

Sarah Y. Murphy

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EDUCATION

Ph.D. Engineering Science

August 2015 – December 2022 (Expected)

*Voiland College of Engineering and Architecture,
Washington State University, Pullman, WA*

Bachelor of Science, Atmospheric Science

August 2010 – May 2015

*Lyndon State College (now Northern Vermont
University at Lyndon), Lyndonville, VT*

Minors: Mathematics and Calculus-Based Physics

SKILLS

- Python
- MATLAB
- HPC systems including:
 - Amazon Web Services
 - Microsoft Azure
- Atmospheric modeling with the Weather Research and Forecasting Model
- GitHub and GitHub sites
- Workshop instruction

TRAININGS

Data and Software Carpentry Certified Instructor

October 2018 - Present

- Co-lead maintainer of Python for Atmosphere and Ocean Scientists Data Carpentry lesson
- Instructed and assisted in organization and student engagement during several Data and Software carpentry workshops
- Taught lessons in Python, Unix, R Markdown, Github Pages, and Spreadsheets
- Co-instructed an American Meteorological Society short course using the Python for Atmosphere and Ocean Scientists Data Carpentry lesson

CyberTraining: Big Data + High-Performance Computing + Atmospheric Sciences Course

Spring 2019

- [Course syllabus](#) highlights: the use of MPI, atmospheric physics, running jobs with Hadoop and Spark on HPCs, and deep machine learning
- Final project details in the technical report:
Becker, C., Mayfield, W., **Murphy, S. Y.**, and Wang, B. (2019). An Approach to Tuning Hyperparameters in Parallel: A Performance Study Using Climate Data CyberTraining: Big Data + High-Performance Computing + Atmospheric Sciences. Available at <http://hpcf-files.umbc.edu/research/papers/CT2019Team3.pdf>

Weather Research and Forecasting Model Tutorial

Winter 2017

- Learned how to install, run, and modify settings with the Weather Research and Forecasting Model

PUBLICATIONS

- 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.
- Walden, V. P., **Murphy, S.**, Hudson, S. R., & Cohen, L. (2017). N-ICE2015 atmospheric turbulent fluxes [Data set]. Norwegian Polar Institute. <https://doi.org/10.21334/npolar.2017.298013b7>

RESEARCH EXPERIENCE

Research Assistant

Washington State University

September 2015
– Present

- 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

DOE Office of Science Graduate Research Student Program Awardee

Pacific Northwest National Laboratory, Richland, WA

January 2021 -
June 2021

- Worked virtually with scientists at the lab to conduct idealized modeling experiments using the Weather Research and Forecasting model.

Teaching Assistant

Washington State University

September 2017
– May 2018

- 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, and Intro to Environmental Engineering

Plains Elevated Convection at Night (PECAN) Project Participant

The Center for Severe Weather Research

Summer 2015

- Worked on a mobile mesonet team in placing pods, launching radiosondes, and driving mesonet truck
- Operated and drove the Doppler On Wheels radar

Research Assistant

Vermont Low Income Trust for Electricity at Lyndon State College

2014 – 2015

- Examined the impact of climate change on solar energy production in the Caledonia County, Vermont

Research Experience for Undergraduate Summer Intern

Colorado State University CHILL Radar Research Group

Summer 2014

- 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

Research Assistant

Lyndon State College

Summer 2013

- Studied climate change's impact on the tree line on Mount Washington, New Hampshire

MEMBERSHIPS

American Meteorological Society

2013 – Present

American Geophysical Union

2014 – Present

Association of Polar Early Career Scientists

2016 – Present

COMMUNITY INVOLVEMENT

- Data and Software Carpentry Certified Instructor

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.

2018 – Present
- Washington State University Python Working Group Organizer

Organized and led weekly meetings of the Washington State University Python Working Group during the 2021-2022 school year. Presented several introductory and higher-level talks and tutorials.

2021 - 2022
- Whitman County Humane Society Volunteer

Cleaned, provided care for, and socialized cats, dogs, and exotic animals. Fostered and socialized stray cats as they were prepared for adoption.

2018 – 2019
- Co-Coordinator of the Lyndon State College Weather Balloon Launch Team

Collected data from balloon launches using Vaisala DigiCORA sounding system and lead a group of students in launching weather balloons

2013 – 2015
- Historian - Lyndon State College Student Chapter of the American Meteorological Society and National Weather Association

Kept track of the history of the chapter and assisted in planning the 38th, 39th, and 40th annual Northeastern Storm Conference

2012 – 2015
- Lyndon State College Student Ambassador

Gave tours to perspective students and helped to run admissions events on campus

2014 – 2015
- Panelist at Women in Science and Technology Conference

Spoke to young women at White Mountain Community College about pursuing a career in the sciences

April 2014
- Lyndon State College Student Government Association Elected Class Representative

Represented the class of 2015 in the Lyndon State College student government by voting on issues concerning the student body

2013 – 2015
- Lyndon State College Weather Camp Student Volunteer

Assisted in the organization and in running a weather camp for students in 7th – 9th grades

August 2013

AWARDS AND DISTINCTIONS

- Washington State University David E. Harsch Memorial Award

May 2022
- DOE Office of Science Graduate Research Student Program Awardee

May 2020
- Washington State University Andy Studebaker Scholarship

December 2018
- Washington State University Paul A. Weir Scholarship

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 for “Observational Capabilities of the FRONT Network: 21 May 2014 Case”

January 2015
- Lyndon State College Alumni Scholarship Endowment

2014 – 2015
- Lyndon State College Faculty and Staff Scholarship Endowment Fund Recipient

2014 – 2015