

Sean W. Freeman

Curriculum Vitae

Contact Information

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Professional Appointments

Assistant Professor, Department of Atmospheric and Earth Science, The University of Alabama in Huntsville, Huntsville, AL, USA 2023 — Present

Postdoctoral Fellow, Department of Atmospheric Science, Colorado State University, Fort Collins, CO, USA 2022

Education

Ph.D., Atmospheric Science, Colorado State University, Fort Collins, CO 2022
Advisor: Dr. Susan van den Heever

M.S., Atmospheric Science, Colorado State University, Fort Collins, CO 2018
Advisor: Dr. Susan van den Heever

B.S., Meteorology and Computer Science, Florida State University, Tallahassee, FL 2015
Undergraduate Research Advisor: Dr. Henry Fuelberg

Grant and Fellowship Funding

Colorado State University Engineering Student Technology Committee, "Drones @ CSU", Kreidenweis, S. and **Freeman, S. W.** Competitive internal grant for a Charge for Technology Fee Special Project, \$10,000. May 2018

Colorado State University Office of Vice President for Research, "Drones @ CSU", Kreidenweis, S. M., Chandrasekar, V., Chávez, J., **Freeman, S. W.**, Smith, A. Competitive internal grant for an Emerging Innovations Core Facility, \$180,000. February 2018

National Science Foundation Graduate Research Fellowship, \$138,000. August 2015 — August 2020

Publications

Leung, G. R., Saleeby, S. M., Sokolowsky, G. A., **Freeman, S. W.**, and van den Heever, S. C.: Aerosol-cloud impacts on aerosol detrainment and rainout in shallow maritime tropical clouds, EGU sphere [preprint; in review for ACP], <https://doi.org/10.5194/egusphere-2022-1406>, 2022.

Freeman, S.W., S.C. van den Heever, J.S. Reid, and D.J. Posselt: Dynamic and Thermodynamic Environmental Modulation of Tropical Congestus and Cumulonimbus in the Maritime Continent. *Accepted pending revision at J. Atmos. Sci.*

Reid, J.S., and Coauthors (including **S.W. Freeman**): The coupling between tropical meteorology, aerosol science, convection and the energy budget during the Clouds, Aerosol Monsoon Processes Philippines Experiment (CAMP2Ex). *In press at Bull. Am. Meteorol. Soc.*

Sokolowsky, G.A., **S.W. Freeman**, and S.C. van den Heever: Sensitivities of Maritime Tropical Trimodal Convection to Aerosols and Boundary Layer Static Stability. *In press at J. Atmos. Sci.*

Edwards, E.-L., J.S. Reid, P. Xian, S.P. Burton, A.L. Cook, E.W. Crosbie, M.A. Fenn, R.A. Ferrare, **S.W. Freeman**, J.W. Hair, D.B. Harper, C.A. Hostetler, C.E. Robinson, A.J. Scarino, M.A. Shook, G.A. Sokolowsky, S.C. van den Heever, E.L. Winstead, S. Woods, L.D. Ziemba and A. Sorooshian, 2021: Assessment of NAAPS-RA

performance in Maritime Southeast Asia during CAMP2Ex. *Accepted pending revision at Atmos. Chem. Phys.*

van den Heever, S.C., L.D. Grant, **S.W. Freeman**, P.J. Marinescu, J. Barnum, J. Bukowski, L. Casas, A.J. Drager, B. Fuchs, G.R. Herman, S.M. Hitchcock, P.C. Kennedy, E.R. Nielsen, J.M. Park, K. Rasmussen, M.N. Razin, R. Riesenberger, E.M. Riley Dellaripa, C.J. Slocum, B.A. Toms, and A. van den Heever, 2021: Diving into Cold Pools and Flying into Updrafts of Deep Convective Storms. *Bull. Am. Meteorol. Soc.*, 102, E1283-E1305. DOI: 10.1175/BAMS-D-19-0013.1

Marinescu, P.J., P.C. Kennedy, M.M. Bell, A.J. Drager, L.D. Grant, **S.W. Freeman**, and S.C. van den Heever, 2020: Updraft vertical velocity observations and uncertainties in High Plains supercells using radiosondes and radars. *Mon. Wea. Rev.*, 148, 4435-4452. DOI: 10.1175/MWR-D-20-0071.1

Freeman, S.W., A.L. Igel, and S.C. van den Heever, 2019: Relative sensitivities of rainfall prediction to fixed shape parameters and collection efficiencies. *Q. J. Roy. Met. Soc.*, 145, 2181-2201. DOI:10.1002/qj.3550

Kalmus, P., B.H. Kahn, **S.W. Freeman**, S.C. van den Heever, 2018: Trajectory-enhanced AIRS observations of environmental factors leading to tornadogenesis. *Mon. Wea. Rev.*, 147, 1633-1653. DOI:10.1175/MWR-D-18-0055.1

Heath, N. K., H. E. Fuelberg, S. Tanelli, F. J. Turk, R. P. Lawson, S. Woods, and **S. Freeman** (2017), WRF nested large-eddy simulations of deep convection during SEAC4RS, *J. Geophys. Res. Atmos.*, 122, DOI:10.1002/2016JD025465

Field Experience

Drone manager, NSF BioAerosols and Convective Storms (BACS)	2022
P-3 Flight Scientist (1 flight), Instrument Scientist (4 flights), Flight Planner, Ground Scientist: NASA Cloud, Aerosol, and Monsoon Processes Philippines Experiment (CAMP ² Ex)	2019
Technical Manager, CSU Convective Cloud Outflows and UpDrafts Experiment (C ³ LOUD-Ex)	2016 — 2017

Service and Outreach

AGU Session Convener and session chair , “Atmosphere, Ocean, and Land Processes in the Maritime Continent and Indo-Pacific”	2020 — 2022
Member , Colorado State University Drone Center Steering Committee - This committee is responsible for development, operations, and supervision of the CSU Drone Center, and I serve as the only student representative	2017 — 2022
Co-Lead , Colorado State University Graduate School Professional Development Workshop: Applying for the NSF Graduate Research Fellowship	2018 and 2020
Science Outreach Volunteer , Participated in a number of different science outreach events in the US and the Philippines, including a drone demonstration at Coors Field in front of 10,000 elementary-aged students	2017 — 2020