Stanford



Earle Wilson

Assistant Professor of Earth System Science, by courtesy, of Geophysics, and Center Fellow, by courtesy, at the Woods Institute for the Environment

Bio

BIO

Earle Wilson is an assistant professor in the Department of Earth System Science. He is a physical oceanographer who studies ocean dynamics at high latitudes and their far-reaching impacts on the global climate. He is particularly interested in the circulation of the Southern Ocean and its interactions with the cryosphere (i.e., sea ice and marine-terminating glaciers). Dr. Wilson and his group explore these research questions using various tools and methods, ranging from in situ ocean observations and idealized numerical models.

ACADEMIC APPOINTMENTS

- Assistant Professor, Earth System Science
- Center Fellow (By courtesy), Stanford Woods Institute for the Environment
- Assistant Professor (By courtesy), Geophysics

ADMINISTRATIVE APPOINTMENTS

- Assistant Professor, Earth System Science, (2022- present)

PROFESSIONAL EDUCATION

- PhD, University of Washington , Oceanography (2019)
- BS, Columbia University , Applied Physics (2012)

LINKS

- group website: https://polar.stanford.edu/

Teaching

COURSES

2026-27

- Our Icy Oceans: ESS 60N, OCEANS 60N (Aut)

2025-26

- Atmosphere, Ocean, and Climate Dynamics: the Ocean Circulation: CEE 162I, CEE 262I, EARTHSYS 146B, ESS 246B (Win)
- Our Icy Oceans: ESS 60N (Spr)

2024-25

- Atmosphere, Ocean, and Climate Dynamics: the Ocean Circulation: CEE 162I, CEE 262I, EARTHSYS 146B, ESS 246B (Win)

- Polar Climate Dynamics: ESS 248 (Spr)

2023-24

- Polar Climate Dynamics: ESS 248 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Jared Trok, Amanda Vanegas Ledesma

Postdoctoral Faculty Sponsor

Garrett Finucane

Doctoral Dissertation Advisor (AC)

Lexi Arlen

Doctoral (Program)

Lexi Arlen, JeongHyun Kim

Publications

PUBLICATIONS

- **Recent extremes in Antarctic sea ice extent modulated by ocean heat ventilation** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Wilson, E. A., Arlen, L., Campbell, E. C.
  2026; 123 (14)
- **Recent extremes in Antarctic sea ice extent modulated by ocean heat ventilation.** *Proceedings of the National Academy of Sciences of the United States of America*
  Wilson, E. A., Arlen, L., Campbell, E. C.
  2026; 123 (14): e2530832123
- **Modeling mixing and melting in laminar seawater intrusions under grounded ice** *CRYOSPHERE*
  Mamer, M. S., Robel, A. A., Lai, C. C. K., Wilson, E., Washam, P.
  2025; 19 (8): 3227-3251
- **The Impact of Underestimated Southern Ocean Freshening on Simulated Historical Sea Surface Temperature Trends** *Geophysical Research Letters*
  Kaufman, Z., Wilson, E., Purich, A., Beadling, R., Li, Y.
  2025
- **A Framework for Observing Changes in Sea Ice Due to Extratropical Cyclones in the Southern Ocean**
  Tucker, J. A., Schroeder, D. M., Wilson, E. W., IEEE
  IEEE.2025: 76-+
- **Future Priorities for Observing the Dynamics of the Southern Ocean** *BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY*
  Wilson, E. A., Dove, L. A., Gray, A. R., Macgilchrist, G., Purkey, S., Thompson, A. F., Youngs, M., Diggs, S., Balwada, D., Campbell, E. C., Talley, L. D.
  2024; 105 (12): E2316-E2323
- **Mechanisms for Abrupt Summertime Circumpolar Surface Warming in the Southern Ocean** *JOURNAL OF CLIMATE*
  Wilson, E. A., Bonan, D. B., Thompson, A. F., Armstrong, N., Riser, S. C.
  2023; 36 (20): 7025-7039
- **Coastal Polynyas Enable Transitions Between High and Low West Antarctic Ice Shelf Melt Rates** *GEOPHYSICAL RESEARCH LETTERS*
  Moorman, R., Thompson, A. F., Wilson, E. A.
  2023; 50 (16)

- **Commercial krill fishing within a foraging supergroup of fin whales in the Southern Ocean.** *Ecology*
  Ryan, C., Santangelo, M., Stephenson, B., Branch, T. A., Wilson, E. A., Savoca, M. S.
  2023: e4002
- **Layered seawater intrusion and melt under grounded ice** *CRYOSPHERE*
  Robel, A. A., Wilson, E., Seroussi, H.
  2022; 16 (2): 451-469
- **Tracking Southern Ocean Sea Ice Extent With Winter Water: A New Method Based on the Oxygen Isotopic Signature of Foraminifera** *PALEOCEANOGRAPHY AND PALEOCLIMATOLOGY*
  Lund, D. C., Chase, Z., Kohfeld, K. E., Wilson, E. A.
  2021; 36 (6)
- **Supercooled Southern Ocean Waters** *GEOPHYSICAL RESEARCH LETTERS*
  Haumann, F., Moorman, R., Riser, S. C., Smedsrud, L. H., Maksym, T., Wong, A. P. S., Wilson, E. A., Drucker, R., Talley, L. D., Johnson, K. S., Key, R. M., Sarmiento, J. L.
  2020; 47 (20)
- **The dynamics of a subglacial salt wedge** *JOURNAL OF FLUID MECHANICS*
  Wilson, E. A., Wells, A. J., Hewitt, I. J., Cenedese, C.
  2020; 895
- **Antarctic offshore polynyas linked to Southern Hemisphere climate anomalies** *NATURE*
  Campbell, E. C., Wilson, E. A., Moore, G., Riser, S. C., Brayton, C. E., Mazloff, M. R., Talley, L. D.
  2019; 570 (7761): 319-+
- **Winter Upper-Ocean Stability and Ice-Ocean Feedbacks in the Sea Ice-Covered Southern Ocean** *JOURNAL OF PHYSICAL OCEANOGRAPHY*
  Wilson, E. A., Riser, S. C., Campbell, E. C., Wong, A. P. S.
  2019; 49 (4): 1099-1117
- **An Assessment of the Seasonal Salinity Budget for the Upper Bay of Bengal** *JOURNAL OF PHYSICAL OCEANOGRAPHY*
  Wilson, E. A., Riser, S. C.
  2016; 46 (5): 1361-1376