Justin Finkel

Postdoctoral Associate

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Employment

Massachusetts Institute of Technology, Postdoctoral Associate in the department of Earth, Atmospheric, and Planetary Sciences, beginning September 2022.
Advisor: Paul O'Gorman

Education

University of Chicago, Ph.D. in Computational and Applied Mathematics, August 2022.
Thesis topic: Atmospheric extremes through the lens of transition path theory
Advisor: Jonathan Weare (NYU)
Co-advisors: Mary Silber (UChicago), Dorian Abbot (UChicago), Edwin Gerber (NYU)

Washington University in Saint Louis, B.A. in Mathematics and Physics, *Magna Cum Laude*, May 2017.
Thesis Project: Changing World Temperature Statistics
Thesis Advisor: Jonathan Katz

Awards

- Department of Energy Computational Sciences Graduate Fellowship (DOE CSGF), 2018-2022
- Nishi Luthra award for "Outstanding students in the Physics department and the Philosophy department", 2017
- *Sigma Pi Sigma* inductee (physics honor society), 2017
- Academic Mentor of the Year (for physics mentoring), 2014-2015

Publications

In review

1.

2. **Justin Finkel**, Robert J. Webber, Edwin P. Gerber, Dorian S. Abbot, and Jonathan Weare. Exploring stratospheric rare events with transition path theory and short simulations, 2021. Submitted to *Journal of the Atmospheric Sciences*. https://arxiv.org/abs/2108.12727

Published

1. **Justin Finkel**, Robert J. Webber, Edwin P. Gerber, Dorian S. Abbot, and Jonathan Weare. Learning forecasts of rare stratospheric transitions from short simulations. *Monthly Weather Review*, 149(11):3647 – 3669, 2021. https://doi.org/10.1175/MWR-D-21-0024.1. Available at https://arxiv.org/abs/2102.07760

2. **Justin Finkel**, Dorian S. Abbot, and Jonathan Weare. Path properties of atmospheric transitions: Illustration with a low-order sudden stratospheric warming model. *Journal of the Atmospheric Sciences*, 77(7):2327 – 2347, 2020. https://doi.org/10.1175/JAS-D-19-0278.1

3. Predrag Popović, **Justin Finkel**, Mary C. Silber, and Dorian S. Abbot. Snow topography on undeformed arctic sea ice captured by an idealized "snow dune" model. *Journal of Geophysical Research: Oceans*, 125(9):e2019JC016034, 2020. https://doi.org/10.1029/2019JC016034

4. **J. M. Finkel** and J. I. Katz. Changing world extreme temperature statistics. *International Journal of Climatology*, 38(5):2613–2617, 2018. https://doi.org/10.1002/joc.5342

5. **J. M. Finkel** and J. I. Katz. Changing us extreme temperature statistics. *International Journal of Climatology*, 37(13):4749–4755, 2017. https://doi.org/10.1002/joc.5115

6. C.D. Kreisch, J.A. O'Sullivan, R.E. Arvidson, D.V. Politte, L. He, N.T. Stein, **J. Finkel**, E.A. Guinness, M.J. Wolff, and M.G.A. Lapôtre. Regularization of mars reconnaissance orbiter crism along-track oversampled hyperspectral imaging observations of mars. *Icarus*, 282:136–151, 2017. https://doi.org/10.1016/j.icarus.2016.09.033

7. **J. M. Finkel**, L. M. Canel-Katz, and J. I. Katz. Decreasing us aridity in a warming climate. *International Journal of Climatology*, 36(3):1560–1564, 2016. https://doi.org/10.1002/joc.4421

Teaching and mentorship

1. Supervising undergraduate research project by James Butler (UChicago): exploring stochastic stability and transition path statistics of a low-order atmospheric blocking model.

2. Supervised a master's thesis by Matthew Shin (UChicago): "Towards time-dependent transition path theory: numerical study of periodically forced dynamics."

3. Taught a short virtual linear algebra course to 10 beginning chemistry Ph.D. students (UChicago), September 2020.

4. Online tutoring in mathematics, physics, and computer science with Varsity Tutors.

Presentations

1. American Physical Society March Meeting, 2022. Contributed talk. March 14, 2022.

2. Center for Atmosphere Ocean Science, New York University Courant Institute seminar. Joint with Jonathan Weare. October 13, 2021

3. University of Bristol Climate Dynamics seminar. Joint with Dorian Abbot. May 26, 2021

4. European Geophysical Union General Assembly, 2021. Contributed talk. April 28, 2021

5. SIAM conference on dynamical systems, 2021. Contributed talk. May 23, 2021

6. American Physical Society March Meeting, 2021. Contributed talk. March 18, 2021
7. Courant Institute of Mathematical Sciences student seminar, 2021. March 12, 2021
8. SIAM conference on dynamical systems, 2019. Poster. May 22, 2019
9. American Geophysical Union Fall Meeting, 2018. Contributed talk. December 10, 2018
10. Midstates Consortium for Math and Science, Nov. 5, 2016. Poster. November 5, 2016
11. Washington University Undergraduate Research Symposium. October 2014. Poster.

Last updated: October 21, 2022