KAREN ALINE MCKINNON

Current employer: University of California, Los Angeles (UCLA) | Location: Los Angeles, California, USA
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RESEARCH EXPERIENCE

Climate scientist and statistician whose research focuses on understanding, predicting, and attributing climate variability and extremes. My work combines observations, Earth-system models, and statistical and machine-learning methods to identify the physical and statistical controls on temperature, humidity, heatwaves, drought, wildfire-relevant climate conditions, and land-atmosphere interactions. A central theme is separating forced climate change from internal variability and quantifying uncertainty in observations and model projections.

I have led an interdisciplinary research program spanning atmospheric and climate dynamics, environmental statistics, and computational science. This work includes development of observational large-ensemble methods, analysis of changes in temperature extremes and hydroclimate, detection and correction of inhomogeneities in near-surface humidity records, and evaluation of discrepancies between observed and modeled climate trends. My research has been supported by an NSF CAREER Award, a Packard Fellowship for Science and Engineering, and NSF and NOAA grants.

EMPLOYMENT HISTORY

Associate Professor with tenure, University of California, Los Angeles — *Los Angeles, CA, USA* 2024-present

Departments of Atmospheric and Oceanic Sciences and Statistics and Data Science; Institute of the Environment and Sustainability.

Assistant Professor, University of California, Los Angeles — *Los Angeles, CA, USA* 2018-2024

Department of Statistics and Institute of the Environment and Sustainability; Department of Atmospheric and Oceanic Sciences (2021-2024).

Applied Scientist, Descartes Labs — *Santa Fe, NM, USA* 2017-2018

Advanced Study Program Postdoctoral Fellow, National Center for Atmospheric Research — *Boulder, CO, USA* 2015-2017

Division of Climate and Global Dynamics.

DEGREES

Ph.D., Earth and Planetary Science, Harvard University, Cambridge, MA, USA (2015) — *Secondary field in Computational Science and Engineering; dissertation: Understanding and predicting temperature variability in the observational record*

M.A., Earth and Planetary Science, Harvard University, Cambridge, MA, USA (2014)

M.Sc., Geophysics, with Distinction, Victoria University, Wellington, New Zealand (2011)

B.A., Earth and Planetary Science, summa cum laude, Harvard University, Cambridge, MA, USA (2010) — *Minor in Mathematical Sciences*

KEY PUBLICATIONS

Selected from 51 peer-reviewed publications through 2026.

McKinnon, K.A., A. Yang, A. Feng, K.R. McEvoy, I.R. Simpson, and R. Killick (2026). Identifying and correcting inhomogeneities in the near-surface specific humidity record. Geophysical Research Letters, in press.

McKinnon, K.A. and I.R. Simpson (2025). Observed and modeled trends in downward surface shortwave radiation over land: drivers and discrepancies. Geophysical Research Letters. doi:10.1029/2025GL119493.

McKinnon, K.A., I.R. Simpson, and A.P. Williams (2024). The pace of change of summertime temperature extremes. Proceedings of the National Academy of Sciences, 121(42), e2406143121. doi:10.1073/pnas.2406143121.

Simpson, I.R., K.A. McKinnon, D. Kennedy, D.M. Lawrence, F. Lehner, and R. Seager (2024). Observed humidity trends in dry regions contradict climate models. Proceedings of the National Academy of Sciences. doi:10.1073/pnas.2302480120.

McKinnon, K.A. and I.R. Simpson (2022). How unexpected was the 2021 Pacific Northwest heatwave? Geophysical Research Letters. doi:10.1029/2022GL100380.

McKinnon, K.A., A. Poppick, and I.R. Simpson (2021). Hot extremes have become drier in the United States Southwest. Nature Climate Change, 11, 598-604. doi:10.1038/s41558-021-01076-9.

McKinnon, K.A. and C. Deser (2018). Internal variability and regional climate trends in an Observational Large Ensemble. Journal of Climate, 31(17), 6783-6802. doi:10.1175/JCLI-D-17-0901.1.

McKinnon, K.A., A. Rhines, M.P. Tingley, and P. Huybers (2016). Long-lead predictions of Eastern US hot days from Pacific sea surface temperatures. Nature Geoscience, 9, 389-394. doi:10.1038/ngeo2687.

HONORS

AMS Henry G. Houghton Award (2027)

NSF CAREER Award (2024)

Kavli Fellow (2023)

Packard Fellow in Science and Engineering (2021)

UCLA Society of Hellman Fellows Award (2021)

Editors' Citation for Excellence in Refereeing, Geophysical Research Letters (2016)

NASA Earth and Space Science Fellowship (2014)

National Science Foundation Graduate Research Fellow (2011)

Phi Beta Kappa (2010)

PROFESSIONAL SOCIETY MEMBERSHIPS

American Meteorological Society
American Geophysical Union
American Statistical Association