

# Dr. Shaina Sadai

Pronouns: she/her | [linkedin.com/in/shaina-sadai](https://www.linkedin.com/in/shaina-sadai) | Zip code: 01040

## KEY RESEARCH AREAS AND EXPERTISE

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- **Climate attribution, corporate accountability, and political ecology:** My ongoing research uses climate modeling to attribute temperature and sea level rise to corporate fossil fuel emissions, analyzes corporate and national emissions inventories, assesses agriculture industry efforts to redefine temperature metrics, and critically analyzes the shared tactics of industrial polluters.
- **Scientific support for climate litigation:** As a Fellow at the Science Hub for Climate Litigation I applied my knowledge of climate systems research and sea level science to aid court cases in jurisdictions around the world. I have worked closely with litigators providing scientific support to the nations of Sierra Leone and Mozambique and have co-written legal briefs submitted for cases at the International Court of Justice, International Tribunal for the Law of the Sea, and European Court of Human Rights.
- **Climate and sea level modeling:** I use Earth system models, climate-carbon cycle models, and ice sheet models to project climate and sea level change under future greenhouse gas emissions scenarios. This research characterizes climate feedbacks and tipping points including the global impacts of Antarctic Ice Sheet instability. I developed an innovative two-way coupling of the Community Earth System Model and PSU-3D ice sheet model to assess climate-ice sheet feedbacks. I also use cartographic techniques to map state of the art spatial projections of sea level rise created by coupling ice sheet and solid Earth models.
- **Climate justice research using critical physical geography:** Critical physical geography combines physical and social sciences to conduct interdisciplinary research on science and power dynamics. Working collaboratively with a political scientist I applied justice theory (procedural, distributive, recognition) to analyze the climate justice implications of long term sea level rise under the Paris Agreement. We contrasted the advocacy of the Alliance of Small Island States (AOSIS) against that of global high emitters and quantified the projected Antarctic contribution to sea level rise at AOSIS locations. I am now assessing the multispecies impacts of sea level rise and working with colleagues to publish a book on multispecies climate justice.
- **International climate governance:** My PhD research traced the history of UNFCCC negotiations and development of the Long-Term Temperature Goal. This work highlighted the injustice of sea level rise impacts on AOSIS members, temperature overshoot risks, and the need for stringent mitigation in line with 1.5°C. I attended UNFCCC COP26 and engage with the international climate regime including the Loss and Damage Fund, Global Methane Pledge, and international court Advisory Opinion initiatives led by island nations.
- **Climate justice scholar-activism:** I use climate science in service of communities close to home and around the world. I partner with local community organizers (Climate Action Now Western Mass), and organizations across the country (Food Empowerment Project) and around the world (Scientists for Palestine) to advance a justice-centered vision of the world grounded in ethics of community care.
- **Diversity equity inclusion and justice:** From my teenage years in my high school's queer empowerment group to present day where I co-lead multiple disability justice initiatives I have been heavily involved in efforts to advance justice. I am committed to working in coalitions to dismantle oppressive structures and uplift justice-centered solutions grounded in intersectional theory.

## PROFESSIONAL APPOINTMENTS

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### Visiting Assistant Professor in Geology and Geography

*Mount Holyoke College*

2024–Present

- Design and teach courses in the Department of Geology and Geography

### Hitz Fellow for Litigation Relevant Climate Science

*Union of Concerned Scientists*

2022–2024

- Researching attribution of sea level rise to fossil fuel greenhouse gas emissions, and comparing national and corporate emissions inventories
- Writing legal briefs and educating lawyers about climate science through the Science Hub for Climate Litigation
- Informing climate policy at the national and international levels with an emphasis on justice and accountability

## EDUCATION

### Ph.D. Geosciences

*University of Massachusetts Amherst* 2022

- *Dissertation*: The global impact of the Antarctic Ice Sheet in a warming world: using numerical modeling and critical physical geography to assess climate change, sea level rise, and climate justice
- *Committee*: Dr. Robert DeConto, Dr. Eve Vogel, Dr. Regine Spector, Dr. Alan Condron, Dr. Dave Pollard, Dr. Ambarish Karmalkar
- Department of Earth, Geographic, and Climate Sciences

### M.S. Applied Mathematics

*University of Massachusetts Amherst* 2015

- *Project*: Modeling solitons and vortices in Bose-Einstein condensates
- *Project*: Using uncertainty quantification to model the spread of Dengue Hemorrhagic Fever
- *GPA*: 3.84

### B.S. Astronomy/Astrophysics

*University of Massachusetts Amherst* 2010

- *Thesis*: Spectroscopic evidence of a gaseous outflow in star-forming galaxy NGC 4631
- *Minor*: Mathematics
- *GPA*: 3.78, Magna Cum Laude, Commonwealth College Honors Scholar

### B.S. Physics

*University of Massachusetts Amherst* 2010

### Manchester Community College

*GPA*: 3.88 2004–2006

## TECHNICAL SKILLS

**Programming Languages**: Python including Jupyter Notebooks, Matlab, Fortran, LaTeX, Linux Command Line

**Models and Tools**: Community Earth System Model (CESM, a fully-coupled climate model), Penn State University Ice Sheet Model (PSU-3D), MAGICC7 simple climate model, basic ArcGIS and QGIS, Globus File Transfer system, basic NVivo

## PUBLICATIONS

- **Sadai, S.**, Ranganathan, M., Nauels, A., Nicholls, Z., Merner, D., Dahl, K., Licker, R., Ekwurzel, B. (2025). Estimating the sea level rise responsibility of industrial carbon producers. *Environmental Research Letters*, 20(4), 044012. <https://doi.org/10.1088/1748-9326/adb59f>
- Gomez, N., Yousefi, M., Pollard, D., DeConto, R., **Sadai, S.** Lloyd, A., Nyblade, A., Wiens, D.A., Aster, R.C. and Wilson, T. (2024) The influence of realistic 3D mantle viscosity on Antarctica's contribution to future global sea levels. *Science Advances* 10, eadn1470. [Link](#)
- Karmalkar, A. V., **Sadai, S.**, Chaughule, A., Staudinger, M. 2024. Chapter 1: Climate Change in the Northeast United States. In: A regional synthesis of climate data to inform the 2025 State Wildlife Action Plans in the Northeast U.S. [Staudinger, M.D., A. Karmalkar, K. Terwilliger, K. Burgio, A. Lubeck, H. Higgins, T. Rice, T. Morelli, A. D'Amato (eds.)]. DOI Northeast Climate Adaptation Science Center Cooperator Report, 2024 [Link](#)

- **Sadai, S.**, Spector, R. A., DeConto, R., Gomez, N. 2022. The Paris Agreement and Climate Justice: Inequitable Impacts of Sea Level Rise Associated with Temperature Targets, *Earth's Future* [Link](#)
- Dong, Y., Pauling, A. G., **Sadai, S.**, Armour, K. C. 2022. Antarctic ice-sheet meltwater reduces transient warming and climate sensitivity through the sea-surface temperature pattern effect. *Geophysical Research Letters* [Link](#)
- DeConto, Pollard, Alley, Velicogna, Gasson, Gomez, **Sadai**, Condron, Gilford, Ashe, and Kopp. 2021. The Paris Climate Agreement and future sea-level rise from Antarctica, *Nature* [Link](#)
- **Sadai, S.**, Condron, A., DeConto, R., Pollard, D. 2020. Future climate response to Antarctic Ice Sheet melt caused by anthropogenic warming, *Science Advances*. [Link](#)
- Yun, M., et al. 2015. Early Science with the Large Millimeter Telescope: CO and [C II] Emission in the z=4.3 AzTEC J095942.9+022938 (COSMOS AzTEC-1), *Monthly Notices of the Royal Astronomical Society*. 454 (4): 3485-3499. DOI: 10.1093/mnras/stv1963 [Link](#)
- LIGO Scientific Collaboration. 2014. Methods and results of a search for gravitational waves associated with gamma-ray bursts using the GEO600, LIGO, and Virgo detectors, *Physical Review D*, 89: 122004. DOI: 10.1103/PhysRevD.89.122004 [Link](#)
- LIGO Scientific Collaboration. 2010. Predictions for the Rates of Compact Binary Coalescences Observable by Ground-based Gravitational-wave Detectors, *Classical Quantum Gravity*. 27: 173001. DOI: 10.1088/0264-9381/27/17/173001 [Link](#)

## MANUSCRIPTS IN PROGRESS

- **Sadai, S.**, Karmalkar, A., Pollard, D., Dong, Y., Lucas, E., Gomez, N., DeConto, R., Condron, A. Antarctic meltwater alters future projections of climate and sea level. Under review at *Nature Communications*.
- Cifuentes, **Sadai**, Rutherford (editors). Multispecies Climate Justice. Book in progress to be published fall 2025.
- **Sadai, S.** and Pope, D. Educational benefits of teaching climate science with sociopolitical context. In preparation to be submitted 2025.
- **Sadai, S.**, and Rankin, E. Multispecies Climate Justice Under Rising Seas. In prep, 2025.

## AWARDS

<b>Distinguished Teaching Award</b> , University of Massachusetts Amherst, university-wide, student-nominated award for exemplary teaching	2021
<b>Highly Commended Student Oral Presentation</b> , UK Antarctic Conference	2021
<b>Best Graduate Student Paper</b> , Regional American Association of Geographers Meeting	2020
<b>Chang Transfer Student Award in Physics</b> , University of Massachusetts Amherst	2008

## GRANTS

<b>Hitz Family Foundation</b> , (\$200,000.00 grant)	2022
<b>Culture and Animals Foundation</b> , (\$3,639.60 grant)	2022
<b>Massachusetts Space Grant Consortium Fellowship</b> , (\$4,000 grant)	2009
<b>Massachusetts Space Grant Consortium Fellowship</b> , (\$4,000 grant)	2008
<b>Massachusetts Space Grant Consortium Fellowship</b> , (\$4,000 grant)	2007
<b>David J. Van Blerkom Research Scholarship in Astronomy</b> , (\$1,000 grant)	2008

## LAW EXPERIENCE

### International Court of Justice

*Union of Concerned Scientists Science Hub for Climate Litigation* 2024

- Scientific support and writing for State submission legal briefs in the case: ‘Obligations of States in respect of Climate Change (Request for Advisory Opinion)’

### Environmental Law Institute

*Union of Concerned Scientists Science Hub for Climate Litigation* 2024

- Reviewer for sea level science module included in the ELI Judicial Training Program

### International Tribunal for the Law of the Sea

*Union of Concerned Scientists Science Hub for Climate Litigation* 2023

- Scientific support and writing for State submission legal briefs in the case: ‘Request for an Advisory Opinion Submitted by the Commission of Small Island States on Climate Change and International Law, Written Statement of the Republic of Sierra Leone’ [Link](#)

### International Tribunal for the Law of the Sea

*Union of Concerned Scientists Science Hub for Climate Litigation* 2023

- Scientific support and writing for State submission legal briefs in the case: ‘Request for an Advisory Opinion Submitted by the Commission of Small Island States on Climate Change and International Law, Written Statement of the Republic of Mozambique’ [Link](#)

### Global Perspectives on Climate Change Litigation: Climate Science

*British Institute of International and Comparative Law* 2023, 2024

- Invited guest lecture in the Short Course on Climate Litigation

### European Court of Human Rights

*Union of Concerned Scientists Science Hub for Climate Litigation* 2022

- Co-author on ‘Interveners brief filed by the Center for International Environmental Law, Greenpeace International and the Union of Concerned Scientists’ submitted in the case Duarte Agostinho et al. v Portugal et al. [Link](#)

### Climate Change and Oceans

*University at Buffalo School of Law* 2021

- Invited guest lecture for LAW 315: Climate Change Interdisciplinary Perspectives and International Law

## POLICY EXPERIENCE

### Scientist letter in support of expanding national sea level rise research budget

*Coastal Flood Resilience Project* 2023

- Submitted to Congressional Subcommittee on Commerce, Justice, Science, and Related Agencies [Link](#)

### UNFCCC COP26

*International Cryosphere Climate Initiative* 2021

- Early Career Scientist Volunteer for the Cryosphere Pavilion

### Voices for Science Policy Fellow

*American Geophysical Union* 2020–2021

- Year long training program for scientists to advocate for science based public policy

### Diversity Equity Inclusion Congressional Advocacy Days

*American Geophysical Union* 2020

- Advocate for inclusive science-based policy at congressional offices

### Connecting with Any Audience about Climate Change: Speaking with Legislators

*American Geophysical Union* 2020

- Virtual panelist discussing my experiences in policy advocacy as a Voices for Science Policy Fellow [Link](#)

### Energy transition op-ed published in a local newspaper

*Daily Hampshire Gazette*

2020

- ‘Holyoke’s shortsighted decision on energy transition grant’ discusses a local city council decision to reject a grant which would have funded the energy transition in an environmental justice community [Link](#)

### Climate Science Congressional Visits Day

*American Association for the Advancement of Science*

2019

- Training on communicating with policy makers by developing and delivering specific action asks
- Visits with congressional offices for Massachusetts and New York

## TEACHING EXPERIENCE: UNIVERSITY COURSES

### Instructor of Record, Original Syllabi

*Mount Holyoke College*

- GEOG 312CJ: Geographies of Climate Justice Spring 2025
- GEOG 224: Atmosphere and Weather Fall 2024, Spring 2025
- GEOL 342EA: Sea Level Science Fall 2024

### Instructor of Record, Original Syllabi

*University of Massachusetts Amherst*

- GEOG 397: Geographies of Climate Justice Spring 2022
- NATSCI 191CNS70: Climate Change: It’s a Hot Mess Fall 2018, 2019, 2020

### Co-Instructed Courses

*University of Massachusetts Amherst*

- GEO-SCI 705: Graduate Research Seminar Spring 2022
- GEO-SCI 595P: Diversity Inclusion Pedagogy Seminar [Link](#) Fall 2019, Spring 2020, Fall 2020, Spring 2021
- GEO-SCI 763: Intergovernmental Panel on Climate Change Seminar Spring 2020

### Teaching Assistant

*University of Massachusetts Amherst*

- STAT 240: Introduction to Statistics Spring 2014
- MATH 121: Linear Methods and Probability for Business Fall 2013
- ASTRO 100: Exploring the Universe Spring 2007–Fall 2009
- ASTRO 101: The Solar System Spring 2007–Fall 2009

## TEACHING EXPERIENCE: GUEST LECTURES

### Applied Climate Science to Support Climate Litigation

*University of Rhode Island*

- GEO422: Applied Climate Science 2025

### Corporate climate accountability for fossil fuels

*University of Idaho*

- Working for the Climate Speaker Series 2024

### Using climate modeling and sea level science to inform climate litigation and advance climate justice

*Woodwell Climate Research Center*

- Climate Justice Speaker Series 2024

**Climate Justice, Sea Level Rise, and the Paris Agreement***Mount Holyoke College*

- GEOL-342CC Seminar in Geology: Global Effects of Climate Change 2024

**Climate Justice and Sea Level Rise***University of Rhode Island*

- Intro to Climate Change 2022

**Climate Justice, Climate Litigation, and Attribution Science***University of Massachusetts Amherst*

- POLISCI 383: Energy Policy 2022

**My Academic History and Journey to Geography***University of Massachusetts Amherst*

- GEOG 604: Geographic Theory and Analysis 2022

**Climate Change in the Media***University of Massachusetts Amherst*

- NATSCI 191: Catastrophic Clickbait: Natural Hazards in Media 2021

**Rising Emissions and Climate Destabilization***University of Massachusetts Amherst*

- POLISCI 383: Energy Policy 2019–2021

**Agriculture and Climate Change***University of Massachusetts Amherst*

- NATSCI 191: What am I Eating? The Evolution of the Human Diet 2020, 2021

**Climate Justice***Brigham University*

- GEOL 282A: Mass Extinctions Through Time 2020

**Diversity and Inclusion in STEM***University of Massachusetts Amherst*

- NATSCI 191: Antarctica: The Coolest Continent 2020

**Computer Programming in Matlab***University of Massachusetts Amherst*

- GEO-SCI 591CM: Introduction to Climate and Environmental Modeling 2019

**Ocean Data Analysis in Matlab***University of Massachusetts Amherst*

- GEO-SCI 595D: Physical Oceanography 2019

**Navigating Academia: Working in STEM and Looking for Justice***Holyoke Community College*

- Environmental Science 2020, 2021



## TEACHING EXPERIENCE: WORKSHOPS

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### Fostering an Inclusive Classroom Community

*University of Massachusetts Amherst*

- Workshop Facilitator for the Office of Professional Development 2020

### Agriculture and Climate Change

*Mass Audubon & Hitchcock Center for the Environment*

- Instructor for the Western Mass Youth Climate Summit 2019

### Universal Design for Instruction

*University of Massachusetts Amherst*

- Center for the Integration of Research, Teaching & Learning Instructor Training 2019

### Intro to Climate Change

*University of Massachusetts Amherst*

- Eureka! Girls Inc. Workshop Instructor for STEM Summer Camp 2019

### Climate Communication

*Mass Audubon & Hitchcock Center for the Environment*

- Instructor for the Western Mass Youth Climate Summit 2018

### Intro to Climate Change and Sea Level Rise

*University of Massachusetts Amherst*

- Eureka! Girls Inc. Workshop Instructor for STEM Summer Camp 2018

## TEACHING EXPERIENCE: MENTORSHIP

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### Undergraduate Independent Study Mentor for Arya Chaughule

*University of Massachusetts Amherst*

- Topic: Temperature and precipitation extremes in the northeast United States, co-advised with Dr. Karmalkar 2020

### Undergraduate Honors Thesis Committee Member for Ashley Arroyo

*University of Massachusetts Amherst*

- Topic: Decadal Predictions of the Atlantic Meridional Overturning Circulation Strength 2019–2020

### AP Research Project Content Advisor for Grace-Marie Gounin

*Wilbraham and Monson Academy*

- Topic: To what extent can a plant-based diet help to mitigate the damaging effects of global warming, deforestation, air and water pollution on Earth's environment? 2020

## TEACHING EXPERIENCE: INTENSIVE TRAININGS AND CERTIFICATIONS

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**Scholar Certification**, Center for the Integration of Research, Teaching and Learning [Link](#) 2020

**Practitioner Certification**, Center for the Integration of Research, Teaching and Learning 2020

**Associate Certification**, Center for the Integration of Research, Teaching and Learning 2020

**Teaching on a Precipice: Empowering Student-Teacher Partnerships for Climate Justice**  
University of Massachusetts Amherst History Department Teacher Training Program 2020–2021

## PRESS

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- **Prospect Hill brush fire sparks amid Red Flag Warning for Western Mass**, Quotes included in article published by Mount Holyoke News, 2024 [Link](#)
- **Meet Your Neighborhood Greenhouse Gas Emitters**, Quotes included in article published by The Shoestring, 2024 [Link](#)
- **International Tribunal for the Law of the Sea Issues Historic Guidance on Climate Change in International Law**, Statement included in press release from Union of Concerned Scientists, 2024 [Link](#)
- **How scientists are grappling with the uncertain future of Antarctica’s melting ice**, Interview quotes published by Nature, 2023 [Link](#)
- **‘Off-the-charts records’: has humanity finally broken the climate?**, Interview quotes published by The Guardian, 2023 [Link](#)
- **Exxon’s Own Science Was Scary Accurate About Global Warming. So It Covered It Up.**, Interview quotes published by The Daily Beast, 2023 [Link](#)
- **ExxonMobil scientists accurately predicted catastrophic fossil fuel-driven global warming nearly half a century ago**, Press release from Union of Concerned Scientists including my quotes, 2023 [Link](#)
- **Paris Agreement Temperature Targets May Worsen Climate Injustice for Many Island States**, Press release from UMass Amherst, 2022 [Link](#)
- **Climate science and justice**, Interview for Climate Crisis Enviro Show on Valley Free Radio, 2021
- **The threats caused by ‘pure trash’ lies**, Interview with Dr. Marty Nathan, 2021 [Link](#)
- **Climate change and Antarctica**, Interview for Undercurrents Radio WMUA, 2021
- **Big Life, Small Footprint**, Interview and article in Laika Magazine, Issue 8, 2020
- **Global warming may lead to practically irreversible Antarctic melting**, Interview and article in Science News, 2020 [Link](#)
- **Climate change and Antarctic ice melt**, Interview WBUR All Things Considered, 2020
- **How climate change affects us: A local look at a global issue**, Interview and article in the Daily Hampshire Gazette, 2019

## ART AND SCIENCE

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### Natural Gas: The Bridge to Climate Disaster

*just wondering...*

2024

- Science advisor for educational artistic video on the dangers of methane gas, video produced by the collective just wondering [Link](#)

### Multimedia Art Piece on Climate Change

*Union of Concerned Scientists*

2024

- Artist direction of multimedia artistic collaboration combining dance, photography, fabric arts, lighting design, and projection

### Art Sustainability Activism: Interdisciplinary Discussion

*University of Massachusetts School of Earth and Sustainability*

2023

- Panelist along with musician Sirintip, artist Sandy Litchfield, historian Kevin Young and moderator Malcolm Sen to discuss the intersection of climate change, science, literature, performing arts and social justice [Link](#)



**I Was A Kid**

*Science communication through art by Karen Romano Young* 2021

- Karen uses multimedia to map paths to STEAM careers for today's kids
- Site link features interview clips, a drawing of me in my workspace with quotes from the interview and an illustrated version of my path from childhood to being a professional scientist [Link](#)

**Earth 2120**

*Collaboration with Lisa Liang* 2021

- Digital artist Lisa Liang interviewed me about my research simulating possible futures for the Antarctic Ice Sheet and created digital art of her interpretation of the Southern Ocean in 2120

**Professional Dancer, Business Owner**

*Self Employed, Sole Proprietor* 2010–2020

- Developed and taught a wide range of dance and music classes and workshops for teens and adults
- Specialist in Middle Eastern and North African styles of dance and music with experience as a member of multiple Arabic music ensembles
- Planned and hosted large community events featuring dozens of dance performers and live music
- Maintained website, spreadsheets, finances, and advertising materials

**SERVICE****Climate Action Standing Committee Member**

*American Association of Geographers* 2024–present

**Peer reviewer**

*Research on the climate impact of animal agriculture produced by Greenpeace* 2024

**Founding Member of Disability Justice group**

*Union of Concerned Scientists* 2023–2024

**Climate Action Task Force Member**

*American Association of Geographers* 2021–2024

**Peer reviewer**

*Journal of Climate* 2022

**Unlearning Racism in Geosciences (URGE) Pod Member**

*University of Massachusetts Amherst Geosciences Department* 2021–2022

**UMass Amherst Environmental and Social Action Movement Member**

*University of Massachusetts Amherst* 2021

**Panelist for Diversity, Equity, and Inclusion in Your Classroom**

*University of Massachusetts Amherst Office of Professional Development* 2020

**Scientific Advisory Panel Member**

*Wild Animal Initiative* 2020–2021

**Science Outreach Collaborator**

*Time Scavengers* 2019–2021

**Peer reviewer**

*Emerging Voices in Education* 2020

**Professional Seminar Speaker on Broader Impacts and Outreach Work**

*University of Massachusetts Amherst* 2019

**College of Natural Sciences Climate Advisory Committee Member**

*University of Massachusetts Amherst* 2019–2021

**Panelist for New Graduate TA Orientation***University of Massachusetts Amherst Graduate School*

2019

**Research Computing Facilities Support***University of Massachusetts Amherst Mathematics Department*

2014–2015

**Interviewer for Researchers Speak Outreach Project***University of Massachusetts Amherst Astronomy Department*

2009–2010

**Science Outreach Club Officer***University of Massachusetts Amherst Physics Department*

2007–2010

**SERVICE: CONFERENCE AND EVENT ORGANIZING****Event co-organizer, Can't Stop Change: Queer Climate Stories from the Florida Frontlines***Mount Holyoke College*

- Miller Worley Center for the Environment, Department of Geology and Geography, and GEO Club collaboration

2025

**Session convener, Legal and Political Geographies of International Law***Sadai, S., Hughes, R., Leme, F.*

- Panel at the American Association of Geographers Annual Meeting

2025

**Session convener, Geographies of Climate Litigation, Attribution, and Data***Sadai, S., Merner, D.*

- Two sessions at the American Association of Geographers Annual Meeting

2024

**Session convener, Geographies of Sea Level Rise***Sadai, S., Conway, C., Merner, D.*

- Two sessions at the American Association of Geographers Annual Meeting

2024

**Session convener, Advances in Our Understanding of Past, Present, and Future Sea-Level Change and (More Than) Human Impacts***Felikson, D., Sadai, S., Adams, K., Hamlington, B.*

- Three sessions at the American Geophysical Union Fall Meeting

2023

**Session convener, Attributing, Projecting, and Linking Greenhouse Gas Emissions to Sources, Air Quality and Climate Impacts***Phillips, C., Laughner, J., Wu, D., Sadai, S.*

- Two sessions at the American Geophysical Union

2023

**Session convener, Geographies of Sea Level Rise***Sadai, S., Merner, D.*

- American Association of Geographers Annual Meeting

2023

**Session convener, Climate Litigation for a More Just World***Sadai, S., Merner, D.*

- American Association of Geographers Annual Meeting

2023

**Session convener, Multispecies Climate and Environmental Justice***Cifuentes, S., Sadai, S.*

- American Association of Geographers Annual Meeting

2023

**Session convener, Multispecies Climate Justice***Rutherford, S., Sadai, S.*

- Five sessions at the American Association of Geographers Annual Meeting

2022

**Lead Event Organizer and Moderator for panel on Climate Justice in Palestine***Scientists for Palestine*

- Webinar on Palestine's environmental conditions and participation in international climate politics 2021

**Session convener, Climate Modeling for Everyone: Interdisciplinary Research to Address Social Justice and (More Than) Human Impacts***Sadai, S., Halberstadt, R.*

- American Geophysical Union Fall Meeting 2020

**Session convener, Developing a Culture of Diversity, Equity, and Inclusion in All Our Work, in All Our Places***Harris, C., Thompson, L., Bolton, B., Sadai, S.*

- American Geophysical Union Fall Meeting 2020

**Lead Event Organizer, IPCC Special Report on Oceans and the Cryosphere in a Changing Climate***University of Massachusetts Amherst*

- Campus event hosted through the School of Earth and Sustainability 2019

**CONFERENCE PRESENTATIONS****Estimating the sea level rise responsibility of industrial carbon producers***Sadai, S., Ranganathan, M., Nauels, A., Nicholls, Z., Merner, L.D., Dahl, K., Licker, R., Ekwurzel, B.*

- American Association of Geographers Annual Meeting 2025

**Advancing Coupled Modeling to Understand Sea Level Change and Inform Climate Action Through the Courts***Sadai, S.*

- Community Earth System Model Workshop Sea Level Science session (invited talk) 2024

**How the Past Haunts the Future: Locked-in Sea Level Rise Resulting from Prior Corporate Fossil Fuel Production***Sadai, S., Ranganathan, M., Ekwurzel, B., Merner, L.D., Dahl, K.*

- American Association of Geographers Annual Meeting 2024

**Corporate Climate Accountability for High Methane Emissions: Fossil Fuels and Animal Agriculture***Sadai, S.*

- American Association of Geographers Annual Meeting, Panelist for 'Geographies of Corporate Climate Accountability' 2024

**Future Climate and Sea Level Projections Using Fully Coupled Ice Sheet and Global Climate Models***Sadai, S., Karmalkar, A., Pollard, D., Dong, Y., Lucas, E., Gomez, N., DeConto, R., Condrón, A.*

- American Geophysical Union Fall Meeting 2023

**Using Climate Modeling to Inform Climate Litigation and Advance Climate Justice***Sadai, S.*

- Community Earth System Model Workshop Actionable Science session 2023
- American Geophysical Union Fall Meeting 2023

### **Designing Litigation–Relevant Research: the Attribution of Sea Level Rise to Industrial Carbon Producers**

*Sadai, S., Merner, D.*

- American Association of Geographers Annual Meeting 2023
- New England/St. Lawrence Valley Division of the American Association of Geographers 2022

### **Investigating Antarctic Ice Sheet–Climate Feedbacks and Climate Justice**

*Sadai, S., Spector, R., Gomez, N., DeConto, R.*

- NASA GISS Sea Level Rise seminar 2023

### **Sea Level Rise and Climate Litigation: One Scientist’s Journey into Litigation Relevant Research**

*Panelist for a Town Hall on ‘Scientific Engagement in Climate Litigation: From Research to Expert Witness’*

- American Geophysical Union Fall Meeting 2022

### **Future Climate Projections Using Fully Coupled Ice Sheet and Global Climate Models**

*Sadai, S., Pollard, D., DeConto, R., Karmalkar, A., Condron, A.*

- American Geophysical Union Fall Meeting 2022

### **Why we need to crip the classroom (and the lab and the field...)**

*Cooke, M. L., Callahan, C., Marshall, A. M., Piatek, J. L., Sadai, S., Sibert, E. C.*

- American Geophysical Union Fall Meeting 2022

### **Antarctic Ice Sheet Meltwater Reduces Climate Sensitivity and Transient Warming through the Sea-Surface Temperature Pattern Effect**

*Dong, Y., Pauling, A., Sadai, S., Armour, K.*

- American Geophysical Union Fall Meeting 2022

### **Antarctic Ice Sheet Meltwater Drives Lower Effective Climate Sensitivity through the Pattern Effect**

*Dong, Y., Pauling, A., Sadai, S., Armour, K.*

- US Climate Variability and Predictability Program Pattern Effect Workshop 2022

### **Sea Level Rise and Multispecies Climate Justice**

*Sadai, S.*

- New England/St. Lawrence Valley Division of the American Association of Geographers 2021
- American Association of Geographers Annual Meeting 2022

### **Sea Level Rise, Climate Justice, and the Paris Agreement**

*Sadai, S., Spector, R. A., DeConto, R.*

- American Geophysical Union Fall Meeting 2021

### **Investigating Antarctic Ice Sheet Feedbacks with Coupled Ice Sheet and Climate Models**

*Sadai, S., Pollard, D., DeConto, R., Condron, A.*

- American Geophysical Union Fall Meeting 2021

### **Initiating New Efforts to Track and Improve DEI within the Department of Geosciences at UMass Amherst**

*McKeon, K., Allen, J., Baranes, H., Boutt, D., Bowlick, F., Brown, L., Cooke, M., Fattaruso, L., Griswold, F., Hatch, C., Lehnigk, K., Sadai, S., Smith, R. (UMass Geosciences URGE Pod)*

- American Geophysical Union Fall Meeting 2021
- Unlearning Racism in Geoscience (URGE) Drives Institutional Change at UMass Geoscience: A Timeline of Perturbations to the Steady State**  
*Allen, J., Lehnigk, K., Baranes, H., Bowlick, F.J., Brown, L. L., Fattaruso, L., Griswold, F., McKeon, K., Sadai, S. and Smith, R. (UMass Geosciences URGE Pod)*
- Geological Society of America Annual Meeting 2021
- Using Climate Modeling and Interdisciplinary Theory to Analyze Climate Justice Impacts of the Paris Agreement**  
*Sadai, S., Spector, R. A., DeConto, R.*
- American Association of Geographers Conference 2021
- American Geophysical Union Fall Meeting 2020
- New England/St. Lawrence Valley Division of the American Association of Geographers 2020
- Applied Geography Conference 2020
- Graduate Climate Conference 2020
- Investigating Antarctic Ice Sheet–Climate Feedbacks Under High Emissions**  
*Sadai, S., Condron, A., DeConto, R., Pollard, D.*
- UK Antarctic Conference 2021
- Perspectives on Teaching Climate Science to First–Year Undergraduate Students by Integrating Sociopolitical Contexts of Climate Change**  
*Sadai, S.*
- American Geophysical Union Fall Meeting 2020
- Antarctic Ice Sheet–Climate Feedbacks Under High Future Carbon Emissions**  
*Sadai, S., Condron, A., DeConto, R., Pollard, D.*
- American Association of Geographers Conference 2020
- American Meteorological Society Conference 2020
- American Geophysical Union Fall Meeting (withdrawn due to family emergency) 2019
- A Critical Political Geography Perspective on Temperature Targets as a Climate Metric: A Case Study of Antarctica**  
*Sadai, S.*
- New England/St. Lawrence Valley Division of the American Association of Geographers 2019
- Finding My Way: An Early Career Climate Modeler’s Evolution Through Climate Communication**  
*Sadai, S.*
- American Geophysical Union Fall Meeting (withdrawn due to family emergency) 2019
- Climate Feedbacks from Antarctic Ice Sheet Discharge under High Future Carbon Emissions**  
*Sadai, S., Condron, A., DeConto, R., Pollard, D.*
- Graduate Climate Conference 2019
- American Meteorological Society Atmosphere & Ocean Fluid Dynamics 2019
- Assessing the Response of Sea Ice, Ocean Circulation, & Climate to Projected Increases in Antarctic Ice Sheet Melt**  
*Sadai, S., Condron, A., DeConto, R., Pollard, D.*
- American Geophysical Union Fall Meeting 2018

**Perspectives on the use of Active Learning Techniques in Teaching Climate Science to First-Year Undergraduate Students**

*Sadai, S.*

- American Geophysical Union Fall Meeting 2018

**Assessing the Global Climate Response to Freshwater Forcing from the Antarctic Ice Sheet Under Future Climate Scenarios**

*Sadai, S., Condron, A., DeConto, R., Pollard, D.*

- Department of Geosciences Bromery Poster Session 2019
- American Geophysical Union Fall Meeting 2017

**SCIENCE COMMUNICATION: INVITED PROFESSIONAL SEMINARS**

**The Carbon Majors Database as a Tool for Climate Accountability**

*Influence Map*

2024

**Advancing Climate Justice Using Science and Litigation for Corporate Accountability**

*University of Massachusetts Amherst School of Earth and Sustainability*

2023

**The Importance of Multispecies Climate Justice**

*Animal Grantmakers Conference (pre-recorded invited talk)*

2023

**Sea Level Rise Mapping**

*Union of Concerned Scientists*

2023

**Investigating Antarctic Ice Sheet-Climate Feedbacks and Climate Justice Implications**

*National Center for Atmospheric Research*

2023

**Sea Level Rise and Climate Justice**

*United Nations Conference of the Parties (COP26)*

2021

**Antarctica and Paris Goals: Risks of Massive Sea-level Rise**

*United Nations Conference of the Parties (COP26), Joint Presentation with Dr. DeConto*

2021

**Investigating Antarctic Ice Sheet-Climate Feedbacks and Climate Justice**

*NASA Goddard Sea Level Rise Seminar*

2021

**Briefing on Sea Level Rise and the Paris Agreement**

*Union of Concerned Scientists*

2021

**Climate Change and Multispecies Justice**

*Animals Climate Health Seminar Series at Johns Hopkins & Universitat Bern*

2020

**Antarctica, Justice, and Our Changing Climate**

*University of Massachusetts Amherst Institute of Diversity Sciences*

2020

**Antarctica and Global Climate**

*Woods Hole Oceanographic Institution*

2020

**Antarctica and Our Changing Climate**

*School of Earth and Sustainability Graduate Student Lightning Talks*

2019

**Future Climate Feedbacks from Antarctic Ice Sheet Discharge and Sea Level Rise in New England**

*Tribal Environmental Conference Co-sponsored by the Mohegan Tribe and US EPA*

2019



<b>Current and Projected Changes in Physical Oceanography</b>	
<i>School of Earth and Sustainability campus event on IPCC Special Report on Oceans and Cryosphere in a Changing Climate</i>	2019
<b>Assessing the Global Climate Response to Freshwater Forcing from the Antarctic Ice Sheet Under Future Climate Scenarios</b>	
<i>School of Earth and Sustainability Earth Day Celebration</i>	2019
<b>SCIENCE COMMUNICATION: COMMUNITY PRESENTATIONS</b>	
<b>Climate Change and Queer Resilience</b>	
<i>Boston Museum of Science</i>	2024
• Presentation and interview for the Pride Celebration	
<b>Climate and Environmental Injustice of Animal-Based Dairy</b>	
<i>Food Empowerment Project</i>	2024
• Presentation and panel discussion for The Embodiment of Injustice: The Dairy Industry <a href="#">Link</a>	
<b>The Climate Injustice of Militarism</b>	
<i>Climate Action Now Western MA event 'War and the Climate Crisis: Escalating Impacts'</i>	2024
• Presentation and panel discussion with Ramon Mejía of the Grassroots Global Justice Alliance	
• Taught again at the Sojourner Truth School for Social Justice Education	
<b>The Paris Agreement and Climate Justice: Inequitable Impacts of Sea Level Rise Associated with Temperature Targets</b>	
<i>Climate Action Now Western MA</i>	2022
<b>Rising Emissions and Climate Destabilization</b>	
<i>Climate Action Now Western MA</i>	2021
<b>Agriculture and Climate Change: A Science Based and Intersectional Perspective</b>	
<i>Pulse Cafe</i>	2021
• Community Forum: Your Food, Your Climate	
<b>Climate Change and Climate Action in Massachusetts, emphasis on Boston</b>	
<i>Boston MA Atheist Secular Humanist Group</i>	2019
<b>Climate Science and Social Justice</b>	
<i>Youth Climate Strike Amherst</i>	2019
• Invited speech in support of the Global Climate Strike youth movement	
<b>Climate Change and Climate Action in Massachusetts, emphasis on Western MA</b>	
<i>Western MA Atheist Secular Humanist Group</i>	2019
<b>UN Special Report on 1.5°C and Climate Projections in Massachusetts</b>	
<i>Franklin County Continuing Political Revolution Community Organizers Open Forum</i>	2019
<b>Climate Change: Science and Solutions</b>	
<i>Northern Connecticut Vegetarian Society</i>	2018
<b>Climate Change: Science and Solutions</b>	
<i>Valley Vegfest</i>	2018

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## SCIENCE COMMUNICATION: WRITINGS

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- **The Science Behind Sea Level Rise: How Past Emissions Will Shape Our Future**, Union of Concerned Scientists, 2025 [Link](#)
- **How Do You Talk to Children about Climate Change? One Book Has a Few Ideas**, Union of Concerned Scientists, 2024 [Link](#)
- **Our New Research Says the Solid Earth Can Help Protect the Antarctic Ice Sheet—Only if We Cut Emissions Now**, Co-written with Natalya Gomez. Union of Concerned Scientists, 2024 [Link](#)
- **Fossil Fuel Companies Make Billions in Profit as We Suffer Billions in Losses: 2024 Edition**, Union of Concerned Scientists, 2024 [Link](#)
- **The Fossil Fuel Industry Continues Producing Heat-Trapping Emissions that Drive Climate Change**, Union of Concerned Scientists, 2024 [Link](#)
- **COP28 Global Methane Pledge Efforts Still Not Enough**, Union of Concerned Scientists, 2023 [Link](#)
- **Unrelenting Heat Requires Accountability and Action**, Union of Concerned Scientists, 2023 [Link](#)
- **Rising Seas, Rising Stakes: The Case for an International Court of Justice Advisory Opinion**, Union of Concerned Scientists, 2023 [Link](#)
- **Fossil Fuel Companies Make Billions in Profit as We Suffer Billions in Losses**, Union of Concerned Scientists, 2023 [Link](#)
- **ExxonMobil Accurately Projected Rising Temperatures While Publicly Disparaging Climate Science**, Union of Concerned Scientists, 2023 [Link](#)
- **Do Paris Agreement Temperature Goals Address Sea Level Rise and Climate Justice?**, Union of Concerned Scientists, 2023 [Link](#)
- **COP27 Global Methane Pledge Efforts Are Not Enough**, Union of Concerned Scientists, 2022 [Link](#)
- **Dr. Shaina Sadai Talks About COP27, Climate Justice, Sea Level Rise, and Corporate Accountability**, Union of Concerned Scientists interview with Dr. Delta Merner, 2022 [Link](#)
- **Paris Agreement 101**, Time Scavengers, 2021
- **The projected timing of abrupt ecological disruption from climate change**, Time Scavengers, 2021 [Link](#)
- **The Coasts Are Disappearing. We Need to Protect Them for Everyone**, Co-authored with Jeff Sebo, Sentient Media, 2020 [Link](#)
- **An Alternative Worldview: Anti-Speciesist Climate Perspectives**, Resurgence Ecologist Magazine 2020
- **Western Mass Youth Climate Summit**, Time Scavengers, 2020 [Link](#)
- **The Benefits of Community College: Personal Stories and Examples**, Time Scavengers, 2020 [Link](#)
- **Inclusivity and Sustainability in Conference Food**, Time Scavengers, 2020 [Link](#)
- **Climate Science Day on Capitol Hill, Washington, DC**, Time Scavengers, 2020 [Link](#)
- **More Pollution, Less Accountability: Trump’s New Rules for Agribusiness**, Medium, 2019

## SELECTED COURSEWORK

### Geosciences and Geography

*University of Massachusetts Amherst*

- Oceanography, Paleoceanography, Paleoclimatology, Paleomagnetism, Earth Physics, Time Series Analysis, Political Geography, Geographic Theory and Analysis

### Research Justice and Science Communication

*University of Massachusetts Amherst*

- Science Communication, Diversity Inclusion Pedagogy, Adapting to Climate Change, Feminisms and Environmental Justice, Skills and Teaching for First Year Seminar, Indigenous Knowledge and Climate Adaptation Science Seminar

### Physics and Astrophysics

*University of Massachusetts Amherst*

- Galactic & Extragalactic Astronomy, Modern Astrophysics, Statistical Mechanics, Quantum Mechanics, Techniques of Theoretical Physics, Computational Physics, Methods of Applied Statistics, Mathematical Statistics

### Mathematics

*University of Massachusetts Amherst*

- Numerical Analysis, Partial Differential Equations, Nonlinear Dynamics & Chaos, Numerical Algorithms

## COMMUNITY PARTICIPATION AND PROFESSIONAL DEVELOPMENT: RESEARCH

Introduction to NVivo14	2024
Qualitative Research Design and Methods	2024
Intro to Python and Web-scraping	2024
Community Earth System Model workshop	2023, 2024
Co-creating Useful and Usable Climate Intervention Simulations NSF GCR workshop	2024
Confronting Earth System Model Trends with Observations CLIVAR Workshop	2024
Polar Amplification of Climate Change Across Hemispheres and Seasons: Causes and Constraints CLIVAR Workshop	2024
Jupyter Notebooks for Accessing Ocean Data	2024
Visualizing 2D and 3D Geoscience Data in Python	2023
Introducing the Community Earth System Model (CESM2)	2022
Virtual Island Summit	2021–2023
Deep Dive into QGIS	2021
Mid-Atlantic Marine Debris Summit	2021
Visualization and Analysis Platform for Ocean, Atmosphere, and Solar Researchers) training	2021
Jupyter Notebooks Tutorial	2021
Python Numpy Tutorial	2021
GeoScientists for the People	2021
World Universities Network Early Career Researcher Workshop: SDG 13 Climate Action	2021
Feinberg Series Planet on a Precipice: Histories and Futures of the Environmental Emergency	2020–2021
Yale Oceans and Climate Conference	2020
Animals x Climate x Health Seminar Series	2020

Scientific Committee on Antarctic Research conference	2020
Union of Concerned Scientists Early Career Summit on Clean Energy & Transportation in MA	2020
Union of Radical Political Economists Conference	2018

## COMMUNITY PARTICIPATION AND PROFESSIONAL DEVELOPMENT: DIVERSITY AND INCLUSION

Negotiating a Racist World: Identity Development, Positionality, and Liberation Training	2024
Understanding the Disability Community and Ableism Training	2024
Environmental Justice Training	2024
White Ally and Accountability Group Member	2022–2023
Pride Month Intersex Inclusion Training	2023
Blindspot - Hidden Biases of Good People with Prof. Banaji Training	2022
Unlearning Racism in Geosciences	2021
Climate Change from the Perspective of Indigenous People	2021
Renewable Energy in Palestine	2021
Gender, the Body, and Fieldwork Symposium	2020
Confronting the Climate Crisis: Feminist Pathways to Just and Sustainable Futures Conference	2020
Reclaiming STEM Conference	2019, 2020
Third International Meeting for Science in Palestine	2020
Society for Women in Marine Sciences Conference	2017, 2018

## COMMUNITY PARTICIPATION AND PROFESSIONAL DEVELOPMENT: TEACHING AND SCIENCE COMMUNICATION

Teaching about Eyes on the Hydrosphere: Tracking Water Resources	2021
Mid-Atlantic Climate Change Education Conference	2021, 2020
Teaching about Planning for Failure: Landslide Analysis for a Safer Society	2021
Teaching about Our Changing Climate: Data Behind Melting Ice and Changing Sea Level	2021
Teaching about Measuring the Earth with GPS: Plate Motion and Changing Ice-Water	2021
Teaching Online workshop	2021
Teaching Distracted Minds workshop	2021
Rethinking Grades workshop	2021
West Antarctic Ice Sheet Science Communication workshop	2020
Engaging Students Online workshop	2020
Assess Your Students' Learning and the Effectiveness of Your Online Teaching workshop	2020
Teaching at Teaching Intensive Institutions Conference	2019
Inclusive Science Communication Conference	2019
Demystifying Public Engagement: A Two-Day Crash Course in Using Research to Change the World	2019
Accessibility Training for Moodle Online Course System	2019
Engaging With Policy Makers: Strategies and Pitfalls	2019
Public Engagement 101: Goal Setting, Network Mapping, and Message Development	2019
Queering Curriculum workshop	2019
AAAS Climate Science Congressional Visits Day training	2019

## MEMBERSHIPS

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American Association of Geographers

American Geophysical Union

American Meteorological Society

New England St. Lawrence Valley Geographical Society

Society for Women in Marine Sciences

Union of Concerned Scientists Science Network

Scientists for Palestine