David C. Lafferty

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4050-F Natural History Building, Urbana, IL, USA

EDUCATION

University of Illinois Urbana-Champaign *Jan 2019 – Present*
Ph.D. in Atmospheric Science

Ruprecht-Karls-Universität Heidelberg *Sep 2016 – Oct 2018*
M.Sc. in Physics

University of Glasgow *Sep 2012 – May 2016*
B.Sc. in Theoretical Physics

RESEARCH POSITIONS

University of Illinois Urbana-Champaign *Jan 2019 – Present*
Graduate Research Assistant, Department of Atmospheric Sciences

- Advisor: Ryan Sriver
- Research topics: uncertainty in coupled human-environment systems, multi-sector dynamics

Lawrence Livermore National Laboratory *May – Aug 2022*
Graduate Summer Student Intern, Climate Sciences

- Advisor: Hsi-Yen Ma
- Research topic: atmospheric feature tracking for precipitation extremes

Ruprecht-Karls-Universität Heidelberg *Nov 2017 – Oct 2018*
Graduate Research Assistant, Institute for Theoretical Physics

- Advisor: Alexander Rothkopf
- Research topic: heavy-ion collision phenomenology

PUBLICATIONS

6. (*in prep.*) **Lafferty, D.C.**, Grogan, D.S., Zuidema, S., Haqiqi, I., Alipour, A., Sriver, R.L., Keller, K., Combined climate, hydrologic, and crop response uncertainties exacerbate local risks to US agriculture. *Earth's Future* (2024)
5. (*submitted*) Wu, WY., Ma, HS., **Lafferty, D.C.**, Feng, Z., Ullrich, P., Tang, Q., Golaz, JC., Galea, D., Lee, HH., Assessment of Storm-Associated Precipitation and its Extremes using Observations and Climate Model Short-Range Hindcasts. *JGR Atmospheres* (2024)
4. **Lafferty, D.C.** & Sriver, R.L., Downscaling and bias-correction contribute considerable uncertainty to local climate projections in CMIP6. *npj Clim. Atmos. Sci.* 6, 158 (2023). [10.1038/s41612-023-00486-0]

3. Srikrishnan, V., **Lafferty, D.C.**, Wong, T.E., Lamontagne, J.R., Quinn, J.D., Sharma, S., Nusrat, J.M., Herman, J.D., Sriver, R.L., Morris, J.F., Lee, B.S., Uncertainty analysis in multi-sector systems: Considerations for risk analysis, projection, and planning for complex systems. *Earth's Future* 10, e2021EF002644 (2022). [10.1029/2021EF002644]

2. **Lafferty, D.C.**, Sriver, R.L., Haqiqi, I., Hertel, T.W., Keller, K., Nicholas, R.E., Statistically bias-corrected and downscaled climate models underestimate the adverse effects of extreme heat on U.S. maize yields. *Commun Earth Environ* 2, 196 (2021). [10.1038/s43247-021-00266-9]

1. **Lafferty, D.** & Rothkopf, A., Improved Gauss law model and in-medium heavy quarkonium at finite density and velocity, *Phys. Rev. D* 101, 056010 (2020). [10.1103/PhysRevD.101.056010]

PRESENTATIONS

* denotes oral presentation; † denotes poster presentation

10. *Downscaling and bias-correction contribute considerable uncertainty to local climate projections in CMIP6, *AGU Fall Meeting*, San Francisco, CA. (2023)

9. †Pre-calibrating a simple soil moisture model to facilitate uncertainty analysis, *AGU Fall Meeting*, San Francisco, CA. (2023) [Poster]

8. †Do downscaling and bias-correction alter the uncertainty decomposition of climate projections? *AGU Fall Meeting*, San Francisco, CA. (2023) [Poster]

7. †Diagnosing the importance of climate uncertainty for sectoral analyses, *MultiSector Dynamics Workshop*, Davis, CA. (2023) [Poster]

6. *(invited)* *The challenges of generating and using local-scale climate information, *Biological & Environmental Engineering Department Seminar, Cornell University*, Ithaca, NY. (2023) [Slides]

5. *(invited)* *Uncertainty in Natural Systems Components of MultiSector Dynamics Systems, *Workshop on Uncertainty Characterization & Quantification in MultiSector Dynamics Research*, Snowmass, CO. (2023)

4. †Downscaling and bias-correction contribute considerable uncertainty to local climate projections in CMIP6, *Interdisciplinary Workshop on Weather and Climate Extremes*, Clemson, SC. (2023) [Poster]

3. *Uncertainty in the Representation of Climate Extremes Across Downscaled and Bias-Corrected CMIP Model Ensembles, *AGU Fall Meeting*, Chicago, IL. (2022) [Slides]

2. *Characterizing uncertainties in the crop switching decision problem for U.S. agriculture, *AGU Fall Meeting*, Virtual. (2021) [Recording]

1. †Statistically bias-corrected and downscaled climate models underestimate the adverse effects of extreme heat on U.S. maize yields, *AGU Fall Meeting*, Virtual. (2021) [Poster]

SERVICE

- **Board Member** of the MultiSector Dynamics Working Group on Uncertainty Quantification and Scenario Development, 2021-2023
- **Mentor** to first year graduate students in the Department of Atmospheric Sciences at the University of Illinois, 2020-2023

- **Secretary** of the Department of Atmospheric Sciences Graduate Student Organization, 2021-2022
- **Co-Chair** of the Midwest Student Conference on Atmospheric Research, University of Illinois, 2020

TEACHING EXPERIENCE

ATMS 421: Earth System Modeling *Fall 2019*
University of Illinois Urbana-Champaign

- Graded monthly homework exercises for 29 students, held weekly office hours, assisted students during twice-weekly computer lab sessions

ATMS 201: General Physical Meteorology *Fall 2019*
University of Illinois Urbana-Champaign

- Graded weekly homework exercises for 23 students and held weekly office hours

ATMS 120: Severe and Hazardous Weather *Summer 2019*
University of Illinois Urbana-Champaign

- Graded weekly homework exercises for 121 students

AWARDS & HONORS

- Best Graduate Student Poster, Midwest Student Conference on Atmospheric Research *2021*
- University of Illinois Liberal Arts & Sciences COVID-19 Impact Award *2020*
- *(team)* Award for Advancing Reproducible Geospatial Research *2019*
  UCGIS-CyberGIS Center at University of Illinois Urbana-Champaign
- DAAD Study Scholarship for Graduates of All Disciplines *2016 – 2018*

TECHNICAL SKILLS

Programming	Python, R, Mathematica, LaTeX, Bash
Languages	English (native), German (limited working proficiency)