

# Lilian (Lily) Dove

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## Education

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### 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

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### Brown University

Providence, RI

NOAA Climate & Global Change Postdoctoral Fellow

September 2023 - present

## Publications

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- 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*.
- **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

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- Erickson, Z.K., Fields, E., Johnson, L., Thompson, A.F., **Dove, L.A.**, D'Asaro, E.A., Siegel, D.A. Eddy Tracking from in situ and Satellite Observations. In review at *Journal of Geophysical Research: Oceans*.
- Thompson, A.F., **Dove, L.A.**, Flint, E., Lacour, L., Boyd, P.W. The Southern Ocean Large-Areal Carbon Export (SOLACE) Experiment: Mechanistic Pathways for Surface-interior Carbon Exchange. In review at *Global Biogeochemical Cycles*.

- Balwada, D., Gray, A.R., **Dove, L.A.**, Thompson, A.F. Tracer Ventilation, Stirring, and Variability in the Antarctic Circumpolar Current near the Southwest Indian Ridge. In revision at *Journal of Geophysical Research: Oceans*.

## Honors and Awards

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- 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)
- MIT William G. Johnston (1950) Memorial Scholarship (2017)
- National Merit CSX Scientific Leadership Scholarship (2016)

## Presentations

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- 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 and Engineering Seminar, Pasadena, CA. May 2022. Talk.
- Royal Society Southern Ocean discussion 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 and 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.
- MIT Cloud and Aerosol Seminar, Cambridge, MA. January 2018. Talk.
- Technion Environmental Engineering Seminar, Haifa, Israel. August 2017. Talk.
- MIT Environmental Sciences Seminar Series, Cambridge, MA. May 2017. Talk.

## Publications and Recordings for a General Audience

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- Exploring Our Blue Planet Using 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.

## Research Cruises

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### 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.

## Academic and University Service

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### *Scientific Community Service:*

- **Reviewer for:** Nature Communications, 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 Ocean Early Career Discussion Hour

### *University Service:*

- Caltech Teaching Conference panelist September 2022
- 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
- Caltech Equity and Title IX Advocate September 2021-June 2023

## Teaching

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### 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, Prof. Paul Wennberg, Caltech

### Earth's Oceans (ESE 102)

Fall 2019 & 2020

Teaching Assistant, Prof. Andrew Thompson, Caltech

### Principles of Chemical Science (5.111)

Spring 2016 & 2017

Teaching Assistant, Dr. Patricia Christie, MIT

## Mentoring

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### Taylor Cason

Summer 2022

Caltech WAVE Fellow

Carbon Export 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

**Outreach**

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- Creative Tuition Collective & British Antarctic Survey career speaker June 2023
- Ivy Educational Group science speaker August 2022
- *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