

Lilian (Lily) Dove

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Education

California Institute of Technology

Pasadena, CA

Ph.D. in Environmental Science and Engineering

June 2023

Thesis title: *Impacts of Zonal Asymmetry on Southern Ocean Dynamics and Biogeochemistry*

California Institute of Technology

Pasadena, CA

M.S. in Environmental Science and Engineering

June 2021

Massachusetts Institute of Technology

Cambridge, MA

B.S. in Earth, Atmospheric and Planetary Science

June 2018

Professional Appointments

Brown University

Providence, RI

NOAA Climate & Global Change Postdoctoral Fellow

September 2023 - present

Publications

- Balwada, D., Gray, A.R., **Dove, L.A.**, Thompson, A.F. (2024). Tracer Ventilation, Stirring, and Variability in the Antarctic Circumpolar Current near the Southwest Indian Ridge. *Journal of Geophysical Research: Oceans*, 129, 1.
- Erickson, Z.K., Fields, E., Johnson, L., Thompson, A.F., **Dove, L.A.**, D'Asaro, E.A., Siegel, D.A. (2023). Eddy Tracking from *in situ* and Satellite Observations. *Journal of Geophysical Research: Oceans*, 128, 8.
- Swart, S., du Plessis, M.D., Nicholson, S-A., **Dove, L.A.**, Thomalla, S., Thompson, A.F., Biddle, L., Edholm, J.M., Giddy, I., Heywood, K.J., Lee, C., Mahadevan, A., Monteiro, P.M.S., Shilling, G., de Souza, R.B. (2023). The Southern Ocean Mixed Layer and its Boundary Fluxes: Fine-scale Observational Progress and Future Research Priorities. *Philosophical Transactions of the Royal Society A*, 381, 2249.
- **Dove, L.A.**, Viglione, G.A., Thompson, A.F., Flexas, M.M., *Cason, T.R., Sprintall, J. (2023). Controls on Wintertime Ventilation in Southern Drake Passage. *Geophysical Research Letters*, 50, 5.
- **Dove, L.A.**, Balwada, D., Thompson, A.F., Gray, A.R. (2022). Enhanced Ventilation in Energetic Regions of the Antarctic Circumpolar Current, *Geophysical Research Letters*, 49, 13.
- **Dove, L.A.**, Thompson, A.F., Balwada, D., Gray, A.R. (2021). Observational Evidence of Ventilation Hotspots in the Southern Ocean, *Journal of Geophysical Research: Oceans*, 126, 7.
- Wolf, M.J., Goodell, M., Dong, E., **Dove, L.A.**, Zhang, C., Franco, L.J., Shen, C., Rutkowski, E.G., Narducci, D.N., Mullen, S., Babbitt, A.R., and Cziczo, D.J. (2020). A Link between the Ice Nucleation Activity of Sea Spray Aerosol and the Biogeochemistry of Seawater, *Atmospheric Chemistry and Physics* 20, 23, 15341-15356.
- Wolf, M.J., Coe, A., **Dove, L.A.**, Zawadowicz, M.A., Dooley, K., Biller, S.J., Zhang, Y., Chisholm, S.W., Cziczo, D.J. (2019). Investigating the Heterogeneous Ice Nucleation of Sea Spray Aerosols Using *Prochlorococcus* as a Model Source of Marine Organic Matter. *Environmental Science and Technology* 53, 3, 1139-1149.

Submitted Publications

- Thompson, A.F., **Dove, L.A.**, *Flint, E., Lacour, L., Boyd, P.W. Interactions between Multiple Physical Particle Injection Pumps in the Southern Ocean. In revision at *Global Biogeochemical Cycles*.
- **Dove, L.A.**, Singer, C.E., Murphy, S.E. Bringing a Lens of Equity to Geoscience Qualifying Examinations. In review at *AGU Advances*.

* denotes student advisees

Honors and Awards

- Polar Science Early Career Community Office BAJEDI Grant (2023)
- NOAA Climate & Global Change Postdoctoral Fellowship (2023-2025)
- Linde Center Community Building Award (2023)
- Caltech Certificate of Practice in Effective Teaching (2023)
- Richard H. Jahns Teaching Award (2022)
- Caltech Inclusion, Diversity, Equity, and Accessibility (IDEA) Advocate Award (2022)
- Resnick Sustainability Institute Scholar (2020)
- National Science Foundation Graduate Research Fellowship (2019-2022)
- American Meteorological Society First-Year Graduate Fellowship (2018)
- MIT Department of Earth, Atmospheric, and Planetary Science Excellence Award (2017)

Presentations

- Boston University Earth & Environment Seminar, Boston, MA. December 2023. Talk.
- Brown DEEPS Climate & Environment Seminar, Providence, RI. October 2023. Talk.
- Ocean Twilight Zone Symposium, Woods Hole, MA. September 2023. Poster.
- Southern Ocean Observing System Symposium, Hobart, Australia. August 2023. Talk.
- Polar Marine Science Gordon Research Conference, Ventura, CA. March 2023. Poster.
- GO-BGC Webinar, virtual. February 2023. Talk.
- University of Washington Physical Oceanography Seminar, Seattle, WA. October 2022. Talk.
- FilaChange Workshop, Providence, RI. August 2022. Talk.
- AMS Conference on Polar Meteorology and Oceanography, Madison, WI. August 2022. Talk.
- SOCCOM Annual Meeting, virtual. June 2022. Talk.
- Caltech Environmental Science & Engineering Seminar, Pasadena, CA. May 2022. Talk.
- Royal Society Southern Ocean Meeting, virtual. May 2022. Poster.
- Ocean Sciences Meeting, virtual. March 2022. Talk.
- Caltech Environmental Science and Engineering Seminar, Pasadena, CA. December 2021. Talk.
- Caltech Science and Society Seminar, Pasadena, CA. October 2021. Talk.
- Ocean Carbon & Biogeochemistry Summer Workshop, virtual. June 2021. Poster.
- Graduate Climate Conference, virtual. October 2020. Talk.
- Caltech FUTURE Ignited, virtual. October 2020. Talk for a general audience.
- SOCCOM Annual Meeting, virtual. June 2020. Talk.
- Explore Caltech, virtual. May 2020. Talk for a general audience.
- Ocean Sciences Meeting, San Diego, CA. February 2020. Poster.
- EAPS Student Achievement Seminar, Cambridge, MA. May 2018. Talk.

- Technion Environmental Engineering Seminar, Haifa, Israel. August 2017. Talk.
- MIT Environmental Engineering Seminar, Cambridge, MA. May 2017. Talk.

Publications and Recordings for a General Audience

- Exploring Our Blue Planet with Underwater Robots (2023). *Caltech Science Journey* on YouTube.
- In the turbulent Drake Passage, scientists find a rare window where carbon sinks quickly into the deep ocean (2023). Article in *The Conversation*.
- How Oceanographers Explore our Blue Planet (2020). *Explore Caltech* on YouTube.

Academic and University Service

Scientific Community Service:

- **Peer Reviewer for:** Nature Communications, Geophysical Research Letters, Journal of Geophysical Research: Oceans, Frontiers in Marine Science, Progress in Oceanography
- **Session Organizer for:** AMS Conference on Polar Meteorology and Oceanography, Gordon Research Seminar on Polar Marine Science, AGU Ocean Sciences
- **Co-organizer** of the Polar Oceans Early Career Discussion Hour
- **Moderator** for the Town Hall on Supporting Researchers in Polar Oceanography

University Service:

- Caltech Teaching Conference panelist September 2022
- Caltech Equity and Title IX Advocate September 2021-June 2023
- Environmental Science & Engineering student representative June 2021-June 2022
- *Life Beyond Research* seminar series founder and committee leader February 2021-January 2023
- Unlearning Racism in Geoscience (URGE) participant January 2021-present

Teaching

Introduction to Atmospheric Dynamics (EEPS 1510)	Spring 2024
Instructor of Modules 1 and 2, Brown University	
Ocean Biogeochemical Cycles (EEPS 1130)	December 2023
Guest Lecturer, Brown University	
Caltech Teaching Conference	September 2021 & 2022
Facilitator for the Workshop on Effective Teaching	
Earth's Climate (ESE 1)	Spring 2022
Teaching Assistant and Guest Lecturer, Caltech	
Earth's Oceans (ESE 102)	Fall 2019 & 2020
Teaching Assistant, Caltech	

Mentoring

Ayushman Choudhury	Spring 2024
Brown University UTRA Fellow	
Observations of Carbon Fluxes at the Submesoscale from Ocean Gliders and NASA SWOT	
Taylor Cason	Summer 2022
Caltech WAVE Fellow	
Wintertime Ventilation in Drake Passage from Underwater Autonomous Vehicles and Satellites	

Ellie Flint

Summer 2021

Caltech WAVE Fellow

Quantifying Carbon Export in the Southern Ocean: Observations from Ocean Gliders

Peer Mentor

2019, 2020, 2021

Caltech Geological and Planetary Science

Mentor for three first-year graduate students

Research Cruises

GO-SHIP P02 Leg 2

June-July 2022

RV *Roger Revelle*

Lowered Acoustic Doppler Current Profiler (LADCP) operations and outreach coordination along a decadal hydrographic survey line. 34 days.

NBP 20-02: Thwaites Glacier

January-March 2020

RVIB *Nathaniel B. Palmer*

Seaglider and BGC-Argo float deployment and hydrographic survey in the Bellingshausen and Amundsen Seas. 60 days.

Florida Straits

March 2018

SSV *Corwith Cramer*

Study of the production and dispersion of sea spray aerosol at air-sea interface. 5 days.

Outreach

- Letters to a Pre-Scientist September 2023-present
- Creative Tuition Collective & British Antarctic Survey career speaker June 2023
- *Project Scientist* STEM Superstar (2x yearly) April 2021-present
- Caltech FUTURE Ignited science presenter October 2020
- Pasadena Unified School District science night presenter (6x yearly) September 2020-June 2023
- *Adopt-a-Float* SOCCOM representative September 2019-September 2021
- Los Angeles County Science Fair judge April 2019 & 2022
- MIT undergraduate admissions alumni interviewer 2019-present