DR. ZACHARY S. KAUFMAN

(650) 759-2861 ◇ zackkauf@stanford.edu ◇ https://profiles.stanford.edu/zack-kaufman?tab=bio

CURRENT POSITION

Stanford University *2023 - Present*
Postdoctoral Scholar. Earth System Science
Project: *Quantifying the Impact of Antarctic Meltwater on Southern Ocean Climate Change Projections*
Faculty Sponsor: Professor Earle Wilson

EDUCATION

University of California, Santa Cruz *2017 - 2022*
PhD, Earth and Planetary Sciences
Dissertation: *The Role of Sea Ice in Polar Climate Change: Investigating Distinct Cause-Effect Relationships in Each Hemisphere*
Advisor: Professor Nicole Feldl

Wesleyan University *2012-2016*
B.A. Earth and Environmental Sciences, *Departmental Honors*

University of Copenhagen (DIS) *Fall 2014*
Environmental Science of the Arctic Program

PUBLICATIONS

1. **Z.S. Kaufman**, N. Feldl, and C. Bealieu, 2023: "Warm Arctic-Cold Eurasia Pattern Driven by Atmospheric Blocking in Models and Observations". **Submitted**
2. **Z.S. Kaufman** and N. Feldl, 2022: "Causes of the Arctic's Lower-Tropospheric Warming Structure". **Journal of Climate**, 35.6, 1983-2022. https://doi.org/10.1175/JCLI-D-21-0298.1
3. **Z.S. Kaufman**, N. Feldl, W. Weijer and M. Veneziani, 2020: Causal Interactions Between Southern Ocean Polynyas and High-Latitude Atmosphere-Ocean Variability. **Journal of Climate**, 33, 4891-4905. https://doi.org/10.1175/JCLI-D-19-0525.1.

AWARDS, HONORS, AND FELLOWSHIPS

NSF Graduate Research Fellowship *2019 - 2022*
Funding Award: $102,000.
Project: *The Use of Causal Discovery Techniques for Quantifying High-Latitude Climate Feedbacks*

Best Postdoc Oral Presentation (2nd place) *April 2023*
Stanford Data Science for Sustainability Conference, Stanford, CA

Best Student Oral Presentation *August 2022*
17th Conference on Polar Meteorology and Oceanography, Madison, WI

Mary and John Sease Prize for Outstanding Achievement in Environmental Science *Wesleyan University, 2016*

TEACHING AND MENTORSHIP ACTIVITIES

Instructor of Record
Stanford Continuing Studies Program
The Science of Global Climate Change *Spring 2024*
Open enrollment for general public (∼40 students). 6-8 week introductory course in climate science.

Undergraduate Mentor
Sustainability and Earth Summer Undergraduate Research (SESUR)
Stanford University *Summer 2023 - Present*
Conceptualized and devloped ongoing research collaboration with Stanford undergraduate, investigating Southern Ocean temperature response to idealized wind forcing.

Undergraduate Mentor
Geosciences Education and Mentorship Support (GEMS) *Summer 2021 - Fall 2022*
Advised graduate school and fellowship application process in the Earth Sciences through virtual mentoring.

Teaching Assistant
UC Santa Cruz
EART-124, Modeling Earth's Climate *Spring 2021*
Upper-division undergraduate (∼30 students). A hands-on investigation of the climate system using numerical and mathematical models.
EART-121, The Atmosphere *Fall 2018*
Upper-division undergraduate (∼30 students). Advance understanding of basic atmospheric weather and climate phenomena starting from the fundamentals of physics and chemistry.
EART-12, Intro to Weather and Climate *Winter 2018*
Lower-division undergraduate (∼100 students). Advance a conceptual understanding of how and why the present-day atmosphere behaves as it does and how this may change in the future.

Undergraduate Mentor
UC Santa Cruz *Spring 2019*
Conducted weekly meetings, teaching skills in scientific computing and data analysis of climate models.

INVITED TALKS

1. "Recent Southern Cooling and its Coupling with Tropical Climate Variability"
   Earth and Atmospheric Sciences Seminar Series, Georgia Tech.
   October 27th, 2023.
2. "Surface Forcing Roles in Recent Southern Ocean Climate Trends"
   HiLAT Phase III Workshop, Naval Postgraduate School, Monterey, CA.
   September 18th, 2023.
3. "Historical Drivers of the Warm-Arctic Cold Eurasia Pattern:
   A Model-Observation Comparison"
   RGMA High Latitude Processes and Feedbacks webinars.
   June 15th, 2023.

4. "Disentangling the Causes and Consequences of Arctic Amplification:
   The Relative Roles of Sea Ice Loss and Atmospheric Circulation Changes"
   Seminar in Atmospheric and Climate Dynamics, University of Washington.
   May 04th, 2022.

5. "Causes and Implications of the Arctic's Vertical Warming Structure"
   High-Latitude Application and Testing of Earth System Models (HiLAT) Webinar.
   January 19th, 2021.

PREVIOUS POSITIONS

Hi-LAT Project, Department of Energy
Los Alamos National Laboratory *Summer 2018*
PI: Dr. Wilbert Weijer
Studied ocean-atmosphere heat exchange over Weddell Sea Polynyas.

O'Connell Lab, Marine Sedimentology
Wesleyan University *2015-2016*
Undergraduate Research Assistant
Studied Pliocene paleoclimate in the Weddell Sea through the analysis of ice-rafted debris provenance.

ACADEMIC SERVICE

Graduate Student Representative
UC Santa Cruz *Fall 2021 - Summer 2022*
Attending faculty meetings to provide graduate student input

Seminar Host and Organizer
UC Santa Cruz *Spring 2021*
Selected, invited, and hosted weekly research presentations for Earth and Planetary Science Department's *Whole Earth Seminar*

Journal Reviewer
Journal of Climate, EGU Ocean Science, Earth's Future

COMMUNITY ENGAGEMENT

Geoscientists Encouraging Openness and Diversity in Earth Sciences (GEODES)
UC Santa Cruz *Fall 2017 - Winter 2020*
Group Leader; Organized Event-Based Programming Events for the Campus STEM Community

Museum Guide
Griffith Observatory, Los Angeles *2017*

CONFERENCE PRESENTATIONS AND TALKS

1. Y. Li, **Z.S. Kaufman** and E. Wilson "What Drives Intermodel Spread in the Southern Ocean's Response to Standardized Wind Forcing?" *American Geophysical Union Fall Meeting.* 2023. (Poster).
2. **Z.S. Kaufman**, Y. Li, and E. Wilson "Constraining the Southern Ocean SST Response to Freshwater Buoyancy Forcing " *American Geophysical Union Fall Meeting.* 2023. (Oral).
3. **Z.S. Kaufman** "A Data Driven Approach to Climate Change Attribution" *Stanford Data Science for Sustainability Conference, Stanford, CA*. 2023. (Oral).
4. **Z.S. Kaufman** and N. Feldl "Reconciling Linkages Between the Time History of Arctic Sea Ice and Midlatitude Winter Climate" *17th Conference on Polar Meteorology and Oceanography, Madison, WI.* 2022. (Oral).
5. **Z.S. Kaufman** and N. Feldl "Advancing Arctic Climate Predictability with Causal Inference Methods" *American Geophysical Union Fall Meeting.* 2021. (Oral).
6. N. Feldl, **Z.S. Kaufman**, S. Po-Chedley, H.A. Singh, S. Hay and P.J. Kushner "Arctic Feedbacks: The Interconnected Roles of Sea Ice, Atmospheric Energy Transport, and Lapse Rate Changes" *American Geophysical Union Fall Meeting.* 2021. (Oral).
7. **Z.S. Kaufman** and N. Feldl "Causes of the Arctic's Lower-Tropospheric Warming Structure" *Graduate Climate Conference (GCC, virtual)* 2021. (Poster).
8. **Z.S. Kaufman** and N. Feldl "Diagnosing Drivers of the Arctic's Weakening Temperature Inversion" *Cloud Feedback Model Intercomparison Project (CFMIP) Virtual Conference* 2021. (Poster).
9. **Z.S. Kaufman** and N. Feldl "What Causes the Arctic's Bottom-Heavy Warming Structure? Diagnosing the Relative Influence of Sea-Ice Loss and Atmospheric Heat Transport" *American Geophysical Union Virtual Fall Meeting.* 2020. (Poster).
10. W. Weijer, P. Kurtakoti, **Z.S. Kaufman**, M. Veneziani, A. Stössel, N. Feldl and M.E. Maltrud "Drivers and Impacts of Southern Ocean Polynyas in High-Resolution Earth System Models" *American Geophysical Union Fall Meeting.* 2020. (Oral).
11. **Z.S. Kaufman**, N. Feldl, W. Weijer and M. Veneziani "Episodic Deep Convection in the Weddell Sea and its Relationship With the High-Latitude Energy Budget", *CalGFD Virtual Meeting, Lightning Talk.* 2020. (Oral).
12. **Z.S. Kaufman**, W. Weijer, N. Feldl and M. Veneziani "Causal Interactions Between Southern Ocean Polynyas and High-Latitude Atmosphere-Ocean Variability" *Ocean Sciences Meeting.* 2020. (Poster presented by co-author).
13. **Z.S. Kaufman** and N. Feldl. "Linking the Vertical Structure of Arctic Warming to Local and Remote Processes: A Causal Network Approach." *American Geophysical Union Fall Meeting.* 2019. (Poster).
14. J. L. Pensky, G. H. Edwards, R. E. Maxwell, E. Schnorr, **Z.S. Kaufman**, A. M. Donaldson. "Event-Based Programming Tools to Promote Diversity, Equity, and Inclusion within Earth and Planetary Science Departments." *American Geophysical Union Fall Meeting.* 2019. (Poster).
15. **Z.S. Kaufman**, N. Feldl, W. Weijer and M. Veneziani "Ocean-Atmosphere Heat Exchange Over Weddell Sea Polynyas Influences High-Latitude Climate Variability." *15th Conference on Polar Meteorology and Oceanography.* 2019 (Oral).