

Justin Finkel

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EDUCATION

University of Chicago, *PhD Computational and Applied Mathematics*

Expected June 2022

- Advisor: Jonathan Weare (now at Courant Institute, New York University)
- Secondary advisors: Mary Silber (U. Chicago), Dorian Abbot (U. Chicago), Edwin Gerber (NYU)
- Thesis project: Analysis of extreme weather events across the model hierarchy with transition path theory

Washington University in St. Louis, *Bachelors in Physics and Mathematics*

May 2017

- Graduated *Magna Cum Laude*; Dean's List seven semesters; Sigma Pi Sigma physics honor society
- Thesis project: "Changing world extreme temperature statistics". Advisor: Jonathan I. Katz

PUBLICATIONS

- In preparation: Finkel, J., R. J. Webber, D. S. Abbot, E. P. Gerber, and J. Weare, 2021. "Data-driven analysis of stratospheric transitions in a complex model."
- Finkel, J., R. J. Webber, D. S. Abbot, E. P. Gerber, and J. Weare, 2021. "Learning forecasts of rare stratospheric transitions from short simulations." Submitted to *Monthly Weather Review*. Available on the ArXiv at <https://arxiv.org/abs/2102.07760>
- Finkel, J., D. S. Abbot, and J. Weare, 2020: "Path Properties of Atmospheric Transitions: Illustration with a Low-Order Sudden Stratospheric Warming Model." *Journal of the Atmospheric Sciences*, 77 (7), 2327–2347. <https://doi.org/10.1175/JAS-D-19-0278.1>
- Popović, P., Finkel, J., Silber, M. C., & Abbot, D. S. (2020). Snow topography on undeformed Arctic sea ice captured by an idealized "snow dune" model. *Journal of Geophysical Research: Oceans*, 125, e2019JC016034. <https://doi.org/10.1029/2019JC016034>
- Finkel, J. M. and Katz, J. I. (2017), Changing U.S. Extreme Temperature Statistics. *International Journal of Climatology*, 37: 4749-4755. <https://doi.org/10.1002/joc.5115>
- Finkel, J. M. and Katz, J. I. (2017), Changing World Extreme Temperature Statistics. *International Journal of Climatology*. <https://doi.org/10.1002/joc.5342>
- C. D. Kreisch, J.A. O'Sullivan, R.E. Arvidson, D.V. Poltte, L. He, N.T. Stein, J. Finkel, E.A. Guinness, M.J. Wolff, M.G.A. Lapotre. "Regularization of Mars Reconnaissance Orbiter CRISM along-track oversampled hyperspectral imaging observations of Mars." *Icarus* 2017; 282, 136-151. <https://doi.org/10.1016/j.icarus.2016.09.033>
- J.M. Finkel, L.M. Canel-Katz, J.I. Katz. "Decreasing US aridity in a warming climate." *International Journal of Climatology* 2016; 36(3), 1560-1564. <https://doi.org/10.1002/joc.4421>

AWARDS

- Department of Energy Computational Science Graduate Fellowship (DOE CSGF) September 2018-September 2022

TEACHING AND MENTORSHIP

- Supervising undergraduate research project by James Butler June 2020-present
 - Exploring stochastic stability and transition path statistics of a low-order atmospheric model
- Supervised a master's thesis by Matthew Shin (UChicago) January 2019-May 2020
 - "Towards time-dependent transition path theory: numerical study of periodically-forced dynamics"
 - Directed numerical experiments in a study of noise-induced tipping in a time-dependent dynamical system. Currently building on this for more thorough comparison to large deviation theory
- Taught a short virtual linear algebra course to 10 incoming chemistry PhD students September 2020
- Online tutoring in mathematics, physics, and computer science with Varsity Tutors June 2017-present

PRESENTATIONS

- University of Bristol Climate Dynamics seminar. Joint with Dorian Abbot. May 26, 2021
- European Geophysical Union General Assembly, 2021. Contributed talk. April 28, 2021
- SIAM conference on dynamical systems, 2021. Contributed talk. May 23, 2021
- American Physical Society March Meeting, 2021. Contributed talk. March 18, 2021

- Courant Institute of Mathematical Sciences student seminar, 2021.
- SIAM conference on dynamical systems, 2019. P oster.
- American Geophysical Union Fall Meeting, 2018. Contributed talk.
- Midstates Consortium for Math and Science, Nov. 5, 2016. Poster.
- Washington University Undergraduate Research Symposium.

March 12, 2021

May 22, 2019

December 10, 2018

November 5, 2016

October 11, 2014