

Anna Boser

Bren School of Environmental Science and Management

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EDUCATION

University of California, Santa Barbara, California

Ph.D., Environmental Science and Management 2025 (expected)

Committee: Kelly Caylor (co-chair), Ashley Larsen (co-chair), and Tamma Carleton

University of California, Berkeley, California

B.A. with *Highest Distinction*, Statistics 2020

AWARDS, FELLOWSHIPS, & HONORS

UCSB Coastal Fund Major Grant, \$11,200 2023

UCSB Graduate Division Research Accelerator Award, \$4,000 2022

Remote Sensing Technical Committee Best F22 AGU Presentation - Student Award 2022

AGU Ecohydrology Tiny Grant 2022

Kuni Research Fellowship, \$15,000 2022

University Medal, UC Berkeley (most distinguished graduating senior) 2020

National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) 2020

Eugene Cota-Robles Fellowship, UC Santa Barbara 2020

Undergraduate Research Apprenticeship Program Summer Fellowship, UC Berkeley 2018

RESEARCH INTERESTS

Ecohydrology, food systems, water scarcity, machine learning, remote sensing, econometrics, planetary health.

PUBLICATIONS

RESEARCH MANUSCRIPTS

1. **Boser AS**. “Validating spatio-temporal environmental machine learning models: Simpson’s paradox and data splits” *Environmental Research Communications*. (In review).
2. **Boser AS**, Caylor K, Larsen A, Pascolini-Campbell M, Reager JT, Carleton T. “Field scale crop water consumption estimates reveal potential water savings in California agriculture.” *Nature Communications*. (In review).
3. Liddell T, **Boser AS**, Orofino S, Mangin S, Carleton T. “stagg:: A data pre-processing R package for climate impacts analysis.” *Environmental Science & Technology*. (In review).
4. MacDonald A, Hyon D, Sambado S, Ring K, **Boser AS**. “Remote sensing of temperature-dependent mosquito and viral traits predicts field surveillance-based disease risk.” *Ecology*. (In review).
5. **Boser AS**, Sousa D, Larsen A, MacDonald A. “Micro-climate to macro-risk: mapping fine scale differences in

mosquito-borne disease risk using remote sensing.” Environmental Research Letters. (2021).

6. Head JR, ... **Boser AS**..., R Justin. “The effect of school closures and reopening strategies on COVID-19 infection dynamics in the San Francisco Bay Area: a cross-sectional survey and modeling analysis.” MedRxiv (2020).
7. Mosnier E, Epelboin L, Guiraud N, Huber F, Adriouch L, Guarmit B, **Boser AS**, ... Nacher, M. “Spatial dynamics and epidemiology for AIDS in remote areas in French Guiana.” AIDS Care, 1-7 (2018).
8. **Boser AS**, Bidaud B, Maues S, Guiraud N, Mendes AM, Lacapere F Rhodes S, Huber F, Adriouch L, Nacher M, Mosnier E. “Addressing HIV on the French Guianese-Brazilian border: No choice but collaboration!” AIDS 32, 539–542 (2018).

CONFERENCE PRESENTATIONS AND POSTERS

1. **Boser AS**, Carleton T, Larsen A, Pascolini-Campbell M, Reager JT, Caylor K. American Geophysical Union. Estimating agricultural water consumption and irrigation efficiency in California using machine learning and remote sensing. December 12-16 2022. Chicago, Illinois.
2. **Boser AS**, Stofer R, Caylor K. American Geophysical Union. Super-resolution of Land Surface Temperature Using Deep Learning. December 12-16 2022. Chicago, Illinois.
3. Liddell T, **Boser AS**, Orofino S, Mangin T, Carleton T. American Geophysical Union. Stag: An R Package for Spatiotemporal Aggregation of ERA5 Climate Data. December 12-16 2022. Chicago, Illinois.
4. **Boser AS**, Carleton T, Larsen A, Pascolini-Campbell M, Reager JT, Caylor K. TWEEDS. Machine learning and remote sensing elucidate an 80% water savings potential in California agriculture. October 7-8 2022. Eugene, Oregon.
5. **Boser AS**, Pascolini-Campbell M, Reager JT. American Geophysical Union. ECOSTRESS detects a 20% increase in evapotranspiration over agricultural lands in California. December 2021. New Orleans, Louisiana.
6. **Boser AS**, Sousa D, Larsen A, MacDonald A. Mosquito-borne disease risk mapping at high spatial and temporal resolutions using remotely sensed land surface temperature measurements. Ecological Society of America. August 2021. Long Beach, California.
7. **Boser AS**, White C, Al-Hamdan M. Using Statistical and Machine Learning Models with Remotely Sensed Data to Estimate PM2.5 in the San Francisco Bay Area. American Geophysical Union. December 1-17 2020. San Francisco, California.
8. **Boser AS**, Evans S, Potts MD. The Effect of Prescribed Burn Smoke on Emergency Department Visits and Hospitalizations in California. 3rd International Smoke Symposium. April 20-24 2020. Davis, California.
9. **Boser AS**, Bidaud B, Adriouch L, Epelboin L, Guiraud N, Gaillet M, Carrera C, Brousse P, Mosnier E. VIH sur la frontière franco-brésilienne: mobilité et précarité sur une région en épidémie généralisée. 18th National Congress of the French Society for the Fight Against AIDS (SFLS). 2017 Oct 19-20. Nice, France.

TEACHING AND MENTORSHIP EXPERIENCE

University of California, Santa Barbara

Mentor, UCSB EUREKA summer undergraduate internship. Mentee: Jason Perez	2023
Mentor, Environmental Diversity Leaders and Mentorship Program. Mentee: Yang Hu	2023
Mentor, WAVES lab undergraduate research. Mentees: Ryan Stofer, Mitali Gaidhani	2022-2023
Mentor, emLab summer undergraduate internship. Mentee: Tyler Liddell	2022
Tutor, EDS 217: Principles of Environmental Data Science	2022
Mentor, Data Science Capstone Project	2022
Teaching Assistant, ESM 203: Earth Systems Science	2021

OTHER ACADEMIC POSITIONS AND EXPERIENCE

CV4Ecology Summer Program participant at California Institute of Technology	2022
Intern, NASA Jet Propulsion Laboratory. Advisors: JT Reager and Madeleine Pascolini-Campbell	2021
Intern, NASA Marshall Space Flight Center. Advisor: Mohammed Al-Hamdan	2020
Research Assistant, UC Berkeley College of Natural Resources. Advisor: Matthew Potts	2019-2020
Research Assistant, UC Berkeley School of Public Health. Advisor: Daniel Perlman	2017-2019

PROFESSIONAL SERVICE & MEMBERSHIP

Outreach Co-chair, Women in Science and Engineering, UCSB	2023-Present
Member, American Geophysical Union	2020-Present
Member, Ecological Society of America	2020-2021
Reviewer, World Development	2022
Bren Anti-Racism Caucus, UCSB	2021-Present
Bren Seminar Committee, UCSB	2021-2022
Bren PhD Symposium Committee, UCSB	2021

MEDIA COVERAGE & OUTREACH

Invited talk: GS3 Seminar Series, Center for Scientific Computing, UCSB	July 20, 2022
Invited talks: NASA ECOSTRESS Annual Team Meeting	April 12-14, 2022
<i>Micro-climate to macro-risk: Mapping fine scale differences in mosquito-borne disease risk</i>	
<i>Agriculture's effects on evapotranspiration and runoff generation in California</i>	
USGS Earth Resources Observation and Science (EROS) Center "Eyes on Earth" Podcast	June 27, 2022
<i>Episode 76 – ECOSTRESS and Disease Risk</i>	
TEDx Youth Talk: <i>How to Save the Earth from Space</i>	February 29, 2022