

Zho Ragen

PHD · CLIMATE DYNAMICS

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Research Interests:

Large-scale ocean circulation. Climate dynamics. Energy transport and partitioning between the ocean and atmosphere. Atlantic Meridional Overturning Circulation. Surface evaporation. Southern Ocean circulation. Earth system modeling and idealized modeling. Climate impacts and climate justice. Disproportionate causes and impacts of climate change.

Education

University of Washington

PHD PHYSICAL OCEANOGRAPHY

- Advisor: Dr. Kyle Armour
- Supervisory Committee: Kyle Armour, LuAnne Thompson, Andrew Shao, Alison Gray, Jodi Young, Eric Steig
- Dissertation: On Coastlines and Climate: How Basin Geometry Shapes Ocean Circulation and Global Climate

Seattle, WA

Sep 2017 - March 2024

University of Washington

MS PHYSICAL OCEANOGRAPHY

- Advisor: Dr. Kyle Armour

Seattle, WA

Sep 2017 - Dec 2020

The Johns Hopkins University

BA GLOBAL ENVIRONMENTAL CHANGE AND SUSTAINABILITY / EARTH AND PLANETARY SCIENCES

- Advisor: Anand Gnanadesikan
- Thesis: The Impact of Parameterized Lateral Mixing on the Antarctic Circumpolar Current

Baltimore, MD

Sep 2012 - May 2016

Positions Held

2017-2024 **Graduate Research Assistant**, School of Oceanography, University of Washington

2015-2016 **Undergraduate Research Assistant**, Department of Earth & Planetary Sciences, The Johns Hopkins University

Publications

PUBLISHED

Fajber, R., Donohoe, A., **Ragen, S.**, Armour, K. C., Kushner, P. J., (2023). Atmospheric Heat Transport is Governed by Meridional Gradients in Surface Evaporation in Modern Day Earth-like Climates. *Proceedings of the National Academy of Sciences*.

Laguë, M. M., Quetin, G. R., **Ragen, S.**, Boos, W. R., (2023). Continental configuration controls the base-state water vapor greenhouse effect: lessons from half-land, half-water planets. *Climate Dynamics*.

Roach, L. A., Blanchard-Wrigglesworth, E., **Ragen, S.**, Cheng, W., Armour, K. C., Bitz, C. M. (2022). The impact of winds on AMOC in a fully-coupled climate model. *Geophysical Research Letters*, e2022GL101203.

Ragen, S., Armour, K. C., Thompson, L., Shao, A., Darr, D. (2022). The Role of Atlantic Basin Geometry in Meridional Overturning Circulation. *Journal of Physical Oceanography*, 52, 475-492.

Laguë, M. M., Pietschnig, M., **Ragen, S.**, Smith, T. A., Battisti, D. S. (2020). Terrestrial evaporation and global climate: lessons from Northland, a planet with a hemispheric continent. *Journal of Climate*, 1-64.

Ragen, S., Pradal, M. A., Gnanadesikan, A. (2020). The Impact of Parameterized Lateral Mixing on the Antarctic Circumpolar Current in a Coupled Climate Model. *Journal of Physical Oceanography*, 50(4), 965-982.

IN PREP

Ragen, Z., Fajber, R., Armour, K. C., Thompson, L., Oldenburg, D. Revisiting the Role of Ocean Basin Geometry in Atlantic Overturning: the Importance of the North Pacific Basin. Anticipated submission Summer 2024

Ragen, Z., Fajber, R., Donohoe, A., Armour, K.C. The Impact of Continental Geometries on Mean State Climate and Heat Transport. Anticipated submission Summer 2024

Teaching Experience

- 2024 **UW Climate Impacts Group Science Justice Summer School**, Facilitator
- 2023 **OCN 102: The Changing Oceans**, Instructor of Record
- 2024 **OCN 320: Coastal Oceanography**, Teaching and Lab Assistant
- 2023 **OCN 102: The Changing Oceans**, Teaching Assistant
- 2022 **OCN 285: Physics Across Oceanography: Fluid Mechanics And Waves**, Teaching Assistant
- 2022 **OCN 286: Physics Across Oceanography: Fluid Mechanics And Waves Laboratory**, Teaching Assistant
- 2019 **OCN 423: Ocean Circulation And Climate**, Teaching Assistant
- 2019 **ATMS 487: Fundamentals Of Climate Change**, Teaching Assistant

Honors and Awards

- 2023 **DEI Award**, UW School of Oceanography
- 2020 **Outstanding Student Presentation Award: Poster**, 23rd Conference on Atmospheric and Oceanic Fluid Dynamics
- 2018 **Participant in Advanced Climate Dynamics Course in Finse, Norway**, ACDC
- 2017 **Egtvedt Fellowship - Top Scholar Award**, UW School of Oceanography

Presentations

INVITED TALKS

- Spring 2023. *How to get an AMOC: the Importance of North Pacific Basin Extent*. Invited talk: UW Program on Climate Change Spring Welcome, Seattle, WA.
- Spring 2023. *Climate Imperialism Panel*. GEOG 335, UW Department of Geography, Seattle, WA.
- Fall 2021. *The Role of Ocean Basin Geometry in Atlantic Meridional Overturning Circulation*. Invited talk: Canadian Centre for Climate Modeling and Analysis, Victoria, BC, Canada.
- Fall 2021. *The Role of Ocean Basin Geometry in Atlantic Meridional Overturning Circulation*. California Institute of Technology, Pasadena, CA.
- Spring 2019. *Exploring the Ocean's Role in Climate Asymmetries*. Ocean Model Working Group Meeting, National Center for Atmospheric Research, Boulder, CO.

OTHER SELECTED PRESENTATIONS

- Spring 2022. *The Impact of Continental Geometries on Meridional Heat Transport and Climate*, Conference on Atmospheric and Oceanic Fluid Dynamics, Breckenridge, CO.
- Fall 2022. *Evaporation: the Critical Link in Coupling Atmosphere and Ocean Heat Transport*, AGU Fall Meeting, Chicago, IL.
- Winter 2021. *Enhancing Climate Education Through Teacher Professional Development*, AGU Fall Meeting.
- Winter 2021. *The Impact of Atlantic Basin Geometry on Meridional Overturning Circulation*, AGU Fall Meeting.
- Winter 2020. *How does coastline shape influence meridional overturning and ocean heat transport?*, Ocean Sciences Meeting, San Diego, CA.
- Spring 2019. *What is Climate Change?*, Climate Science on Tap, Seattle, WA.
- Spring 2019. *Ocean Circulation on Aquaplanets*, Advanced Climate Dynamics Course Reunion Conference, Rondane, Norway.
- Spring 2016. *The Impact of Parameterized Lateral Mixing on the Antarctic Circumpolar Current*, Ocean Sciences Meeting, New Orleans, LA (poster).

Outreach & Professional Development

SERVICE AND ACTIVITIES

- 2020-2024 **UAW Local 4121**, Department Steward
- 2022-2024 **Women's Institute for Solidarity and Empowerment**, Volunteer Researcher
- 2021-2023 **Graduate Application Mentor Program**, Mentor
- 2020-2022 **Diversity Equity and Inclusion Committee**, UW School of Oceanography
- 2022 **R/V Thomas G. Thompson Captain Hiring Committee**,
- 2020-2021 **14th Graduate Climate Conference Planning Committee**, Co-Chair
- 2020-2021 **Director's Advisory Committee**, UW School of Oceanography
- 2018-2020 **Program on Climate Change, UW**, Graduate Student Representative
- 2018-2020 **Climate Science on Tap: Schooner Series, Cascadia Climate Action**, Organizer
- 2019-2024 **The Touch Tank**, graduate student quarterly publication, Staff Writer

DEVELOPMENT

2021 CESM Workshop, Participant, *University Corporation for Atmospheric Research*

Physics of a Changing Climate: Energy Conservation and Transfer, Developer and Facilitator, *Northwest Educational Service District 189*

PEER REVIEW

Journal of Climate