

# Randy J. Chase, Ph.D.

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## Research Experience

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- Global Cloud Retrieval Scientist (Research Scientist I) Feb. 2023 – Present  
Cooperative Institute for Research in the Atmosphere (CIRA), Colorado State University
- Develop machine learning algorithms (diffusion models) for satellite retrievals of clouds
- Postdoctoral Research Associate, University of Oklahoma | Norman, OK Jan. 2021 – Feb. 2023  
NSF AI Institute for Research on Trustworthy AI in Weather, Climate and Coastal Oceanography (AI2ES)  
Adviser: Dr. Amy McGovern
- Develop machine learning algorithms (unets) for severe weather hazards
- Graduate Research Assistant, University of Illinois Urbana – Champaign | Urbana, IL May 2018 – Jan. 2021  
Department of Atmospheric Sciences  
Advisers: Dr. Stephen Nesbitt & Dr. Greg McFarquhar
- Designed and evaluated radar retrievals (neural network) of snowfall for the Global Precipitation Measurement mission

## Education

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- Ph.D. Atmospheric Sciences May 2018 – Jan. 2021  
University of Illinois at Urbana – Champaign | Urbana, IL
- M.S. Atmospheric Sciences Aug. 2016 – May 2018  
University of Illinois at Urbana – Champaign | Urbana, IL
- B.S. Meteorology & B.S. Water Resources Aug. 2012 – May 2016  
Minor in Mathematics  
State University of New York | Brockport, NY

## Computer Programming

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- Python: xarray, pandas, matplotlib, numpy, tensorflow (CPU & GPU), pytorch (CPU & GPU), scikit-learn, netCDF4, h5py & beautiful soup
- High performance computing: bash scripting (Unix & Linux)

## Relevant First Author Publications

- 
- Chase, R. J.**, McGovern A., Homeyer, C., Marinescu, P. and Potvin, C. 2024: Machine Learning Estimation of Maximum Vertical Velocity from Radar. *AIES*, **3**, 230095.  
<https://doi.org/10.1175/AIES-D-23-0095.1>
- Chase, R. J.**, Harrison, D. R., Lackmann G. and McGovern A. 2023: A Machine Learning Tutorial for Operational Meteorology, Part II: Neural Networks and Deep Learning. *WAF*, **38**, 1271–1293.  
<https://doi.org/10.1175/WAF-D-22-0187.1>
- Chase, R. J.**, Harrison, D. R., Burke, A., Lackmann G. and McGovern A. 2022: A Machine Learning Tutorial for Operational Meteorology, Part I: Traditional Machine Learning. *WAF*, **37**, 1509-1529.  
<https://doi.org/10.1175/WAF-D-22-0070.1>
- Chase, R. J.**, Nesbitt, S. W. and McFarquhar, G. M. 2021: A dual-frequency radar retrieval of two parameters of the snowfall particle size distribution using a neural network. *JAMC*, **60**, 341 – 359.  
<https://doi.org/10.1175/JAMC-D-20-0177.1>

## Professional Involvement

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- Associate Editor | American Meteorological Society – AIES Journal Sep. 2021 – Present
- Conduct timely peer review of journals submitted to new artificial intelligence journal
- Unlearning Racism in Geoscience, University of Oklahoma Pod Member | Norman, OK Jan. 2021 – May 2021
- Discussed literature and actionable steps in removing racism against minorities and increase retention in Geosciences

## Honors and Awards

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- AMS AIES/WAF Editor's Award 2023
- American Geophysical Union Technical Committee Student Award Fall 2020
- NASA Earth and Space Science Graduate Fellowship Fall 2017, 2018 & 2019

## Professional Resources

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Github: <https://github.com/dopplerchase>

Google Scholar: <https://scholar.google.com/citations?user=65CXtA4AAAAJ&hl=en>

WebofScience: <https://www.webofscience.com/wos/author/record/574217>

Website: [dopplerchase.github.io](https://dopplerchase.github.io)

Twitter: <https://twitter.com/DopplerChase>

Full CV: [https://www.cira.colostate.edu/wp-content/uploads/sites/4/2023/02/RandyChase\\_CV\\_Web-2.pdf](https://www.cira.colostate.edu/wp-content/uploads/sites/4/2023/02/RandyChase_CV_Web-2.pdf)