

Kara Jo Sulia

Curriculum Vita

Research Associate
The University at Albany
Atmospheric Science Research Center
CESTM Building, 251 Fuller Road, Albany, NY 12222
Phone: (518) 437-8755
Email: ksulia@albany.edu

Education:

B.A.	Computer Science	University at Albany	In Progress
Ph.D.	Meteorology	Penn State University University Park, PA	August 2013
<i>Discerning Environmental Dependencies of Mixed-Phase Cloud Lifetime with a Focus on Ice Particle Habit Evolution</i>			
Dissertation Advisor: Dr. Jerry Y Harrington, Penn State University			
B.S.	Meteorology	Penn State University University Park, PA	December 2009

Research Experience:

Sept 2014 - Present	Research Associate, Atmospheric Sciences Research Center, University at Albany, State University of New York
Sept 2013 - Aug 2013	Postdoctoral Research Associate, NOAA/Geophysical Fluid Dynamics Laboratory, Atmospheric and Oceanic Sciences, Princeton University
Jan. 2010 - Aug 2013	Graduate Research Assistant, Department of Meteorology, Penn State University
May – August 2009	NSF Research Experience for Undergraduate Internship, Department of Meteorology, Penn State University
Fall 2008 – Dec 2009	Undergraduate Independent Research, Department of Meteorology, Penn State University
June – August 2008	DEVELOP Undergraduate Research Assistant, NASA Goddard Space Flight Center

Technical Skills:

- Languages:
 - Enhanced proficiency: Fortran, Python, IDL
 - Moderate proficiency: C, Java (Eclipse), Perl, React Native (mobile application development), Assembly, MatLab
 - Developing proficiency: JavaScript, HTML
- Public Models:
 - Enhanced proficiency: Weather Research and Forecasting (WRF) Model
- Computer Engineering
 - Moderate Proficiency: High-Performance Computing

- Developing proficiency: Systems Architecture, Compilers, Machine Learning (Tensorflow/Keras)
- Operating Systems: Mac OSX, Linux/Unix
- Tools: GitHub, LaTeX, Microsoft Office, Adobe Illustrator and Photoshop
- Project Management
- Technical Writing

Teaching/Mentoring Experience:

Spring 2019	Volunteer Course Instructor, Cloud and Precipitation Physics
Spring 2017, 2018	Volunteer Course Instructor, Atmospheric Physics
August 2018-Present	Primary Research Advisor to Ph.D. student, Ms. Yichen Cai
August 2016-Present	Primary Research Advisor to Ph.D. student, Ms. Vanessa Przybylo
August 2016-Present	Primary Research Advisor to Ph.D. student, Ms. Lauriana Gaudet
Summer 2018	PIRE Undergraduate Student Exchange Mentor, Ms. Sin-Yin Syu
Summer 2017	PIRE Undergraduate Student Exchange Mentor, Ms. Pei-Hsin Liu
Sept 2012 - May 2013	Assistant research mentor to undergraduate, Ms. Jennifer VanDerHorn and graduate student, Mr. Benjamin Sherman
Spring 2010	Teaching Assistant, Department of Meteorology, Penn State University

Professional Activities:

2019 - Present	Member, American Meteorological Society Cloud Physics Committee
2019 - Present	Member, New York State Mesonet Advisory Board
2017 - Present	Science and Innovation Lead, ASRC ExTreme Collaboration, Innovation, and Technology (xCITE) Laboratory
2016 - Present	Principal Investigator, DOE-funded award, <i>Investigating the Evolution of Ice Particle Distributions in Mixed-Phase Clouds</i>
2015 - Present	Contributing Investigator, NSF-funded US-Taiwan PIRE: <i>Building Extreme Weather Resiliency Through Improved Weather and Climate Prediction and Emergency Response Strategies</i>
2014 - Present	Chair, ASRC Graduate Recruitment/Fellowship Committee
2014 - Present	Reviewer for Geophysical Research Letters
August 2014	National Science Foundation Outreach Program, Barrow, AK
2013 - Present	Reviewer for Journal of Geophysical Research - Atmospheres
January - Feb 2012	National Center for Atmospheric Research Visitor Program – Dr. Hugh Morrison
December 2010	Session Co-Convener, American Geophysical Union Fall Meeting
December 2010	Book Review for Cambridge Academic Press
2007 - Present	Member of the American Meteorological Society
2008 - Present	Member of the American Geophysical Union
2008 - 2010	Member of Phi Sigma Pi, National Honor Fraternity

Publications:

- Schmitt, C. G., [K. J. Sulia](#), Z. J. Lebo, A. J. Heymsfield, V. Przybylo, P. Connolly, 2019: The variability of the terminal velocity of similarly sized ice particles. *J. Appli. Met. Climatol.*, in review.
- Gaudet, L., [K. J. Sulia](#), F. Yu, and G. Luo, 2019: Sensitivity of Lake-Effect Cloud Microphysical Processes to Ice Crystal Habit and Nucleation during OWLeS IOP4. *J. Atmos. Sci.*, in review.
- Przybylo, V., [K. J. Sulia](#), C. G. Schmitt, and Z. Lebo, 2019: The Ice Particle and Aggregate Simulator (IPAS). Part I: Extracting dimensional properties of ice-ice aggregates for microphysical parameterization. *J. Atmos. Sci.*, accepted.
- [Sulia, K. J.](#) and M. R. Kumjian, 2017: Simulated Polarimetric Fields of Ice Vapor Growth Using the Adaptive Habit Model. Part I: Large-Eddy Simulations. *Mon. Wea. Rev.*, 145, 2281-2302.
- [Sulia, K. J.](#) and M. R. Kumjian, 2017: Simulated Polarimetric Fields of Ice Vapor Growth Using the Adaptive Habit Model. Part II: A Case Study from the FROST Experiment. *Mon. Wea. Rev.*, 145, 2303-2323.
- [Sulia, K.](#), J.Y. Harrington, and H. Morrison, 2014: Dynamical and microphysical evolution during mixed-phase cloud glaciation simulated using the bulk adaptive habit prediction model. *Journal of the Atmospheric Sciences*, early online release, doi: 10.1175/JAS-D-14-0070.1.
- Ovchinnikov, M., A.S. Ackerman, A. Avramov, A. Cheng, J. Fan, A.M. Fridlind, S. Ghan, J.Y. Harrington, C. Hoose, A. Korolev, G.M. McFarquhar, H. Morrison, M. Paukert, J. Savre, B. Shipway, M.D. Shupe, A. Solomon and [K. Sulia](#), 2014: Intercomparison of large-eddy simulations of Arctic mixed-phase clouds: Importance of ice size distribution assumptions. *Journal of Advances in Modeling Earth Systems*, 6, doi:10.1002/2013MS000282.
- [Sulia, K.](#), J. Y. Harrington, and H. Morrison, 2013: A method for adaptive habit prediction in bulk microphysical models: Part III: Applications and studies within a two-dimensional kinematic model. *Journal of the Atmospheric Sciences*, 70 (10), 3302-3320, doi: 10.1175/JAS-D-12-0316.1.
- Harrington, J. Y., [K. Sulia](#), and H. Morrison, 2013: A method for adaptive habit prediction in bulk microphysical models: Part I: Theoretical Development. *Journal of the Atmospheric Sciences*, 70 (2), 349-364.
- Harrington, J. Y., [K. Sulia](#), and H. Morrison, 2013: A method for adaptive habit prediction in bulk microphysical models: Part II: Parcel model corroboration. In press, *Journal of the Atmospheric Sciences*, 70 (2), 365-376.
- Morrison, H., G. de Boer, G. Feingold, J. Y. Harrington, M. Shupe, and [K. Sulia](#), 2012: Self-organization and resilience of Arctic mixed-phase clouds. *Nature Geoscience*, 5, 11-17.
- [Sulia, K.](#) and J. Y. Harrington, 2011: Ice Aspect Ratio Influences on Mixed-Phase Clouds. Impacts of Phase Partitioning in Parcel Models. *Journal of Geophysical Research*, 116, D21309.
- Ervens, B., G. Feingold, [K. Sulia](#), and J. Y. Harrington, 2011: The Impact of Microphysical parameters, ice nucleation mode, and habit growth on ice/liquid partitioning in mixed-phase Arctic clouds. *Journal of Geophysical Research*, 116, D17205.
- Sheridan, L., J. Y. Harrington, D. Lamb, and [K. Sulia](#), 2009: Influences of ice aspect ratio on the evolution of particle size spectra during vapor depositional growth. *Journal of Atmospheric Sciences*, 66, 3732-3734.

Conference Proceedings:

Invited Talks

- [Sulia, K.](#), A. Kurbanovas, M. Beauharnois, and W. May, 2018: Machine learning in the xCITE Lab: New Endeavors at the Atmospheric Sciences Research Center. In proceedings, *2018 ASR Science Team Meeting*, Tysons Corner, VA.
- [Sulia, K.](#), M. Kumjian, and H. Morrison, 2013: Using a model of crystal aspect ratio to reveal the polarimetric radar fingerprint of ice depositional growth. In proceedings, *2013 ASR Fall Working Group*, Rockville, Maryland.
- [Sulia, K.](#), J.Y. Harrington, and H. Morrison, 2012: On the influence of ice habit on Arctic cloud phase

partitioning: With insight into ice particle parameterizations. In Proceedings, *2012 DOE ASR Science Team Meeting*, Crystal City, VA.

Papers and Poster Presentations

- Blair, J, K. Sulia, J. P. Chen, and L. C. Gaudet, 2019: Microphysical Influences on Ensemble Members in the December 15-16, 2013 OWLeS Case. In proceedings, *18th Annual Student Conference*, Phoenix, AZ, Amer. Meteor. Soc.
- Gaudet, L. C. and K. J. Sulia, 2019: Sensitivity of Lake-Effect Cloud Microphysical Processes to Ice Crystal Habit and Nucleation during OWLeS IOP4. In proceedings, *11th Symposium on Aerosol-Cloud-Climate Interactions*, Phoenix, AZ, Amer. Meteor. Soc.
- Gaudet, L. C. and K. J. Sulia, 2018: Investigating the Sensitivity of Ice Crystal Habit and Nucleation on Hydrometeor Sedimentation Rates. In proceedings, *15th Conference on Cloud Physics*, Vancouver, BC, Amer. Meteor. Soc.
- Przybylo, V., K. Sulia, C. Schmitt, Z. Lebo, and W. May, 2018: Use of an Ice Particle and Aggregate Simulator to extract dimensional properties of ice-ice aggregates for microphysical parameterization. In proceedings, *15th Conference on Cloud Physics*, Vancouver, BC, Amer. Meteor. Soc.
- Gaudet, L. C. and K. J. Sulia, 2018: Investigating the Sensitivity of Nucleation Parameterization and Crystal Habit on Ice Growth. In proceedings, *10th Symposium on Aerosol-Cloud-Climate Interactions*, Austin, TX, Amer. Meteor. Soc.
- Przybylo, V., K. Sulia, C. Schmitt, Z. Lebo, and W. May, 2018: Use of an Ice Particle and Aggregate Simulator to extract dimensional properties of ice-ice aggregates for microphysical parameterization. In proceedings, *2018 ASR Science Team Meeting*, Tysons Corner, VA.
- Gaudet, L. C. and K. J. Sulia, 2017: The Sensitivity of Nucleation Parameterization on Non-Spherical Ice Growth: Consequences for Extreme Precipitation. 14th Annual AOGS Meeting, Singapore, Asia Oceania Geosciences Society, AS36-A033.
- Schmitt, C., K. Sulia, Z. Lebo, and V. Przybylo, 2017: Estimates of ice crystal terminal velocity using IPAS. In proceedings, *2017 ASR Science Team Meeting*, Tysons Corner, VA.
- Sulia, K, F. Yu, Q. Min, G. Luo, M. Gibbon, L. Gaudet, Y. Du and Y. Zhang, 2017: The Importance of Microphysical Process Parameterizations on Extreme Weather. *14th Annual AOGS Meeting*, Singapore, Asia Oceania Geosciences Society.
- Sulia, K., J. Y. Harrington, and H. Morrison, 2014: On the prediction of ice habit for models: Influences on mixed-phase cloud glaciation. In proceedings, *14th Conference on Cloud Physics*, Boston, Massachusetts.
- Ovchinnikov, M., A. S. Ackerman, A. Avramov, A. Cheng, J. Fan, A. M. Fridlind, S. Ghan, J. Harrington, C. Hoose, A. Korolev, G. McFarquhar, H. Morrison, M. Paukert, J. Savre, B. Shipway, M. Shupe, A. B. Solomon, and K. Sulia, 2014: Intercomparison of large-eddy simulations of Arctic mixed-phase clouds: Importance of ice size distribution assumptions. In proceedings, *14th Conference on Cloud Physics*, Boston, Massachusetts.
- Lu, Y., K. Aydin, E. E. Clothiaux, J. Verlinde, J. Van Der Horn, K. Sulia, and J. Y. Harrington, 2014: Evaluation of cloud microphysical models with habit prediction using polarimetric radar observables. In proceedings, *14th Conference on Cloud Physics*, Boston, Massachusetts.
- Sulia, K., J. Y. Harrington, and H. Morrison, 2013: On the influence of ice habit on Arctic cloud phase partitioning: With insight into particle parameterizations. In proceedings, *2013 ASR Science Team Meeting*, Potomac, Maryland.
- Sulia, K., J. Y. Harrington, and H. Morrison, 2012: On the influence of ice habit on Arctic cloud phase partitioning: Kinematic studies of a new adaptive habit growth model. In proceedings, *16th International Conference on Clouds and Precipitation*, Leipzig, Germany.
- Sulia, K., J. Y. Harrington, and H. Morrison, 2012: On the influence of ice habit on Arctic cloud phase partitioning: With insight into particle parameterizations. In proceedings, *8th International Cloud Modeling Workshop*, Warsaw, Poland.

- Sulia, K., J. Y. Harrington, and H. Morrison, 2011: On the influence of ice habit on the lifetime of arctic mixed-phase clouds. In proceedings, *2011 ASR Science Team Meeting*, San Antonio, Texas.
- Sulia, K., Z. Lebo, and J. Y. Harrington, 2011: Broadening of drop-size spectra by ice crystal vapor growth. In proceedings, *2011 ASR Science Team Meeting*, San Antonio, Texas.
- Ervens, B. G. Feingold, K. Sulia, J. Y. Harrington, 2010: On the role of ice formation mechanisms and habit growth in the maintenance of mixed-phase Arctic stratus. In proceedings, *2010 AGU Fall Meeting*, San Francisco, California.
- Sulia, K. and J. Y. Harrington, 2010: On the prediction of ice habit for models: Influences on mixed-phased cloud maintenance. In proceedings, *2010 AGU Fall Meeting*, San Francisco, California.
- Sulia, K. and J. Y. Harrington, 2010: On the prediction of ice habit for models: Influences on mixed-phased cloud glaciation. In proceedings, *2010 Earth and Mineral Sciences Graduate Student Poster Session*, University Park, Pennsylvania.
- Ervens, B. G. Feingold, K. Sulia, J. Y. Harrington, 2010: Impacts of ice nucleation modes and ice crystal habits on mixed-phase cloud lifetime. In proceedings, *13th Conference on Cloud Physics*, Portland, Oregon.
- Harrington, J. Y., A. Moyle, K. Sulia, and E. Davis, 2010: The button-electrode thermal gradient diffusion chamber. In proceedings, *13th Conference on Cloud Physics*, Portland, Oregon.
- Sulia, K., J. Y. Harrington, and H. Morrison, 2010: On the prediction of ice habit for models: Influences on mixed-phased cloud glaciation. In proceedings, *13th Conference on Cloud Physics*, Portland, Oregon.
- Harrington, J. Y., K. Sulia, H. Morrison, and C. Zhang, 2010: On the parameterization of ice crystal growth in numerical cloud models. In proceedings, *Arm Science Team Meeting*, Bethesda, Maryland.
- Harrington, J. Y., A. Avramov, C. Zhang, K. Sulia, and D. Lamb, 2009: Influence of parameterized ice habit on the glaciation of Arctic clouds. In proceedings, *ARM Science Team Meeting*, Louisville, Kentucky.
- Harrington, J. Y., A. Avramov, C. Zhang, K. Sulia, and D. Lamb, 2009: Influence of parameterized ice habit on the glaciation of Arctic clouds. In proceedings, *10th Conference on Polar Meteorology and Oceanography*, Madison, Wisconsin.

Honors and Awards:

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| August 2014 | Invited Talk, Saturday Schoolyard Seminar Series, Barrow Arctic Science Consortium, Barrow, Alaska |
| March 2014 | Invited Talk, 2014 Department of Energy Atmospheric Systems Research Science Team Meeting |
| February 2014 | Invited Talk, Atmospheric Science Research Center, The University at Albany |
| November 2013 | Invited Talk, 2013 Department of Energy Atmospheric Systems Research Fall Working Group Meeting |
| Sept 2010 - Aug 2013 | Department of Energy Office of Science Graduate Fellowship |
| February 2013 | Invited Talk, NOAA Geophysical Fluid Dynamics Laboratory |
| January 2013 | Penn State Alumni Association Dissertation Award |
| November 2012 | Invited Talk, NCAR Seminar Series |
| March 2012 | Invited Talk, 2012 Department of Energy Atmospheric Systems Research Science Team Meeting |

March 2011 Department of Energy Atmospheric Systems Research Student Poster Award

December 2010 American Geophysical Union Outstanding Student Paper Award

Undergraduate Award Micasu Scholarship

Undergraduate Award Hans A. Panofsky Scholarship

Undergraduate Award Matthew J. Wilson Honors Scholarship

Undergraduate Award John and Elizabeth Holmes Teas Scholarship