

Dr. Shaina Sadai

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KEY RESEARCH AREAS AND EXPERTISE

- **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.
- **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 apply 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.
- **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

Visiting Assistant Professor

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 Condon, 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

- 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.
- Karmalkar, A. V., **S. Sadai**, A. Chaughule, M. Staudinger, 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**, Condrón, Gilford, Ashe, and Kopp. 2021. The Paris Climate Agreement and future sea-level rise from Antarctica, *Nature* [Link](#)
- **Sadai, S.**, Condrón, 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., Condrón, 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, 2024.
- **Sadai, S.**, Ranganathan, M., Nicholls, Z., Nauels, A., Ekwurzel, B., Merner, D., Dahl, K. Estimating the sea level rise responsibility of industrial carbon producers. Submitted for review fall 2024.
- **Sadai, S.**, Ranganathan, M., Merner, D., Ekwurzel, B., Dahl, K. Comparing corporate and national carbon dioxide emissions inventories to inform climate mitigation efforts. In preparation to be submitted 2024.
- **Sadai, S.** and Pope, D. Educational benefits of teaching climate science with sociopolitical context. In preparation to be submitted 2024.
- **Sadai, S.**, and Rankin, E. *Multispecies Climate Justice Under Rising Seas*. In prep, 2024.

AWARDS

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

GRANTS

Hitz Family Foundation , (\$200,000.00 grant)	2022
Culture and Animals Foundation , (\$3,639.60 grant)	2022
Massachusetts Space Grant Consortium Fellowship , (\$4,000 grant)	2009
Massachusetts Space Grant Consortium Fellowship , (\$4,000 grant)	2008
Massachusetts Space Grant Consortium Fellowship , (\$4,000 grant)	2007
David J. Van Blerkom Research Scholarship in Astronomy , (\$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 224: Atmosphere and Weather Fall 2024
- 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

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

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**Undergraduate Independent Study Mentor for Arya Chaughule***University of Massachusetts Amherst*

2020

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

Undergraduate Honors Thesis Committee Member for Ashley Arroyo*University of Massachusetts Amherst*

2019–2020

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

AP Research Project Content Advisor for Grace-Marie Gounin*Wilbraham and Monson Academy*

2020

- 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?

TEACHING EXPERIENCE: INTENSIVE TRAININGS AND CERTIFICATIONS**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

- **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, 2024 [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

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

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

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 <i>University of Massachusetts Amherst Geosciences Department</i>	2021–2022
UMass Amherst Environmental and Social Action Movement Member <i>University of Massachusetts Amherst</i>	2021
Panelist for Diversity, Equity, and Inclusion in Your Classroom <i>University of Massachusetts Amherst Office of Professional Development</i>	2020
Scientific Advisory Panel Member <i>Wild Animal Initiative</i>	2020–2021
Science Outreach Collaborator <i>Time Scavengers</i>	2019–2021
Peer reviewer <i>Emerging Voices in Education</i>	2020
Professional Seminar Speaker on Broader Impacts and Outreach Work <i>University of Massachusetts Amherst</i>	2019
College of Natural Sciences Climate Advisory Committee Member <i>University of Massachusetts Amherst</i>	2019–2021
Panelist for New Graduate TA Orientation <i>University of Massachusetts Amherst Graduate School</i>	2019
Research Computing Facilities Support <i>University of Massachusetts Amherst Mathematics Department</i>	2014–2015
Interviewer for Researchers Speak Outreach Project <i>University of Massachusetts Amherst Astronomy Department</i>	2009–2010
Science Outreach Club Officer <i>University of Massachusetts Amherst Physics Department</i>	2007–2010

SERVICE: CONFERENCE AND EVENT ORGANIZING

Session convener, Geographies of Climate Litigation, Attribution, and Data <i>Sadai, S., Merner, D.</i>	
• Two sessions at the American Association of Geographers Annual Meeting	2024
Session convener, Geographies of Sea Level Rise <i>Sadai, S., Conway, C., Merner, D.</i>	
• 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 <i>Felikson, D., Sadai, S., Adams, K., Hamlington, B.</i>	
• 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 <i>Phillips, C., Laughner, J., Wu, D., Sadai, S.</i>	
• Two sessions at the American Geophysical Union	2023
Session convener, Geographies of Sea Level Rise <i>Sadai, S., Merner, D.</i>	
• 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**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., Condron, 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., Condrón, 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., Condrón, 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., Condrón, 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., Condrón, 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., Condrón, 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

Current and Projected Changes in Physical Oceanography

School of Earth and Sustainability campus event on IPCC Special Report on Oceans and Cryosphere in a Changing Climate 2019

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

School of Earth and Sustainability Earth Day Celebration 2019

SCIENCE COMMUNICATION: COMMUNITY PRESENTATIONS

Climate Change and Queer Resilience

Boston Museum of Science 2024

- Presentation and interview for the Pride Celebration

Climate and Environmental Injustice of Animal-Based Dairy

Food Empowerment Project 2024

- Presentation and panel discussion for The Embodiment of Injustice: The Dairy Industry

The Climate Injustice of Militarism

Climate Action Now Western MA event 'War and the Climate Crisis: Escalating Impacts' 2024

- Presentation and panel discussion with Ramon Mejía of the Grassroots Global Justice Alliance
- Taught again with Susan Theberge at the Jewish Voice for Peace Western MA 24 hour teach in

The Paris Agreement and Climate Justice: Inequitable Impacts of Sea Level Rise Associated with Temperature Targets

Climate Action Now Western MA 2022

Rising Emissions and Climate Destabilization

Climate Action Now Western MA 2021

Agriculture and Climate Change: A Science Based and Intersectional Perspective

Pulse Cafe 2021

- Community Forum: Your Food, Your Climate

Climate Change and Climate Action in Massachusetts, emphasis on Boston

Boston MA Atheist Secular Humanist Group 2019

Climate Science and Social Justice

Youth Climate Strike Amherst 2019

- Invited speech in support of the Global Climate Strike youth movement

Climate Change and Climate Action in Massachusetts, emphasis on Western MA

Western MA Atheist Secular Humanist Group 2019

UN Special Report on 1.5°C and Climate Projections in Massachusetts

Franklin County Continuing Political Revolution Community Organizers Open Forum 2019

Climate Change: Science and Solutions

Northern Connecticut Vegetarian Society 2018

Climate Change: Science and Solutions

Valley Vegfest 2018

SCIENCE COMMUNICATION: WRITINGS

- **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

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