

Contact Information

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Appointments

TEMPLE UNIVERSITY Philadelphia, PA
2022 – present Tenure-track Assistant Professor

NOAA GEOPHYSICAL FLUID DYNAMICS LABORATORY Princeton, NJ
2020 – 2022 NOAA Climate and Global Change Postdoctoral Fellow

PRINCETON UNIVERSITY ATMOSPHERIC & OCEANIC SCIENCES PROGRAM Princeton, NJ
2020 – 2022 Visiting Postdoctoral Research Associate

Education

UNIVERSITY OF ARIZONA Tucson, AZ
2020 Ph.D., Geosciences.
Specialty: Climate model evaluation and ocean's role in climate

UNIVERSITY OF ARIZONA Tucson, AZ
2016 M.S., Geosciences.
Specialty: Climate modelling and North Atlantic overturning

INDIANA UNIVERSITY OF PENNSYLVANIA Indiana, PA
2014 B.S., Chemistry, B.A., Biology
Summa Cum Laude

Peer-Reviewed Publications***Published***

8. **Beadling, R. L.**, N. Freeman, G. A. MacGilchrist, M. Mazloff, J.-R. Shi, A. Thompson, and E. Wilson. Bulletin of the American Meteorological Society (BAMS) State of the Climate in 2021: Antarctica and Southern Ocean: Southern Ocean. Supplement to Blunden, J. and T. Boyer, Eds., 2022: "State of the Climate in 2021". *Bull. Amer. Meteor. Soc.*, **103**, Si-S465, doi: 10.1175/2022BAMSStateoftheClimate.1.
7. **Beadling, R. L.**, J. P. Krasting, S. M. Griffies, W. J. Hurlin, B. Bronselaer, J. L. Russell, G. A. MacGilchrist, J.-E. Tesdal, and M. Winton: Importance of the Antarctic Slope Current in the Southern Ocean response to ice sheet melt and wind stress change, *Journal of Geophysical Research: Oceans*, **127**, e2021JC017608, doi: 10.1029/2021JC017608.
6. Stouffer, R. J., J. L. Russell, **R. L. Beadling**, A. J. Broccoli, J. P. Krasting, S. Malyshev, Z. Naiman: The role of mountains in the present-day ocean's mean climate, *Journal of Climate*, **35**, 1327 – 1346, doi:10.1175/JCLI-D-20-0690.1.

5. Hewitt, H. T., M. Roberts, P. Mathiot, A. Biastoch, E. Blockley, E. P. Chassignet, B. Fox-Kemper, P. Hyder, D. P. Marshall, E. Popova, A-M. Treguier, L. Zanna, A. Yool, Y. Yu, **R. Beadling**, M. Bell, T. Kuhlbrodt, T. Arsouze, A. Bellucci, F. Castruccio, B. Gan, D. Putrasahan, C. D. Roberts, L. Van Roekel, Q. Zhang, 2020: Resolving and parameterizing the ocean mesoscale in Earth System Models, *Current Climate Change Reports*, **6**, 137-152, doi:10.007/s40641-020-00164-w.
4. **Beadling, R. L.**, J. L. Russell, R. J. Stouffer, M. Mazloff, L. D. Talley, P. J. Goodman, J. B. Sallée, H. T. Hewitt, and P. Hyder, 2020: Representation of Southern Ocean circulation and properties across model generations: CMIP3 to CMIP6, *Journal of Climate*, **33**, 6555-6581, doi:10.1175/JCLI-D-19-0970.1.
3. **Beadling, R. L.**, J. L. Russell, R. J. Stouffer, P. J. Goodman, and M. Mazloff, 2019: Assessing the quality of Southern Ocean circulation in CMIP5 AOGCM and Earth System Model simulations, *Journal of Climate*, **32**, 5915 – 5940, doi:10.1175/JCLI-D-19-0263.1.
2. **Beadling, R. L.**, J. L. Russell, R. J. Stouffer, and P. J. Goodman, 2018: Evaluation of Subtropical North Atlantic Ocean circulation in CMIP5 models against the observational Array at 26.5°N and its changes under continued warming, *Journal of Climate*, **31**, 9697-9718, doi:10.1175/JCLI-D-17-0845.1.
1. Bakker, P., A. Schmittner, J. T. M. Lenaerts, A. Abe-Ouchi, D. Bi, M. R. van den Broeke, W.-L. Chan, A. Hu, **R. L. Beadling**, S. J. Marsland, S. H. Mernild, O. A. Saenko, D. Swingedouw, A. Sullivan, and J. Yin, 2016: Fate of the Atlantic meridional overturning circulation: strong decline under continued warming and Greenland melting, *Geophysical Research Letters*, **43**, 12252 – 12260, doi:10.1002/2016GL070457.

In review

1. J-E. Tesdal, G. A. MacGilchrist, **R. L. Beadling**, S. M. Griffies, J. P. Krasting, and P. J. Durack: The nonlinear impact of surface forcing changes on bottom water formation and overturning in the Southern Ocean. Under review at *Journal of Geophysical Research: Oceans*.

In preparation

2. **R. L. Beadling**, J. P. Krasting, N. L. Williams, and G. A. MacGilchrist: Role of the Antarctic Slope Current on the fate of Southern Ocean carbon uptake in response to altered wind stress and increased Antarctic meltwater. In preparation for submission to *Geophysical Research Letters* in 2022.
1. **R. L. Beadling**, G. A. MacGilchrist, M. Mazloff, J. P. Krasting, S. M. Griffies, and M. Alberty: Antarctic Circumpolar Current dynamics and representation at high-resolution in coupled models and ocean state estimates. In preparation for submission to *Geophysical Research Letters* in 2022.

Non Peer-Reviewed Publications

1. Schmittner, A., P. Bakker, **R. L. Beadling**, J. T. M. Lenaerts, S. Mernild, O. Saenko, and D. Swingedouw, 2016: Greenland ice sheet melting influence on the North Atlantic, *U.S. Clivar Variations*, **14**, 32 – 37.

Awards, Fellowships, and Grants

NOAA Climate and Global Change Postdoctoral Fellowship	2020-2022
EPA Science to Achieve Results (EPA-STAR) Graduate Fellow	2016-2019
* Principal Investigator, \$132,000	
Chevron-Texaco Graduate Scholarship	2019
P.E.O Scholar Award	2018-2019
University of Arizona College of Science Scholar Award	2018
Galileo Scholar Award	2018
University of Arizona Carson Scholar Fellowship	2017
University of Arizona College of Science Service Award	2017
Best Climate Talk at GeoDaze	2017
University of Arizona Sky School Teaching Fellowship	2015-2017
Best Climate Modeling Talk at GeoDaze	2016
Best Graduate Student Poster Presentation at GeoDaze	2015
R. Wilson Thompson Graduate Scholarship	2015
Graduate and Professional Student Council Travel Grant	2015

Service and Involvement

NOAA Model Diagnostics Task Force (MDTF)	2022
2022 Ocean Sciences Meeting Session Chair	2022
GFDL High Resolution Model Development Task Force	2021 – present
GFDL Unlearning Racism in Geoscience (URGE) Pod	2021 – 2022
NOAA Lapenta Internship Program Mentor	2021
GFDL Diversity Equity and Inclusion Committee	2020 – present
Comer Climate Fellow	2019 – present
American Geophysical Union member	2015 – present
Association of Women Geoscientists Southern Arizona Chapter	2018 – 2020
Graduate Geosciences Club member	2014 – 2020
CMIP6 Hackathon	2019
CMIP6 Workshop	2019
Borderlands Science Café Speaker Series presenter	2018
The Great Antarctic Climate Hack	2017
NASA Summer School: Using Satellite Observations to Advance Climate Models	2016
NCAR Community Earth System Model Tutorial	2015
American Academy of Arts and Science Climate Communication Workshop	2015

Reviewer:

Professional Reviewer of journal manuscripts for *Journal of Climate*, *Geophysical Research Letters*, *Journal of Advances in Modeling Earth Systems*, and *Marine Technology Society Journal*.

Active international model intercomparison project collaborations:

Southern Ocean Freshwater-release model experiments Initiative (SOFIA)
Flux-Anomaly-Forced Model Intercomparison Project (FAFMIP)

Teaching Experience

Guest Lecturer – Fragile Futures, Temple University	2022
Guest Lecturer – Introduction to Meteorology, Rutgers University	2021
Guest Lecturer – Ocean Biogeochemical Dynamics, University of South Florida	2021
Guest Lecturer – Ocean, Atmosphere, and Climate, Princeton University	2021
Guest Lecturer – Introduction to Meteorology, Rutgers University	2020
GEOS 212 – Introduction to Oceanography - Teaching Assistant	2015 & 2019
Instructor for the University of Arizona Sky School Program	2015-2017
Native American Science & Engineering Program / American Indian Science and Engineering Society Climate Workshop	2016

Field Experience

CTD Watchstand, float deployment, and sample collection on Leg 1 (west) of the U.S. GO-SHIP P06 cruise. Forty-six-day cruise from Sydney, Australia to Papeete, French Polynesia. July 3rd, 2017 to August 17th, 2017.

Media Coverage

2. Bruess, E., 2019: 4,000 Floating Robots Take on Climate Change, Medill Reports Chicago: <https://news.medill.northwestern.edu/chicago/4000-floating-robots-take-on-climate-change/>.
1. McLemore, M., 2019: Ocean and Space: Arizona Public Media NPR Spotlight: <https://radio.azpm.org/p/radio-azspot-splash/2019/8/14/156552-ocean-space/>.

Presentations

26. **Beadling, R. L.**, 2022: Representing the Southern Ocean and its Evolution as the Climate Warms. Temple University Earth and Environmental Science Department Seminar. Virtual. Oral presentation. *Invited*.
25. **Beadling, R. L.**, J. P. Krasting, S. M. Griffies, W. J. Hurlin, B. Bronselaer, J. L. Russell, J-E. Tesdal, G. A. MacGhilchrist and M. Winton, 2022: Importance of the Antarctic Slope Current on the transient response of the Southern Ocean to Antarctic ice sheet melt and projected wind stress change. 2022 CESM Ocean Model Working Group Meeting. Virtual. Oral presentation.
24. Lin, P., M. Bushuk, D. Paynter, and **R. Beadling**, 2021: Bias correction in stratospheric winds leads to stronger surface warming. American Geophysical Union Fall Meeting. Virtual. Oral presentation.
23. **Beadling, R. L.**, 2021: Diagnosing Antarctic Circumpolar Current representation and its changes under increased greenhouse gas emissions. GFDL Ocean & Cryosphere Division Meeting. Virtual. Oral presentation.
22. **Beadling, R. L.**, 2021: Simulating the Southern Ocean: Cross-generational Improvements

and Persistent Model Biases to Target with New Diagnostics. American Geophysical Union Fall Meeting. Virtual. Poster presentation. *Invited*.

21. **Beadling, R. L.**, 2021: Demystifying CMIP. GFDL and Princeton CIMES Intern Program. Virtual. Oral presentation.
20. **Beadling, R. L.**, J. P. Krasting, S. M. Griffies, W. J. Hurlin, B. Bronselaer, J. L. Russell, J-E. Tesdal, G. A. MacGhilchrist and M. Winton, 2021: Importance of the Antarctic Slope Current on the transient response of the Southern Ocean to Antarctic ice sheet melt and projected wind stress change. NOAA-GFDL Lunchtime Seminar. Virtual. Oral presentation.
19. **Beadling, R. L.**, J. P. Krasting, S. M. Griffies, W. J. Hurlin, B. Bronselaer, J. L. Russell, J-E. Tesdal, and M. Winton, 2021: Importance of the Antarctic Slope Current on the transient response of the Southern Ocean to Antarctic ice sheet melt and projected wind stress change. SOCCOM Modeling Telecon. Virtual. Oral presentation.
18. **Beadling, R. L.**, J. L. Russell, R. J. Stouffer, M. Mazloff, L. D. Talley, P. J. Goodman, J. B. Sallée, H. T. Hewitt, P. Hyder, and A. Pandde, 2020: Simulation of Southern Ocean properties across model generations and future changes under continued 21st century warming in CMIP6. American Geophysical Union Fall Meeting. Virtual. Oral presentation.
17. **Beadling, R. L.**, 2020: How well do climate and Earth system models represent the Southern Ocean and have we improved? Princeton AOS student and Postdoc Seminar Series. Virtual. Oral presentation. *Invited*.
16. **Beadling, R. L.**, J. L. Russell, R. J. Stouffer, M. Mazloff, L. D. Talley, P. J. Goodman, J. B. Sallée, H. T. Hewitt, P. Hyder, and A. Pandde, 2020: Representation of Southern Ocean properties across Coupled Model Intercomparison Project Generations: CMIP3 to CMIP6, 2020 SOCCOM Annual Meeting. Virtual. Oral presentation.
15. **Beadling, R. L.**, 2020: B-SOSE comparison to observational products and CMIP models, 2020 B-SOSE workshop. Virtual. Oral presentation.
14. **Beadling, R. L.**, 2020: Simulation of large-scale circulation and properties in the North Atlantic and Southern Ocean in coupled climate models, NOAA Geophysical Fluid Dynamics Laboratory. Princeton, NJ. Oral presentation. *Invited*.
13. **Beadling, R. L.**, 2020: Simulation of the Southern Ocean across coupled model intercomparison project generations, UK Met Office Hadley Centre. Exeter, UK. Oral presentation. *Invited*.
12. **Beadling, R. L.**, J. L. Russell, R. J. Stouffer, M. Mazloff, and P. J. Goodman, 2019: Assessing the Southern Ocean circulation in CMIP5 and CMIP6 Earth System Model Simulations, 2019 SOCCOM Annual Meeting. Princeton, NJ. Oral presentation.

11. **Beadling, R. L.**, J. L. Russell, R. J. Stouffer, P. J. Goodman, and M. Mazloff, 2019: A framework for understanding the quality of Southern Ocean circulation in coupled climate and Earth System Models, CMIP6 Workshop. Barcelona, Spain. Poster.
10. **Beadling, R. L.**, J. L. Russell, R. J. Stouffer, M. Mazloff, and P. J. Goodman, 2018: Intercomparison and assessment of Southern Ocean circulation in CMIP5 models and the Biogeochemical Southern Ocean State Estimate using observation-based metrics, American Geophysical Union Fall Meeting. Washington, D.C. Oral presentation.
9. **Beadling, R. L.**, 2018: Boats, floats, and climate models: understanding our ocean, University of Arizona's Downtown Science Café Series. Tucson, AZ. Oral presentation.
8. **Beadling, R. L.**, J. L. Russell, and R. J. Stouffer, 2018: Decomposition of the Atlantic Meridional Overturning Circulation transports in CMIP5 models and the RAPID array, American Geophysical Union Ocean Sciences Meeting. Portland, OR. Oral presentation.
7. **Beadling, R. L.**, 2017: Decomposition of the Atlantic meridional overturning circulation in CMIP5 models and the RAPID/MOCHA array, University of Arizona GeoDaze. Tucson, AZ. Oral presentation. (Awarded: best climate talk).
6. **Beadling, R. L.**, 2016: Using climate models to understand the Atlantic meridional overturning circulation and its role in Earth's climate, Indiana University of Pennsylvania Alumni Invited Speaker. Indiana, PA. Oral presentation. *Invited*.
5. **Beadling, R. L.**, and J. Russell, 2016: Decomposition of the Atlantic meridional overturning circulation in CMIP5 models: a model intercomparison study, American Geophysical Union Fall Meeting. San Francisco, CA. Poster.
4. **Beadling, R. L.**, and J. Yin, 2016: Impact of the melting of the Greenland ice sheet on the Atlantic meridional overturning circulation in 21st century model projections, University of Arizona GeoDaze. Oral presentation. (Awarded: best climate modeling talk).
3. **Beadling, R. L.**, J. Yin, P. Bakker, and R. J. Stouffer, 2015: Impact of Greenland ice sheet melt on the Atlantic meridional overturning circulation in GFDL ESM2Mb, American Geophysical Union Fall Meeting. San Francisco, CA. Poster.
2. Bakker, P., R. Ohgaito, A. Abe-Ouchi, D. Swingedouw, O. Saenko, S. Marsland, D. Bi, A. Schmittner, A. Hu, S. Mernild, J. Yin, **R. Beadling**, J. Lenaerts, and M. van den Broeke, 2015: Probabilistic projections of future AMOC evolution driven by global warming and Greenland ice sheet melt, American Geophysical Union Fall Meeting. San Francisco, CA. Oral presentation.
1. **Beadling, R. L.** and J. Yin, 2015: Decomposition of the Atlantic meridional overturning circulation CMIP5 climate models, University of Arizona GeoDaze. Tucson, AZ. Poster. (Awarded: best graduate student poster).