

Dr. Brittany N. Hupp

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Appointments

2022- Assistant Professor, Dept. of Atmos., Ocean., & Earth Sci. George Mason University
 2021-2023 NOAA Climate & Global Change Postdoctoral Fellow Oregon State University (OSU)

Education

2017-2021 Ph.D. Department of Geosciences University of Wisconsin-Madison (UW-M)
 2015- 2017 M.Sc. Department of Geology West Virginia University (WVU)
 2011-2015 B.A. Department of Geology Ohio Wesleyan University (OWU)
Graduated Cum Laude and with Honors in Professional Geology

Publications

5. **Hupp, B.N.**, Kelly, D.C., and Williams, J.W., 2022, Isotopic Filtering Reveals High Sensitivity of Planktic Calcifiers to Paleocene-Eocene Thermal Maximum Warming and Acidification: *PNAS*, v. 119, 7 p., e2115561119, doi: 10.1073/pnas.2115561119.
4. **Hupp, B.N.** and Kelly, D.C., 2020, Distortions, discrepancies, and delays: Size-dependent sediment mixing and the deep-sea record of the Paleocene-Eocene thermal maximum from ODP Site 690 (Weddell Sea), *Paleoceanography and Paleoclimatology*, v.35, doi: 10.1029/2020PA004018.
3. **Hupp, B.N.**, Kelly, D.C., Zachos, J.C., and Bralower, T. J., 2019, Effects of Size-Dependent Sediment Mixing on Deep-Sea Records of the Paleocene-Eocene Thermal Maximum: *Geology*, v. 47, p. 749-752, doi:10.1130/G46042.1.
2. **Hupp, B.N.** and Weislogel, A.L., 2018, Geochemical insights into provenance of the Middle Devonian Hamilton Group of the central Appalachian Basin: *Journal of Sedimentary Research*, v. 88, p. 1153-1165, doi:10.2110/jsr.2018.62.
1. **Hupp, B.N.** and Donovan, J.J., 2018, Quantitative mineralogy of the Marcellus Shale, Appalachian Basin, USA, based on XRD-XRF integration: *Sedimentary Geology*, v. 371, p. 16-31, doi: 10.1016/j.sedgeo.2018.04.007.

In Review/In Preparation Publications

7. Judd, E., Tierney, J.E., Huber, B.T., Wing, S.L., Lunt, D.J., Ford, H.L., Inglis, G.N., McClymont, E.L., O'Brien, C.L., Rattanasriampaipong, R., Si, W., Staitis, M.L., Thirumalai, K., Anagnostou, E., Cramwinckel, M.J., Dawson, R.R., Evans, D., Gray, W.R., Grossman, E.L., Henehan, M.J., **Hupp, B.N.**, MacLeod, K.G., O'Connor, L.K., Montes, M.L.S., Song, H., and Zhan, Y., *in review*, The PhanSST global database of Phanerozoic sea surface temperature proxy data; for submission to *Scientific Data*.
6. **Hupp, B.N.**, and Fehrenbacher, J.S., *in preparation*, To be crusted or not to be crusted: Differences in trace element geochemistry between shells of living and dead planktic foraminifera; for submission to *Paleoceanography and Paleoclimatology*.
5. **Hupp, B.N.**, and Fehrenbacher, J.S., *in preparation*, How well do stable carbon isotope ($\delta^{13}\text{C}$) gradients track the biological pump in the Northern California Current?; for submission to *Limnology and Oceanography*.
4. **Hupp, B.N.**, Kozdon, R., Orland, I., Valley, J., and Kelly, D.C., *in preparation*, Use of secondary ion

- mass spectrometry (SIMS) to investigate secondary controls on the carbon isotope record of the Paleocene Eocene Thermal Maximum, Southern Indian Ocean (ODP Site 1135); for submission to *Marine Geology*.
3. **Hupp, B.N.**, Kozdon, R., and Kelly, D.C., *in preparation*, Evolving modes of carbonate diagenesis: Implications for constraining oceanic chemical response to the Paleocene-Eocene thermal maximum; for submission to *Sedimentology*.
 2. **Hupp, B.N.**, Kelly, D.C., Shanks, L., Silverstein, L., and Jiang, S., *in preparation*, Response of High-Latitude Planktic Foraminifera to the Paleocene Eocene Thermal Maximum: Insights from the Southern Indian Ocean (ODP Site 1135); for submission to *Marine Micropaleontology*.
 1. Ye, S. He, F., Jones, A.G., Shakun, J.D., Batchelor, C.J., **Hupp, B.N.**, Mcdowell, T.M., and Marcott, S.A., *in preparation*, A Data-Model climate comparison for the last 20 ka; for submission to *Climates of the Past*.

Abstracts and Conference Papers (*denotes oral presentation; **denotes invited speaker)

12. **Hupp, B.N.**, Kelly, D.C., Kozdon, R., Orland, I., and Valley, J.W., 2021, Diagenetic controls on the carbon isotope record of the Paleocene Eocene thermal maximum at Ocean Drilling Program Site 1135 (southern Indian Ocean), American Geophysical Union Fall Meeting.
11. ****Hupp, B.N.**, Kelly, D.C., and Jiang, S., 2021, Response of high latitude planktic foraminifer communities to the Paleocene-Eocene Thermal Maximum: Insights from the southern Indian Ocean (ODP Site 1135), Geological Society of America Annual Meeting.
10. ***Hupp, B.N.**, Kelly, D.C., and Williams, J.J., 2020, Isotopic filtering reveals high sensitivity of planktic foraminifers to Paleocene Eocene Thermal Maximum ocean acidification and warming: Geological Society of America Annual Meeting.
9. **Hupp, B.N.**, and Kelly, D.C., 2019, Single-shell Stable Isotope Signatures as a Taphonomic Filter: Deconvolving the Effects of Sediment Mixing on Tropical Planktic Foraminiferal Assemblages from Paleocene-Eocene Thermal Maximum: American Geophysical Union Fall Meeting, San Francisco, CA.
8. Valencia Villa, A., Mixon, E., Bate, C.E., Callahan, E.H., Honig, S., **Hupp, B.N.**, Parrish, E., Roberts, N., and Krishnan, A., 2019, Invigorating the geoscience community: Graduate student-led efforts in creating inclusive, equal, and diverse science and community at the University of Wisconsin-Madison: American Geophysical Union Fall Meeting, San Francisco, CA.
7. ***Hupp, B.N.**, Kelly, D.C., Zachos, J.C., and Bralower, T. J., 2018, Effects of Size-Dependent Sediment Mixing on Deep-Sea Records of the Paleocene-Eocene Thermal Maximum: Geological Society of America National Meeting (Nov. 2018, Indianapolis, IN), Paper No. 212-6
6. Weislogel, A. and **Hupp, B.**, 2017, Identifying Lithosomes of the Marcellus Shale: A Provenance Approach: Eastern Section AAPG 46th Annual Meeting, Tuesday September 26, 2017.
5. Song, L., Paronish, T., Agrawal, V., **Hupp, B.**, Sharma, S., and Carr, T., 2017, Depositional environment and impact of pore structure and gas storage of Middle Devonian organic rich shale, northeastern West, Virginia, Appalachian Basin: URTEC Paper #2667387, doi: 10.15530/URTEC-2017-2667397.
4. ***Hupp, B.N.**, Weislogel, A.L., and Donovan, J.J., 2017, Provenance of the Marcellus Shale: Geochemical insights into the source to sink relationships within the Middle Devonian Acadian Foreland Basin: Geological Society of America NE/NC Regional Meeting-Abstracts with Program, v. 49, paper no. 17-1
3. ***Hupp, B.N.**, 2017, The Unconventional Minority: Preparing Single Parents for Success within the Geosciences: Geological Society of America NE/NC Regional Meeting-Abstracts with Program, v. 49, paper no. 32-3
2. ***Hupp, B.N.**, Weislogel, A.L., and Donovan, J.J., 2016, Interactions between Provenance, Paleoclimate, and Productivity in the Devonian Millboro Shale, North-Central West Virginia: Geological Society of America-Abstracts with Programs, v. 48, paper no.200-10
1. **Hupp, B.N.**, and Mann, K.O., 2015, High Resolution Conodont Biostratigraphy of the Dundee

Limestone, Michigan Basin: Geological Society of America-Abstracts with Programs, v. 47, p. 337

Thesis Work

- 2017-2021 PhD Dissertation: Deconvolving Climate and Biotic Signals from Taphonomic Overprints in Deep-Sea Records of the Paleocene-Eocene Thermal Maximum (Advisor: Dr. D. Clay Kelly)
- 2015-2017 MSc Thesis: Provenance of the Hamilton Group: A study of source-to-sink relationships within the Middle Devonian central Appalachian Basin (Advisor: Dr. Amy Weislogel)
- 2014-2015 Undergraduate Honors Thesis: High Resolution Conodont Biostratigraphy of the Dundee Limestone, Michigan Basin (Advisor: Dr. Keith Mann)

Work Experience

- 2021-2023 NOAA Climate & Global Change Postdoctoral Fellow
- 2020-2021 Adjunct Instructor, Edgewood College
- 2019-2021 Head Graduate Teaching Assistant, Department of Geoscience, UW-M
- 2017-2019 Graduate Teaching Assistant, Department of Geosciences, UW-M
- 2015-2017 Graduate Teaching Assistant, Department of Geology, WVU
- Summer 2016 Graduate Research Assistant, MSEEL, WVU
- 2013-2015 Intern, Ohio Department of Natural Resources, Division of Oil & Gas Resources
- 2012-2013 Collections Maintenance Worker, Department of Geology, OWU

Teaching Experience

- Spring 2021 Instructor of Record: Intro to Natural Science for Elementary Education, Edgewood C. (30 students)
- Fall '20/Spr. '21 Instructor of Record: Oceans and Atmosphere, Edgewood College (40 students)
- Spring 2019 Geosci 204: Historical Geology Laboratory, UW-M (~40 students)
- Sp./Fall 2018 Geosci 110: Evolution and Extinction Laboratory, UW-M (~100 students/semester)
- Fall 2017 Geosci 202: Introduction to Geologic Structures Laboratory, UW-M (~20 students)
- Spring 2017 Geol 104: Historical Geology, Guest Lecturer, WVU
- Spring 2016/17 Geol 104: Historical Geology Laboratory, WVU (96, 60 students)
- Fall 2016 Geol 331: Paleontology Laboratory, WVU (~50 students)
- Fall 2015/Sum 17 Geol 102: Introductory Geology Laboratory, WVU (69 students)

Research Experience

- 2017-2021 Lab Member, Micropaleontology and Paleoceanography Laboratory (UW-M)
- 2016-2017 Research Assistant, Marcellus Shale Energy and Environmental Laboratory (MSEEL)
- 2015-2017 Lab Member, Sedimentary Basins Research Laboratory (WVU)
- 2014-2015 Research Assistant, Micropaleontology Laboratory (OWU)
- 2011-2012 Lab Member, Aquatic Animal Behavior Laboratory (OWU)

Honors, Grants, and Awards (post-grad)

- 2022-2024 National Science Foundation Division of Ocean Sciences: Marine Geology & Geophysics: *Improving High Latitude Foraminiferal Paleoproxies: Insights from Northern California Current Modern and Historical Records*: **Lead PI**, \$268,746 total over two years (\$208,660 to GMU)
- 2021-2023 NOAA Climate & Global Change Postdoctoral Fellowship (\$159,130)
- 2021 NSF Ocean Sciences Postdoctoral Research Fellowship*
- *Award declined, as I could only accept one postdoctoral fellowship

Graduate & Undergraduate Honors, Grants, and Awards

- 2021 Univ. of Wisc.-Madison Dept. of Geosci. Fowler Billings Grant for DEI Efforts (\$5,400)
- 2021 Univ. of Wisc.-Madison Department of Geoscience Outstanding Paper Award
- 2021 Univ. of Wisc.-Madison Department of Geoscience Tyler Teaching Award
- 2020 Cushman Foundation Johanna S. Resig Research Fellowship (\$15,000)
- 2020 AWG-Paleontological Society Winifred Goldring Award (\$2,000)
- 2020 Cushman Foundation Student Research Award (\$3,000)
- 2020 Dept. of Geoscience S.W. Bailey Distinguished Graduate Student Award, UW-M
- 2020 Ken and Linda Ciriacks Distinguished Graduate Fellowship, UW-M (1 semester support)
- 2020 C.F. Schiesser Outstanding Student Research Paper Award, UW-M
- 2020 OB Shelbourne Summer Research Award, UW-M (\$3,000)
- 2020 Paleontological Society Allison R. "Pete" Palmer Student Research Award (\$1,200)
- 2019 NSF Scholarship to Urbino Summer School in Paleoclimatology
- 2019 George J. Verville Award in Paleontology, UW-M (\$1,000)
- 2019 James D. and Stella M. Robertson Graduate Research Assistantship (1 semester RA)
- 2019 Univ. of Wisconsin-Madison Department of Geoscience Summer Research Awards (\$2,000)
- 2018 Geological Society of America Exxon Mobile Student Research Grant (\$5,000)
- 2018 Society of Sedimentary Geology Student Research Grant (\$1,300)
- 2018 American Association of Petroleum Geologists M. Ray Thomasson Named Grant (\$2,500)
- 2018 University of Wisconsin-Madison Cool Science Photograph Winner
- 2016 Geological Society of America Student Meeting Travel Award
- 2016 Society of Sedimentary Geology (SEPM) Student Meeting Travel Award (\$300)
- 2016 West Virginia University Shumaker Graduate Student Travel Award (\$600)
- 2016 American Association of Petroleum Geologists Foundation Grants-in-Aid (\$2,000)
- 2016 Geological Society of America Student Research Grant (\$1,375)
- 2016 West Virginia University Shumaker Student Research Grant (\$1,400)
- 2016 Society of Sedimentary Geology (SEPM) Foundation Student Research Grant (\$800)
- 2015 West Virginia University Shumaker Graduate Student Travel Award (\$575)
- 2015 Chesapeake Energy Fellowship (\$2,000)
- 2015 Graduated *Cum Laude*
- 2015 Graduated with Departmental Honors in Geology
- 2015 R.E. Shanklin Distinguished Scholar in Geology Award (\$500)
- 2014 Ohio Wesleyan University Theory to Practice Grant (\$4,642)
- 2014-2015 Raymond H. and Beryl Dean Penick STEMM Scholarship (\$4,000)
- 2013-2015 Crowl-Shanklin Geology Scholarship (\$1,000/yr)
- 2013 Sigma Gamma Epsilon Inductee
- 2012-2014 Julius and Beula Lenz Science and Engineering Scholarship (\$1,000/yr)
- 2011-2015 Leland F. and Helen Schubert Honors Program
- 2011-2015 Leland F. and Helen Schubert Scholarship (\$17,500/yr)
- 2011-2015 Ohio Wesleyan University Founders Scholarship (\$6,000/yr)
- 2011-2012 Floyd and Alberta Mahard Scholarship (\$1,000)

Field Experience/Research Cruises

- Sept. 2021 Offshore Oregon Coast Field Sampling (6 days)
- March 2022 Offshore Oregon Coast Field Sampling (7 days)
- May 2022 Offshore California, Oregon, Washington Coast Field Sampling (13 days)
- Sept. 2022 Offshore California, Oregon, Washington Coast Field Sampling (13 days)

Field Courses (*denotes co-teaching of course/fieldtrip)

- Oct. 2017 Field Mapping of the Black Hills, SD, USA*
- April 2017 Modern Coastal Depositional Systems in Congaree National Park & Sapelo Island: GA, USA
- May 2016 Sequence Stratigraphy of the Book Cliffs, UT, USA

- Apr. 2016 Miocene Facies and Fossils along Chesapeake Bay, MD, USA
- Mar. 2015 Marine Biology and Mathematical Modeling: Field Course in St. John, USVI
- Oct. 2014 Field Study of Alleghany Structural Front: WV, USA
- Mar. 2014 Petrographic Analysis of the Great Unconformity of the St. Francis Mountains: MO, USA
- Mar. 2013 Field Study of Deformation Events in the Appalachians of Pennsylvania: PA, USA
- Oct. 2012 Paleontological Study of Cincinnati Outcrops in Southeast Indiana: IN, USA
- May 2012 Tectonics, Volcanology, & Geothermal Energy in the N. Atlantic: Field Course in Iceland

Short Courses, Summer Schools, and Workshops

- June 2022 *IODP IMPACT (Advancing Scientific Ocean Drilling Impact)*
- Spring 2022 *Oregon Museum of Science & Industry Science Communication Fellowship Workshops*
- Oct. 2021 *Social Justice Education Initiative Workshop*
- Sept. 2021 *PhanTASTIC (Phanerozoic Technique Averaged Surface Temperature Integrated Curve) Workshop*
- Aug. 2021 *IODP IMPACT Next Generation Workshop*
- June 2021 *Identifying New Community-Driven Science Themes for NSF's Support of Paleo Perspectives on Climate Change (P2C2): A Workshop*
- Spring 2021 *Community of Practice on Scholarship of Teaching and Learning*
- Spring 2021 *URGE: Unlearning Racism in Geosciences, Midwest Pod*
- Oct. 2020 *An Introduction to Stratigraphic Data Analysis in R (SDAR), a Quantitative Toolkit to Analyze Stratigraphic Data*
- Fall 2020 *Community of Practice on Course Design & Inclusive Teaching*
- Sum. 2020 *An Introduction to Evidence-Based Undergraduate STEM Teaching*
- Feb. 2020 *Demystifying the IODP Proposal Process for Early Career Scientists: Pacific Ocean*
- June 2019 *Urbino Summer School of Paleoclimatology*
- March 2017 *Micro- to Nano- Scale Features of Mudrocks* short course, Instructor: Dr. Kitty Milliken

Invited Talks

- Feb. 2022 Western Michigan University Research Seminar
- Feb. 2022 George Mason University Research Seminar
- Oct. 2021 Oregon State University's QuatTea Seminar Series
- Aug. 2021 Panelist for IODP IMPACT Workshop: Effective Mentoring Strategies
- Nov. 2019 University of Wisconsin-Madison Paleontology Club

Guest Lecturer

- Nov. 2020 NATS 105: Intro to Natural Sciences for Elementary Education- "*Thinking About Climate Change*"
- Sept. 2019 Geosci 304: Geobiology- "*Carbon Isotopes and the Biological Pump*"

Workshops Led/Organized

- June 2022 IODP IMPACT (Advancing Scientific Ocean Drilling Impact)
- Fall 2019 *Manuscript Writing 101: Preparing Your Work for Publication*

Reviewer for:

Journals: The Depositional Record, Journal of Palaeogeography, Journal of Asian Earth Sciences
Funding Agencies: International Ocean Discovery Program, United States Science Support Program

Academic Service, Leadership, and Volunteering

- 2021- AGU Paleoclimatology/Paleoceanography Student and Early Career Working Group
- 2021 AGU Fall Meeting Session Co-convener
- 2021 AGU Outstanding Student Presentation Award Judge

2021	GSA Onto the Future Mentor
2021-2022	GEMS (Geosciences Education & Mentorship Support) Mentor
2020	Ocean Observation Initiative Data Labs Fall Pilot Implementation Cohort
2020	Teaching Assistant-Faculty Committee, Graduate Student Representative (UW-M)
2019-2020	President, Geoscience Graduate Student Association (UW-M)
2019-2020	Treasurer, Association for Women Geoscientists, UW-Madison Chapter
2019-2020	Department Climate Survey Committee, Graduate Student Representative (UW-M)
2018-2020	Weeks Lecture Series Committee, Graduate Student Representative (UW-M)
2018-2019	President and Co-Founder, Association for Women Geoscientists, UW-Madison Chapter
2018-2019	Graduate Student Faculty Liaison (UW-M)
2017-2018	Graduate Student Isotope Geochemistry Faculty Search Committee (2 searches; UW-M)
2016-2017	Geology Department Masters Student Representative (WVU)
2014-2015	President: Sigma Gamma Epsilon, Delta Lambda Chapter (OWU)
2013-2015	Ohio Wesleyan University Geology Student Board

Public Outreach

- 2022-2023- *Oregon Museum of Science and Industry Science Communication Fellow*: Through this fellowship I will be working with OMSI staff to develop an outreach tool to be shared at several public outreach events during the 2022-2023 years
- October 2018- *Wisconsin Science Weekend Public Outreach*: Helped to organize, construct, and conduct outreach events at two WI state parks throughout the weekend, focusing on communicating the geologic history of the state to the public.
- May 2018- *Geology Lesson at Madison School Forest*: As part of a local elementary school's 3rd grade campout, I organized and taught several outdoor geology lessons looking sandstone outcrops in which students used their observations to make hypotheses about potential past environments.
- April 2017- *Cub Scout Fossil Dig*: I organized an activity for scouts (1st-3rd grades) to dig up dinosaur skulls (small replicas), identify the "fossil" using pictures, and report to the group fun-facts about the dinosaur they uncovered
- May 2016- *Cub Scout Geology Hike*: Lead scouts and their families on a ~2 hour geology hike through the local boy scout camp to learn about how we can use our observations to make interpretations from rocks.
- March 2016- *Geology Read-In*: Visited 2nd grade classroom at Eastwood Elementary to read to them books about geology.

Media Interviews and Articles

- Flatt, C., 2022, *This single-celled sea critter could help scientists learn about climate change*, NWNews, <https://www.nwnewsnetwork.org/2022-06-23/this-single-celled-sea-critter-could-help-scientists-learn-about-climate-change>
- Burakoff, M., 2022, *Deep dive: UW researchers find climate clues in tiny fossils from the ocean floor*, Spectrum News 1, <https://spectrumnews1.com/wi/milwaukee/news/2022/03/22/deep-dive--uw-researchers-find-climate-clues-in-tiny-fossils-from-the-ocean-floor>
- Barncard, C., 2022, *Ancient example of modern global warming was too hot for tiny, important ocean critters*, University of Wisconsin-Madison News, <https://news.wisc.edu/ancient-example-of-modern-global-warming-was-too-hot-for-tiny-important-ocean-creatures/>

Non-academic Volunteer and Leadership Experience

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| 2015-2017 | Cub Scouts, Pack 60 Volunteer |
| 2015-2016 | Read Aloud Volunteer |
| 2014-2015 | Scholarship Director: Kappa Alpha Theta, Gamma deutron Chapter |
| 2014-2015 | Membership Director: Ohio Wesleyan University Panhellenic Council |

Professional Affiliations

2019-Present American Geophysical Union
2018-Present Cushman Foundation
2018-Present Paleontological Society of America, member #:1316898
2016-Present SEPM, Society for Sedimentary Geology, member #: 51042
2015-Present American Association of Petroleum Geologists, member #: 10138956
2013-Present Association for Women Geoscientists
2013-Present Geological Society of America
2013-2015 Sigma Gamma Epsilon

Analytical and Laboratory Experience

Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS)
Secondary Ion Mass Spectrometry (SIMS)
Gas Source Mass Spectrometry (GSMS)
Scanning Electron Microscopy (SEM)
Energy Dispersive X-ray Spectroscopy (EDS)
X-ray Fluorescence (XRF)
X-ray Diffraction (XRD)
Microfossil Extraction
Thin Section Preparation
Proficiency in R Coding Language