

Travis Aerenson

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Education

University of Washington, Seattle, WA

Dec 2023

PhD, Atmospheric Sciences

Dissertation Title: Cloud Changes in Climate Models: Response to Solar and CO2 Forcing and the Relationship between Model Bias and Feedbacks

University of Washington, Seattle, WA

May 2021

Master of Science, Atmospheric Sciences

Thesis Title: When Will MISR Detect Rising High Clouds?

Colorado College, Colorado Springs, CO

Bachelor of Arts, Major: Physics

May 2019

Research Experience

Postdoctoral Scholar U Wyoming Department of Atmospheric Science, Laramie WY

Jan 2024-Present

Research Assistant, UW Department of Atmospheric Sciences, Seattle WA

Aug 2019-Dec 2023

- Advised by Dr. Roger Marchand

Research Intern, National Center for Atmospheric Research, Boulder, CO

Jun -Aug 2018

Research Intern, National Center for Atmospheric Research, Boulder, CO

Jun -Aug 2017

Teaching Experience

Teaching Assistant, UW Department of Atmospheric Sciences, Seattle WA

Mar 2021-Jun 2021

- ATM S 100: Climate Justice & Energy Solutions

Quantitative Reasoning Center Math and Physics tutor, Colorado College

Mar 2017-May 2019

Publications

In Preparation:

Aerenson, T., Marchand, R.: How Does Model Bias Influence Cloud Feedbacks?

Aerenson, T., McCoy, D., Elsaesser, G., Caulton, D.: Causes of Snowpack Variability and Trend in the American Mountain West

Werapitiya, G., McCoy, D., Elsaesser, G., Wu, J., Gettelman, A., Eidhammer, T., **Aerenson, T.**, Song, C.: Climate Model Extratropical Cloud Feedback Constrained by Cloud Sources and Sinks in Cyclones

Published:

Aerenson, T., Marchand, R., & Zhou, C. (2024). Cloud Responses to Abrupt Solar and CO2 Forcing: 2. Adjustment to Forcing in Coupled Models. *Journal of Geophysical Research: Atmospheres*, 129(12), e2023JD040297. <https://doi.org/10.1029/2023JD040297>

Aerenson, T., & Marchand, R. (2024). Cloud Responses to Abrupt Solar and CO2 Forcing: 1. Temperature Mediated Cloud Feedbacks. *Journal of Geophysical Research: Atmospheres*, 129(12), e2023JD040296. <https://doi.org/10.1029/2023JD040296>

Poletti, A. N., W Frierson, D. M., **Aerenson, T.**, Nikumbh, A., Carroll, R., Henshaw, W., & Scheff, J. (2024). Atmosphere and ocean energy transport in extreme warming scenarios. *PLOS Climate*, 3(2), e0000343. <https://doi.org/10.1371/JOURNAL.PCLM.0000343>

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Aeronson, T., Marchand, R., Chepfer, H., Medeiros, B. (2022). When Will MISR Detect Rising High Clouds? *Journal of Geophysical Research: Atmospheres*, 127(2), e2021JD035865.
<https://doi.org/10.1029/2021JD035865>

Aeronson, T., Tebaldi, C., Sanderson, B., Lamarque, J.F. (2018). Changes in a suite of indicators of extreme temperature and precipitation under 1.5 and 2 degrees warming. *Environmental Research Letters*
<https://doi.org/10.1088/1748-9326/aaafd6>

Scientific Presentations

Aeronson, T., D. McCoy, G. Elsaesser 2024: “Can We Do Better at Predicting Regional Hydroclimate” CESM Workshop, Boulder, CO. *Oral*

Aeronson, T. 2023: “The Relationship Between Simulated Present-Day Cloud Attributes and Cloud Feedbacks” University of Washington Department of Atmospheric Sciences Colloquium, Seattle, WA. *PhD Defense*

Aeronson, T., R. Marchand, C. Zhou 2023: “Cloud Adjustments to Solar and CO₂ Forcing in Coupled Models” CFMIP Meeting, Paris, FR. *Poster*

Aeronson, T., R. Marchand 2023: “The Contribution of Mean-State Bias to Cloud Feedbacks in Climate Models” CFMIP Meeting, Paris, FR. *Poster*

Aeronson, T., R. Marchand 2023: “The Contribution of Mean-State Bias to Cloud Feedbacks in Climate Models” University of Wyoming Department of Atmospheric Science Seminar, Laramie, WY. *Invited Seminar*

Aeronson, T., R. Marchand 2023: “Using ISCCP and MISR Satellite Simulators to Understand Cloud Feedbacks” NASA GSFC CPC Seminar, Greenbelt, MD. *Virtual Seminar*

Aeronson, T., R. Marchand, C. Zhou 2022: “Cloud Response to Abrupt Changes in Solar Forcing and CO₂ Concentrations” AGU Fall Meeting: Advances in Solar Radiation Modification Research, Chicago, IL. *Poster*

Aeronson, T., R. Marchand, C. Zhou 2022: “Cloud Response to Abrupt Changes in Solar Forcing and CO₂ Concentration” University of Washington Department of Atmospheric Sciences Seminar on Atmospheric Physics and Chemistry, Seattle, WA. *1 hour seminar*

Aeronson, T., R. Marchand 2022: “Cloud Response to Abrupt Changes in Solar Forcing and CO₂ Concentrations” CFMIP Meeting: Cloud Processes and Radiative Feedbacks, Seattle, WA. *Oral*

Aeronson, T. 2021: “Cloud Rapid Adjustments and Feedbacks to Abrupt Changes in Solar and CO₂ Induced Forcings” AGU Fall Meeting: Advances in Climate Engineering Research. *Virtual Poster*

Aeronson, T., R. Marchand 2021: “Cloud Rapid Adjustments and Feedbacks to Abrupt Changes in Solar and CO₂ Induced Forcing” CFMIP Meeting. *Virtual Poster*

Aeronson, T. 2021: “When Will MISR Detect Rising High Clouds?” University of Washington Department of Atmospheric Sciences Physics and Chemistry Seminar. *Virtual Seminar*

Aeronson, T., R. Marchand 2021: “Time of Emergence: When Will We See High Clouds Get Higher?” AMS Annual Meeting. *Remote oral presentation and discussion session*

Aeronson, T., R. Marchand, 2020: “Time of Emergence: When do Climate Models Predict Rising Cloud-Top-Height (CTH) Should be Detected by MISR?” CFMIP Meeting on Clouds, Precipitation, and Climate Sensitivity. *Remote submitted slide and discussion session*

Aeronson, T., R. Marchand, 2020: “When will we see high clouds get higher?” MISR Science Team Meeting, Pasadena, CA. *Oral*

Aeronson, T., 2019: “Climate Models and Climate Change Reversibility” Colorado College Physics Department Senior Seminar Series, Colorado Springs, CO. *1 hour seminar*

Aeronson, T., C. Tebaldi, B. Sanderson, J.F. Lamarque, 2017: “Climate Extremes in Low Warming Scenarios” NCAR CGD Integrated Assessment Modelling Weekly Meeting, Boulder, CO. *Oral*

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Scholarships and Awards

Certificate of Distinguished Service 2022: University of Washington Department of Atmospheric Sciences

Top Scholar Award 2019: University of Washington Department of Atmospheric Sciences

Service Positions

Campus Sustainability Fund Intersectional Sustainability Board, University of Washington.

Aug – Oct 2020

Diversity and Inclusion Group Coordinator, UW Department of Atmospheric Sciences, Seattle WA.

Jul 2021 – Mar 2023

Peer-to-peer Mentoring Coordinator, UW Department of Atmospheric Sciences, Seattle WA.

Jul 2022 – Dec 2023

Refereed Manuscripts for the Following Journals: *JGR: Atmospheres, JAMES, PLOS ONE.*