

Dr. Matthew Huber

PROFESSIONAL EXPERIENCE

Current

Professor, Dept. of Earth, Atmos. and Planetary Sci., Purdue University 2016-present

Past

Founding *David E Ross Director*, Purdue Institute for a Sustainable Future 2022-2024

Professor, University of New Hampshire 2013-2015

Director, Purdue Climate Change Research Center 2012-2013

Professor, EAPS, Purdue University 2011-2013

Associate Professor, EAPS, Purdue University 2007-2011

Assistant Professor, EAS, Purdue University 2003-2007

Assistant Research Professor, Niels Bohr Inst., University of Copenhagen 2001-2002

EDUCATION

University of California Santa Cruz, Earth Sciences Ph.D. 1997-2001

University of California Los Angeles, Atmospheric Sciences M.S. 1994-1997

University of Chicago, Geophysics, Honors in the Major B.A. 1990-1994

AWARDS, HONORS, AND DISTINCTIONS

Fellowships

• Elected Fellow of the American Association for the Advancement of Science 2025

• Rockefeller Foundation Bellagio Center Fellow 2025

• Edward P. Bass Distinguished Visiting Environmental Scholars Program Fellow
Yale Institute for Biospheric Studies 2025

• Purdue University Faculty Scholar 2012-2016

• Purdue CyberCenter Fellow 2006

Awards

• Western Digital Petabyte Innovation Quest Award 2024

• Herbert Newby McCoy Award 2023
“to a Purdue...faculty member making the greatest contribution of the year to the natural sciences.”

• Purdue, College of Science Research Award 2022

• American Geophysical Union Ascent Award 2018

• IBM Scholars Program for Linux Award (\$40,000) 2004

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Dr. Matthew Huber

SERVICE AND LEADERSHIP

Advisory Boards

- Member, Climate Working Group of NOAA Science Advisory Board 2024-present
- Scientific Advisory Board Member: NSF Engineering Research Center *Environmentally Applied Refrigerant Technology Hub (EARTH)* 2024-present

Editorships

- Editor, AGU Advances 2026-2028
- Editor in Chief, *Paleoceanography and Paleoclimatology* (AGU) 2019-2025
- Editorial Board Member, *Geology* 2017-2019
- Editorial Board (Topical Editor) of EGU journal *Earth System Dynamics* 2010-2019
- Associate Editor of *Geochemistry, Geophysics, Geosystems* 2008-2018
- Associate Editor of *Paleoceanography* 2003-2005

Research Networks and Consortia

- Co-lead DeepMIP project (deepmip.org, with Dan Lunt, Bristol) 2017-2024
- Co-lead Miocene Paleoclimate-MIP project (with N. Burls) 2022-present
- Co-lead NSF-funded Glassnet AccelNet International Network of Networks 2021-present
- Co-Lead NATO/DHS Funded “Cyber-Physical-Social Infrastructure Climate Change (CPSICC) Nexus” Initiative: NATO ARW Book expect 4/2026 2023-present
- Lecturer and Steering Committee for Urbino Paleoclimate Summer School I have served in varying capacities over the years. >60 graduate students attended from around the world each year. (<http://www.uniurb.it/ussp/>). 2004-2025
- Scientific Steering Committee, CBEP *Climate& Biotic Events of the Paleogene Conferences* 2008-present
- Steering Committee member, paleo-CO₂ NSF Research Coordination Network 2016-2018
- Co-Chair, NCAR CCSM Paleoclimate Working Group (PaleoWG) 2004-2006

Evaluator and Panelist

- Panelist, NOAA Climate and Global Change Post-doctoral Fellowship 2022-2025
- External Evaluator of the Ohio State University Sustainability enterprise 2023
- External Evaluator of the Atmospheric Sciences Program for Texas A&M 2023-2024
- External Expert Faculty Candidate Reviewer (Stockholm University) 2010
member of faculty appointment board, Bert Bolin Centre for Climate Research
- Panelist, NSF-sponsored Teragrid Medium and Large Allocation Review 2005-2008
- Ongoing. I have regularly been on NSF funding panels, and I provide ad hoc reviews on ~6 proposals per year for NSF, and various EU, UK research agencies.

Purdue University Service and Leadership

- Founding Director, Purdue Institute for a Sustainable Future (>300 affiliates), Jan. 2022-December 2024.

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- Purdue University Grievance Committee 2012-2014, 2019-2021.
- I was one of three main authors of a white paper that led to the creation of the Purdue Climate Change Research Center (PCCRC) and the hiring associated with it.
- PCCRC Executive Committee, 2003-2013.
- PCCRC standing committee, 2003-2013.
- PCCRC search committees (many).
- Purdue University IT Operational Oversight Recommendation Implementation Committee 2012-2013.
- Helped write proposals for two new \$4,000,000 centers (funded by the Lilly Foundation), the Cyber Center and Center for the Environment. I was on the Executive Committee of the Center for the Environment and the Director Search Committee of the Cyber Center.

College of Science Service and Leadership

- College of Science, Dean's Research Task Force (2017): This task force was charged with developing recommendations for growing the CoS research portfolio that could be initiated and implemented in conjunction with our 2017 College of Science Strategic Plan. The group sought to identify research areas in which targeted faculty hiring would achieve two important goals for the College: To build one or two areas of emerging research in each department that would lead to disciplinary excellence *and* provide opportunities for increasing interdisciplinary research collaborations (within the college and/or with other units of the university); and to draft a college-wide faculty hiring plan in "Data Science" that would involve the recruitment of scholars in data science, complemented by the hiring of discipline-specific faculty with research interests that would benefit from collaborations with data scientists.
- College of Science Dean's Undergraduate Task Force (2005-2007). Task force goal was to reformulate entire undergraduate curriculum that had not been renovated for >thirty years.
- College of Science Grade Appeal Committee (2009-2010). This was a fairly time consuming committee when there are students appealing although this does not happen often.
- From 2004-2013, I was in charge of one of the 3 national streams of Level II Doppler radar data from the National Weather Service, FAA, and DOD to downstream clients including private industry, universities and other partners. This operated in collaboration with Purdue's Information Technology organization. In 2006, I started a Consortium (Atmospheric Measurement and Prediction) to attract and disseminate gift funds for atmospheric science activities within the department and with an initial focus on issues relating Doppler radar data.

EAPS Service and Leadership

- EAPS executive committee 2017-2019,2023-24.
- EAPS atmospheric sciences search chair 2020,2021 hired Lei Wang and Yuan Wang
- EAPS member of many, many search committees
- EAPS Department Computer Committee 2003-2005; Chair 2016-2023.
- EAPS Department Graduate Committee 2003-2004, 2009-11, 2018-2022
- EAPS Department Undergraduate Committee 2005-2006.
- EAPS Department High Performance Computing Committee:2006-2013 (Chair).
- EAPS Department Alumni and Corporate relations committee 2007-2011.

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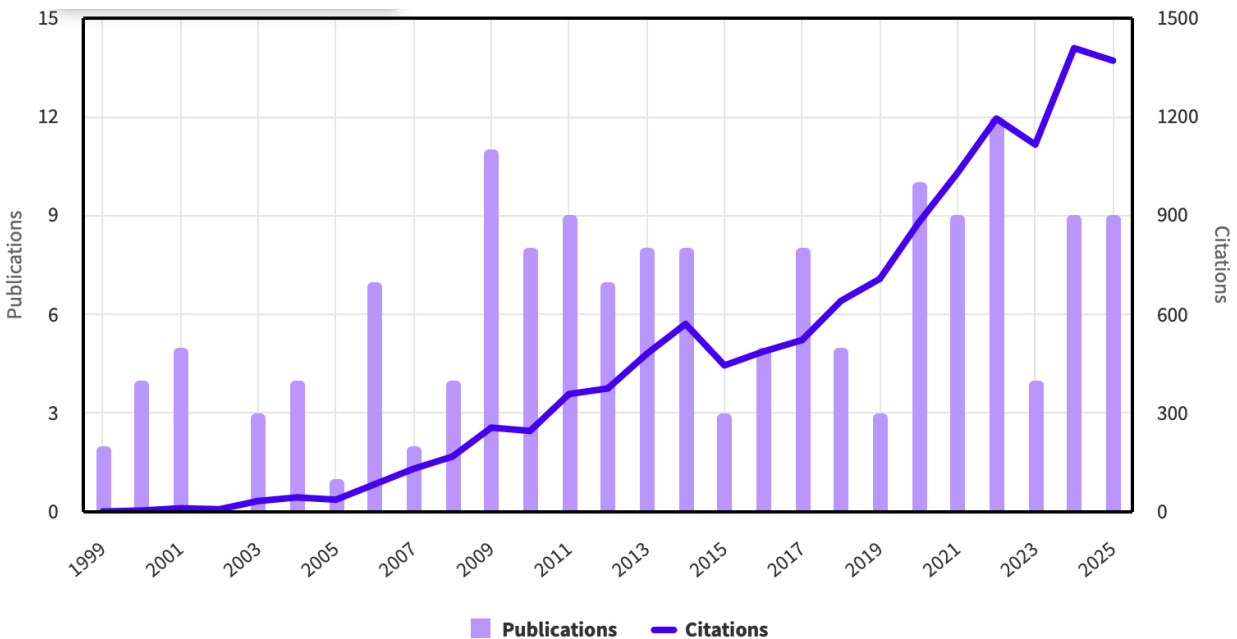
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PEER-REVIEWED PUBLICATIONS (* a past or current student advisee contribution)

Discussion of publications.

I have published in a variety of journals and in several peer-review book chapters, a classification and further description of them follows. Most of my journal publications are in journals considered at or near the top of their respective subfields. I have published over 155 peer-reviewed journal articles including 12 in *Nature*, 3 in *Nature Geoscience*, 5 in *Science*, and 6 in *PNAS*. **>66 papers were published with students/postdocs as coauthors and >28 as lead authors.** My current “h-index” as measured by ISI Webofscience is 60. Total citations is 12,620. Normalized h-index= 2.5.

ISI Citation Graphic



Accepted or published, peer reviewed

2026

159) Liu, X., & Huber, M. (2026). Altered Ocean temperature gradients are key to Miocene South Asian monsoon evolution. *Geophysical Research Letters*, 53(1), e2025GL119859.

2025

158) Mahendra, N., Huber, M., Wang, L., Hunt, K. M., Chilukoti, N., & Chowdary, J. S. (2025). Stagnation of atmospheric circulation leads to historically prolonged extreme rainfall event over northwestern India in August 2024. *Journal of Geophysical Research: Atmospheres*, 130(21), e2025JD044227.

157) Naik, T. J., de Boer, A. M., Coxall, H. K., Burls, N. J., Bradshaw, C. D., Donnadieu, Y., et al. (2025). Miocene ocean gyre circulation and gateway transports—MioMIP1 ocean intercomparison. *Paleoceanography and Paleoclimatology*, e2025PA005194, <https://doi.org/10.1029/2025PA005194>.

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- 156) Wu, H.-C., Kong*, Q., **Huber, M.**, Sun, M., & Craig, M. (2025). Climate change will increase high temperature risks, degradation, and costs of rooftop photovoltaics globally. *Joule*, DOI: 10.1016/j.joule.2025.102218.
- 155) Bradshaw, C., Fletcher, T., Reichgelt, T., Akgün, F., Cantrill, D. J., Casas-Gallego, M., Doláková, N., Erdei, B., Kayseri-Özer, M. S., Kováčová, M., Ochoa, D., Pound, M., Utescher, T., Zhao, J., Sepulchre, P., Feakins, S. J., Ivanov, D., Li, S., Miao, Y., Worobiec, E., Strömberg, C. A. E., Novak, J., Herold, N., **Huber, M.**, Frigola, A., Prange, M., Knorr, G., Lohmann, G., Farnsworth, A., Li, Y., Lunt, D. J., Pillot, Q., Donnadieu, Y., Acosta, R. P., & Burls, N. (2025). MioVeg1: A global Middle Miocene vegetation reconstruction for climate modelling. *Paleoceanography and Paleoclimatology*, 40(11), e2025PA005213.
- 154) Kong, Q*, Jing, R., Raymond, C., Tuholske, C., Heft-Neal, S., Wagner, Z., Wang, Z., Zimmer, A., **Huber, M.** & E. Bendavid (2025). Spatial patterns of historical changes in human heat stress disagree across metrics. *Geophysical Research Letters*, e2025GL117966.
- 153) Kong*, Q., & **Huber, M.** (2025). A global high-resolution and bias-corrected dataset of CMIP6 projected heat stress metrics. *Sci Data* 12, <https://doi.org/10.1038/s41597-025-04527-6>.
- 152) Menzo, Z. M., Karamperidou, C., Kong*, Q., & **Huber, M.** (2025). El Niño enhances exposure to humid heat extremes with regionally varying impacts during Eastern versus Central Pacific events. *Geophysical Research Letters*, 52(4), e2024GL112387.
- 151) Kong*, Q., & **Huber, M.** (2025). A linear sensitivity framework to understand the drivers of the wet-bulb globe temperature changes. *Journal of Geophysical Research: Atmospheres*, 130(5), e2024JD042195.
- 150) Liu, X., Griffin*, A., Komurcu, M., & **Huber, M.** (2025). Importance of longwave radiative forcing by icy clouds in maintaining Miocene high-latitude warmth. *Geophysical Research Letters*, 52(7), e2024GL111831.
- 149) Naik, T. J., de Boer, A. M., Coxall, H. K., Burls, N. J., Bradshaw, C. D., Donnadieu, Y., Farnsworth, A., Frigola, A., Herold, N., **Huber, M.**, et al. (2025). Ocean Meridional Overturning Circulation during the early and middle Miocene. *Paleoceanography and Paleoclimatology*, 40(4), e2024PA005055.
- 148) Mishra, V., Chuphal, D. S., Kong*, Q., Raymond, C., Parsons, L. A., Kumar, R., Tumbe, C., & **Huber, M.** (2025). Migrant labourers in India face increased heat stress driven by climate warming and ENSO variability. *Earth's Future*, <https://doi.org/10.1029/2025EF006167>.
- 147) Frank*, C., Prokopy, L., & **Huber, M.** (2025). Identifying barriers and solutions to building African research capacity in geoscience and adjacent fields. *Earth and Space Science*, 12(7), e2025EA004206.
- 146) Houessou, M. A. K., Elnour, Z., Kong*, Q., Grethe, H., & **Huber, M.** (2025). Heat stress causes economic and welfare disparities across agroecological zones in Burkina Faso. *Communications Earth & Environment*, 6(1), 744.
- 145) Liu, X., Zhang, Y. G., **Huber, M.**, Chang, P., & Wang, L. (2025). Connecting warming patterns

Dr. Matthew Huber

of the paleo-ocean to our future. *AGU Advances*, 6(5), e2025AV001719.

2024

- 144) Kong,* Q., & **Huber, M.** (2024). A new, zero-iteration analytic implementation of wet-bulb globe temperature: Development, validation, and comparison with other methods. *GeoHealth*, 8(10), e2024GH001068.
- 143) Larocca Conte, G., Aleksinski*, A., Liao, A., Kriwet, J., Mörs, T., Trayler, R. B., Ivany, L.C., **Huber, M.** & Kim, S. L. (2024). Eocene shark teeth from peninsular Antarctica: Windows to habitat use and paleoceanography. *Paleoceanography and Paleoclimatology*, 39(11), e2024PA004965.
- 142) Vecellio, D. J., **Huber, M.**, & Kenney, W. L. (2024). Why not 35°C? Reasons for reductions in limits of human thermal tolerance and their implications. *Temperature*, 1–3. <https://doi.org/10.1080/23328940.2024.2399952>.
- 141) Ambika, A. K., Rajeev, A., & **Huber, M.** (2024). Global warming amplifies outdoor extreme moist heat during the Indian summer monsoon. *Earth's Future*, 12, e2024EF004673. <https://doi.org/10.1029/2024EF004673>.
- 140) Fokkema, C. D., Agterhuis, T., Gerritsma, D., de Goeij, M., Liu, X., de Regt, P., Rice, A., Vennema, L., Agnini, C., Bijl, P. K., Frieling, J., **Huber, M.**, Peterse, F., and Sluijs, A.: Polar amplification of orbital-scale climate variability in the early Eocene greenhouse world, *Clim. Past*, 20, 1303–1325, <https://doi.org/10.5194/cp-20-1303-2024>, 2024.
- 139) Teshome, H., Tesfaye, K., Dechassa, N., Tana, T., & **Huber, M.** (2024). Modeling the Impact of Climate Change on Maize (*Zea mays* L.) Production and Choice of Adaptation Practices in Eastern Ethiopia. *International Journal of Environmental Research*, 18(4), 61.
- 138) Liu, X., Herold, N., & **Huber, M.** (2024). Atlantic meridional overturning circulation influence on the annual mean intertropical convergence zone location in the Miocene. *Geophysical Research Letters*, 51(9), e2024GL109159.
- 137) Franks, P. J., Herold, N., Bonan, G. B., Oleson, K. W., Dukes, J. S., **Huber, M.**, ... & Jones, S. (2024). Land surface conductance linked to precipitation: Co-evolution of vegetation and climate in Earth system models. *Global Change Biology*, 30(3), e17188.
- 136) Acosta*, R. P., Burls, N. J., Pound, M. J., Bradshaw, C. D., De Boer, A. M., Herold, N., et al. (2024). A model-data comparison of the hydrological response to Miocene warmth: Leveraging the MioMIP1 opportunistic multi-model ensemble. *Paleoceanography and Paleoclimatology*, 39, e2023PA004726.

2023

- 135) Cenozoic CO₂ Proxy Integration Project (CenCO₂PIP) Consortium*†, Hönisch, B., Royer, D. L., Breecker, D. O., Polissar, P. J., Bowen, G. J., ... & Zhang, L. (2023). Toward a Cenozoic history of atmospheric CO₂. *Science*, 382(6675), eadi5177.
- 134) Kong*, Q., & **Huber, M.** (2023). Regimes of Soil Moisture–Wet-Bulb Temperature Coupling

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with Relevance to Moist Heat Stress. *Journal of Climate*, 36(22), 7925-7942.

- 133) Vecellio, D. J., Kong,* Q., Kenney, W. L., & **Huber, M.** (2023). Greatly enhanced risk to humans as a consequence of empirically determined lower moist heat stress tolerance. *Proceedings of the National Academy of Sciences*, 120(42), e2305427120.
- 132) Baldos, U. L. C., Chepeliev, M., Cultice, B., **Huber, M.**, Meng, S., Ruane, A. C., ... & van der Mensbrugghe, D. (2023). Global-to-local-to-global interactions and climate change. *Environmental Research Letters*, 18(5), 053002.

2022

- 131) Liu, X., **Huber, M.**, Foster, G. L., Dessler, A., & Zhang, Y. G. (2022). Persistent high latitude amplification of the Pacific Ocean over the past 10 million years. *Nature Communications*, 13(1), 7310.
- 130) Vervoort, J.M., Milkoreit, M., van Beek, L., Mangnus, A.C., Farrell, D., McGreevy, S.R., Ota, K., Rupprecht, C.D., Reed, J.B. and **Huber, M.**, 2022. Not just playing: The politics of designing games for impact on anticipatory climate governance. *Geoforum*, 137, pp.213-221.
- 129) Hoem, F. S., Sauermilch, I., Aleksinski*, A. K., **Huber, M.**, Peterse, F., Sangiorgi, F., & Bijl, P. K. (2022). Strength and variability of the Oligocene Southern Ocean surface temperature gradient. *Communications Earth & Environment*, 3(1), 322.
- 128) Saeed, W., Haqiqi, I., Kong*, Q., **Huber, M.**, Buzan*, J. R., Chonabayashi, S., Motohashi, K., & Hertel, T. W. (2022) The Poverty Impacts of Labor Heat Stress in West Africa under a Warming Climate. *Earth's Future*, e2022EF002777.
- 127) Wang, Y., Lu, H., Yi, S., **Huber, M.**, Yang, F., Gu, Y., ... & Lu, F. (2022). Tropical forcing orbital-scale precipitation variations revealed by a maar lake record in South China. *Climate Dynamics*, 58(9), 2269-2280.
- 126) Williams, C. J., Lunt, D. J., Salzmann, U., Reichgelt, T., Inglis, G. N., Greenwood, D. R., ... & Otto-Bliesner, B. L. (2022). African hydroclimate during the early Eocene from the DeepMIP simulations. *Paleoceanography and Paleoclimatology*, e2022PA004419.
- 125) Jyothi, L., Joseph, S., **Huber, M.**, & Joseph, L. A. (2022). Distinct Oceanic Responses at Rapidly Intensified and Weakened Regimes of Tropical Cyclone Ockhi (2017). *Journal of Geophysical Research: Oceans*, 127(6), e2021JC018212.
- 124) Parkes, B., Buzan*, J. R., & **Huber, M.** (2022). Heat stress in Africa under high intensity climate change. *International journal of biometeorology*, 66(8), 1531-1545.
- 123) Gaskell, D. E., **Huber, M.**, O'Brien, C. L., Inglis, G. N., Acosta*, R. P., Poulsen, C. J., & Hull, P. M. (2022). The latitudinal temperature gradient and its climate dependence as inferred from foraminiferal $\delta^{18}O$ over the past 95 million years. *Proceedings of the National Academy of Sciences*, 119(11), e2111332119. <https://doi.org/10.1073/pnas.2111332119>.

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- 122) Zhang, Y., de Boer, A. M., Lunt, D. J., Hutchinson, D. K., Ross, P., van de Flierdt, T., ... & **Huber, M.** (2022). Early Eocene ocean meridional overturning circulation: the roles of atmospheric forcing and strait geometry. *Paleoceanography and Paleoclimatology*, e2021PA004329.
- 121) Kong*, Q., & **Huber, M.** (2022). Explicit calculations of wet-bulb globe temperature compared with approximations and why it matters for labor productivity. *Earth's Future*, 10, e2021EF002334. <https://doi.org/10.1029/2021EF002334>
- 120) Teshome, H., Tesfaye, K., Dechassa, N., Tana, T., & **Huber, M.** (2022). Analysis of Past and Projected Trends of Rainfall and Temperature Parameters in Eastern and Western Hararghe Zones, Ethiopia. *Atmosphere*, 13(1), 67.

2021

- 119) Filippelli, G., Beal, L., Rajaram, H., AghaKouchak, A., Balikhin, M. A., Destouni, G., ... & Zhang, M. (2021). Geoscientists, Who Have Documented the Rapid and Accelerating Climate Crisis for Decades, Are Now Pleading for Immediate Collective Action. *Geophysical Research Letters*, 48(21), e2021GL096644.
- 118) Wang, Y., Lu, H., Yi, S., **Huber, M.**, Yang, F., Gu, Y., ... & Lu, F. (2021). Tropical forcing orbital-scale precipitation variations revealed by a maar lake record in South China. *Climate Dynamics*.
- 117) Teshome, H., Tesfaye, K., Dechassa, N., Tana, T., & **Huber, M.** (2021). Smallholder farmers' perceptions of climate change and adaptation practices for maize production in eastern Ethiopia. *Sustainability*, 13(17), 9622.
- 116) Daher, H., Arbic, B. K., Williams, J. G., Ansong, J. K., Boggs, D. H., Müller, M., ... & **Huber, M.** (2021). Long-term Earth-Moon evolution with high-level orbit and ocean tide models. *Journal of Geophysical Research: Planets*, e2021JE006875.
- 115) Burls, N. J., Bradshaw, C. D., De Boer, A. M., Herold, N., **Huber, M.**, Pound, M., et al. (2021). Simulating Miocene warmth: Insights from an opportunistic Multi-Model ensemble (MioMIP1). *Paleoceanography and Paleoclimatology*, 36, e2020PA004054. <https://doi.org/10.1029/2020PA004054>.
- 114) de Lima, C. Z., Buzan*, J. R., Moore, F. C., Baldos, U. L. C., **Huber, M.**, & Hertel, T. W. (2021). Heat stress on agricultural workers exacerbates crop impacts of climate change. *Environmental Research Letters*, 16, 044020.
- 113) Asoka, A., Wardlow, B., Tsegaye, T., **Huber, M.**, & Mishra, V. (2021). A satellite-based assessment of the relative contribution of hydroclimatic variables on vegetation growth in global agricultural and nonagricultural regions. *Journal of Geophysical Research: Atmospheres*, 126, e2020JD033228. <https://doi.org/10.1029/2020JD033228>.

2020

- 112) Steinthorsdottir, M., H. K. Coxall, A. M. de Boer, **M. Huber**, N. Barbolini, C. D. Bradshaw, N. J. Burls, S. J. Feakins, E. Gasson, J. Henderiks, A. Holbourn, S. Kiel, M. J. Kohn, G. Knorr,

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W. M. Kürschner, C. H. Lear, D. Liebrand, D. J. Lunt, T. Mörs, P. N. Pearson, M. J. Pound, H. Stoll, C. A. E. Strömberg, The Miocene: The future of the past, *Paleoceanography and Paleoclimatology*, <https://doi.org/10.1029/2020PA004037>.

- 111) Hutchinson, D. K., Coxall, H. K., Lunt, D. J., Steinthorsdottir, M., de Boer, A. M., Baatsen, M., von der Heydt, A., **Huber, M.**, Kennedy-Asser, A. T., Kunzmann, L., Ladant, J.-B., Lear, C. H., Moraweck, K., Pearson, P. N., Piga, E., Pound, M. J., Salzmann, U., Scher, H. D., Sijp, W. P., Śliwińska, K. K., Wilson, P. A., and Zhang, Z.: The Eocene–Oligocene transition: a review of marine and terrestrial proxy data, models and model–data comparisons, *Clim. Past*, 17, 269–315, <https://doi.org/10.5194/cp-17-269-2021>, 2021.
- 110) Kim, S. L., Zeichner, S. S., Colman, A. S., Scher, H. D., Kriwet, J., Mörs, T., & **Huber, M.** (2020). Probing the ecology and climate of the Eocene Southern Ocean with sand tiger sharks *Striatolamia macrota*. *Paleoceanography and Paleoclimatology*, 35, e2020PA003997. <https://doi.org/10.1029/2020PA003997>.
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¹ Purdue Undergraduate Researcher working with Huber, also DURi scholar

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Dr. Matthew Huber

GRANTS AND AWARDS

I am currently co-PI or PI on grants totaling more than \$ 7M.

Current

NSF- Belmont Forum 2537481-RISE Collaborative Research: IMProving Heat-Health RESponse in South Asia

Dates 08/15/25-07/31/2028

Amount \$595,666 (Huber PI, funds to Purdue)

NSF-SNSF 2436683-OCE: Past warm climates: Reconciling simulations and proxies

Dates 09/01/24-08/30/2028

Amount \$359,809 (Huber PI, funds to Purdue)

NATO SPS Unravelling the Cyber-Physical-Social Infrastructure

Climate Change (CPSICC) Nexus Workshop

Dates 03/01/2024-09/31/2025

Amount \$ 71,490

NSF 2321090-OAC Collaborative Research: SC�PE: CyberInfrastructure professionals Innovating and broadening the adoption of advanced Technologies (CI PIVOT)

Dates 10/01/23-09/30/2028

Amount \$3,749,415 (Huber co-PI, Funds to Purdue)

NSF 2217530-OCE NSFGEО-NERC Collaborative Research: Solving the conundrum of the Miocene South Asian Monsoon

Dates 09/01/2022-08/31/2026

Amount \$327,974.00 (Huber PI, all funds to Purdue)

NASA FINESST Investigating physical mechanisms relating soil moisture to moist heat stress

Dates 09/01/2022-05/31/2025

Amount \$150,000 (Huber PI, funds support Qin Qin Kong Phd Student)

NSF 2230092-OAC Collaborative Research: CyberTraining: Implementation: Medium: Cyber Training for Open Science in Climate, Water and Environmental Sustainability

Dates: 01/01/2023-12/31/2025

Amount \$847,844 (Huber is Senior Personnel, all funds to Purdue, Huber part is \$75k)

NSF 2020635-OISE AccelNet:GLASSNET: Networking Global to Local Analyses to Inform Sustainable Investments in Land and Water Resources

Dates: 1/1/2021-12/31/2026

Amount \$1,999,991.00 (Huber, co-PI; funds to Purdue)

Past

NSF 1842059-ANT Collaborative Research: Integrating Eocene Shark Paleoecology and Climate Modeling to reveal Southern Ocean Circulation and Antarctic Glaciation

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Dr. Matthew Huber

Dates: 05/01/2019-04/30/2024
Amount \$296,757 (Huber PI, all funds to Purdue)

NSF 1829764-OAC CyberTraining: CIU:Cross-disciplinary Training for Findable, Accessible, Interoperable, and Reusable (FAIR) science

Dates: 7/20/2018 - 8/31/2024
Amount \$498,148 (Huber Co-PI, all funds to Purdue)

NSF 1805808-CBET Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS: U.S.-China): A multi-scale integrated modeling approach to managing the transition to sustainability

Dates: 5/1/2018 - 4/30/2024
Amount \$488,341 (Huber PI, all funds to Purdue)

NSF 1602905- OCE Collaborative Research:P2C2:Reassessing Pliocene and Miocene warm climates and identifying the 'missing physics' to explain them

Dates: 08/01/2016 - 07/31/2020
Amount \$244,363 (Huber PI, all funds to Purdue)

EPS 1101245 - EPSCoR Ecosystems & Society: Interactions Among Climate, Land Use, Ecosystem Services and Society (SubAward to Huber)

Dates: 09/1/2011 - 08/31/2016
Amount \$338,079.00 (subaward out of \$20M overall)

1049921-EAR Collaborative Research: Improved Cenozoic paleoelevation estimates for the Sierra Nevada, California: Linking geodynamics with atmospheric dynamics

Dates: 09/15/2011 - 08/31/2015
Amount \$210,187.00

0927946-ATM Collaborative Research: The Role of Deep-Ocean Circulation in Greenhouse Climates: Integrating Numerical Simulations with Proxy Data of Water Mass Composition

Dates: 08/15/2009 - 07/31/2012
Amount \$55,663.00

0902780-ATM Collaborative Research: Understanding the Role of a High-Latitude Convective Cloud Feedback in Equable and Future Climate Dynamics

Dates: 06/15/2009 - 05/31/2012
Amount \$188,021.00

0902882-OCE Collaborative Research: Integrating proxies and Earth System Models to elucidate water cycle dynamics: Did global warming cause an enhanced hydrological cycle in the Eocene?

Dates: 8/1/09 - 7/31/12
Amount \$472,346.00

NSF ATM SGER: Testing the Tropical Cyclone-Induced Ocean Heat Pump Hypothesis in CCSM

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Dr. Matthew Huber

Dates: 7/15/07-7/14/08
Amount \$37,806

NSF ATM Collaborative Research: Water Balance of Western North America:
Dynamics of the Miocene Summer Monsoon (co-PI)

Dates: 2/15/05 – 1/31/08
Amount \$230,060

NSF ATM Sub-daily Scale Extreme Precipitation in Future Climate-change Scenarios: A
Pilot Study (co-PI)

Dates: 2/1/06 – 1/31/08
Amount: \$275,075

UCAR/NSF Equipment to Enhance the Capacity to Process and Disseminate Value-added
Weather Data at Purdue University (co-PI)

Dates: 7/11/05 – 6/15/06
Amount: \$10,362

Purdue Integrating Models of Climate Change for Cross-Disciplinary Learning,
Teaching and Learning with Technology Program (co-PI)

Dates: 5/05-5/06
Amount: \$8750

IBM IBM Faculty Award (PI)

Dates: 12/22/04
Amount: \$40,000

PRF The effects of tropical cyclones on climate (PI)

Dates: 8/16/04–8/15/06
Amount: \$29,627

NSF ATM SGER: construction of ‘deep’ paleoclimate Community Climate System Model
(CCSM) simulations (PI)

Dates: 7/04-1/06
Amount \$31,374

Dr. Matthew Huber

PROFESSIONAL ACTIVITIES

Professional Affiliations

- American Geophysical Union 1997-present
- Community Climate System Model (CCSM) Paleoclimate Working Group 1998-present
- American Meteorological Society 2007-present
- AAAS 2016-present

Meetings and Conferences Organized, Conference Sessions Chaired (Selected)

- 3rd DeepMIP meeting, 4th – 6th July 2018, Bristol, UK.
- Session co-chair/co-convener, *GC13F: Novel Research Approaches in Climate-Driven Heat Stress: Implications for Geohealth, Infrastructure, and Labor Posters*, AGU, New Orleans, Dec. 2017.
- Session co-chair/co-convener: *S7: Universities as catalysts for change and community building around the Sustainable Development Goals*, Impacts World 2017, Potsdam, Oct 2017.
- Session co-chair/co-convener, *Linking Downscaled Climate Variables to Extreme Events, Land Surface Hydrology, Ecosystems, Ecosystem Services and Human Health*, AGU, San Francisco, Dec., 2015.
- Session co-chair/co-convener, *Tides and ocean mixing: past, present, future*, AGU Ocean Sciences, Honolulu, Feb., 2014.
- Session co-chair/co-convener, *Past Climates and Current Weather Events*, AGU, San Francisco, Dec., 2012.
- Session Co-Chair/Co-Convener, *Undiscovered Climates of Earth*. AGU, San Francisco, Dec., 2010.
- Conference Scientific Committee, *Climatic and Biotic Events of the Paleogene*, major international conference, held in Wellington, New Zealand, January 12-15, 2009.
- Conference Co-convener, *Palaeogeography: The spatial context for understanding evolution of the Earth System*, an international Joint Research Conference sponsored by the Geological Society of London and the Society of Sedimentary Geology (SEPM), held at St. Johns College, Cambridge University, August 11-13 2008.
- Session Co-Chair/Co-Convener, *Tropical Cyclone-Climate Interactions on All Time scales*. AGU, San Francisco, Dec., 2006.
- Session Co-Chair/Co-Convener, *Pole-Equator-Pole: Proxy and Modeling Perspectives on Cenozoic Climate Transitions*. AGU, San Francisco, Dec., 2005.
- Session Co-Chair/Co-Convener, *From Greenhouse to Icehouse: Paleogene Global Change, Phytoplankton Response, and Atmospheric Carbon Removal*. AGU, San Francisco, Dec., 2004.
- Co-Chair/Co-Convener, CCSM Paleoclimate Working Group meetings, June 2004 (Santa Fe, NM), June 2005 (Breckenridge, CO); February 2006 (Madison, WI).

Summer Schools

- Founding lecturer, Lecturer and Steering Committee for the Urbino Paleoclimate Summer School, University of Urbino, Italy, July 2004, 2006-8, 2010, 2012, 2014-17, 2025. >60 graduate students, post-docs and industry researchers attended from around the world each year. (<http://www.uniurb.it/ussp/>)

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- Lecturer, Princeton/GFDL AOS program, three-day workshop for graduate student and post-doc training entitled “Challenges in applying present atmospheric models to study extreme climate scenarios”, Aug. 2015, Forestal Campus, Princeton, NJ.
- Lecturer: EUROPROX International Graduate College Proxies in Earth History, April, 2005. EUROPROX is a co-operation between Dutch, French, English, American, and German research groups who join their expertise to approach the development, evaluation and application of marine palaeo-environmental proxies.
- Lecturer: Earth System Science Summer School, August 2002, Borno, Sweden.

Overview of Other Synergistic activities

- Ongoing. I review ~10 paper per year in addition to my editorial duties. In the past 10 years I've reviewed papers for *Climate Dynamics*, *Geology*, *Journal of Geology*, *Paleoceanography*, *Earth and Planetary Science Letters*, *Tellus*, *Cretaceous Research*, *Geophysical Research Letters*, *Journal of Climate*, *Science*, *Nature*, *Nature Geoscience*, *Nature Climate Change*, *American Journal of Science*, *Earth Science Reviews*, *Proc. National Acad. Science*, *Journal of Geoscience Education*, *Paleo*³, *Journal of Physical Oceanography*, *J.G.R. Oceans*. I also review books for Princeton University Press, Columbia University Press, and others.
- I was guest editor for a special issue of *Geochemistry*, *Geophysics*, *GeoSystems* on tropical cyclone and climate interactions on across time scales (2008).
- From 2004, I was in charge of one of the 3 national streams of Level II Doppler radar data from the National Weather Service, FAA, and DOD to downstream clients including private industry, universities and other partners. The data were provided without charge as a free service to downstream university partners and was used in teaching and research in atmospheric science departments throughout the country. To broadly disseminate the results of my research I collaborated with Purdue's Information Technology staff to create an online, and Teragrid-enabled Data Portal to house climate model output and Doppler Radar Data. This information was subsequently moved to mygeohub.org and PURR.
- I was participant/presenter in two NSF-sponsored workshops the “Geosystems Workshop” at NSF (2004), and the “Paleoelevation” Workshop held at Lehigh University (2005). White papers emerged from these workshops that used by the community and NSF.
- I was a participant/presenter at a workshop in Bremen, Germany “Towards an integrated data modeling perspective on Miocene Climate Change” (2006), from which emerged a commitment to produce a consensus, open, and freely available set of paleogeographic boundary conditions for Miocene paleoclimate modeling. These conditions were developed by Huber in collaboration with a group at the University of Sydney (You, Herold, Mueller) as described in the Herold et al, 2008.
- In 2005, I presented at an “Advisory Council on Nuclear Waste” Meeting with regards to long term climate assessments for the Yucca Mountain Nuclear Repository. My testimony entered into the official Nuclear Regulatory Commission record, and it appears to be affecting aspects of the national policy on the future of the Yucca Mountain project.

Dr. Matthew Huber

TEACHING, LEARNING, MENTORING

Huber's Teaching Statement

Philosophy: Excellence in teaching and mentoring are two of Professor Huber's primary goals. His approach is informed by the wide variety of teaching and mentoring styles and subject matter encountered over the course of his academic career, first as a Geophysics undergraduate at the University of Chicago, then as an Atmospheric Sciences graduate student at UC Los Angeles, and again as an Earth Sciences student (this time as Ph.D. student) at UC Santa Cruz. Drawing from these disparate experiences he has reflected on the learning process and honed his skills as a professor over the past 22 years.

This experience has inculcated into him the necessity that a professor must following these guidelines in teaching

- (1) be enthusiastic as well as knowledgeable;
- (2) provide access to primary sources and provide tools to visualize and interact with data and models rather than have students sit passively by;
- (3) encourage a critical but ultimately rational approach to learning, in which ideas are evaluated based on their merits rather than arbitrarily; and
- (4) there is more than one way to learn and many ways a student can excel if given the chance - a teacher and mentor must give students these opportunities.

Huber was inspired to be a professor because of excellent mentoring in research as an undergraduate and in his subsequent graduate work. He endeavors to provide the same generous and rigorous advising he received. He has a couple basic principles in research mentorship:

- (1) Treat all student researchers as the future colleagues they are;
- (2) Treat them fairly, with respect, and by ramping up their responsibilities so that they are always working at the edge of their capabilities.
- (3) Provide students with connections and opportunities (working with other faculty, going to summer schools and workshops, presenting at international meetings).
- (4) Encourage publishing and the creation of tangible work products.

Vision: Rapid advances in the vastly multi-disciplinary fields grouped under the heading of 'global environmental change' are challenging to communicate to a broader audience. As the body of knowledge in these respective disciplines has deepened, the ability of scientists and students to keep up in both has flagged, leading inevitably to over-narrowing of student education or the watering-down of overly broad curricula. This process of deepening, focusing, and diverging is natural in science. But for the continued health of the disciplines, steps need to be taken to prevent balkanization and to teach the next generation of scientists and non-scientists to better grasp broader fields of knowledge.

Strategy: I have adopted a two-tiered strategy to work to bridge this gap. First, I have implemented graduate and undergraduate curriculum reforms and learning innovations at two universities designed to entrain the next generation of scientists into cross disciplinary climate/environmental science. Second, these efforts have been disseminated through a broad teaching and engagement effort to communicate the state-of-the-art at levels appropriate for scientists and nonscientists.

Overview of Purdue Teaching

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Dr. Matthew Huber

The Earth, Atmospheric, and Planetary Sciences Department (EAPS) is a combined geology, paleontology, environmental science, education, and atmospheric sciences department. The majority of EAPS atmospheric sciences undergraduate students are interested in careers in synoptic meteorology, but it is our experience that exposure to other disciplines and career paths is beneficial to all our students and frequently leads to a broadening of interests and future career prospects. My goal has been to develop a program appropriate for studying climate and climate change and growing the sustainability and resilience educational base at Purdue.

I am an educating innovator in EAPS. Since arriving at Purdue in 2003, I developed 12 new courses at the graduate and undergraduate levels, many of these I have turned over in perfect running order to other, often junior, faculty (e.g. 117, 106, 221, 320, 327).

- EAPS 59100-128 Systemic Risk & Resilience In Coupled Human-Natural Systems. Spring 2026. ~15 students, mixture grads and undergraduates.
- EAPS 591: Paleoclimates. Fall 2024. ~15 students, mixture grads and undergraduates.
- EAPS 117: Introduction to Atmospheric Science: Fall 2021, Fall 2022, Fall 2023
- EAPS 420: Climate Modeling: Spring 2021
- EAPS 327: Climate Science and Society: Fall 2016, 2017. ~60 CoS majors, 2018-2020, Online version with ~200 students
- EAPS 106 Geosciences in the Cinema: Fall 2012. ~120 non-science majors.
- EAPS 221: Survey of the Atmosphere: Fall 2003. ~180 non-science majors.
- EAPS 320: Physics of Climate: Spring, 2004-2007, 2009, 2010. 15-25 undergrad majors.
- EAPS 403: Oceanography, Fall 2007, 5 grads and undergrads.
- EAPS 420: Global Climate Modeling: Fall, 2008. ~5 grads, 10 undergrads.
- EAPS 520: Theory of Climate: Fall 2004. ~8 grads.
- EAPS 591: Eocene-Oligocene Climate Change. Fall 2004. 4 grads.
- EAPS 591: Proposal Writing for Graduate Students: Fall 2003, 2004, 2009. ~15 grads.
- EAPS 591: Modeling in Climate Change Science and Policy: Spring 2006/2008, Fall 2009, Fall 2011. ~20-35 grad/undergrad students.
- EAPS 591: Soil Moisture and Climate Interactions: Spring 2007. 12 grad/undergrad students.

Selected Discussion of Courses

EAPS 59100-128 Systemic Risk & Resilience In Coupled Human-Natural Systems

This course will be taught for the first time in Spring 2026. This transdisciplinary graduate seminar explores the dynamics of systemic risk and resilience in coupled human-natural systems. Students will examine how climate, food-energy-water systems, technology, and social-economic-political institutions interact and learn to enhance systems resilience & security.

The course emphasizes critical reading, open-ended reasoning, collaborative discussion, and the design of simulation exercises to model interactions and resilience strategies. We will explore and adopt a variety of approaches, including: risk assessments, security and deterrence framings, strategic foresight analysis, adaptation plans. We will emphasize overall systems behavior while doing deep dives into individual systems of interest to the students. Likely topics include: cyber, critical materials, food-energy-water and climate security, social, financial and political institutions, and information integrity. Students from any department or college are welcome.

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EAPS 591. Paleoclimates

This was a new course at the graduate level, which had wide uptake (15 students including ~4 undergrads). Huber developed this as a graduate level course, but almost none of the students had any background in paleoclimate so the course was structured to be accessible and open-ended in the sense that everyone came into it with someone and left with something more, but the starting point and end point was different for everyone.

From the syllabus:

This is a graduate level course that will explore the character and causes of past Earth climates and climate change. Each week, we will focus on a new time interval and/or methodology in reconstructing climate or aspects of the climate system. Students are required to read a minimum of 2 to 3 scientific papers to participate in active discussions during class. Some lectures will be given by the instructor, but for the most part, topics will be reviewed and summarized in detail by students. The students responsible for the topic will read additional articles and materials to prepare as the "expert" on the subject matter. "Experts" will be responsible for a PowerPoint presentation on the topic during the day of discussion, as well as a written summary review (~half to one page) and at least 5 questions that will help guide others through the material. The summary and questions will be provided to the rest of the class one week before their topic is discussed. The rest of the class is responsible for reading the Primary Articles in detail (and can be called on to demonstrate that through discussion and clarification), and the Secondary Articles in less detail.

Course Objectives:

Investigate past climate conditions and climate change mechanisms.

Critically analyze scientific literature and data related to paleoclimatology.

Develop expertise in presenting and discussing paleoclimate topics.

Foster collaborative learning through student-led discussions and presentations.

EAPS 117. Introduction to Atmospheric Sciences.

This course had been taught for many years by Ernie Agee and without using a textbook or having a well elucidated syllabus or set of course outcomes. Huber reformulated the course from scratch including adopting a coursebook and online course materials. Students seemed happy and course evaluations were good.

EAPS 327. Climate Change Science and Policy

Huber has taught EAPS 327 a CoS "Great Issues" course meant to teach undergraduates about climate change within a broader ethical, political, and economic framework. He taught it first in 2017 and then worked in 2018 to turn this into an Online course, so that it can scale up to meet CoS needs and taught it also in Summer 2018 for the same reason. More details follow. He has now taught it in Fall 2018, Fall 2019, Fall 2020.

The effort to take 327, which includes open-ended research projects, group discussions on ethical and political issues, public presentations, essays and lengthy written assignments into an online format was formidable. After receiving a special Digital Education agreement for this purpose and in consultation with the Dept Head, Huber spent extensive time throughout 2018 on this course development. Since this was intended as an 8 week course, it also required cutting the normal 16 week lecture format to a very efficient format. To test out the streamlined version of the online course (in an in-person format, and before videotaping) Huber taught the course as a 4-week in

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person lecture during Maymester 2018 and then spent much of the rest of the summer and early part of fall semester developing the finalized product. This required weekly or biweekly meetings with online education staff from various departments, extensive videotaping (13 hours of lectures after editing), editing, creating of “Playposit” questions for assessment, etc. Teaching the online course itself was quite an intense experience because of all the moving parts: weekly online discussion, essays and assignments to grade, video presentations to grade, etc. There were many technical problems and some approaches that simply did not work well in an online format and needed to be revised before the course was taught again in the Fall 2019.

For Fall 2019, enrollment was increased slightly from 2018 and “Playposit” was cancelled the first week of class, so all the videos modules had to be redone in a hurry (this involved substantial changes to how inline quizzes were handled and to grading). The ¼ TA for the course was rather inexperienced and problematic and was slow to grade and generally contributed little to the course evaluation, so the additional load fell on the instructor. Generally speaking, it is difficult to teach a 200 student course with 10-15 page term papers and written essay midterms, with an undergrad grader and a ¼ TA.

For Fall 2020, the course was divided into two completely independent sections and 1 TA awarded for both (which was equivalent to a ½ TA which was an improvement). Due to high demand a 3rd section was added which was taught by a limited term lecturer, and Huber worked with her to get up and running in the course and filled in where assistance was needed (only on occasional issues).

EAPS 591. Graduate level Fair Data course

For Fall 2019, Huber as developed and taught a new graduate level course on FAIR data principles and practices. This was done ‘from scratch’ as part of an NSF funded graduate training grant.

EAPS 191. EAPS Data Mine Fair Data

For Fall 2019, Huber developed and taught another course (1 credit). While overlapping in subject matter to a small degree with the graduate FAIR course, this was at a much more basic level, and included introductions to Unix and computing environments, jupyter notebooks, github, PURR, and general principles of open-ness and reproducibility in science.

EAPS 320. Physics of Climate

After consultation with the atmospheric sciences faculty and the then department head (and voted upon by the faculty) a new requirement for all atmospheric science majors, *Physics of Climate*, designed and taught by Huber, was added. This course uses the Peixoto and Oort (or similar) book, and emphasizes fundamental physical principles compared with observations, the pedagogical technique emphasizes teaming and authentic learning principles. The course is taught in a computer lab and students (usually about 20) engage in programming exercises using the NCAR Command Language (an IDL or Matlab-like interpreted language) nearly every class period. A major final project that emphasizes accomplishing a genuine research result makes up most of the course grade.

EAPS 520. Theory of Climate

At the upper undergraduate/lower graduate level, Huber developed a second course, *Theory of Climate* (which was already on the books), with the same basic approach as the lower-level *Physics of Climate* course. The course presumes advanced mathematics and physics understanding and is less descriptive and more quantitative and covers more ground, but bears much in common with the previous course. More physical oceanography and basic baroclinic instability and turbulence

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theory is taught.

EAPS 591F. Proposal Writing in the Earth and Atmospheric Sciences

Huber developed a course in *Proposal writing*, which was co-taught with Andy Freed (solid earth scientist) at the graduate level for two years. This is a writing and peer-review intensive course with active student involvement. This course has consistently had one of the largest enrollments (~13) of graduate courses offered in EAPS in the past several years. To ensure proper attention is paid to technical writing improvement, an English Ph.D. student was hired as T.A. for the course. Students are led through the process of writing 1 page (AGU or AMS-style) abstracts to a full 15 page NSF-style proposal. Some students arrive in this course near the beginning of their graduate careers, in which case this is an excellent opportunity to develop a Ph.D. proposal. Some come in towards the end, in which case they learn valuable job skills. Some use this as an opportunity to receive exhaustive peer review of a chapter of their dissertation. At least one student received a full external fellowship based on her excellent hard work in the class (an EPA fellowship).

EAPS 591M. Models in Climate change Science and Public Policy

Huber engaged in significant preparation activities for a cross-disciplinary, cross-college course in *Models in Climate Change Science and Public Policy* (with Leigh Raymond), which was taught in Spring 2006 and was taught again in 2008. The course gathers students working in natural and social sciences to study and analyze climate issues. A key requirement of the class is having students work in teams of ~3 on semester-long projects to generate climate policy recommendations, based on their own analysis of output from an integrated suite of scientific, economic, and political models of climate change impacts. By requiring students to work directly with these models, rather than simply hearing lectures about them, the course also embraces an “active learning” pedagogy that has been widely cited as more effective than standard lecturing techniques. This course is taught at the advanced undergraduate/graduate level with students ranging from political science undergraduates to synoptic meteorology students and we insisted in having a strong authentic learning-based approach.

EAPS 519. Soil Moisture and Climate Interactions

In spring 2007, Huber taught a graduate level course on hydroclimatology from the point of view of relating soil moisture to climate through its associated processes and feedbacks. Students are drawn from Civil Engineering, Agronomy, EAPS, Agricultural and Biological Engineer, and Environmental Studies, making this an exciting and multi-disciplinary course. The course is half lectures and half discussion of current papers in the field. The course will be completed by final group project that will involve analyzing climate and soil model output to studying the relationship between climate change and soil hydrology.

Graduate Students and Post-Doctoral Scientists (Huber supervisor)

Huber has a highly selective and successful graduate research program. Huber has focused on having a program with world-class quality. He prefers to have a few excellent students and post-docs in his group who are in high demand rather than flood the market with clones. His group consists of two-to-three students and a post-doc or research scientist at a time. This allows him to give the group members substantial attention one-on-one and to make sure their experience is the best it can be. He typically schedules a 1-2hour meeting individually with each group member per week, plus a 1 hour all group meeting every week. He also believes that a crucial aspect of good graduate supervision is to encourage publishing and always give students (and post-docs and untenured faculty for that matter) the opportunity to do the work necessary to be lead author and

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to have students give as many lectures and attend as many national and international meetings as possible.

Graduate Students

- **Adam Aleksinski** (Phd Student continuing)
- **Carly Frank** (Phd Student continuing)
- **Qin Qin Kong** (PhD Purdue 2024)
 - Now post-doc at Stanford University
- **Jon Buzan** (Ph. D Purdue 2018)
 - began at Purdue 2010 received MS 2013, then post-doc at University of Bern
- **Paul Acosta** (Ph. D. Purdue 2018)
 - began 2012 received MS 2013, post-doc with Chris Poulsen at University of Michigan, now post-doc with Natalie Burls at GMU)
- **Ashley Dicks** (MS Purdue 2019)
 - now JEDI software engineer NCAR
- **Aaron Goldner** (PhD. Purdue 2013)
 - 2013-2014 AGU Congressional Science Fellow working with Senator Sheldon Whitehouse, 2014-2015 AAAS Science and Technology Fellow, U.S. Department of Energy, 2015-2021 Advisor on Energy Policy to Senator Sheldon Whitehouse, 2021-present, Professional Staff United States Senate Committee on Appropriations)
- **Ruben van Hooidonk** (Ph.D. Purdue 2009)
 - awarded NRC NOAA postdoctoral fellowship, then NOAA research scientist.
- **Aisha Reed** (M.S. Purdue 2005).
 - Received a Congressional Black Caucus Congressional Fellowship (1-year in a congressional office in Washington, D.C.). This is a highly prestigious and competitive one-year award that places her in Washington, D. C. working closely with a Congressman. She was working with Bennie Thompson from Mississippi's 2nd District, her home district. He was the ranking Democrat in Homeland Security and in this capacity she wrote a policy paper dealing with FEMA. Subsequently worked toward a PhD in geoinformatics at George Mason University.
- **Ryan Sriver** (Ph.D. Purdue 2007)
 - NOAA Global Climate Change Post-doctoral fellow with Michael Mann at Penn State, Research Faculty Penn State, now Associate Professor at University of Illinois, Urbana-Champaign)

Postdoctoral Advisees:

- **Xiaoqing Liu** (Post-doc, now research scientist at Purdue)
- **N. Herold** (Post-doc)
 - research scientist UNSW, formerly in govt service, now independent consultant;
- **M. Komurcu** (post-doc)
 - formerly research scientist at UNH and MIT; *Climate Science and Applications*

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Dr. Matthew Huber

Lead NASA Earth Exchange).

- **Srinath Krishnan** (post-doc)
 - now research scientist at University of Oslo

Graduate Student Advising Committee

Valentina Castaneda (Phd Purdue, EAPS, continuing)

Emily Barber (Phd Purdue, EAPS, continuing)

Zhaoyu Liu (Phd Purdue, EAPS, continuing)

Funing Li (Phd Purdue, EAPS, Awarded)

Kuang-Yu Lu (Phd Purdue, EAPS, Awarded)

Gabriele Laconte (Phd UC Merced, EPS, Awarded)

Carlisle Wishard (Phd Purdue, EAPS, Awarded)

Wajiha Saeed (Phd Purdue, AgEcon, Awarded)

Yang Zhang (PhD Purdue, EAPS, Phd Awarded)

Anamika Shreevastava (PhD Purdue, Civil Engr)

Advait Godbole (PhD Purdue, EAPS, dropped out)

Justin VanDeVeld (PhD Purdue, EAPS, 2012)

Sultan Ahmed (Purdue Phd Engineering, 2013)

Nick Herold (PhD University Sydney, 2010)

Vimal Mishra (Purdue Phd, 2010, Ag)

Ben MacCall (Ph.D. 2006 Purdue, EAPS)

Brooke Halvorson (MS 2006, Purdue, EAPS)

Ki-Hong Min (Ph.D. 2006, Purdue, EAPS)

Sarah Anderson-Bereznicki (M.S. 2006, Purdue, EAPS)

Jeroen Warnaar (Ph.D. 2006, University of Utrecht, The Netherlands)

Undergraduate Researchers

Huber is passionate about mentoring undergraduates in research and has worked hard to ensure that students in EAPS interested in climate have opportunity for hands-on serious research projects with lots of one-on-one time. He has consistently been involved in Discovery Park Undergraduate Research Internship (DURI) programs by mentoring students and giving lectures to the DURI program interns. His students have given presentations at international meetings, won awards, and published papers. Many have gone on to graduate school and successful careers in and out of science. Some of his students over the years are described below.

Purdue

Grace Kowalski (2023, PhD student at Johns Hopkins in 2023)

Jordan Macisaac (2021-2023, MS student in UK in 2023)

Gozde Iloglu (2020-2022, will be PhD student in Hamburg in 2024)

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Alex Richardson (2022)

Suyash Uppal (2021-2022)

Amanda Sheffield (2005)—received PhD at CSU and is now Regional Drought Information Coordinator at NOAA National Integrated Drought Information System (NIDIS)

Jesse Nusbaumer (2006-2008)—Phd from CU Boulder, NSF graduate research fellowship recipient, then at NASA GISS, now at NCAR.

Joe Pavich (2006-2007)

Jeff Neuffer (2010)

Juan Crespo (2010-2012), PhD at University of Michigan, now at JPL.

Zachary Zobel (2011-2012) Phd University of Illinois; Now at Woods Hole Research Center.

James Parish III (2011-2012) TV meteorologist

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ENGAGEMENT AND OUTREACH

It is an important duty to interact as much as possible with the public to convey the important scientific issues. Consequently I have developed a large portfolio of outreach, engagement and dissemination activities.

- I have been actively engaged with press on current topics in heat stress nationally and internationally with many outlets recently:
 - <https://www.nytimes.com/2024/10/25/health/heat-tolerance-climate-change.html>
 - <https://www.reuters.com/business/environment/deadly-humid-heat-could-hit-billions-spread-far-us-midwest-study-says-2023-10-09/>
 - <https://www.cnn.com/2023/10/09/us/midwest-moist-heat-stress-humidity-climate/index.html>
 - <https://www.washingtonpost.com/climate-environment/interactive/2023/extreme-heat-wet-bulb-globe-temperature/>
 - <https://www.reuters.com/business/environment/how-is-climate-change-driving-dangerous-wet-bulb-temperatures-2023-08-09/>
 - <https://www.newscientist.com/article/2391326-risk-of-mass-deaths-as-heatwaves-start-to-pass-survivability-threshold/>
 - <https://time.com/6207087/improve-heat-tolerance/>
 - <https://www.foxnews.com/weather/heatwaves-explained-why-some-heat-waves-worse-others>
 - (<https://www.nytimes.com/2022/06/13/climate/extreme-heat-wave-health.html>),
 - (<https://www.nytimes.com/2022/07/14/opinion/environment/heat-waves-india-pakistan-climate-change.html>),
 - <https://www.nytimes.com/interactive/2022/10/26/magazine/climate-change-warming-world.html>,
 - Bulletin of the Atomic Scientists (<https://thebulletin.org/2022/07/extreme-heat-animals-livestock-wildlife/>),
 - Reuters (<https://www.reuters.com/business/healthcare-pharmaceuticals/why-some-heatwaves-prove-deadlier-than-others-2022-08-02/>)
 - Fortune (<https://fortune.com/2022/06/17/heat-waves-around-world-extreme-deadly-climate-change/>),
 - Time (<https://time.com/6207087/improve-heat-tolerance/>)
- And before that,
 - locally in Indiana WFYI/WBAA (<https://www.wfyi.org/news/articles/purdue-expert-says-heat-stress-is-single-biggest-impact-of-climate-change>), IndyStar (<https://www.indystar.com/story/news/environment/2021/07/30/indiana-weather-extreme-heat-put-more-hoosiers-health-risk/8074218002/>)

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- Internationally in the Guardian (<https://www.theguardian.com/us-news/2021/jul/12/health-warnings-as-death-valley-scorches-in-544c-heat>)
- And I Coauthored (with Bob Kopp and Jon Buzan) a New York Times OP-ED piece on heat stress related deaths in India in 2015, http://www.nytimes.com/2015/06/07/opinion/sunday/the-deadly-combination-of-heat-and-humidity.html?_r=0
- In the Atlantic: <https://www.theatlantic.com/health/archive/2012/03/will-the-human-body-be-able-to-adapt-to-rising-temperatures/255223/> and New Scientist (<https://www.newscientist.com/article/dn28392-global-warming-could-make-hajj-impossible-later-this-century/>)
- I have given lectures locally and internationally to lifelong learners and stakeholders:
 - A keynote talk at the March 25, 2010 Conference on “Building Resilience: Post-Disaster Recovery in International Perspective”, sponsored by Center for Global Partnership in collaboration with the Purdue Climate Change Research Center, Homeland Security Institute, the Discovery Park Office of Engagement, and the Department of Political Science.
 - A lecture on climate change to the Ministry for the Environment, Wellington New Zealand, July 2009.
- My research is covered in the following popular science books:
 - My work featured prominently in the climate fiction book, by Kim Stanley Robinson “Ministry for the Future”. (chapter 1).
 - Page 251. *Storm World: Hurricanes, Politics, and the Battle Over Global Warming* by Chris Mooney (award winning author and New York Times bestselling author of “The Republican War on Science”.)
 - Page 173- 187. *Armageddon: Der Einschlag*, by Ralf Blasius and Nadja Podbregar. A book based on the “Super Comet” movie described below.
 - *Sea Sick: The Global Ocean in Crisis* by Alanna Mitchell. This winner of the 2010 Grantham Prize “Honoring exceptional environmental journalism” includes a chapter devoted to my research.
- I have appeared or was expected to appear in the following three movies for popular science audiences:
 - “Super Comet: After the Impact” a 2-hour long full Discovery Channel movie conveying to non-scientists the effects of a dinosaur killer style cometary impact. This movie is in regular rotation on the Discovery Channel. From the Discovery Channel. “On October 24th, 2007 and on the Halloween Night of October 31st, 2007 the Discovery Channel (Europe) aired the two hour docudrama ‘*Super Comet: After the Impact*’. This documentary essentially transfers the events of the Cretaceous Extinction Level Event (E.L.E), that occurred sixty-five million years ago and lead to the demise of the dinosaurs, to the twenty first century. ‘Super Comet’ recreates the fatal disaster that wiped the dinosaurs off the face off the Earth, only it’s not the dinosaurs that are living on planet Earth - it’s us. This remarkable programme gives viewers a chance to see the real effects a ‘Super Comet’ would

Dr. Matthew Huber

have after impact on planet Earth if it were to happen in today's world. What would happen to the human race and the planet itself is told through the dramas of people's lives as well as fascinating interviews with top scientists. This is a dramatic, adrenaline fuelled programme not to be missed!"

- I appeared in an interview as part of a documentary on global warming, by Simon Lamb, formerly entitled "*The Last Trillion Tons*", now called "Thin Ice". The movie is described as, "[Lamb] is producing a film which will feature scientists' perspectives of Earth's changing climate, how and why it is happening, and the options we have for responding. The film was produced and directed by both Simon Lamb and David Sington of award winning DOX Productions, who collaborated to produce the acclaimed 8-hour BBC television series *Earth Story*."
- I worked with Wide-Eyed Entertainment, the creators of the BBC's "Walking with Dinosaurs" series, on a proposal to make a documentary of these extreme global conditions built in part around my Eocene work. Filming of my scenes occurred at the Indiana University campus in April 7, 2011. The provisional title of the movie is 'Super-Snake!'.
- I was profiled for my unique philosophy toward teaching, learning and work. As part of this effort to entrain students into the Earth and Atmospheric Sciences, I did an interview which was published in the New York Time fashion and style section, on work environments. "You Won't Find Me in My Office, I'm Working", By [LISA BELKIN](#). Published: December 13, 2007:
 - <http://www.nytimes.com/2007/12/13/fashion/13Work.html?sq=matthew%20huber&st=nyt&scp=2&pagewanted=all>
 - My unique life story and approach to life and science was profiled in a USA Today article by Rick Callahan, entitled, "Climate scientist sees clues to tomorrow in Earth's past". http://www.usatoday.com/tech/science/discoveries/2005-02-26-ancient-climate_x.htm
 - My work on hurricanes and global warming was also highlighted in the New York Times, "2 Studies Link Global Warming to Greater Power of Hurricanes." By [JOHN SCHWARTZ](#). Published: May 31, 2006.
 - <http://www.nytimes.com/2006/05/31/science/31climate.html?scp=3&sq=matthew+huber&st=nyt>
 - FT: http://www.ft.com/cms/s/0/9afd45fa-ded1-11de-adff-00144feab49a.dwp_uuid=2f2f2698-de6f-11de-89c2-00144feab49a.html
 - NPR: <http://www.npr.org/templates/story/story.php?storyId=100262412>
 - Telegraph: <http://www.telegraph.co.uk/science/science-news/4509284/Scientists-discover-fossilised-remains-of-worlds-longest-snake.html>
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