Sarah Y. Murphy

Sarah.Y.Murphy@wsu.edu | https://sarahymurphy.github.io/

EDUCATION

- *Ph.D. Engineering Science* — August 2015 – Present
  Voiland College of Engineering and Architecture
  Washington State University, Pullman, WA
- *B.S., Atmospheric Science* — August 2010 – May 2015
  Minors: Mathematics and Physics
  Lyndon State College (Northern Vermont University at Lyndon), Lyndonville, VT

EXPERIENCE

- Visiting Researcher — January 2021 – June 2021
  Pacific Northwest National Lab
  - Set up and conducted idealized model simulations for case study periods expanding on Ph.D. work
- Research Assistant — September 2015 – Present
  Washington State University
  - Modeling with the Polar Weather Research and Forecasting model to assess microphysics and boundary layer schemes and validate with measurements
  - Working with data collected during the Norwegian Young Sea Ice (N-ICE) experiment to examine the surface energy balance over newly formed sea ice
  - Traveled to Summit Station, Greenland to complete instrument testing and calibrations
- Teaching Assistant — September 2017 – May 2018, January 2020 - May 2020
  Washington State University
  - Helped to lead students working with atmospheric and water chemistry instruments in lab work in the Environmental Measurements course
  - Co-taught Engineering Ethics course
  - Provided both teaching and student support for Environmental Measurements, Engineering Ethics, Climate Change Science and Engineering, and Intro to Environmental Engineering
- Plains Elevated Convection at Night (PECAN) Project Participant — Summer 2015
  The Center for Severe Weather Research
  - Worked on a a mobile mesonet team in placing pods, launching radiosondes, and driving mesonet truck
  - Operated and drove the Doppler On Wheels radar
- Research Assistant — 2014 – 2015
  Vermont Low Income Trust for Electricity at Lyndon State College
  - Examined the impact of climate change on solar energy production in the Caledonia County, Vermont
- Research Experience for Undergraduate Summer Intern — Summer 2014
  Colorado State University CHILL Radar Research Group
  - Conducted a case study on a supercell in Denver, Colorado on May 21, 2014 to display the capabilities of the FRONT network in northern Colorado

SKILLS

- Python
- MATLAB
- Unix systems
- Atmospheric Modeling
- Linear Algebra
- High-Performance and Cloud Computing
- Amazon Web Services and Microsoft Azure

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PUBLICATIONS

- **Murphy, S. Y**., V. P. Walden, S. R. Hudson. L. Cohen, R. Stillwell, 2019: Radiative Forcing by Arctic Clouds during the Norwegian Young Sea Ice (N-ICE2015) campaign. In preparation.
- Walden, V. P., S. R. Hudson, L. Cohen, **S. Y. Murphy**, and M. A. Granskog (2017), Atmospheric components of the surface energy budget over young sea ice: Results from the N−ICE2015 campaign, *J. Geophys. Res. Atmos.*, 122, 8427–8446, doi:10.1002/2016JD026091.
- Hanrahan, Janel, Maynard, Alex, **Murphy, Sarah Y.**, Zercher, Colton, Fitzpatrick, Allison (2017). Examining the Climatology of Shortwave Radiation in the Northeastern United States. Journal of Applied Meteorology and Climatology. 56. 10.1175/JAMC-D-16-0420.1.

TALKS

- An Assessment of Polar WRF Microphysics and Boundary Layer Schemes using Data from the Norwegian Young Sea Ice Experiment), American Geophysical Union 2018 Fall Meeting, December 14, 2018
- The Impact of Cloud Properties on Young Sea Ice during Three Winter Storms at N-ICE2015, American Geophysical Union 2017 Fall Meeting, December 15, 2017
- Seasonal Variation of Cloud Radiative Forcing Over Young Sea Ice During the N-ICE2015 Experiment, American Meteorological Society 14th Conference on Polar Meteorology and Oceanography as part of the 97th Annual Meeting, January 24, 2017
- Examining the Climatology of Solar Energy Potential in Vermont, Vermont Weather & Energy Analytics Project Weather Team Meeting at IBM TJ Watson Research Center, May 2015

TUTORIALS

- Using Python in RStudio with reticulate presented for R Working Group at Washington State University, April 14 2021
- GitHub websites presented for Spring 2021 Reproducible Research with R Workshop (Day 5) at Washington State University, March 19, 2021
- GitHub websites presented for Fall 2020 Reproducible Research with R Workshop (Day 5) at Washington State University, November 20, 2021

POSTERS

- Testing boundary layer and cloud parameterizations in the Polar Weather Research and Forecasting model using data from the Norwegian Young Sea ICE (N-ICE2015) cruise, American Geophysical Union 2020 Fall Meeting, December 15, 2020
- Comparison of Atmospheric and Cloud Observations with Model Simulations in Three Seasons during the N-ICE2015 Field Campaign, American Meteorological Society 15th Conference on Atmospheric Radiation, July 11, 2018
- Seasonal Variation of Cloud Radiative Forcing Over Young Sea Ice During the N-ICE2015 Experiment, 2017 Radiation and Climate Gordon Research Conference: Connecting Observations to Global Circulation Modeling Challenges, July 2017
- Seasonal Variation of Cloud Radiative Forcing Over Young Sea Ice During the N-ICE2015 Experiment, 2017 Gordon Research Seminar on Radiation and Climate: Future Challenges in Using Models and Observations for Understanding Climate Processes, July 2017
- Seasonal Variation of Cloud Radiative Forcing Over Young Sea Ice During the N-ICE2015 Experiment, American Geophysical Union 2016 Fall Meeting, December 15, 2016
- A Preliminary Case Study of Cloud Radiative Forcing During the N-ICE2015 Experiment (poster shown near bottom of page), 2016 Connaught Summer Institute in Arctic Science: Atmosphere, Cryosphere, and Climate, July 2017
- Observational Capabilities of the FRONT Network: 21 May 2014, 40th Annual Northeastern Storm Conference, March 2015
- Observational Capabilities of the FRONT Network: 21 May 2014, American Meteorological Society 14th Annual Student Conference, January 4, 2015
- Observational Capabilities of the FRONT Network: 21 May 2014, American Meteorological Society's 31st Conference on Environmental Information Processing Technologies as part of the 95th Annual Meeting, January 7, 2015

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AWARDS AND DISTINCTIONS

- Department of Energy Office of Science Graduate Student Research Program 2019 Solicitation 2 Fellow — September 2020 - February 2021
  Conducted research modeling clouds over the Arctic at the Pacific Northwest National Lab with Dr. Hailong Wang for a 5-month period.
- Paul A. Weir Scholarship Fund — May 2017
- Washington State University David E. Harsch Memorial Award — May 2016
- First Place Poster Presenter in Joint EIPT&R2O Conference Student Competition at the 95th AMS 2015 Annual Meeting — January 2015
  Award received for poster on *The Observational Capabilities of the FRONT Network: 21 May 2014 Case*

MEMBERSHIPS

American Meteorological Society — 2013 – Present

American Geophysical Union — 2014 – Present

Association of Polar Early Career Scientists — 2016 – Present

COLLEGE AND COMMUNITY INVOLVEMENT

- Data and Software Carpentry Certified Instructor — 2018 – Present
  Instructed and assisted in organization and student engagement during several Data and Software carpentry workshops at Washington State University. Primary instructor focus in Python programming but also involved with unix and other episodes.
- Whitman County Humane Society Volunteer — 2018 – 2019
  Cleaned, provided care for, and socialized cats, dogs, and exotic animals. Fostered and socialized stray cats as they were prepared for adoption.
- Co-Coordinator of the Lyndon State College Weather Balloon Launch Team — 2013 – 2015
  Collected data from balloon launches using Vaisala DigiCORA sounding system and lead a group of students in launching weather balloons
- Historian - Lyndon State College Student Chapter of the American Meteorological Society and National Weather Association — 2012 – 2015
  Kept track of the history of the chapter and assisted in planning the 38th, 39th, and 40th annual Northeastern Storm Conference
- Panelist at Women in Science and Technology Conference — April 2014
  Spoke to young women at White Mountain Community College about pursuing a career in the sciences
- Lyndon State College Student Government Association Elected Class Representative — 2013 – 2015
  Represented the class of 2015 in the Lyndon State College student government by voting on issues concerning the student body