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Rebecca Adams-Selin

Atmospheric and Environmental Research
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Education

Ph.D., Atmospheric Science	Colorado State University	2012
M.S., Atmospheric Science	Colorado State University	2007
B.S., Atmospheric Science, Mathematics	Creighton University with honors, summa cum laude	2005

Professional Experience

Senior Manager Science	Atmospheric and Environmental Research	2022-present
Section head, Atmospheric Components and Processes		
Affiliate Faculty	Florida State University	2022-present
Affiliate Faculty	University of Wisconsin-Milwaukee	2022-present
Senior Staff Scientist II	Atmospheric and Environmental Research	2019-2022
Lead, Convection, Chemistry, and Microphysics Research Group		
Senior Staff Scientist	Atmospheric and Environmental Research	2017-2019
Affiliate Faculty	Colorado State University	2017-2019
Staff Scientist II	Atmospheric and Environmental Research	2014-2017
Staff Scientist I	Atmospheric and Environmental Research	2011-2014
Senior Research Associate	Atmospheric and Environmental Research	2009-2011
Visiting Scientist	University Corporation of Atmospheric Research Air Force Weather Agency	2007-2009

Awarded Grants

Expanding citizen science hail observations for validation of NASA satellite algorithms and understanding of hail melt. NASA Citizen Science. PI: Russ Schumacher, Colorado State; 1/2025-12/2027.

Collaborative Research: AGS-FIRP Track 3: In-situ Collaborative Experiment for the Collection of Hail In the Plains (ICECHIP). NSF. PIs: **Adams-Selin**, Allen, Gensini, Heysmfield; 09/2024-08/2028.

Establishing a Holistic Understanding of Mesoscale Convective System Stratiform Precipitation Regions. DoE ASR. PIs: **Adams-Selin**, Evans; 08/2022 – 07/2025.

Use of GPM to Understand Production of Hail in South America. NASA PMM. PI: **Adams-Selin**; 04/2022 – 03/2025.

A Multi-Perspective Analysis of Hail Processes, Melting, and their Environments. NASA PMM. PI: Sarah Bang, NASA Marshall; 07/2022-06/2025.

Lightning Data Assimilation for Convection. NASA ACCDAM. PI: **Adams-Selin**; 07/2021-06/2024.

PREEVENTS Track 2: Collaborative Research: Improving High-Impact Hail Event Forecasts by Linking Hail Environments and Modeled Hailstorm Processes. NSF. PI: **Adams-Selin**; 08/2019 – 10/2022.

Improving Hail Forecasts Through Operational Implementation of the HAILCAST Hail Model. NOAA. PI: **Adams-Selin**; 10/01/2018 – 09/30/2021.

Collaborative Research: Impact of Convectively Generated Gravity Waves on Mesoscale Convective Systems. NSF. PI: **Adams-Selin**; 11/01/2016 – 04/30/2020.

Refereed Publications

Vagasky, H., **R. Adams-Selin**, S. Bang, A. Heymsfield, and A. Bansemer, 2024: The sensitivity of falling hail to different melting and terminal velocity parameterizations and environmental conditions. *Mon. Wea. Rev., accepted pending revisions.*

Adams-Selin, R., 2025: The quasi-stochastic nature of hail growth: hail trajectory clusters in simulations of the Kingfisher, Oklahoma hailstorm. *Mon. Wea. Rev.*, **153**, 67–87.

Chen, D., G. L. Hein, **R. Adams-Selin**, L. Wang, J. Zhang, X. Zhou, H. Ma, J. McMechan, and Y. Shi, 2024: Spatial relationship between pre-harvest hail and the impact from the wheat streak mosaic disease complex by using remote sensing data. *Crop Protection*, **179**, 106627.

Pounds, L. E., C. L. Ziegler, **R. D. Adams-Selin**, and M. I. Biggerstaff, 2024: Analysis of hail production via simulated hailstone trajectories in the 29 May 2012 Kingfisher, Oklahoma, supercell. *Mon. Wea. Rev.*, 152, 245–276.

Adams-Selin, R., 2023: A three-dimensional hail trajectory clustering technique. *Mon. Wea. Rev.*, 151, 2361–2375.

Adams-Selin, R., C. Kalb, T. Jensen, J. Henderson, T. Supinie, L. Harris, Y. Wang, B. T. Gallo, and A. J. Clark, 2023: Just what is "good"? Musings on hail forecast verification through evaluation of FV3-HAILCAST hail forecasts. *Wea. Forecasting*, 38, 371–387.

Schumacher, R. S., S. J. Childs, and **R. D. Adams-Selin**, 2023: Intense surface winds from gravity wave breaking in simulations of a destructive macroburst. *Mon. Wea. Rev.*, 151, 775–793.

Fan, J., Y. Zhang, J. Wang, J.-H. Jeong, X. Chen, x. Zhang, Y. Lin, Z. Feng, and **R. Adams-Selin**, 2022: Contrasting responses of hailstorms to anthropogenic climate change in different synoptic weather systems. *Earth's Future*, 10, e2022EF002768.

Groff, F., **R. Adams-Selin**, and R. Schumacher, 2021: Response of MCS low-frequency gravity waves to vertical wind shear and nocturnal thermodynamic environments. *J. Atmos. Sci.,* 78, 3889-3908.

Childs, S., R. Schumacher, and **R. Adams-Selin**, 2021: High-resolution observations of a destructive macroburst. *Mon. Wea. Rev.*, 149, 2875-2896.

Adams-Selin, R., 2020: Impact of convectively generated low-frequency gravity waves on evolution of Mesoscale Convective Systems. *J. Atmos. Sci.*, 77, 3441-3460.

Adams-Selin, R., 2020: Sensitivity of MCS low-frequency gravity waves to microphysical variations. *J. Atmos. Sci.*, 77, 3461-3477.

Adams-Selin, R., A. Clark, C. Melick, S. Dembek, I. Jirak, and C. Ziegler, 2019: Verification of WRF-HAILCAST during the 2014-2016 NOAA/Hazardous Weather Testbed Spring Forecasting Experiments. *Wea. Forecasting*, 34, 61-79.

Haghi, K., B. Geerts, H. Chipilski, A. Johnson, S. Degelia, D. Imy, D. Parsons, **R. Adams-Selin**, D. Turner, and X. Wang, 2019: Bore-ing into nocturnal convection. *Bull. Amer. Meteor. Soc.,* 100, 1103–1121.

Hegarty, J., J. Lewis, E. McGrath-Spangler, J. Henderson, et al., 2018: Analysis of the planetary boundary layer height during DISCOVER-AQ Baltimore - Washington, DC with lidar and high-resolution WRF modeling. *J. Appl. Meteor. Climot.,* **57**, 2679–2696.

Alvarado, M. J., E. Winijkul, **R. Adams-Selin**, E. Hunt, C. Brodowski, C. R. Lonsdale, et al., 2018: Sources of black carbon deposition to the Himalayan glaciers in current and future climates. *Journal of Geophysical Research: Atmospheres*, 123, 7482–7505.

Clark, A., I. Jirak, S. Dembek, G. Creager, et al., 2018: The Community Leveraged Unified Ensemble (CLUE) in the 2016 NOAA/Hazardous Weather Testbed Spring Forecasting Experiment. *Bull. Amer. Meteor. Soc.,* 99, 1433–1448.

Gallo, B., A. Clark, I. Jirak, J. Kain, et al., 2017: Breaking new ground in severe weather prediction: The 2015 NOAA/Hazardous Weather Testbed Spring Forecasting Experiment. *Wea. Forecasting*, 32, 1541-1568.

Adams-Selin, R. and C. Ziegler, 2016: Forecasting hail using a one-dimensional hail growth model within WRF. *Mon. Wea. Rev.,* 144, 4919-4939.

Adams-Selin, R., S. van den Heever, and R. Johnson, 2013: Impact of graupel parameterization schemes on idealized bow echo simulations. *Mon. Wea. Rev.,* 141, 1241-1262.

Adams-Selin, R., S. van den Heever, and R. Johnson, 2013: Sensitivity of bow echo simulation to microphysical parameterizations. *Wea. Forecasting,* 28, 1188-1209.

Adams-Selin, R., and R. Johnson, 2013: Examination of gravity waves associated with the 13 March 2003 bow echo. *Mon. Wea. Rev.,* 141, 3735-3756.

Adams-Selin, R., and R. Johnson, 2010: Mesoscale surface pressure and temperature features associated with bow echoes. *Mon. Wea. Rev.*, 138, 212-227.

University and Community Service

Editor	Monthly Weather Review	2025-present
Associate Editor	Monthly Weather Review	2018-2024
Member	Developmental Testbed Center Science Advisory Board	2022-2024
Committee member	AMS Conf. on Severe Local Storms	2022
Chair	AMS Meeting Oversight Committee	2022-2024
Member	AMS Meeting Oversight Committee	2021-2022
Chair	AMS Committee on Weather and Forecasting	2018-2021
Committee Member	AMS Committee on Weather and Forecasting	2011-2018
Chair	AMS Conf. on Weather Analysis and Forecasting/ Numerical Weather Prediction	2016

Committee member	AMS Conf. on Weather Analysis and Forecasting/ Numerical Weather Prediction	2012, 2014, 2015, 2017, 2019, 2021

Honors

Employee of the Year	Atmospheric and Environmental Research	2022
Invited Participant	NOAA Hazardous Weather Testbed Spring Forecasting Experiment	2011, 2014-2024