

Una Kim Miller

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Education

Ph.D. Columbia University, Earth and Environmental Sciences	2023
M.A. Columbia University, Earth and Environmental Sciences	2018
B.S. University of Washington, Oceanography	2015

Appointments

Postdoctoral Research Fellow University of Rhode Island	2023 - present
Research Assistant University of Washington	2012-2016

Awards

Early Career Poster Award , International Symposium on Polar Sciences	2021
Future Investigators in NASA Earth and Space Science and Technology (FINESST) grant	2019

Peer-Reviewed Publications

1. Scaling of moored surface ocean turbulence measurements in the Southeast Pacific Ocean
Miller, U.K., C. J. Zappa, S. Zippel, J. T. Farrar, R. A. Weller (2023)
J. Geophys. Res. Oceans, [doi:10.1029/2022JC018901](https://doi.org/10.1029/2022JC018901)
2. TKE Dissipation Rate Estimates from Pulse-Coherent ADCPs on Moorings
Zippel, S., J. T. Farrar, C. J. Zappa; **U. K. Miller**, L. St. Laurent, T. Ijichi, R. A. Weller, L. McRaven, D. Le Bel (2021)
J. of Atmos. Ocean. Technol., [doi:10.1175/JTECH-D-21-0005.1](https://doi.org/10.1175/JTECH-D-21-0005.1)
3. Warming and inhibition of salinization at the ocean's surface by cyanobacteria
Wurl, O., K. Bird, M. Cunliffe, W.M. Landing, **U. K. Miller**, N. I. H. Mustaffa, et al. (2018)
Geophys. Res. Lett., [doi:10.1029/2018GL077946](https://doi.org/10.1029/2018GL077946)
4. Analysis of bubble plume distributions to evaluate methane hydrate decomposition on the continental slope
Johnson, H. P., **U. K. Miller**, M. S. Salmi, and E. A. Solomon (2015)
Geochem. Geophys. Geosyst., [doi:10.1002/2015GC005955](https://doi.org/10.1002/2015GC005955).
5. Dissociation of Cascadia margin gas hydrates in response to contemporary ocean warming
Hautala, S. L., E. A. Solomon, H. P. Johnson, R. N. Harris, **U. K. Miller** (2014)
Geophys. Res. Lett., [doi:10.1002/2014GL061606](https://doi.org/10.1002/2014GL061606).

Presentations

Antarctic Sea Ice and Southern Ocean Discussions Seminar

University of Texas at San Antonio, Online, 7 December 2022

TALK: *High Salinity Shelf Water production in Terra Nova Bay, Ross Sea from high-resolution near-surface salinity observations*

2022 Ocean Sciences Meeting

American Geophysical Union, Online, 24 February – 4 March 2022

TALK (Abstract - 2181-A): *High Salinity Shelf Water production rates from near-surface mooring data*

26th International Symposium on Polar Sciences

Korea Polar Research Institute, Online, 27-29 September 2021

POSTER: *A high-resolution process study of High Salinity Shelf Water formation in the Terra Nova Bay Polynya, Ross Sea, Antarctica*

University of Rhode Island Physical Oceanography Seminar Series*

University of Rhode Island, Online, 30 April 2021

TALK: *A high-resolution process study of High Salinity Shelf Water formation in the Terra Nova Bay Polynya, Ross Sea, Antarctica*

Antarctic Sea Ice and Southern Ocean Discussions Seminar

University of Texas at San Antonio, Online, 17 February 2021

TALK: *The Lamont-Doherty Earth Observatory Mooring*

2020 Fall Meeting

American Geophysical Union, Online, 1-17 December 2021

POSTER (Abstract GC116-0001): *A high-resolution process study of High Salinity Shelf Water formation in the Terra Nova Bay Polynya, Ross Sea, Antarctica*

Land-Ice-Ocean Network Exploration with Semiautonomous Systems (LIONESS) Workshop

Korea Polar Research Institute, Online, 13-15 May 2020

TALK: *Investigation of High Salinity Shelf Water in the Terra Nova Bay Polynya, Ross Sea*

2020 Ocean Sciences Meeting AGU, San Diego, CA, 16-20 February 2020

TALK (Abstract PS11A-03): *Scaling turbulence in the ocean boundary layer of the Southeast Pacific Ocean stratus region*

2015 Fall Meeting AGU, San Francisco, CA, 14-18 December 2015

POSTER (Abstract OS23B-1990): *Analysis of Bubble Plume Distributions to Evaluate Methane Hydrate Decomposition on the Continental Slope.*

*Invited

Outreach and Mentoring Activities

PyClub 2020-2021

Co-developed and taught 8-lesson course to introduce oceanography and python coding to NYC high school students

Girls Who Code at Columbia University 2016 – 2019, 2021

Managed and participated in weekly coding classes for NYC high school girls, participated in weekly organizational meetings, supervised field trips. Developed a lesson on the NumPy, Pandas, and Matplotlib packages to be taught in a new data analysis course.

Girls' Science Day at Columbia University 2016 – 2018

Assisted with science demonstrations in an annual science fair that engages NYC middle and high school girls in scientific research occurring at Columbia University

Lamont-Doherty Earth Observatory Open House 2016, 2017, 2018, 2020

Assisted annually in development and demonstration of various oceanography-related exhibits for the general public

Professional Service

Seminar Coordinator Ocean and Climate Physics Seminar Series, 2019 - 2020

Invited speakers and managed logistics for weekly divisional seminar series

Seminar Coordinator Lamont-Doherty Earth Observatory Earth Science Colloquium, 2018 – 2020

Invited two speakers per semester and managed logistics for institution-wide seminar series

Student Representative Lamont-Doherty Earth Observatory Executive Committee, 2019 - 2020

Advocated for graduate student matters in monthly meetings with the LDEO directorate

Computational and Data Analysis Skills

Languages: Python, MATLAB

Frequently-Used Analytical & Visualization Software: Python packages (Pandas, xarray, Matplotlib, NumPy, SciPy, Rasterio), JupyterLab, QGIS

Other: Command line Git, GitHub

Teaching Experience

PyClub Spring 2021, Online

Led a lesson introducing the use of the Pandas package in Python and co-taught others

Introduction to Physical Oceanography* Fall 2018, Columbia University

Teaching Assistant; led weekly office hour sessions, graded homework

Dynamics of Climate Variability and Change Fall 2017, Columbia University

Teaching Assistant; led weekly office hour sessions, graded homework

Oceanography of the Pacific Northwest* Fall 2015, University of Washington

Teaching Assistant; assisted in lab demonstrations, graded homework

*Student evaluation available upon request

Research Cruise Experience

Southwest Pacific Ocean 6 weeks, 2019, R/V Falkor

Observation of biological and physical processes occurring at the sea surface microlayer

Ross Sea, Antarctica 6 weeks, 2018, R/V Araon

Retrieval and deployment of various physical oceanographic moorings

Nootka Sound, British Columbia 10 days, 2014, R/V Thompson

Thesis data collection for senior undergraduates in the University of Washington Department of Oceanography

Washington and Oregon coasts 10 days, 2014, R/V Thompson

Geochemical and geophysical observation of methane plumes on the continental margin

Washington and Oregon coasts 2 weeks, 2014, R/V Thompson

Retrieval of Ocean Bottom Seismometers monitoring seismic activity on the Cascadia Subduction Zone

Washington and Oregon coasts 4 weeks, 2013, R/V Atlantis

Investigation of the thermal and fluid environment of the Cascadia Subduction Zone