

EDUCATION

University of Washington

Ph.D., Atmospheric Science (Data Science Option), Advisor: Dennis L. Hartmann Jun 2024
Dissertation: *Tropical Convection, Clouds, & Climate: Lessons from Idealized Models of Radiative-Convective Equilibrium*

M.S., Atmospheric Science Dec 2020

Yale University

B.S., *Magna cum laude*. Majors: Environmental Engineering, Geology & Natural Resources. May 2017
Advisor: Trude Storelvmo

RESEARCH APPOINTMENTS

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| Postdoctoral Research Associate , Princeton University | Sep 2024 - Present |
| Interim Postdoctoral Scholar , University of Washington | Jun 2024 - Sep 2024 |
| NASA FINESST Graduate Fellow , University of Washington | Sep 2020 - Aug 2023 |
| Graduate Research Assistant , University of Washington | Sep 2018 - Jun 2024 |
| Research Assistant , University of Oslo | Mar 2018 - Jun 2018 |
| REU Research Assistant , Penn State University | June 2016 - Aug 2016 |

AWARDS, HONORS, & FELLOWSHIPS

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| NASA FINESST Graduate Fellowship | 2020-2023 |
| Outstanding Student Presentation Award (OSPA), AGU Fall Meeting | 2020, 2023 |
| Advanced Climate Dynamics Course, Summer School Participant (Univ. of Bergen) | 2022 |
| Joost A. Businger Fellowship in Atmospheric Sciences (Univ. of Washington) | 2018 |
| Pat Wilde Prize for excellence in Geology & Geophysics (Yale) | 2017 |
| Hammer Prize for outstanding senior thesis in Geology & Geophysics (Yale) | 2017 |
| Environmental Engineering Prize for outstanding scholarship (Yale) | 2017 |
| Tau Beta Pi, the National Engineering Honors Society | 2016 |
| Von Damm Research Fellowship (Yale) | 2015, 2016 |
| Environmental Research Fellowship (Yale) | 2015 |
| Saybrook College Research Fellowship (Yale) | 2015 |

PUBLICATIONS

In review & in prep

Sokol, A.B., T.M. Merlis, D.L. Hartmann, and S.A. Fueglistaler (2025). Expansion of tropical rainy regions in warmer climates: Insights from mock-Walker simulations with varied boundary conditions. *In prep*.

Dou, T., G. Xu, Y. Yang, R. Zhou, G. Yu, I. Tan, A.J. Heymsfield, J. Huang, J. Yin, M. Ding, Y. Lin, **A.B. Sokol**, C. Ziao, D. Qin (2025). Tropospheric ice in a warming world. In review for *Nature Climate Change*.

Sokol, A.B., V.A. Munteanu, P.N. Blossey, & D.L. Hartmann (2025). Internal ocean-atmosphere variability in kilometer-scale radiative-convective equilibrium. In review for *J. Adv. Model. Earth Sys.*

Peer-reviewed papers

Kärcher, B., F. Hoffman, **A.B. Sokol**, B. Gasparini, M. Corcos, E. Jensen, R. Atlas, A. Podglajen, H. Morrison, A. Hertzog, R. Plougonven, K.K. Chandrakhar, and W. Grabowski (2025). Deep dive into

cirrus clouds: Navigating effects of turbulence on homogeneous ice formation. *npj Climate and Atmospheric Science*, 8(1), 1-12. doi:10.1038/s41612-025-01024-w.

Sokol, A.B., C.J. Wall, and D.L. Hartmann (2024). Greater climate sensitivity implied by anvil cloud thinning. *Nature Geoscience*, 17(5), 398-403. doi:10.1038/s41561-024-01420-6.

Sokol, A.B. and T. Storelvmo (2024). The spatial heterogeneity of cloud phase observed by satellite. *J. Geophys. Res.-Atmos.*, 129, e2023JD039751. doi:10.1029/2023JD039751.

Atlas, R.L., C.S. Bretherton, **A.B. Sokol**, P.N. Blossey, and M.F. Khairoutdinov (2024). Tropical cirrus are highly sensitive to ice microphysics within a nudged global storm-resolving model. *Geophys. Res. Lett.*, 51(1), e2023GL105868. doi:10.1029/2023GL105868.

Gasparini, B., S.C. Sullivan, S.C., **A.B. Sokol**, B. Kärcher, E. Jensen, & D.L. Hartmann (2023). Opinion: Tropical cirrus—from micro-scale processes to climate-scale impacts. *Atmos. Chem. Phys.*, 23(24), 15413-15444. doi:10.5194/egusphere-2023-1214.

Lamraoui, F., M. Krämer, A. Afchine, **A.B. Sokol**, S. Khaykin, A. Pandey, and Z. Kuang (2023). Sensitivity of convectively driven tropical tropopause cirrus to ice habit. *Atmos. Chem. Phys.*, 23(4), 2393-2419. doi:10.5194/acp-2022-670.

Sokol, A.B. and D. L. Hartmann (2022). Congestus mode invigoration by convective aggregation in simulations of radiative-convective equilibrium. *J. Adv. Model. Earth Sys.*, 14(7). doi:10.1029/2022MS003045.

Hartmann, D.L., B.D. Dygert, P.N. Blossey, Q. Fu, and **A. B. Sokol** (2022). The vertical profile of radiative cooling and lapse rate in a warming climate. *J. Climate*, 35(19), 2653-2665. doi:10.1175/JCLI-D-21-0861.1.

Sokol, A.B. and D.L. Hartmann (2022). Radiative Cooling, Latent Heating, and Cloud Ice in the Tropical Upper Troposphere. *J. Climate*, 35(5), 1643-1654. doi:10.1175/JCLI-D-21-0444.1.

Gasparini, B., **A.B. Sokol**, C.J. Wall, D.L. Hartmann, and P.N. Blossey (2022). Diurnal differences in tropical anvil cloud evolution. *J. Climate*, 35(5), 1655-1677. doi:10.1175/JCLI-D-21-0211.1.

Sokol, A.B. and D.L. Hartmann (2020). Tropical anvil clouds: radiative driving towards a preferred State. *J. Geophys. Res.—Atmos.*, 125(21), e2020JD033107. doi:10.1029/2020JD033107.

OTHER WORKS

Sokol, A.B. (2020). "What makes the wind?". *The Conversation's Curious Kids* series. [Link](#).

TEACHING

University of Washington, Department of Atmospheric Sciences

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| Instructor/TA , Lab Component of Atmospheric Motions II (undergrad GFD) Course Instructor: David Battisti | Winter 2023 |
| Guest Lecturer , Exploring the Atmospheric Sciences | Winter 2023 |
| Instructor , Exploring the Atmospheric Sciences | Spring 2022 |
| Co-Instructor , UW Atmos. Diversity, Equity, & Inclusion Seminar | Fall 2021 |
| Teaching Assistant , Global Warming: Understanding the Issues Course Instructor: Kat Huybers | Spring 2020 |

MENTORSHIP

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| Junior Paper Advisor for Princeton undergraduate | 2025 |
| Primary Research Advisor for UW undergraduate | 2022-2024 |
| UW Atmos. Sci. Graduate Student Peer Mentoring Program | 2022-2024 |
| UW Atmos. Sci. Graduate-Undergraduate Mentoring Program Mentor for 4 undergraduate students | 2018-2024 |

SERVICE ACTIVITIES

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| Clouds & Convection Reading Group (coordinator), UW Atmos. Sci. | Summer 2023-present |
| Black History Month Reading Group (coordinator), UW Atmos. Sci. | 2021-2022 |
| Graduate Student Representative , UW Atmos. Sci. | 2019-2021 |
| Graduate Student Steering Committee , UW Program on Climate Change | 2019-2021 |
| Outreach Project Lead & Lecturer , Sammamish High School, Sammamish, WA Coordinated outreach project for 3 yrs. Taught classes at Sammamish HS, served as expert resource for class projects on climate change, hosted student presentations on UW campus | 2019-2021 |
| Peer Reviewer Journal of Climate, Journal of Geophysical Research-Atmospheres, Atmospheric Chemistry & Physics, Journal of Advancement in Modeling Earth Systems, Climate Dynamics | |

INVITED TALKS & SEMINARS

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| Yale University, Earth & Planetary Sciences | 2024 |
| Princeton University, Geosciences | 2024 |
| Princeton University, Atmospheric Dynamics Seminar | 2024 |
| Ice Cloud Workshop, University of Vienna | 2024 |
| Oregon State University, Physical Oceanography & Atmos. Sciences Seminar | 2024 |
| ECS & Cloud Feedback Virtual Symposium | 2024 |
| Princeton University, Atmospheric Dynamics Seminar | 2023 |
| University of Washington, Climate Dynamics Seminar | 2023 |
| NSF PIRE-Cirrus Virtual Seminar Series | 2023 |
| NSF-PIRE Cirrus Virtual Seminar Series | 2021 |
| AGU Fall Meeting (invited eLightning) | 2021 |

CONTRIBUTED TALKS

- EGU General Assembly. *Anvil cloud thinning in high-resolution models implies greater climate sensitivity*. Vienna, Austria. 2024.
- EGU General Assembly. *Internal variability, multiple equilibria, and convection-SST coupling in a cloud-resolving model with an interactive ocean*. Vienna, Austria. 2024.
- AGU Fall Meeting. *Anvil cloud thinning implies greater climate sensitivity*. San Francisco, CA. 2023.
- AGU Fall Meeting. *Internal variability and multiple equilibria in cloud-resolving RCE with an interactive ocean*. San Francisco, CA. 2023.

NSF PIRE-Cirrus Workshop. *Tropical Cirrus—from micro-scale processes to climate-scale impacts*. Friday Harbor, WA. 2023.

AGU Fall Meeting. *The convective response to warming in cloud-resolving simulations with an interactive ocean*. Chicago, IL. 2022.

Advanced Climate Dynamics Summer School. *Tropical convective clouds in a changing climate*. Rondane, Norway. 2022.

CFMIP. *On the relationship between large-scale radiative divergence and anvil cloud fraction in RCEMIP*. Seattle, WA. 2022.

AGU Fall Meeting. *Invited eLightning: The response of tropical cloud ice amount to surface warming*. New Orleans, LA. 2021.

AGU Fall Meeting. *Circulation, convection, and static stability in cloud-resolving simulations of radiative-convective equilibrium*. New Orleans, LA. 2021.

Graduate Climate Conference. *Tropical Anvil Clouds: Radiative Driving Towards a Preferred State*. Virtual. 2020.

NSF PIRE-Cirrus Workshop, 2019. *Satellite observations of tropical anvil cloud evolution*. Friday Harbor Laboratories, WA.

CONTRIBUTED POSTERS

CFMIP (Cloud Feedback Model Intercomp. Project) Meeting. *Invigoration of the congestus mode by convective aggregation in simulations of radiative-convective equilibrium*. Seattle, WA. 2022.

AGU Fall Meeting. *Tropical Anvil Clouds: Observations of a Preferred State*. Virtual. 2020.

AGU Fall Meeting. *Satellite observations of tropical anvil cloud evolution*. San Francisco, CA. 2019.

AGU Fall Meeting. *Eddy Covariance Measurements of Methane Emissions from a Dairy Farm Waste Lagoon*. San Francisco, CA. 2016.