2017GL074561

Rose, B.E.J., T.W. Cronin and C.M. Bitz (2017), Ice Caps and Ice Belts: the effects of obliquity on ice-albedo feedback. *Astrophys. J.* 846, doi:10.3847/1538-4357/aa8306

Haugstad, A.D.*, K.C. Armour, D.S. Battisti and B.E.J. Rose (2017), Relative roles of surface temperature and climate forcing patterns in the inconstancy of radiative feedbacks. *Geophys. Res. Lett.* 44, doi:10.1002/2017GL074372

2016 Voigt, A., M. Biasutti, J. Scheff, J. Bader, S. Bordoni, F. Codron, R.D. Dixon, J. Jonas, S.M. Kang, N.P. Klingaman, R. Leung, J. Lu, B. Mapes, E.A. Maroon, S. McDermid, J. Park, R. Roehrig, B.E.J. Rose, G.L. Russell, J. Seo, T. Toniazzo, H. Wei, M. Yoshimori, and L.R.V. Zepetello (2016), The Tropical Rain belts with an Annual Cycle and Continent Model Intercomparison Project: TRACMIP. *J. Adv. Model. Earth Syst.* 8, 1868–1891, doi:10.1002/2016MS000748

Rose, B.E.J. and L. Rayborn* (2016), The effects of ocean heat uptake on transient climate sensitivity. *Current Climate Change Reports* 2, 190–201, doi:10.1007/s40641-016-0048-4

Rose, B.E.J. and M.C. Rencurrel* (2016), The vertical structure of tropospheric water vapor: comparing radiative and ocean-driven climate changes. *J. Climate* 29, 4251–4268.

2015 Rose, B.E.J. (2015), Stable “Waterbelt” climates controlled by tropical ocean heat transport: a non-linear coupled climate mechanism of relevance to Snowball Earth. *J. Geophys. Res.* 150, doi:10.1002/2014JD022659

- 2014 [Rose, B.E.J., K. Armour, D.S. Battisti, N. Feldl and D. Koll \(2014\), The dependence of transient climate sensitivity and radiative feedbacks on the spatial pattern of ocean heat uptake. *Geophys. Res. Lett.* 41, doi:10.1002/2013GL058955](#)

PEER-REVIEWED PUBLICATIONS PRIOR TO UALBANY AFFILIATION

- 2013 [Rose, B.E.J., D. Ferreira and J. Marshall \(2013\), The role of oceans and sea ice in abrupt transitions between multiple climate states. *J. Climate* 26, 2862-2879](#)
- [Rose, B.E.J. and D. Ferreira \(2013\), Ocean heat transport and water vapor greenhouse in a warm equable climate: a new look at the low gradient paradox. *J. Climate* 26, 2117-2136](#)
- 2011 [Ferreira, D., J. Marshall and B.E.J. Rose \(2011\): Climate determinism revisited: multiple equilibria in a complex climate model. *J. Climate*. 24, 992-1012](#)
- 2009 [Rose, B.E.J. and J. Marshall \(2009\): Ocean heat transport, sea ice, and multiple climate states: insights from energy balance models. *J. Atmos. Sci.* 66, 2828-2843](#)
- 2003 [Rose, B.E.J. and C.A. Lin \(2003\): Precipitation from vertical motion: a statistical diagnostic scheme. *Int. J. Climatol.* 23, 903-919](#)

OTHER PUBLICATIONS

- 2010 [Rose, B.E.J. \(2010\): Oceanic control of the sea ice edge and multiple equilibria in the climate system, PhD thesis, MIT, Cambridge MA](#)
- 2002 [Rose, B.E.J. \(2002\): A diagnostic scheme for global precipitation based on vertical motion, MSc thesis, McGill University, Montreal.](#)

WORK IN PROGRESS

- Henry, M., T.M. Merlis, N.J. Lutsko and [B.E.J. Rose \(2020\)](#), Decomposing the Drivers of Polar Amplification with a Single Column Model. (submitted to *J. Climate*)
- [Cardinale, C.*](#), [B.E.J. Rose](#) and [A.L. Lang \(2020\)](#), Stratospheric and Tropospheric Contributions to the Poleward Energy Flux Across 70°N and 65°S (under revision for *J. Climate*)
- [Rose, B.E.J. \(2020\)](#), Climate in the absence of ocean heat transport. (to be submitted to *Geophys. Res. Lett.*)
- [Paiewonsky, P.*](#), [O. Elison Timm](#) and [B.E.J. Rose \(2020\)](#), State dependency of the forest-tundra-short wave feedback: comparing the mid-Pliocene and pre-industrial eras using a newly-developed vegetation model. (to be submitted to *Climate Dynamics*)
- [Rose, B.E.J.](#), [L. Rayborn*](#) and [N. Feldl \(2020\)](#), Understanding the Dependence of Radiative Feedbacks and Clouds on the Spatial Structure of Ocean Heat Uptake. (in prep.)

OTHER SCHOLARLY ACTIVITY

DEVELOPER OF OPEN-SOURCE SCIENTIFIC SOFTWARE AND EDUCATIONAL RESOURCES

All source code publicly available at <https://github.com/brian-rose/>

- 2014 – [CLIMLAB](#), a Python-based toolkit for interactive, process-oriented climate modeling
- 2020 – [The Climate Laboratory](#), an open-access interactive textbook
- 2015 – 2019 [Climate Modeling Courseware](#), interactive lecture notes in Jupyter notebook format
- 2015 – [CLIMLAB documentation](#), online user manual for the CLIMLAB software package
- 2015 – [pyCESM](#), Python-based analysis package for the Community Earth System Model

GRANT FUNDING

FEDERAL

- 2020-2023 Collaborative Research: EarthCube Data Capabilities: Project Pythia: A Community Learning Resource for Geoscientists (PI, UAlbany component). NSF EarthCube, \$399,312. *Status: submitted*
- 2020-2023 Dynamic and thermodynamic mechanisms of desert amplification in a warming climate (co-PI with Dr. Liming Zhou). NSF Climate and Large Scale Dynamics, \$696,071. *Status: funded, start date 9/1/2020*
- 2015 – 2020 CAREER: Understanding the role of oceans in the planetary energy budget (PI). NSF Climate and Large Scale Dynamics, \$544,681. *Status: ongoing*

UNIVERSITY AT ALBANY

- 2018 Does the Earth System have multiple stable states? (PI). FRAP-B award, \$2,000. *Status: awarded*

PROPOSALS NOT FUNDED

- 2018-2023 Collaborative Research: Framework: Software: Community Earth System Informatics: Enabling Convergent Science (co-PI). NSF Cyberinfrastructure for Sustained Scientific Innovation, \$4,808,504. Lead PI is Matthew Long, National Center for Atmospheric Research. UAlbany component \$500,000. *Status: not funded*

IN PREPARATION

- 2020-2023 Understanding the vertical structure of Arctic climate change (sole PI). NSF Climate and Large Scale Dynamics.

PRESENTATIONS

INVITED PRESENTATIONS

- 2019/09 McGill University, Atmospheric & Oceanic Sci.: Why does climate sensitivity go up as ocean heat uptake declines? A linear systems perspective.

- 2019/05 SIAM Conference on Applications of Dynamical Systems, minisymposium “Planetary Motion and its Effects on Climate”.
- 2018/06 ICTP Summer School on Theory, Mechanisms and Hierarchical Modelling of Climate Dynamics: Multiple Equilibria in the Climate System.
- 2018/06 Rossbypalooza, U. Chicago: Ice Caps and Ice Belts / Intro to CLIMLAB
- 2018/01 AMS 17th Annual Student Conference, Tools of the Trade session: The Jupyter notebook.
- 2017/09 Columbia University, SEAS Colloquium in Climate Science: Why does climate sensitivity go up as ocean heat uptake declines? A linear systems perspective.
- 2017/05 York University, Earth & Space Sci. & Eng.: Global climate sensitivity goes up as ocean heat uptake declines: a linear systems perspective on inconstant climate feedbacks.
- 2017/03 MIT, PAOC seminar: Why does climate sensitivity go up as ocean heat uptake declines? A linear systems perspective.
- 2016/04 UW, Atmos. Sci.: The vertical structure of tropospheric water vapor: comparing radiative and ocean-driven climate changes.
- 2016/04 UW, Atmos. Sci.: Climate in the absence of ocean heat transport.
- 2015/11 Columbia University, SEAS Colloquium in Climate Science: Understanding the effects of ocean circulation on radiative feedbacks and the planetary energy budget.
- 2015/09 Stony Brook University, Marine & Atmos. Sci.: Understanding the effects of ocean circulation on radiative feedbacks and the planetary energy budget.
- 2015/01 Massachusetts College of Liberal Arts: What sets the temperature of the Earth? (public lecture)
- 2013/10 Caltech ESE seminar: The role of oceans in climate sensitivity and radiative feedbacks
- 2013/10 Courant Institute, NYU: The role of oceans in climate sensitivity and radiative feedbacks.
- 2013/05 SIAM Dynamical Systems conference: Multiple sea ice states and hysteresis in climate models.
- 2013/03 McGill University, Atmos. & Oceanic Sci.: One wet planet, many climates.
- 2013/03 UW, Atmos. Sci.: Climate sensitivity and the oceans.
- 2013/01 U. Albany, Atmos. & Environ. Sci.: One wet planet, many climates.
- 2012/11 UW, Atmos. Sci.: Understanding why ocean heat transport matters: a multi-model approach.
- 2012/05 MIT EAPS: Why does the climate system care about ocean heat transport?
- 2012/04 UW, Oceanography: Modeling* the role of oceans and sea ice in multiple equilibria, abrupt climate change, and Snowball Earth (* and maybe understanding).
- 2012/04 U. Chicago, Geophysical Sci.: Water, water everywhere: role of oceans in warm climates.
- 2012/03 LDEO, Columbia U.: Why does the climate system care about ocean heat transport?
- 2011/10 U. Chicago, Geophysical Sci.: Why does the climate system care about ocean heat transport?
- 2011/10 UW, Oceanography: Why does the climate system care about ocean heat transport?
- 2011/09 ACDC2011, Friday Harbor WA: Ocean heat transport and weak temperature gradients.
- 2011/02 CalTech, Environ. Sci. & Eng.: Impact of ocean heat transport in cold and warm climates.
- 2011/01 UW, Atmos. Sci.: Oceanic control of the sea ice edge and multiple equilibria.

2010/09 Harvard U., Earth and Planetary Sci.: Multiple equilibria of sea ice and climate.

CONTRIBUTED CONFERENCE PRESENTATIONS

** indicates student co-author*

- 2020/01 B.E.J. Rose, CLIMLAB 2.0: Lessons Learned and Future Roadmap for Interactive, Process-Oriented Climate Modeling (oral presentation), AMS 10th Symposium on Advances in Modeling and Analysis Using Python.
- 2020/01 B.E.J. Rose and F. Zhu*, Multiple Equilibria in a Fully Coupled Carbon?Climate Model (poster), AMS Robert Dickinson Symposium and 33rd Conference on Climate Variability and Change.
- 2020/01 B.E.J. Rose, M.C. Rencurrel*, and M. Rugenstein, Effects of spatial patterns of ocean heat uptake on the inter-model spread of the Transient Climate Response (oral presentation), AMS 33rd Conference on Climate Variability and Change.
- 2019/12 B.E.J. Rose, Interactive Climate Modeling and Reproducible Workflows in the Classroom (oral presentation), AGU Fall Meeting
- 2019/12 B.E.J. Rose and M.C. Rencurrel*, Ocean heat transport makes the world warmer: coupled cloud-convection-circulation response of an aquaplanet to idealized surface forcing (poster), AGU Fall Meeting
- 2019/12 Zhu, F.* and B.E.J. Rose, Multiple Equilibria in a Fully Coupled Carbon-Climate Model (eLightning presentation), AGU Fall Meeting.
- 2019/12 Cardinale, C.* and B.E.J. Rose, Stratospheric and Tropospheric contributions to the Poleward Energy Flux across 70°N (poster), AGU Fall Meeting.
- 2019/12 Rencurrel, M.C.*, B.E.J. Rose and M. Rugenstein, Effects of spatial patterns of ocean heat uptake on the inter-model spread of the Transient Climate Response (poster), AGU Fall Meeting.
- 2019/06 Rose, B.E.J., The Vertical Structure of Arctic Climate Change: a Single-Column Model Perspective (oral presentation), AMS Conference on Atmospheric and Oceanic Fluid Dynamics.
- 2018/12 Rencurrel, M.C.* and B.E.J. Rose, The Efficiency of the Hadley Cell Response to Wide Variations in Ocean Heat Transport (oral presentation), AGU Fall Meeting
- 2018/10 Rencurrel, M.C.* and B.E.J. Rose, The Efficiency of the Hadley Cell Response to Wide Variations in Ocean Heat Transport (poster), Understanding and Modeling the Earth's Climate, a symposium in honor of Isaac Held. Princeton University.
- 2018/07 Rencurrel, M.C.* and B.E.J. Rose, Exploring the Robust Hadley Cell Response to Variations in Ocean Heat Transport (poster), WCRP Grand Challenge on Clouds, Circulation and Climate Sensitivity: 2nd Meeting on Monsoons and Tropical Rain Belts.
- 2018/01 Rose, B.E.J. and C. Cardinale*, Stratospheric and Tropospheric Contributions to the Flux of Moist Static Energy across 70°N (oral presentation), AMS 31st Conference on Climate Variability and Change.
- 2018/01 Rose, B.E.J., A Computational Approach to Climate Science Education with CLIMLAB (oral presentation), AMS Eighth Symposium on Advances in Modeling and Analysis Using Python.
- 2017/12 Rose, B.E.J., Climate in the absence of ocean heat transport (oral presentation), AGU Fall Meeting

- 2017/12 Rose, B.E.J., A computational approach to climate science education with CLIMLAB (poster), AGU Fall Meeting
- 2017/12 Rencurrel, M.C.* and B.E.J. Rose, Understanding the robustness of Hadley cell response to wide variations in ocean heat transport (oral presentation), AGU Fall Meeting
- 2017/12 Cardinale, C.* and B.E.J. Rose, Stratospheric and Tropospheric Contributions to the Flux of Moist Static Energy Across 70°N and 65°S (poster), AGU Fall Meeting
- 2017/06 Rose, B.E.J., T.W. Cronin and C.M. Bitz, Ice Caps and Ice Belts: the effects of obliquity on albedo feedback (oral presentation), AMS Conference on Atmospheric and Oceanic Fluid Dynamics.
- 2017/06 Singh, H.A., P.J. Rasch and B.E.J. Rose, Impact of Ocean Dynamics on Polar Climate Change (oral presentation), AMS Conference on Atmospheric and Oceanic Fluid Dynamics.
- 2017/01 Rose, B.E.J., CLIMLAB: a Python-Based Software Toolkit for Interactive, Process-Oriented Climate Modeling, AMS Seventh Symposium on Advances in Modeling and Analysis Using Python.
- 2016/12 Rose, B.E.J. and L. Rayborn*, Climate sensitivity increases as ocean heat uptake declines: a linear systems perspective (oral presentation), AGU Fall Meeting.
- 2016/12 Rose, B.E.J., Interactive, process-oriented climate modeling with CLIMLAB (oral presentation), AGU Fall Meeting.
- 2016/12 Rayborn, L.* and B.E.J. Rose, Understanding the Dependence of Radiative Feedbacks and Clouds on the Spatial Structure of Ocean Heat Uptake (oral presentation), AGU Fall Meeting.
- 2016/12 Rencurrel, M.C.* and B.E.J. Rose, Understanding Atmospheric Adjustment to Variations in Tropical Ocean Heat Transport (poster), AGU Fall Meeting.
- 2016/11 Rose, B.E.J., CLIMLAB: a Python toolkit for interactive, process-oriented climate modeling (oral presentation), AOSPY workshop, Columbia University.
- 2016/11 Rose, B.E.J., Robust non-local effects of ocean heat uptake on radiative feedback and subtropical cloud cover (oral presentation), Model Hierarchies workshop, Princeton.
- 2016/02 Rose, B.E.J., Robust non-local effects of ocean heat uptake on radiative feedback and subtropical cloud cover (oral presentation), Ocean Sciences.
- 2015/12 Rayborn, L.* and B.E.J. Rose, Robust effects of ocean heat uptake on radiative feedback and subtropical cloud cover: a study using radiative kernels (oral presentation), AGU Fall Meeting.
- 2015/12 Rencurrel, M.C.* and B.E.J. Rose, Atmospheric compensation of variations in tropical ocean heat transport: understanding mechanisms and implications on tectonic timescales (poster), AGU Fall Meeting.
- 2015/12 Rose, B.E.J., Climate in the absence of ocean heat transport (poster), AGU Fall Meeting.
- 2015/12 Rose, B.E.J., CLIMLAB: a Python-based software toolkit for interactive, process-oriented climate modeling (poster), AGU Fall Meeting.
- 2014/12 Rose, B.E.J., Accidental Lessons on Nonlinear Wind - Ocean - Sea Ice Interaction in the Tropics, with Implications for Snowball Earth (poster), AGU Fall Meeting.
- 2014/06 Rose, B.E.J., The dependence of transient climate sensitivity and radiative feedbacks on the spatial pattern of ocean heat uptake (oral presentation), Latsis Symposium, ETH Zurich.

- 2013/12 Rose, B.E.J., D. Battisti and K. Armour, The dependence of transient climate sensitivity and radiative feedbacks on the spatial pattern of ocean heat uptake (oral presentation), AGU Fall Meeting.
- 2012/12 Rose, B.E.J., Understanding the atmospheric response to ocean heat transport: a model inter-comparison (oral presentation), AGU Fall Meeting.
- 2011/12 Rose, B.E.J., D. Ferreira and J. Marshall, Not all poleward heat transport is created equal: a new look at warm climates, water vapor feedback, and the low-temperature-gradient paradox (oral presentation), AGU Fall Meeting.
- 2011/06 Rose, B.E.J., D. Ferreira and J. Marshall, On the dynamics of an abrupt climate change (oral presentation), CMOS Congress, Victoria BC.
- 2011/05 Rose, B.E.J., D. Ferreira and J. Marshall, On the dynamics of an abrupt climate change (oral presentation), AMS Polar Meteorology and Oceanography Conference, Boston MA.
- 2010/07 Rose, B.E.J., Oceanic control of the sea ice edge and multiple equilibria in the climate system (thesis defense), MIT, Cambridge MA.
- 2010/06 Rose, B.E.J., D. Ferreira and J. Marshall, Multiple equilibria and abrupt climate change in coupled Aquaplanet simulations (oral presentation), CMOS Congress, Ottawa ON.
- 2010/05 Rose, B.E.J., Ocean heat transport, sea ice, and multiple equilibria of the climate system, Sack Lunch Seminar in Oceanography and Climate, MIT, Cambridge MA.
- 2009/11 Rose, B.E.J., D. Ferreira and J. Marshall, Multiple equilibria of the atmosphere-ocean-ice system (oral presentation), Ocean-Atmosphere Energy Transport conference, Cal-Tech, Pasadena CA.
- 2009/04 Rose, B.E.J., Multiple equilibria of the atmosphere-ocean-ice system (oral presentation), Graduate Climate Conference, UW, Pack Forest WA.
- 2008/04 Rose, B.E.J. and J. Marshall, Heat transport, wind stress and the ice edge: new insights from simple models (oral presentation), CMOS Congress, Kelowna BC.
- 2007/10 Rose, B.E.J., Sea ice, wind, and ocean currents: feedbacks and instabilities in ice age climates (oral presentation), Graduate Climate Conference, UW, Pack Forest WA.
- 2007/05 Rose, B.E.J. and J. Marshall, Constraints on atmospheric and oceanic heat transport from an idealized coupled climate model with sea-ice (oral presentation), CMOS-CGU-AMS Joint Congress, St. John's NF.
- 2006/04 Rose, B.E.J., The partition of heat transport in a simple coupled climate model (oral presentation), Graduate Climate Conference, UW, Pack Forest WA.
- 2004/06 Rose, B.E.J. and C.A. Lin, A reconstruction of historical summer drought in Quebec based on tree rings (poster), Symposium Ouranos sur les changements climatiques, Montreal QC.
- 2001/02 Rose, B.E.J. and C.A. Lin, Statistical relation between precipitation and vertical motion (oral presentation), Canadian CLIVAR Network Workshop, Victoria BC.

TEACHING AND ADVISING

COURSES TAUGHT AT UALBANY

** indicates newly developed courses*

Course websites at links below or from <http://www.atmos.albany.edu/facstaff/brose/>

2015–2019	A ATM 623 Climate Modeling*
2015–2019	A ATM 500 Atmospheric Dynamics*
2014–2020	A ATM/ENV 415 Climate Laboratory* (previously A ENV 480)
2014	A ATM 316 Dynamic Meteorology I
2013	A ATM 619 Oceans and Climate Seminar*

PREVIOUS TEACHING

2013	UW ATMS 542 Geophysical Fluid Dynamics II, co-taught with D.S. Battisti
2011, 2013	UW ATMS 514 / ESS 535 Ice and Climate, guest lectures for C.M. Bitz
2011	Lecturer, ACDC2011, “Dynamics of Past Warm Climates”
2009	Lecture note preparation, P. O’Gorman, General Circulation of the Atmosphere, MIT
2007	TA, guest lecturer, J. Marshall, Physics of Atmospheres and Oceans, MIT
2006–2007	Lab assistant, Fayerweather Street School, Cambridge MA
2006	TA for R.S. Lindzen, Strange bedfellows: science and environmental policy, MIT

GRADUATE STUDENTS ADVISED

Current

2018–	Fangze Zhu (advisor, PhD qualifying exam 5/2019)
2016–	Christopher Cardinale (advisor, MS completed 12/2018, PhD qualifying exam 5/2019)
2014–	Michael Cameron Rencurrel (advisor, MS completed 2/2017, PhD prospectus 11/2018)
2016–	Lanxi Min (committee member, PhD prospectus 6/2019)
2018–	Hing Ong (committee member, PhD prospectus 5/2019)
2018–	Ajay Raghavendra (committee member, PhD prospectus 12/2018)
2018–	Yan Jiang (committee member, PhD prospectus 9/2019)
2019–	Zhaoxiangrui He (committee member, PhD qualifying exam 5/2019)
2019–	Brendan Wallace (committee member, PhD qualifying exam 5/2019)
2019–	Heather Sussman (committee member, PhD qualifying exam 8/2019)

Completed

2015–2016	Lance Rayborn (advisor, MS completed 12/2016)
2015–2019	Anthony Joyce (committee member, U. Massachusetts Amherst, PhD defended 6/2019)
2016–2019	Di Chen (committee member, PhD defended 5/2019)
2014–2018	Hannah Attard (committee member, PhD defended 4/2018)
2013–2017	Pablo Paiewonsky (committee member, PhD defended 6/2017)
2017	Christine Bloecker (MS thesis reader, 5/2017)
2014–2017	Theodore Letcher (committee member, PhD defended 2/2017)
2013–2016	Christopher Colose (committee member, PhD defended 12/2016)
2015	Melissa Gervais (external PhD thesis examiner, McGill University)

UNDERGRADUATE STUDENTS ADVISED

- 2019 – Duan-Heng Chang (summer research intern, National Taiwan University)
- 2015 – Chyi-Rong Tsai (summer research intern, National Taiwan University)
- 2014 – Deborah McGlynn (senior thesis in Environmental Science)
- 2013 – Academic advisor for roughly 15 students in ATM and ENV majors

SERVICE

DEPARTMENTAL

- 2019 – 2020 Faculty search committee in Earth System Science
- 2019 – E-TEC building committee, member
- 2018 – 2019 Faculty organizer for the DAES graduate student recruitment visit
- 2017 Represented DAES at DEC Pack Forest camp College Exploration event
- 2015 – DAES graduate committee member
- 2014 – Chair, planning committee for GFD / Env. Sci. teaching laboratory in E-TEC building
- 2014 – Organizer, DAES Climate Group weekly seminar series
- 2015 – Transfer student advising

COLLEGE OF ARTS AND SCIENCES

- 2016 – 2019 CAS Faculty Council (at-large councillor)
- 2016 – 2017 CAS Academic Planning Committee (inactive)
- 2017 – 2019 CAS Academic Support Committee

UNIVERSITY AT ALBANY

- 2019 – University Senate (department representative)
- 2019 – Council on Research (member, chair of ERCA subcommittee, member of FRAP-A review subcommittee)
- 2018 – Udall Scholarship review committee
- 2017 Strategic Planning Steering Committee

PROFESSIONAL

- 2019 – 2022 Member of AMS Climate Variability and Change Committee
- 2018/05 Panel review member for DOE Regional and Global Model Analysis program
- 2017 – 2018 Member of Advisory Committee, 2018 CESM Polar Modeling Workshop.
- 2009 – Reviewer for Nature, J. Climate, J. Atmos. Sci., J. Geophys. Res., Geophys. Res. Lett., Nature Geosci., Nature Clim. Change, Nature Comm., JAMES, Climate Dynamics, Astrophys. J., Mon. Not. R. Astron. Soc., SIAM J. Appl. Dyn. Sys., Earth Sys. Dyn., & Encyclopedia of Natural Resources
- 2015 – Proposal reviewer for NSF and Israel Science Foundation
- 2015 Session Convener: “Polar Climate and Predictability”, AGU Fall Meeting.
- 2014 Session Convener: “Innovative Insights into the Climate System and Climate Models: Exploring Scales and Parameter Spaces”, AGU Fall Meeting.

- 2013 Judge for Outstanding Student Presentation Awards, AGU Fall Meeting.
- 2012 Commendation for exceptional refereeing, Nature Publishing Group.
- 2012/07 Convener, Workshop on heat transport in aquaplanet models, UW Atmos. Sci..
- 2011/04 Moderator, NOAA C&GC Postdoctoral Program 20th anniversary celebration.
- 2009/04 Chair (invited), ocean circulation session, 3rd Graduate Climate Conference, UW.

COMMUNITY

- 2018 – 2020 UAlbany Family Earth Day, lead faculty organizer
- 2018/10 Public seminar: “Climate Sensitivity in an Uncertain World”, Science on Tap.
- 2016 – 2018 UAlbany Family Earth Day, “weather in a tank” demonstrations
- 2014/07 Space Science and Next Generation of Science Standards (forum for high school science teachers), lecture on climate change and climate modeling, RPI.
- 2007 – 2009 Session leader, YouthCAN Summit on Global Warming, MIT.
- 2008/01 Public seminar: “Looking Back on the Future of Climate Change”, MIT.

HONORS AND AWARDS

- 2010 – 2012 NOAA Climate and Global Change Postdoctoral Fellowship
- 2010 Carl-Gustav Rossby Prize for best thesis, MIT
- 2004 Jule G. Charney Prize and MIT Presidential Fellowship
- 2002 Dean’s Honour List for M.Sc. thesis, McGill University
- 2001 – 2002 NSERC Graduate Fellowship, McGill University
- 2001 Meteorological Service of Canada supplement to NSERC Fellowship (declined)
- 1999 NSERC Undergraduate Research Fellowship
- 1995 – 1999 James McGill Scholarship and J.S. Marshall Prize, McGill University

SUMMER SCHOOLS AND WORKSHOPS

- 2019/10 CMIP6 Hackathon, LDEO, Columbia University.
- 2018/07 WCRP Grand Challenge on Clouds, Circulation and Climate Sensitivity: 2nd Meeting on Monsoons and Tropical Rain Belts, ICTP, Trieste, Italy.
- 2018/06 ICTP Summer School on Theory, Mechanisms and Hierarchical Modelling of Climate Dynamics: Multiple Equilibria in the Climate System, Trieste, Italy.
- 2018/06 Rossbypalooza, “Understanding climate through simple models”, U. Chicago.
- 2016/11 AOSPY / Pangeo scientific software workshop, Columbia University.
- 2016/11 Model Hierarchies Workshop, Princeton University.
- 2015/09 Monsoons and the ITCZ workshop, Columbia University.
- 2012/09 PCC Summer Institute: Atmosphere-Ocean-Ice Shelf Interactions, Friday Harbor, WA.
- 2012/07 Workshop on heat transport in aquaplanet models, University of Washington.
- 2012/07 NOAA Climate and Global Change Summer Institute, Steamboat Springs, CO.
- 2011/09 ACDC2011: Dynamics of Past Warm Climates, Friday Harbor, WA.
- 2009/05 Fundamental Problems in Climate Dynamics, Princeton University.
- 2007/07 International Sea Ice Summer School, Svalbard.

PROFESSIONAL AFFILIATIONS

American Geophysical Union
American Meteorological Society