
Education

- 2016–present **Doctor of Philosophy**, MIT / WHOI Joint Program in Oceanography.
Physical Oceanography
- 2014 **Study Abroad**, Lund University, Sweden.
Mathematics
- 2011–2015 **Bachelor of Science**, Haverford College, Magna Cum Laude.
Mathematics

Research

- 2016–present **MIT / WHOI Joint Program in Oceanography**.
Research Assistant (Physical Oceanography)
- 2015–2016 **Princeton University**.
Research Assistant (Physical Oceanography)
- 2014–2015 **Haverford College**.
Research Assistant (Knot Theory)
- 2013 **University of Southern California**.
Research Assistant (Quantum Computing)
- 2012 **Clarkson University**.
Research Assistant (Environmental Sensor Development)

Publications

2018

- [3] **Lagrangian timescales of Southern Ocean upwelling in a hierarchy of model resolutions**, Drake, H. F., Morrison, A. K., Griffies, S. M., Sarmiento, J. L., Weijer, W., Gray, A. R., *Geophysical Research Letters*, **45**. [doi] [Read online].
- [2] **Lagrangian ocean analysis: fundamentals and practices**, van Sebille, E., Griffies, S. M., Abernathey, R., Adams, T. P., Berloff, P., Biastoch, A., Blanke, B., Chassignet, E. P., Yu Cheng, Y., Cotter, C. J., Deleersnijder, E., Döös, K., Drake, H. F., Drijfhout, S., Gary, S. F., Heemink, A. W., Kjellsson, J., Koszalka, I. M., Lange, M., Lique, C., MacGilchrist, G. A., Marsh, R., Adame, C. G. M., McAdam, R., Nencioli, F., Paris, C. B., Piggott, M. D., Polton, J. A., Rühls, S., Shah, S. H. A. M., Thomas, M. D., Wang, J., Wolfram, P. J., Zanna, L., Zika, J. D., *Ocean Modelling*, **121**, 49-75. [doi] [Download PDF].

2017

- [1] **Spiraling up: pathways of global deep water to the surface of the Southern Ocean**, Tamsitt, V., Drake, H. F., Morrison, A. K., Talley, L. D., Dufour, C. A., Gray, A. R., Griffies, S. M., Mazloff, M. R., Sarmiento, J. L., Wang, J., Weijer, W., *Nature Communications*, **8**, 172. [doi] [Download PDF].

In preparation

Testing a new paradigm for the abyssal ocean circulation, Drake, H. F., Callies, J., Ferrari, R.

Awards

- 2017-present **Graduate Research Fellowship Program**, *National Science Foundation*.
Graduate Fellowship
- 2016-2017 **Rosenblith Presidential Fellowship Program**, *Massachusetts Institute of Technology*.
Graduate fellowship
- 2016 **Graduate Research Fellowship Program**, *National Science Foundation*.
Honorable mention
- 2015 **Haverford College**.
Honors thesis
- 2013 **Howard Hughes Medical Institute**.
Summer research fellowship
- 2012 **Research Experience for Undergraduates (REU)**, *National Science Foundation*.
Summer research fellowship

Conference Talks

- 2018 **Ocean Sciences 2018: "Driving Forces of the Ocean's General Circulation"**, *Portland, OR*, 02/15.
"Testing a New Paradigm for the Abyssal Ocean Circulation"
- 2016 **Southern Ocean Carbon and Climate Observations and Modeling (SOCCOM) Annual Meeting (Year 2)**, *La Jolla, CA*, Co-presented with Veronica Tamsitt, 05/10.
"3-D Pathways of Deep Water Upwelling"

Seminar Talks

- 2017 **MIT Earth, Atmospheric, and Planetary Sciences student seminar series**, *Cambridge, MA*, 03/08.
"Lagrangian upwelling in the Southern Ocean"
- 2016 **Woods Hole Oceanographic Institution student seminar series**, *Woods Hole, MA*, 09/30.
"Modelling Lagrangian adiabatic upwelling pathways in the Southern Ocean"
- 2016 **Southern Ocean Carbon and Climate Observations and Modeling (SOCCOM) graduate student and post-doc webinar series**, *Princeton, NJ*, 06/21.
"3D Visualization and Animation in Python"
- 2016 **Princeton University - Atmospheric and Oceanic Sciences student and post-doc seminar series**, *Princeton, NJ*, 06/27.
"Modelling Lagrangian upwelling pathways of deep waters in the Southern Ocean"
- 2016 **Princeton University - Ocean Biogeochemistry spring seminar series**, *Princeton, NJ*, 02/05.
"The Lagrangian Deep Water Upwelling Pathways in the Southern Ocean"
- 2015 **Haverford College thesis defense in mathematics**, *Haverford, PA*, 05/05.
"Geodesic Paths in Phylogenetic Tree Space"

Posters

- 2017 **12th Annual Graduate Climate Conference: "Atmosphere Ocean Climate Dynamics"**, *Woods Hole, MA*, 11/12.
"Spatial and Temporal Structure of Southern Ocean Upwelling"
- 2016 **Ocean Sciences 2016: "Past, Present, Future Climate"**, *New Orleans, LA*, 02/22.
"Lagrangian Upwelling Pathways of Deep Waters in the Southern Ocean"
- 2012 **Clarkson University Symposium for Undergraduate Research Experiences**, *Potsdam, NY*, 07/27.
"Developing and In-Situ Automated Total Nitrogen Analyzer for Surface Waters"

General Public Talks

- 2017 **Beacon Hill Seminars (High School)**, *Cambridge, MA*, 10/04.
"Ocean Warming and Sea Level Rise"
- 2017 **Science In The News DayCon Conference**, *Cambridge, MA*, 06/10.
"Ocean Warming and Sea Level Rise"

Workshops

- 2015 **Workshop on the Future of Lagrangian Ocean Modelling**, *London, UK*, 10/23-10/25.

Teaching

- 2015 **Teaching assistant at Math Question Center**, *Haverford College*.
- 2012-2013 **Peer tutor in mathematics and physics**, *Haverford College*.

Science Outreach

- 2017-2018 **Conversations with several K-12 classrooms via Skype-A-Scientist**.
- 2017 **Geophysical Fluid Dynamics demos at International School of Boston Middle School**, *Cambridge, MA*.
02/11
- 2017 **Northeast Regional Middle School Science Bowl**, *Cambridge, MA*.
02/11

Professional Service

- 2017 **Executive Committee Member for 2017 Graduate Climate Conference**.
- 2017 **Chair of Committee for MIT Program in Atmospheres, Oceans, and Climate Annual Retreat**.