

# Una Kim Miller

Columbia University · Lamont-Doherty Earth Observatory · [umiller@ldeo.columbia.edu](mailto:umiller@ldeo.columbia.edu) · <https://unamiller.github.io/>

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## Education

**Ph.D.** Columbia University, Earth and Environmental Sciences, Expected 2022

*Thesis: High Salinity Shelf Water formation in the Terra Nova Bay Polynya, Ross Sea, Antarctica*

**M.A.** Columbia University, Earth and Environmental Sciences, 2018

*Thesis: Similarity Scaling of Turbulence Kinetic Energy Dissipation in the Surface Ocean*

**B.S.** University of Washington, Oceanography, 2015

*Thesis: Surface water alkalinity in Nootka Sound, British Columbia*

## Appointments

**Graduate Research Fellow** Columbia University, Lamont-Doherty Earth Observatory, 2016 -

**Research Assistant** University of Washington, Department of Oceanography, 2012-2016

*Assisted P.I. with data collection on research cruises, data analysis, and manuscript writing*

## Awards

**Early Career Poster Award**, International Symposium on Polar Sciences, 2021

**Future Investigators in NASA Earth and Space Science and Technology (FINESST) grant**, 2019

## Publications

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). *TKE Dissipation Rate Estimates from Pulse-Coherent ADCPs on Moorings*. Journal of Atmospheric and Oceanic Technology, [doi:10.1175/JTECH-D-21-0005.1](https://doi.org/10.1175/JTECH-D-21-0005.1)

Wurl, O., K. Bird, M. Cunliffe, W.M. Landing, **U. K. Miller**, N. I. H. Mustaffa, et al. (2018). *Warming and inhibition of salinization at the ocean's surface by cyanobacteria*. Geophysical Research Letters, 45, 4230–4237. [doi:10.1029/2018GL077946](https://doi.org/10.1029/2018GL077946)

Johnson, H. P., **U. K. Miller**, M. S. Salmi, and E. A. Solomon (2015), *Analysis of bubble plume distributions to evaluate methane hydrate decomposition on the continental slope*, *Geochem. Geophys. Geosyst.*, 16, 3825–3839, [doi:10.1002/2015GC005955](https://doi.org/10.1002/2015GC005955).

Hautala, S. L., E. A. Solomon, H. P. Johnson, R. N. Harris, and **U. K. Miller** (2014), *Dissociation of Cascadia margin gas hydrates in response to contemporary ocean warming*, *Geophys. Res. Lett.*, 41, 8486–8494, [doi:10.1002/2014GL061606](https://doi.org/10.1002/2014GL061606).

## Presentations

**26<sup>th</sup> 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*

**Physical Oceanography Seminar\*** 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: Lamont-Doherty Earth Observatory Mooring Update*

**2020 Fall Meeting** AGU, 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, 14-15 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

*Managed and participated in weekly coding classes for NYC high school girls, participated in weekly organizational meetings, led field trips*

**Girls' Science Day at Columbia University** 2016 – 2018

*Assisted in experiment demonstration and group coordination 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, Lamont-Doherty Earth Observatory, 2019 - 2020

*Invited speakers and managed logistics for weekly divisional seminar series*

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

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

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

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

## Teaching Experience

### **PyClub** Spring 2021

*Developed and taught class introducing the use of the Pandas package in Python, co-taught/-developed remaining 7 classes*

### **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*