# Julia Shates

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## Education

**University of Wisconsin-Madison** — Madison, WI
Ph.D. Atmospheric and Oceanic Sciences — Sep. 2019 – Aug. 2023
M.S. Atmospheric and Oceanic Sciences — Sep. 2017 – Aug. 2019

**University of California, Irvine** — Irvine, CA
B.S. Earth System Science, B.A. Spanish — Aug. 2011 – Aug. 2015

## Research Experience

**JPL Postdoctoral Fellow**
*Jet Propulsion Laboratory, California Institute of Technology* — Nov. 2023 – present
- exploring cloud/snow microphysics for satellite ice cloud retrieval development

**Graduate Research Assistant**
*University of Wisconsin-Madison* — Sep. 2017 – 2023
- Investigating vertical structure of precipitation processes in the satellite radar blind zone
- Characterizing snowfall regimes using ground-based in-situ and remote sensing observations

**Undergraduate Researcher**
*University of California, Irvine* — Sep. 2013 – 2015
- Researched intraseasonal atmospheric variability in the Southern Hemisphere austral winter

**Undergraduate Research Intern**
*Colorado State University* — June – Aug. 2014
- Researched intraseasonal atmospheric variability in the Southern Hemisphere (Baroclinic Annular Mode)

## Awards

- **Intl. Precip. Conference: First Prize for Outstanding Presentation** — June 2023
- **UW-Madison Grad. School Student Research Grants** — Apr. 2023
- **AGU Fall Meeting 2022 Precipitation Student Award** — Jan. 2023
- **AOS Department Travel Award** — Aug. 2022
- **Future Investigators in NASA Earth and Space Science and Technology** — May 2021
- **AMS Polar: First Place Outstanding Student Poster** — May 2021
- **AOS Wahl Award: Outstanding Performance as a Teaching Assistant** — May 2020
- **AOS Department Service Award** — May 2019
- **NSF Graduate Research Fellowship Program: Honorable Mention** — Apr. 2019

## Grants/Proposals

**Future Investigators in NASA Earth and Space Science and Technology** — May 2021
- *Characterizing Precipitation Structure and Processes in the Satellite Radar Blind Zone*

**Women in Science, Engineering, Leadership Institute Grant Award** — Aug. 2019
- Awarded funding to host speakers in the AOS Department colloquium series

**Professional Development Grant**, UW-Madison Graduate School — Nov. 2018
- Funding to host speaker for workshop: *Tools on an online presence in science*

## Publications

- **Shates, J. A.**, Pettersen, C., L'Ecuyer T. S., Kulie, M. S., KAZR-CloudSat analysis of snowing profiles at the North Slope of Alaska: implications of the satellite radar blind zone, Journal of Geophysical Research: Atmospheres, 130, 10.1029/2024JD042700
- King, F., Pettersen, C., Dolan, B., **Shates, J.**, Posselt, D., Primary Modes of Northern Hemisphere Snowfall Particle Size Distributions, Journal of Atmospheric Sciences, 10.1175/JAS-D-24-0076.1
- Xie, Y., Pettersen, C., Flanner, M., **Shates, J.A.**, Ground-Observed Snow Albedo Changes During Rain-On-Snow Events in Northern Alaska., Journal of Geophysical Research: Atmospheres, 129, 10.1029/2024JD040975
- Ochwat, N. E., Scambos, T. A., Banwell, A. F., Anderson, R. S., Maclennan, M. L., Picard, G., **Shates, J.A.** Marinsek, S., Margonari, L., Truffer, M., and Pettit, E. C., (2024). Triggers of the 2022 Larsen B multi-year landfast sea ice breakout and initial glacier response, The Cryosphere, 18, 1709–1731, 10.5194/tc-18-1709-2024
- **Shates, J. A.**, Pettersen, C., L'Ecuyer T. S., Kulie, M. S., (2023). Multi-year analysis of rain-snow levels at Marquette, Michigan. Journal of Geophysical Research: Atmospheres, 128, 10.1029/2022JD037132
- Cooper, S. J., L'Ecuyer, T. S., Wolff, M. A., Kuhn, T., Pettersen, C., Wood, N. B., Eliasson, S., Schirle, C. E., **Shates, J.**, Hellmuth, F., Engdahl, B. J. K., Vásquez-Martín, S., Ilmo, T., & Nygård, K. (2022). Exploring Snowfall Variability through the High-Latitude Measurement of Snowfall (HiLaMS) Field Campaign, Bulletin of the American Meteorological Society, 103(8), E1762-E1780. 10.1175/BAMS-D-21-0007.1
- **Shates, J. A.**, Pettersen, C., L'Ecuyer T. S., Cooper, S. J., Kulie, M. S., Wood., N. B., (2021). High-latitude precipitation: Snowfall regimes at two distinct sites in Scandinavia. Journal of Applied Meteorology and Climatology, 60, 1127-1148. 10.1175/JAMC-D-20-0248.1
- Pettersen, C., Bliven, L. F., Kulie, M. S., Wood, N. B., **Shates, J. A.**, Anderson, J., Mateling, M.E., Petersen, W.A., von Lerber, A. and Wolff, D.B., (2021). The Precipitation Imaging Package: Phase Partitioning Capabilities. Remote Sensing, 13(11), 2183. 10.3390/rs13112183

## Presentations

**INCUS Monthly Seminar Series on Deep Convection** June 2025

- *Simulating Radar and Passive Microwave Observations from Model Simulations: Implications for Retrievals and Data Assimilation in Convection*
  Derek Posselt, **Julia Shates**, Ousmane Sy, and Rick Schulte

**GPM GV PSD Working Group Meeting**, virtual talk Apr. 2025

- *KAZR-CloudSat analysis of snowing clouds at the North Slope of Alaska: implications of the satellite radar blind zone*

**CloudSat/CALIPSO Science Team Meeting**, poster Feb. 2025

- *KAZR-CloudSat analysis of snowing clouds at the North Slope of Alaska: implications of the satellite radar blind zone*

**AMS Annual Conference** Jan. 2025

- *Exploring in-situ and remote sensing observations of clouds during the Mid-latitude Continental Convective Clouds Experiment (MC3E)* (oral)
- *KAZR-CloudSat analysis of snowing clouds at the North Slope of Alaska: implications of the satellite radar blind zone* (poster)

**American Geophysical Union**, posters Dec. 2024
- *Exploring in-situ and remote sensing observations of clouds during the Mid-latitude Continental Convective Clouds Experiment (MC3E)*
- *KAZR-CloudSat analysis of snowing clouds at the North Slope of Alaska: implications of the satellite radar blind zone*

**Seminar at Pacific Northwest National Laboratory** Dec. 2024
- *Which Observations are Needed to Constrain Cloud Processes in Models?*
  Derek J. Posselt, **Julia A. Shates**

**INCUS Science Team Meeting**, Nov. 2024
- *Radar and MWR Forward Modeling*
  Derek J. Posselt, **Julia .A. Shates**

**JPL Postdoc Seminar Series** Oct. 2024
- *Ice Cloud Microphysics in the MC3E Field Campaign*

**International Conference on Clouds and Precipitation**, poster July 2024
- *Exploring in-situ and remote sensing observations of clouds in MC3E*

**JPL Center for Climate Sciences Seminar** Mar. 2024
- *Ground-based Radar Perspectives on the Satellite Radar Blind Zone*

**American Geophysical Union**, oral Dec. 2023
- *Assessing satellite radar blind zone impacts on observing snowfall regimes at the North Slope of Alaska*

**International Precipitation Conference**, poster June 2023
- *Multi-year analysis of rain-snow levels at Marquette, Michigan*

**AGU Precipitation Technical Committee** Mar. 2023
ECSPrecip Seminar Series: AGU Precipitation Student Award 2022 winners
- *Multi-year Analysis of Rain-Snow Levels at Marquette, Michigan*

**NASA JPL Science Visitor and Colloquium Program** Mar. 2023
- *Ground-based Radar Perspectives on the Satellite Radar Blind Zone*

**American Geophysical Union**, oral Dec. 2022
- *Multi-year analysis of rain-snow levels at Marquette, Michigan*

**AMS Sat. Met., Ocean., and Clim./Joint NOAA Sat. Conference**, oral Aug. 2022
- *Multi-year analysis of rain-snow levels at Marquette, Michigan*

**AMS Polar Meteorology & Oceanography**, poster Aug. 2022
- *Snowfall regimes in the North Slope of Alaska*

**AOS Department seminar** Apr. 2022
- *Multi-year analysis of precipitation phase transition height in Marquette, Michigan*

**Graduate Climate Conference**, virtual poster Oct. 2021
- *Analyses of precipitation phase transition height and associated characteristics using ground-based observations*

**3 Minute Thesis**, oral presentation competition Oct. 2021
- *Precipitation in the Satellite Radar Blind Zone*

**PMM Science Team Meeting**, virtual poster Oct. 2021
- *Analyses of precipitation phase transition height and associated characteristics using ground-based observations*

**AMS Polar Meteorology & Oceanography**, virtual poster May 2021
- *Snowfall regimes at two distinct sites in Scandinavia*

**Graduate Climate Conference**, virtual talk Oct. 2020
- *High-latitude precipitation: Snowfall regimes at two distinct sites in Scandinavia*

**Midwest Student Conference in Atmospheric Research**, poster Oct. 2019
- *High-Latitude precipitation: characterizing snowfall regimes and identifying key processes at two distinct Scandinavian sites*

**AMS Polar Meteorology & Oceanography**, oral May 2019
- *High-Latitude precipitation: characterizing snowfall regimes and identifying key processes*

**AOS Department seminar**, MS thesis seminar Apr. 2019
- *High-Latitude precipitation: characterizing snowfall regimes and identifying key processes at two distinct Scandinavian sites*

**American Geophysical Union**, poster Dec. 2014
- *Exploration of Atmospheric Oscillations with a hierarchy of models: focus on scale and geographic location*

## Field & Summer School Experiences

**Advanced Climate Dynamics Course** *University of Bergen, Norway* Sep. 2022
- completed group project on Greenland Surface Mass Balance using field observations and the high resolution C3S Arctic Regional Reanalysis (CARRA) dataset.

**CHEESEHEAD Campaign** *UW-Madison* July 2019
- Assisted in deploying instruments: Precipitation Imaging Package, Micro Rain Radar

**SAVANT Campaign** *University of South Carolina, University of Illinois* Oct. 2018
- Deployed instruments and used observations from SAVANT as part of AOS Measurements course focused on the nocturnal boundary layer in shallow topography

**Arctic Field Summer School** *University of Alaska, Fairbanks* June 2018
- Learned field & satellite methods for cryosphere topics; field observations on the frozen tundra, lagoon, and fast ice in Utqiaġvik, AK

**Modeling the Arctic Climate System**
International Arctic Research Center *University of Alaska, Fairbanks* July 2016
- Completed group project on changes in the hydrologic cycle over Alaska in a warming climate using dynamically downscaled model projections

## Teaching Experience

**Teaching Assistant** *UW-Madison*
- *Radar and Satellite Meteorology* Jan. – May 2020
- *Atmospheric Thermodynamics* Sep. – Dec. 2019

**Outdoor Science Educator** *Pali Institute, Running Springs, CA* Sep. 2015 – June 2016
- Taught leadership and hands-on science classes to 5th-12th graders including: Forest Ecology, Aerodynamics, Weather, and Outdoor Skills; Trained teaching incoming staff

## Service

**AMS Committee on Cloud Physics** Jan. 2025 – present
- Summer 2026 Conference Chair

**Journal/Paper Reviews**
- Journal of Geophysical Research: Atmospheres
- Journal of Atmospheric and Oceanic Technology

- Earth System Science Data

**AOS Summer Research Program Planning Committee**

- *Logistics Committee* (April 2022 – Aug. 2022): plan programming and weekly professional development workshops for new pilot undergraduate internship program

**AOS Colloquium Committee**

- invite and host speakers for AOS Monday colloquium series (May 2019 – Aug. 2023)

**Graduate Climate Conference**

- *Abstract Committee Co-Chair* (Aug. 2021 – Nov. 2021): assess and update abstract and personal statement rubric

**AOS Graduate Student Association (GSA)** Leadership positions

- *Faculty Liaison* (May 2020 – 2021): attend department meetings; share updates to GSA
- *Treasurer* (May 2018 – 2020): applied for professional development grants

**Cooperative Institute for Meteorological Satellite Studies (CIMSS)**, UW-Madison

- Wx Camp 2022: *Winter Storms*; *Accessing Weather and Climate Data on the Internet*
- Wx Camp 2021: *Winter Storms*; *Accessing Weather and Climate Data on the Internet*
- Wx Camp 2019: *Snow, ice or clouds? A high-latitude challenge*

**Community Outreach**

- Latino Youth Career Fair at Madison College (Mar. 2019)
- UW Science Expeditions (Apr. 2018): rotating tank lab for AOS campus open house