Savannah L. Ferretti

savannah.ferretti@uci.edu | savannahferretti.github.io | savannahferretti | savannahferretti

EDUCATION

Ph.D. in Earth System Science, University of California, Irvine — Expected Jun 2026

M.S. in Earth System Science, University of California, Irvine — Dec 2023

B.S. in Earth & Atmospheric Sciences, Cornell University — Dec 2020

EXPERIENCE

Graduate Student Researcher — Sep 2021–Present
Pritchard & Baldwin Labs, University of California, Irvine — Irvine, CA

- Developed statistical & machine learning models to analyze variability in South Asian monsoon rainfall using large-scale reanalysis & satellite datasets
- Quantified uncertainty & evaluated predictive skill across model configurations for robustness
- Built open-source, scalable Python workflows for parallel processing in HPC environments
- Communicated findings through peer-reviewed publications & conference presentations

Consulting Analyst — Mar–Aug 2021
Higher Education Research Services, Huron Consulting Group — New York, NY

- Built Excel-based financial planning and reporting tools for a research nonprofit
- Developed long-term resource forecasts and presented recommendations to executive stakeholders

Undergraduate Research Assistant — Jun–Aug 2020
Commane Lab, Lamont-Doherty Earth Observatory — Palisades, NY

- Quantified changes in atmospheric methane concentrations during the NYC COVID-19 shutdown
- Applied meteorological analysis & transport modeling to attribute emissions to likely source regions

Student Administrative Assistant — Jan–Dec 2020
CALS Office of Admissions, Cornell University — Ithaca, NY

- Increased prospective student yield through creation of an interactive ArcGIS campus tour
- Improved student engagement through execution of an office-wide social media strategy

Undergraduate Research Assistant — Sep 2019–May 2020
Pritchard Lab, Cornell University — Ithaca, NY

- Processed satellite imagery to construct time series of volcanic thermal anomalies
- Investigated pre-eruptive thermal signals for inclusion in NASA's AVTOD volcano database

SKILLS

Python (PyTorch, PySR, Dask, Xarray, Pandas, Cartopy, Matplotlib) • Bash • Git/GitHub • High-Performance/Distributed Computing • NetCDF/HDF5/Zarr • Linux • Microsoft Excel (Certified Specialist) • LaTeX • WordPress

PUBLICATIONS

S. L. Ferretti, J. Lin, S. Shamekh, J. W. Baldwin, M. S. Pritchard, & T. Beucler. (2026). **Data-driven integration kernels for interpretable nonlocal operator learning**. In review at *Environmental Data Science*.

S. L. Ferretti, M. S. Pritchard, F. Ahmed, L. Peng, & J. W. Baldwin. (2025). **Explaining South Asian monsoon rainfall seasonality using a metric of plume buoyancy**. *Geophysical Research Letters*, *52*(16), e2025GL115546.

L. Peng, P. N. Blossey, W. M. Hannah, …**S. L. Ferretti**, …& M. S. Pritchard. (2025). **Resolving low cloud feedbacks globally with E3SM High-Res MMF: Agreement with LES but stronger shortwave effects**. *Journal of Advances in Modeling Earth Systems*, *17*(6), e2025MS005003.

S. Yu, Z. Hu, A. Subramaniam, …**S. L. Ferretti**, …& M. S. Pritchard. (2025). **ClimSim-Online: A large multi-scale dataset and framework for hybrid ML–physics climate emulation**. *Journal of Machine Learning Research*. *26*(142), 1-85.

S. Yu, W. M. Hannah, L. Peng, …**S. L. Ferretti**, …& M. S. Pritchard. (2023). **ClimSim: A large multi-scale dataset for hybrid physics–ML climate emulation**. *NeurIPS 2023 Datasets & Benchmarks Track*, **Outstanding Paper Award**.

A. M. Jenney, **S. L. Ferretti**, & M. S. Pritchard. (2023). **Vertical resolution impacts explicit simulation of deep convection**. *Journal of Advances in Modeling Earth Systems*, *15*(10), e2022MS003444.

PRESENTATIONS

(Invited Oral) **S. L. Ferretti**, J. Lin, S, Shamekh, …& T. Beucler (2025). Making Data-Driven Climate Prediction Interpretable by Design. *Learning the Earth with Artificial Intelligence and Physics Lectures in Climate Data Science*. Virtual.

(Oral) **S. L. Ferretti**, T. Beucler, M. S. Pritchard, …& J. W. Baldwin (2025). Learning Nonlocal Controls on South Asian Monsoon Rainfall. *American Geophysical Union Fall Meeting*. New Orleans, LA, USA.

(Poster) **S. L. Ferretti**, M. S. Pritchard, & J. W. Baldwin (2025). Towards Data-Driven Discovery of Thermodynamic Controls on South Asian Monsoon Rainfall. *Learning the Earth with Artificial Intelligence and Physics Year 5 Meeting*. Briarcliff Manor, NY, USA.

(Poster) **S. L. Ferretti**, L. Peng, J. W. Baldwin, & M. S. Pritchard (2024). Spatiotemporal Stress-Testing of a Process-Oriented Diagnostic for Rainfall. *American Geophysical Union Fall Meeting*. Washington DC, USA.

(Poster) **S. L. Ferretti**, J. W. Baldwin, N. Liu, …& M. S. Pritchard (2024). Unraveling CMIP6 Biases in Summer Monsoon Rainfall Over the Arabian Sea and Western India. *104th American Meteorological Society Annual Meeting*. Baltimore, MD, USA.

(Poster) **S. L. Ferretti**, N. Liu, J. W. Baldwin, & M. S. Pritchard (2022). Understanding the Monthly Variation in the Upstream Enhancement of Indian Summer Monsoon Precipitation Near the Western Ghats. *American Geophysical Union Fall Meeting*. Chicago, IL, USA.

(Invited Oral) **S. L. Ferretti** (2022). Using Models to Understand Climate Change. *Making Modern Science*, University of California, Irvine. Irvine, CA, USA.

(Poster) **S. L. Ferretti**, B. Dalton, L. D. Schiferl, …& R. Commane (2020). Assessing the Meteorological Impact on Methane (CH_4) Emission Changes in New York City During the COVID-19 Shutdown. *American Geophysical Union Fall Meeting*. Virtual.

AWARDS & FELLOWSHIPS

Advancing Inclusive Excellence Award — Jan 2023 - Jun 2023
School of Physical Sciences, University of California, Irvine — $ 400

Diversity, Equity, & Inclusion Graduate Leaders Fellowship — Sep 2022 - Jun 2023
School of Physical Sciences, University of California, Irvine — $ 24,720

Class Award — Apr 2018
Cornell University Class Council

TEACHING

University of California, Irvine, Air Quality Management — Apr - Jun 2024
Teaching Assistant — Irvine, CA

University of California, Irvine, Earth System Chemistry — Sep - Dec 2023
Teaching Assistant — Irvine, CA

University of California, Irvine, Diversity in STEM Seminar — Sep - Dec 2022
Coordinator — Irvine, CA

SERVICE & ENGAGEMENT

Journal of Geophysical Research Atmospheres, Reviewer — Nov 2025–Present

UCI ESS First-Year Mentoring Program, Mentor — Sep 2022–Aug 2024

UCI Climate Justice Initiative, Fellowship Application Reviewer — Jun 2023

UCI CLEWS Climate-Tech Seminar Series, Panelist — Jun 2023

UCI ESS Inclusive Excellence Committee, Organizer — Sep 2022–Jun 2023

Community Earth System Model Tutorial, Boulder, CO — Aug 2022

AGU Bridge Program New Student Orientation, Panelist — Jul 2022

Seed Consultant Group, Volunteer Project Consultant — Mar–May 2022

GREEN Program, Microgrid Systems for Rural Development, Kathmandu, Nepal — Jan 2020

Cornell University Dance Team, Cofounder & Vice President — Oct 2017–Dec 2020

Cornell University College Mentors for Kids, Mentor — Aug 2017–May 2018

RELEVANT COURSEWORK

GRADUATE

Machine Learning for Environmental Engineering & Science • Atmospheric Dynamics • Geoscience Modeling & Data Analysis • Environmental Fluid Mechanics & Turbulence • Global Physical Climatology • Humans in the Earth System • Planning for Climate Justice • Communication Skills for Environmental Scholars

UNDERGRADUATE

Atmospheric Thermodynamics & Hydrostatics • Climate Dynamics • Microclimatology • Meteorological Observations & Instrumentation • Synoptic Meteorology • Evolution of the Earth System • Interior of the Earth • Oral Communication • Leading People & Effective Communication