

# David Fastovich

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I use microfossils and organic biomarkers stored lake and marine sediments to reconstruct past environmental changes. I complement this analytical approach with big-data syntheses of existing ecological, climatological, and geologic data through novel statistical and computational methodologies.

## Appointments

2022 – Present     **Postdoctoral Scholar**  
Department of Earth and Environmental Sciences, Syracuse University  
Advisor: Tripti Bhattacharya

## Education

2018 – 2022     **Ph.D. in Geography**  
Thesis: *Patterns, mechanisms, and legacies of abrupt climate change: examining the Younger Dryas in eastern North America*  
University of Wisconsin—Madison  
Advisor: John (Jack) W. Williams

2016 – 2018     **M.S. in Geography**  
Thesis: *Temperature controls on no-analog community establishment in the Great Lakes Region*  
University of Wisconsin—Madison  
Advisor: John (Jack) W. Williams

2012 – 2016     **B.S in Environmental Science and Management** *with honors*  
University of California, Davis  
Academic Emphasis: Climate Change and Air Quality  
Minor: Biological Sciences

## Research Funding

2024 - 2027     **Disentangling dynamical controls on deglacial hydroclimate in eastern North America.** PI: Tripti Bhattacharya, co-PI: David Fastovich (lead author), \$547,086, U.S. National Science Foundation.

pending     **Expanding Science Outreach Programming through the Natural Science Explorers Program.** PI: Katie Becklin, Heather Coleman, co-PI: Dana Adcock, David Fastovich (lead author), Tyler Logie, Valeria Perez, Claire Rubbelke, Allie Thompson, \$10,000, Sustaining Engagement Grant, Syracuse University.

## Publications

- in prep Quantifying the response of vegetation to climate change across timescales  
**Fastovich, D**, Meyers SR, Saupe EE, Williams JW, Hull PM, et al. *Science*.  
Anticipated submission date: June 2024.
- A two-phase terrestrial response to Younger Dryas climate change  
Bernhardt CE, Willard DA, **Fastovich D**, John G. *Geology*.
- 2024 Large-scale sea surface temperature gradients govern westerly moisture transport in western Ecuador during the Plio-Pleistocene  
**Fastovich D**, Bhattacharya T, Pérez-Ángel LC, Burls NJ, Feng R, Knapp S, Mayer T. *Earth and Planetary Science Letters*, 640, 118781.  
[10.1016/j.epsl.2024.118781](https://doi.org/10.1016/j.epsl.2024.118781)
- Legacies of millennial-scale climate oscillations in contemporary biodiversity in eastern North America  
**Fastovich D**, Radeloff VC, Zuckerberg B, and Williams JW. *Philosophical Transactions of the Royal Society B*, 379(1902), 20230012.  
[10.1098/rstb.2023.0012](https://doi.org/10.1098/rstb.2023.0012)
- 2023 BioDeepTime: A database of biodiversity time series for modern and fossil assemblages  
Smith J, Rillo MC, Kocsis ÁT, Dornelas M, **Fastovich D**, Huang HH, Jonkers L, Kiessling W, Li Q, Liow LH, Margulis-Ohnuma M, et al. *Global Ecology and Biogeography*. 2023 Oct;32(10):1680-9. [doi:10.1111/geb.13735](https://doi.org/10.1111/geb.13735)
- Roles of climatic and anthropogenic factors in shaping Holocene vegetation and fire regimes in Great Dismal Swamp, eastern USA  
Willard DA, Jones MC, Alder J, **Fastovich D**, Hoefke K, Poirier RK, Wurster FC. *Quaternary Science Reviews*. 311, 108153.  
[doi:10.1016/j.quascirev.2023.108153](https://doi.org/10.1016/j.quascirev.2023.108153)
- 2022 Spatial fingerprints and mechanisms of precipitation and temperature changes during the Younger Dryas in eastern North America  
**Fastovich D**, Russell JM, Marcott SA, Williams JW. *Quaternary Science Reviews*. 294, 107724. [doi:10.1016/j.quascirev.2022.107724](https://doi.org/10.1016/j.quascirev.2022.107724)
- 2021 More than one way to kill a spruce forest: The role of fire and climate in the late-glacial termination of spruce woodlands across the southern Great Lakes  
Jensen AM, **Fastovich D**, Watson BI, Gill JL, Jackson ST, Russell JM, Bevington J, Hayes K, Lininger KB, Rubbelke C, Schellinger GC. *Journal of Ecology*. 109(1), 459-47. [doi:10.1111/1365-2745.13517](https://doi.org/10.1111/1365-2745.13517)
- 2020 Spatial fingerprint of Younger Dryas cooling and warming in eastern North America  
**Fastovich D**, Russell JM, Jackson ST, Krause TR, Marcott SA, Williams JW. *Geophysical Research Letters*. 47(22), e2020GL090031.  
[doi:10.1029/2020GL090031](https://doi.org/10.1029/2020GL090031)

Deglacial temperature controls on no-analog community establishment in the Great Lakes Region

**Fastovich D**, Russell JM, Jackson ST, Williams JW. *Quaternary Science Reviews*. 234, 106245. doi:10.1016/j.quascirev.2020.106245

## Invited Talks and Symposia

- 2024 **Lamont-Doherty Earth Observatory**  
Division of Biology and the Paleo Environment Seminar
- 2023 **Yale University**  
Department of Earth & Planetary Sciences Seminar
- 2022 **American Quaternary Association Biennial Meeting**
- 2021 **Woods Hole Oceanographic Institution**  
Climate and Paleo Seminar

## Awards and Honors

- 2023 Union for Quaternary Research Congress Travel Grant  
The National Academies of Sciences, Engineering, and Medicine International Travel Grant
- 2021 Presidential Management Fellowship Finalist  
*Fellowship created by Executive Order to bring promising early-career scientists into public policy development and management. Awarded to 1,100 promising early-career scientists from 8,065 applicants.*  
EarthCube Early Career Travel Grant  
Department of Geography Trewartha Travel Grant  
University of Wisconsin Graduate School Student Conference Travel Award  
Department of Geography Olmstead Award for Outstanding Publication  
*Awarded annually to two individuals in recognition of impactful publication within the field of Geography.*
- 2020 College of Letters and Science Teaching Fellow Award  
*Awarded annually to 15 Teaching Assistants among all within the College of Letters and Science in recognition of excellent teaching, facilitation, and communication.*  
Reid Bryson Poster Competition Runner Up
- 2019 Department of Geography Trewartha Travel Grant  
University of Wisconsin Graduate School Student Conference Travel Award
- 2015 John M. Long Endowed Scholarship

## Presentations and Posters

- 2023 Pliocene variability in the strength of the Pacific Walker Circulation  
**Fastovich D**, Bhattacharya T, Feng R, Mayer T  
*International Union for Quaternary Research. Presentation.*
- 2022 Pliocene variability in the strength of the Pacific Walker Circulation  
**Fastovich D**, Bhattacharya T, Feng R, Mayer T  
*American Geophysical Union. Poster.*
- Detecting legacies of millennial scale climate oscillations on modern biodiversity: lessons from a proxy-model comparison  
**Fastovich D**, Helmers D, Radeloff V, Zuckerberg B, Williams JW  
*American Geophysical Union. Poster.*
- 2021 Spatial fingerprints and mechanisms of temperature and precipitation changes during the Younger Dryas in eastern North America  
**Fastovich D**, Russell JM, Marcott SA, Williams JW  
*American Geophysical Union. Poster.*
- Spatial fingerprints and mechanisms of temperature and precipitation changes during the Younger Dryas in eastern North America  
**Fastovich D**, Russell JM, Marcott SA, Williams JW  
*Geological Society of America. Presentation.*
- 2020 Mechanisms for a spatial fingerprint of Younger Dryas warming in the southeastern United States  
**Fastovich D**, Marcott SA, Russell JM, Williams JW  
*American Geophysical Union. Virtual Poster.*
- 2019 Spatial fingerprint of temperature changes in eastern North America during the Younger Dryas.  
**Fastovich D**, Russell JM, Jackson ST, Krause TR, Marcott SA, Williams JW,  
*American Geophysical Union. Poster.*
- Spatial fingerprint of temperature changes in eastern North America during the Younger Dryas  
**Fastovich D**, Russell JM, Jackson ST, Krause TR, Marcott SA, Williams JW,  
*International Union for Quaternary Research. Presentation.*
- 2018 Spatial fingerprint of temperature changes in eastern North America during the Younger Dryas  
**Fastovich D**, Williams JW, Russell JM, Jackson ST, Krause TR  
*American Geophysical Union. Poster.*
- Abrupt deglacial temperature and vegetation changes reconstructed from brGDGT and pollen at Bonnet Lake, OH  
**Fastovich D**, Russell J, Jackson ST, Lowell T, Williams JW  
*Ecological Society of America. Presentation.*

## Research Experience

- 2016 – 2022     **Graduate Research Assistant**  
 John W. Williams - Paleoecology Lab  
 University of Wisconsin - Madison
- 2015 – 2016     **Undergraduate Research Assistant**  
 Andy Sih - Behavioral Ecology Lab  
 University of California, Davis
- 2015 – 2016     **Undergraduate Research Assistant**  
 Alan Hastings - Theoretical Ecology Lab  
 University of California, Davis

## Teaching Experience

- Fall 2021     **Instructor, GEOG 335: Climatic Environments of the Past**  
 University of Wisconsin - Madison  
*Average student rating: 4.85/5.*
- Spring 2021     **Instructor, GEOG 206: The Global Environment**  
 Middlebury College  
*Average student rating: 4.6/5.*
- 2017 – 2020,     **Teaching Assistant, GEOG120: Introduction to the Earth System**  
 2022     University of Wisconsin - Madison  
 Head Teaching Assistant (3 years) and Teaching Assistant (1 year).  
*Average student rating: 4.70/5.*
- 2016     **Teaching Assistant, GEOG127: Physical Systems of the Environment**  
 University of Wisconsin - Madison  
*Average student rating: 4.52/5.*

## Service

- Peer Reviewer:** Proceedings of the National Academy of Sciences, Geophysical Research Letters, Journal of Quaternary Science, Ecosphere, Paleoceanography and Paleoclimatology, PLOS One
- 2023     Climate Reconstruction from the Pacific Region: Insights into Past Oceanic and Atmospheric Conditions  
*America Geophysical Union. Session Convener*  
 Integrating Ice Core, Marine, and Terrestrial Records (INTIMATE) Network Steering Committee
- 2018 – 2020     Ecological Society of America Paleoecology Section Student Liaison

## Outreach

- 2022 - present     Syracuse University - Natural Science Explorers Program Leadership Committee

## Technical Skills

**Programming languages**

Expert in: R, Python, bash/zsh

Familiar with: Julia, MATLAB, CSS

**Software**

L<sup>A</sup>T<sub>E</sub>X, Git, Docker, Binder, HYSPLIT, ArcGIS Pro, GRASS GIS, HTCondor, Singularity

**Natural Languages**

English (fluent), Russian (fluent)