Brian E. J. Rose

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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

Peer-reviewed publications

* *indicates student co-author. Selected reprints are linked below*

2024 Lyu, X., D.D.B. Koll, N. Cowan, R. Hu, L. Kreidberg, and B.E.J. Rose (2024): Super-Earth LHS3844b is tidally locked. Astrophys. J. 964(2), doi:10.3847/1538-4357/ad2077

Li, Z.* and B.E.J. Rose (2024): Oceanic influence and lapse rate changes dominate the recent amplified Saharan warming. Geophys. Res. Lett. 51, doi:10.1029/2023GL106961

2023

Lin, Y.-J.*, B.E.J. Rose and Y.-T. Hwang (2023), Mean state AMOC affects AMOC weakening through subsurface warming in the Labrador Sea. J Climate 36(12), 3895–3915, doi:10.1175/JCLI-D-22-0464.1

Cardinale, C.J.* and B.E.J. Rose (2023), The Increasing Efficiency of the Poleward Energy Transport into the Arctic in a Warming Climate. Geophys. Res. Lett. 50, doi:10.1029/2022GL100834

Zhu, F.* and B.E.J. Rose (2023), Multiple Equilibria in a Coupled Climate-Carbon Model. J. Climate 36(2), 547–564, doi:10.1175/JCLI-D-21-0984.1

Paiewonsky, P.*, O. Elison Timm and B.E.J. Rose (2023), State dependency of the forest-tundra-short wave feedback: comparing the mid-Pliocene and pre-industrial eras. Climate Dynamics 60, 3839–3861, doi:10.1007/s00382-022-06474-z

2022 Cardinale, C.J.* and B.E.J. Rose (2022), The Arctic Surface Heating Efficiency of Tropospheric Energy Flux Events. J. Climate 35, 5897–5913, doi:10.1175/JCLI-D-21-0852.1

2021 Min, L.*, D.R. Fitzjarrald, Y. Du, B.E. J. Rose, J. Hong, and Q. Min (2021), Exploring sources of bias in HRRR using New York State Mesonet. J. Geophys. Res. Atmospheres 126, doi:10.1029/2021JD034989

Lin, Y.-J.*, Y.-T. Hwang, J. Lu, F. Liu, and B.E.J. Rose (2021), The dominant contribution of Southern Ocean heat uptake to time-evolving radiative feedback in CESM. Geophys. Res. Lett. 48, doi:10.1029/2021GL093302

Cardinale, C.J.*, B.E.J. Rose, A.L. Lang, and A. Donohoe (2021), Stratospheric and Tropospheric Flux Contributions to the Polar Cap Energy Budgets. J. Climate 34, 4261–4278, doi:10.1175/JCLI-D-20-0722.1

Henry, M., T.M. Merlis, N.J. Lutsko, and B.E.J. Rose (2021), Decomposing the Drivers of Polar Amplification with a Single Column Model. J. Climate 34, 2355–2365, doi:10.1175/JCLI-D-20-0178.1

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 54, 4515–4543, doi:10.1007/s00382-020-05242-1

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. Good-

man, 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 CO_2-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. Zeppetello (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

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.

Under review or in prep.

He, Z.*, A. Dai, B.E.J. Rose and M. Vuille (2024): Influence of the Atlantic and Pacific Multidecadal Variability on Arctic Sea Ice in Pacemaker Simulations During 1920-2013. In revision for J. Climate.
Zhu, F.* and B.E.J. Rose (2024): Unforced Millennial-Scale Oscillations in a Coupled Climate-Carbon System. Submitted to J. Climate.
Ford, R.*, B.E.J. Rose et al. (2024): Transient climate sensitivity shaped by Antarctic sea ice changes: exploring links between ocean heat uptake patterns, sea ice changes, and mid-latitude cloud cover. Submitted to J. Climate.

OTHER SCHOLARLY ACTIVITY

Developer of Open-Source Scientific Software and Educational Resources

Source code available at `https://github.com/brian-rose` *or* `https://github.com/ProjectPythia`

2021 – Project Pythia Foundations and Pythia Cookbooks, community learning resources for Python-based computing in the geosciences
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

2024-2025 Examining transient terrestrial and atmospheric determinants of land-atmosphere coupling using NASA's long-term satellite sounder and radiometer records (PI for year three, assumed responsibility from original PI Dr. Craig Ferguson). NASA TASNPP, $260,289. *Status: awaiting transfer of PI status*

2024-2026

Collaborative Research: GEO OSE Track 2: Project Pythia and Pangeo: Building an inclusive geoscience community through accessible, reusable, and reproducible workflows (lead PI). NSF Geosciences Open Science Ecosystem, Total budget $1,598,897, UAlbany budget $489,545. *Status: ongoing*

2023-2024 A Persistent BinderHub instance for Project Pythia (lead PI). NSF Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support (ACCESS). In-kind allocation of compute resource credits at the "Discover ACCESS" level. *Status: ongoing*

2020-2024 Collaborative Research: EarthCube Data Capabilities: Project Pythia: A Community Learning Resource for Geoscientists (PI, UAlbany component). NSF EarthCube, $379,311. *Status: ongoing, no-cost extension*

2020-2024 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: ongoing, no-cost extension*

2015 – 2021 CAREER: Understanding the role of oceans in the planetary energy budget (PI). NSF Climate and Large Scale Dynamics, $544,681. *Status: completed*

University at Albany

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

Proposals not funded

2023-2025 CC* Regional Computing: NYCaRCC: New York Capital Region Computing Cluster (co-PI). NSF Campus Cyberinfrastructure, $1,000,000. *Status: not funded*

2022-2025 MRI: Acquisition of High-Performance Computing Instrument to support Simulation & AI enabled Research and Teaching (co-PI). NSF Major Research Instrumentation, $417,057. *Status: 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*

PRESENTATIONS

Invited Presentations

2024/01 AMS 14th Symposium on Advances in Modeling and Analysis Using the Programming Languages of Open Science: Core Science Keynote: Project Pythia's vision: Building an inclusive geoscience community through accessible, reusable, and reproducible workflows.

2024/01 US CLIVAR Workshop on Polar Amplification of Climate Changes Across Hemispheres and Seasons: Causes and Constraints. The role of atmospheric and oceanic heat transport in polar amplification: themes, thoughts, and opinions.

2023/09 MIT PAOC Retreat: Thoughts on reproducible climate model hierarchies: The intersection of science, models, and communication.

2023/07 Climatematch Academy (virtual global summer school): Climate Modeling keynote

2023/05 Climate Informatics 2023 Reproducibility Challenge: Project Pythia: Learning Python Geoscience Software. https://doi.org/10.5281/zenodo.7915657

2023/04 University of Washington, Atmos. Sci.: The efficiency of poleward heat transport and its role in polar amplification.

2023/03 NCAR Earth System Data Science Forum: Project Pythia Cookbooks.

2023/03 NCAR Oceanography Section: Multiple Equilibria in a Coupled Climate-Carbon Model.

2023/02 NCAR Climate Analysis Section: The efficiency of poleward heat transport and its role in polar amplification.

2021/06 Pangeo Showcase: Project Pythia: a community learning resource for Python-based computing in the geosciences.

2021/02 Penn State University, Meteorology & Atmospheric Sci.: Linking climate feedbacks to ocean heat uptake.

2020/11 Colorado State University, Atmospheric Sci.: The efficiency of poleward heat transport into the Arctic.

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 University of Washington, Atmos. Sci.: The vertical structure of tropospheric water vapor: comparing radiative and ocean-driven climate changes.

2016/04 University of Washington, 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 University of Washington, Atmos. Sci.: Climate sensitivity and the oceans.
2013/01 U. Albany, Atmos. & Environ. Sci.: One wet planet, many climates.
2012/11 University of Washington, 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 University of Washington, 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 University of Washington, 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 University of Washington, Atmos. Sci.: Oceanic control of the sea ice edge and multiple equilibria.
2010/09 Harvard, Earth and Planetary Sci.: Multiple equilibria of sea ice and climate.

Contributed conference presentations

* *indicates student co-author*

2024/02 B.E.J. Rose, J. Clyne, R. May, J. Munroe, A. Snyder, O. Eroglu, K. Tyle, D. Camron, M. Grover, J. Kent, and R. Ford*, The Project Pythia Cookbook Initiative: Building an Inclusive Geoscience Community through Accessible, Reusable, and Reproducible Workflows (oral presentation), Ocean Sciences 2024.
2023/12 J. Kent, J. Clyne, B.E.J. Rose, K. Tyle, R. May, M. Grover, O. Eroglu, J. Munroe, D. Camron, and R. Ford*, Project Pythia: Empowering Geoscientists through Open-Source, Open-Science Collaboration (oral presentation), AGU23.
2023/12 B.E.J. Rose, J. Clyne, R. May, J. Munroe, A. Snyder, O. Eroglu, K. Tyle, D. Camron, M. Grover, J. Kent, and R. Ford*, The Project Pythia Cookbook Initiative: Building an Inclusive Geoscience Community through Accessible, Reusable, and Reproducible Workflows (oral presentation), AGU23.
2023/12 B.E.J. Rose and F. Zhu*, Unforced Millennial Oscillations of the Coupled Climate-Carbon System (oral presentation), AGU23.
2023/12 R. Ford* and B.E.J. Rose, Transient climate sensitivity shaped by Antarctic sea ice changes: exploring links between ocean heat uptake patterns, sea ice changes, and mid-latitude cloud cover (oral presentation), AGU23.
2022/12 B.E.J. Rose and F. Zhu*, Multiple Equilibria in a Coupled Climate-Carbon Model (oral presentation), AGU Fall Meeting
2022/12 B.E.J. Rose and C. Cardinale*, The efficiency of poleward heat transport and its role in polar amplification (oral presentation), AGU Fall Meeting

2022/12 Y.-J. Lin*, B.E.J. Rose, and Y.-T. Hwang, Mean State AMOC Affects AMOC Weakening through Subsurface Warming in the Labrador Sea (oral presentation), AGU Fall Meeting

2022/12 J. Kent, D. Camron, J. Clyne, R. Ford*, M. Grover, R. May, K. Paul, B.E.J. Rose, and K. Tyle, Project Pythia: A Pangeo Community Tool for Open-Source Education (oral presentation), AGU Fall Meeting

2022/12 K. Tyle, D. Camron, J. Clyne, R. Ford*, M. Grover, J. Kent, R. May, K. Paul, and B.E.J. Rose, Project Pythia: Transforming Software Engineering Education for Geo-Science (poster), AGU Fall Meeting

2022/06 B.E.J. Rose and C. Cardinale*, The efficiency of poleward heat transport and its role in polar amplification (oral presentation), AMS Conference on Atmospheric and Oceanic Fluid Dynamics

2022/04 Y.-J. Lin*, B.E.J. Rose and Y.-T. Hwang, Mean state AMOC affects AMOC weakening through subsurface warming in the Labrador Sea (poster), US AMOC Science Team Meeting.

2022/01 B.E.J. Rose and C. Cardinale*, The Arctic Surface Heating Efficiency of Tropospheric Energy Flux Events (oral presentation), AMS 35th Conference on Climate Variability and Change

2022/01 D. Camron, A. Banihirwe, J. Clyne, N. Corbin, O. Eroglu, R. Ford*, M.A. Grover, J. Kent, A. Kootz, M. Long, R.M. May, K. Paul, B.E.J. Rose, K.R. Tyle, M. Sizemore, and A. Zacharias, Project Pythia Community Update (oral presentation), AMS 12th Symposium on Advances in Modeling and Analysis Using Python.

2022/01 K.R. Tyle, B.E.J. Rose, J. Clyne, K. Paul, J. Kent, M. Grover, D. Camron, R.M. May, and R. Ford*, Leveraging Project Pythia in an Advanced Geoscience Analysis and Visualization Course (oral presentation), AMS 31st Conference on Education.

2021/12 K. Paul, A. Banihirwe, D. Camron, J. Clyne, O. Eroglu, M. Grover, J. Kent, M. Long, R. May, B.E.J. Rose, and K. Tyle, Project Pythia: A Resource to Help Geoscientists Navigate the Scientific Python Ecosystem. AGU Fall Meeting

2021/12 J. Kent, K. Paul, J. Clyne, M. Long, M. Grover, O. Eroglu, A. Banihirwe, R. May, D. Camron, B.E.J. Rose, and K. Tyle, Educational Efforts of NCAR Earth System Data Science Initiative: Making the Python Scientific Ecosystem More Accessible to Geoscientists (e-poster). AGU Fall Meeting

2021/12 K. Paul, A. Banihirwe, D. Camron, J. Clyne, O. Eroglu, M. Grover, J. Kent, R. May, B.E.J. Rose, and K. Tyle, Pangeo and Project Pythia: Helping Geoscientists Navigate the Scientific Python Ecosystem (e-poster). AGU Fall Meeting

2021/12 F. Zhu* and B.E.J. Rose, Carbon Cycle or Ice Albedo: A Tug-of-War That Leads to Multiple Equilibria (e-poster). AGU Fall Meeting

2021/12 X. Lv*, D.D.B. Koll, N.B. Cowan, B.E.J. Rose, R. Hu, and L. Kreidberg, Is LHS 3844b 1:1 tidally locked? Constraints from thermal phase curve modeling (e-poster). AGU Fall Meeting

2021/06 A. Banihirwe, D. Camron, J. Clyne, O. Eroglu, M. Grover, J. Kent, A. Kootz, M. Long, R. May, K. Paul, B.E.J. Rose, M. Sizemore, K. Tyle, and A. Zacharias, Project Pythia: A Community Learning Resource for Geoscientists (e-poster). EarthCube Annual Meeting 2021.

2021/01

B.E.J. Rose, M.C. Rencurrel*, M. Rugenstein, and K. Armour, Effects of spatial patterns of ocean heat uptake on Transient Climate Response (e-poster), AMS 34th Conference on Climate Variability and Change

2021/01 B.E.J. Rose and C. Cardinale*, The efficiency of poleward heat transport into the Arctic (oral presentation), AMS 34th Conference on Climate Variability and Change

2021/01 J. Clyne, M. Long, R. May, K. Paul, B.E.J. Rose, and K. Tyle, Project Pythia: A Community Learning Resource for Geoscientists (oral presentation), AMS 11th Symposium on Advances in Modeling and Analysis Using Python.

2020/12 Y.-J. Lin*, Y.-T. Hwang, J. Lu, F. Liu, and B.E.J. Rose, Attributing Radiative Feedback Evolution to Regional Ocean Heat Uptake (oral presentation), AGU Fall Meeting

2020/12 M.C. Rencurrel* and B.E.J. Rose, Effects of Spatial Patterns of Ocean Heat Uptake on the CMIP5 inter-model spread of the Transient Climate Response (e-poster), AGU Fall Meeting

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, CalTech, 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/`

2023 A ATM 320: Atmospheric Thermodynamics
2022 A ATM 622 General Circulation of the Atmosphere
2021 A ATM 100 The Atmosphere
2015–2019 A ATM 623 Climate Modeling*
2015–2021 A ATM 500 Atmospheric Dynamics*
2014–2024 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

As direct advisor or co-advisor – current

2021 – Robert Ford (advisor, PhD written exam 5/2023)
2021 – Li Zhuo (co-advisor, PhD prospectus 3/2024)
2023 – Nabindra Gyawali (advisor, PhD prospectus anticipated Spring 2024)

As direct advisor or co-advisor – completed

2018 – 2024 Fangze Zhu (advisor, PhD defended 1/2024)
2021 – 2022 Yuan-Jen Lin (visiting PhD student, National Taiwan University. PhD defended 6/2022)
2021 – 2022 Alejandro Ayala (co-advisor, MS completed 8/2022)
2016 – 2022 Christopher Cardinale (advisor, MS completed 12/2018, PhD defended 5/2022)
2015 – 2016 Lance Rayborn (advisor, MS completed 12/2016)
2014 – 2020 Michael Cameron Rencurrel (advisor, MS completed 2/2017, PhD defended 4/2020)

As committee member – current

2024 – Crizzia De Castro (PhD written exam anticipated 5/2024)
2023 – Fuji Maneesai (PhD written exam 8/2023)
2022 – Cameron Paquette (PhD prospectus 6/2022)
2021 – Katrina Fandrich (PhD prospectus 9/2022)
2021 – Matthew Jenkins (PhD prospectus 8/2022)
2020 – Rebecca Orrison (PhD prospectus 10/2022)

As committee member – completed

2020 – 2024 Kathrin Alber (PhD defended 1/2024)
2019 – 2023 Zhaoxiangrui "Henry" He (PhD completed 4/2023)
2019 – 2022 Brendan Wallace (PhD defended 11/2022)
2019 – 2022 Heather Sussman (PhD defended 4/2022)
2018 – 2022 Yan Jiang (PhD defended 1/2022)
2016 – 2021 Lanxi Min (PhD defended 11/2021)
2018 – 2020 Ajay Raghavendra (PhD defended 9/2020)
2018 – 2020 Hing Ong aka Heng Wang (PhD defended 4/2020)
2015 – 2019 Anthony Joyce (U. Massachusetts Amherst, PhD defended 6/2019)
2016 – 2019 Di Chen (PhD defended 5/2019)
2014 – 2018 Hannah Attard (PhD defended 4/2018)
2013 – 2017 Pablo Paiewonsky (PhD defended 6/2017)
2017 Christine Bloecker (MS thesis reader, 5/2017)
2014 – 2017 Theodore Letcher (PhD defended 2/2017)
2013 – 2016 Christopher Colose (PhD defended 12/2016)
2015 Melissa Gervais (external PhD thesis examiner, McGill University)

Undergraduate Students Advised

2023 – Alex Kramer (Departmental honors in Atmospheric Science)
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 10 students per year in ATM and ENV majors

SERVICE

Departmental

2023 – Director of Experiential Teaching (primary responsibility for our teaching lab facility)
2022 Search committee for Instructional Support Specialist (resulted in hiring of Dr. Yi Cui)
2021 – Faculty mentor to Assistant Prof. Sujata Murty
2020 – 2023 Faculty lead on development of Climate Science graduate degree programs
2019 – 2020 Faculty search committee in Earth System Science (resulted in two tenure-track hires: Dr. Sujata Murty and Dr. Aubrey Hillman)
2019 – 2022 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 – 2022 Chair, planning committee for GFD / Env. Sci. teaching laboratory in E-TEC building
2014 – 2022 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

2023 – 2024 Council on Research (chair; chair of ERCA subcommittee)
2022 – Academic Standing committee for the Honors College (member)
2022 – 2023 Council on Research (co-chair; chair of ERCA subcommittee)
2021 – 2022 Council on Research (chair; chair of FRAP-A review subcommittee)
2019 – 2021 Council on Research (member; chair of ERCA subcommittee)
2019 – 2024 University Senate (department representative)
2018 Udall Scholarship review committee
2017 Strategic Planning Steering Committee

Professional

2024 Day lead for Climate Modeling, Climatematch Academy (virtual summer school).
2024 Organizer and facilitator for the Pythia Cook-off 2024 workshop, to be held at NCAR June 11-14 2024
2023 Organizer and facilitator for the Pythia Cook-off 2023 workshop, held at NCAR June 20-23 2023
2022/12 Judge for Outstanding Student Presentation Awards, AGU Fall Meeting.
2022/10 NSF review panel member
2022/01 Session co-chair (multiple) & student judge, AMS 35th Conference on Climate Variability and Change
2022/01 Textbook reviewer for Cambridge University Press
2021/01 Session co-chair (multiple) & student judge, AMS 34th Conference on Climate Variability and Change
2020 – 2021 Program chair, AMS 34th Conference on Climate Variability and Change
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 – Journal reviewer for Nature, J. Climate, J. Atmos. Sci., J. Geophys. Res., Geophys. Res. Lett., Nature Geosci., Nature Clim. Change, Nature Comm., JAMES, Climate Dynamics, J. Phys. Oceanog., Astrophys. J., Planetary Sci. J., Mon. Not. R. Astron.

Soc., SIAM J. Appl. Dyn. Sys., Atmos. Chem. Phys., Earth Sys. Dyn., & Encyclopedia of Natural Resources

2015 – Proposal reviewer for NSF, DOE, 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.

2012/07 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

2020 2019 Editors' Citation for Excellence in Refereeing for *Geophysical Research Letters*

2012 Commendation for exceptional refereeing, Nature Publishing Group.

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

2024/01 US CLIVAR Workshop on Polar Amplification of Climate Changes Across Hemispheres and Seasons: Causes and Constraints. UCAR, Boulder CO.

2023/06 Pythia Cook-off 2023, NCAR

2022/06 Project Pythia Summer Hackathon 2022, NCAR.

2022/05 The Pattern Effect: Coupling of SST Patterns, Radiative Feedbacks, and Climate Sensitivity Workshop, US CLIVAR, UCAR / virtual.

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