

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: <i>Impacts of Zonal Asymmetry on Southern Ocean Dynamics and Biogeochemistry</i>	
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

- **Dove, L.A.**, Singer, C.E., Murphy, S.E. (2024). Bringing a Lens of Equity to Geoscience Qualifying Examinations. *AGU Advances*, 5.
- 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. (in revision at *Global Biogeochemical Cycles*). Interactions between Multiple Physical Particle Injection Pumps in the Southern Ocean.
- Song, S., Lavin, P.D., Gray, A.R., Nachod, Z., Balwada, D., **Dove, L.A.**, Thompson, A.F. (in review at *Artificial Intelligence for the Earth Systems*). Random Forest Regression on multi-platform, *in-situ* ocean observations: Investigating high-frequency nutrient dynamics in the Southern Ocean.
- Larson, A., **Dove, L.A.**, Pradhanang, S.M., Boving, T., Shafqat Akanda, A. (in review at *Water Resources Research*). Holistic Water Cycle Analysis of Two Transboundary River Watersheds: Leveraging the Confluence of Climate Model, Satellite, Ground Truth, and Machine Learning Signal Processing Technologies.

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)
- 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)

Certifications and Trainings

- Polar Chief Scientist Training Workshop (2024)
- Caltech Certificate of Practice in Effective Teaching (2023)

Presentations

- Ocean Mixing Gordon Research Conference, South Hadley, MA. June 2024. Talk and poster.
- Stanford University Atmosphere & Ocean Science Seminar, Palo Alto, CA. April 2024. Talk.
- University of Rhode Island Physical Oceanography Seminar, Narragansett, RI. April 2024. Talk.
- Boston College Earth & Environmental Science Seminar, Boston, MA. March 2024. Talk.
- Ocean Sciences Meeting, New Orleans, LA. February 2024. Talk and poster.
- 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 & 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 & Engineering Seminar, Pasadena, CA. December 2021. Talk.
- Caltech Science & 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.

Media and Work for a General Audience

- Tagging seals with sensors helps scientists track ocean currents and a changing climate (2024). Article in *The Conversation*. Interviewed live on KCBS Radio (San Francisco).
- *Dynamic Planet: Water* documentary (2024) on PBS.
- Are the Geosciences Failing their Qualifying Exam Goals? (2024). Manuscript chosen as an Editor's Highlight in *EOS Magazine*.
- Here's what makes the Drake Passage one of the deadliest places on Earth (2024). Quoted in *National Geographic*.
- 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

- **Peer Reviewer** of Nature Communications, Geophysical Research Letters, Journal of Geophysical Research: Oceans, Frontiers in Marine Science, Progress in Oceanography
- **Session Organizer** of Gordon Research Seminar on Polar Marine Science, AGU Ocean Sciences, Future of Southern Ocean Dynamics meeting
- **Co-Organizer** of the Polar Oceans Early Career Discussion Hour (2022-present)
- **Steering Committee Member** of Mentoring Women in Physical Oceanography to Increase Retention (MPOWIR; 2024-2027)

Teaching

Introduction to Atmospheric Dynamics (EEPS 1510) Instructor of Modules 1 and 2, Brown University	Spring 2024
Caltech Teaching Conference Facilitator for the Workshop on Effective Teaching	September 2021 & 2022
Earth's Climate (ESE 1) Teaching Assistant and Guest Lecturer, Caltech	Spring 2022

Earth's Oceans (ESE 102)

Teaching Assistant, Caltech

Fall 2019 & 2020

Mentoring

Maggie Gonzalez

DEEPS Leadership Alliance REU — Observations of Biogeochemistry in Antarctic Winter Water

Summer 2024

Ayushman Choudhury

Brown University UTRA Fellow — Heat and Carbon Fluxes by Eddies of the Antarctic Polar Front

Spring 2024-present

Taylor Cason

Caltech WAVE Fellow — Observations of Wintertime Ventilation in Drake Passage

Summer 2022

Ellie Flint

Caltech WAVE Fellow — Quantifying Carbon Export in the Southern Ocean with Ocean Gliders

Summer 2021

Research Cruises

GO-SHIP P02 Leg 2

RV Roger Revelle

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

June-July 2022

NBP 20-02: Thwaites Glacier

RVIB Nathaniel B. Palmer

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

January-March 2020

Florida Straits

SSV Corwith Cramer

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

March 2018

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
- 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