

SOPHIE RUEHR

Ph.D. Candidate
University of California Berkeley
Dept. of Environmental Science, Policy & Management

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EDUCATION

2020-present **University of California Berkeley** Berkeley, CA
Ph.D. Candidate in Environmental Science, Policy, & Management
Coadvised by Trevor Keenan & Manuela Giroto
2014-2018 **Yale University** New Haven, CT
Bachelor of Science, Geology & Geophysics (cum laude)

RESEARCH & PROFESSIONAL EXPERIENCE

2022-present **SPUR mentor** Berkeley, CA
Research mentor to undergraduate students
2020-present **Data consultant** Berkeley, CA
UC Berkeley D-Lab
2020-2021 **Science mentor for 7th graders** Berkeley, CA
Be a Scientist!
2019-2020 **Newspaper staff reporter** Provincetown, MA
Provincetown Independent
2018-2019 **Huang fellowship for oral history** Port Vila, Vanuatu
Yale University
Summer 2017 **Summer student fellow** Woods Hole, MA
Woods Hole Oceanographic Institution
2016 & 2018 **Newspaper correspondent** Provincetown, MA
Provincetown Banner
Summer 2016 **Environmental science & policy intern** Boston, MA
Save the Harbor, Save the Bay

PUBLICATIONS

1. **Ruehr, S.**, Gerlein-Safdi, C., Falco, N., Seibert, P., Chou, C., Albert, L., Keenan, T.F. Quantifying seasonal and diurnal cycles of solar-induced fluorescence with a novel hyperspectral imager. Manuscript in review for *Geophysical Research Letters*.
2. **Ruehr, S.**, Giroto, G., Verfaillie, J., Balodcchi, D., Cabon, A., Keenan, T.F. 2023. Ecosystem groundwater use enhances carbon sinks in a semi-arid oak savanna. *Agricultural & Forest Meteorology*, 342, 109725. [10.1016/j.agrformet.2023.109725](https://doi.org/10.1016/j.agrformet.2023.109725).
3. **Ruehr, S.**, Keenan, T.F., Williams, C., Zhou, Y., Lu, X., Bastos, A., Canadell, P., Prentice, I.C., Sitch, S., Terrer, C. Evidence and attribution of the enhanced land carbon sink. 2023. *Nature Reviews Earth & Environment*, 4, 518-534. [10.1038/s43017-023-00456-3](https://doi.org/10.1038/s43017-023-00456-3).

4. Massoud, E.C., Andrews, L., Reichle, R., Molod, A., Park, J., **Ruehr, S.**, Girotto, M. 2022. Seasonal forecasting skill for the High Mountain Asia region in the Goddard Earth Observing System. *Earth System Dynamics*, 14, 147–171. [10.5194/esd-14-147-2023](https://doi.org/10.5194/esd-14-147-2023).
5. Rutkove, S.B., Le, M., Nagy, J.A., **Ruehr, S.**, Semple, C., Sanchez, B. 2022. Design and pilot testing of a 26-gauge impedance-electromyography (iEMG) needle in wild type and ALS mice. *Nerve & Muscle*, 65, 6. [10.1002/mus.27551](https://doi.org/10.1002/mus.27551).
6. **Ruehr, S.** 2021. Beyond the vulnerability/resilience dichotomy: Perceptions of and responses to the climate crisis on Emau, Vanuatu. *Island Studies Journal*. [10.24043/isj.151](https://doi.org/10.24043/isj.151)
7. **Ruehr, S.**, Lee, X., Smith, R., Li, X., Xu, Z., Liu, S., Yang, X., Zhou, Y. 2020. A mechanistic investigation of the oasis effect in the Zhangye cropland in semiarid western China. *Journal of Arid Environments*, 176, 104120. [10.1016/j.jaridenv.2020.104120](https://doi.org/10.1016/j.jaridenv.2020.104120)
8. Espeland, M., Hall, J.P., DeVries, P.J., Lees, D.C., Cornwall, M., Hsu, Y., Wu, L., Campbell, D.L., Talavera, G., Vila, R., Salzman, S., **Ruehr, S.**, Lohman, J.D., Pierce, N.E. 2015. Ancient Neotropical origin and recent recolonisation: Phylogeny, biogeography and diversification of the Riodinidae (Lepidoptera: Papilionoidea). *Molecular Phylogenetic Evolution*, 93, 296-306. [10.1016/j.ympev.2015.08.006](https://doi.org/10.1016/j.ympev.2015.08.006)
9. Chin, A., **Ruehr, S.**, Tarulli, A., Rutkove, S. 2007. Saline-saturated Balsa Wood as a Testing Medium for Rotational Electrical Impedance Myography. *IFMBE Proceedings*, 17, 272-275. [10.1007/978-3-540-73841-1_72](https://doi.org/10.1007/978-3-540-73841-1_72)

ORAL PRESENTATIONS

1. Ruehr, S. Evidence and attribution of the land carbon sink's historic enhancement (Fall 2023). EEBIOMASS virtual workshop. Max-Planck Institute for Biogeochemistry, Jena, Germany.
1. Ruehr, S. Groundwater drought decreases carbon fixation in a semi-arid oak savannah (Fall 2023). CREA, Barcelona, Spain.
1. Ruehr, S., Girotto, M., Verfaillie, J., Baldocchi, D., Keenan, T.F. Groundwater drought decreases carbon fixation in a semi-arid oak savannah (Fall 2022). GC55A-03. AGU fall meeting, Chicago, IL, USA.
2. Ruehr, S., Seibert, P., Gerlein-Safdi, C., Falco, N., Wu, Y., Chou, C., Keenan, T.F. Hyperspectral imagery illuminates drivers of solar-induced fluorescence across landscapes (Fall 2022). B43C-04. AGU fall meeting, Chicago, IL, USA.
3. Ruehr, S., Girotto, M., Keenan, T.F. Quantifying ecosystem reliance on groundwater (Fall 2021). H51E-01. AGU fall meeting, New Orleans, LA, USA.
4. Ruehr, S., Gerlein-Safdi, C., Falco, N., Keenan, T.F., Torn, M. S. Picturing SIF: field readiness and initial results from a novel SIF imaging instrument (Fall 2021). B22C-09. AGU fall meeting, New Orleans, LA, USA.
5. Ruehr, S. Carbon emissions and offsets: Global and local research. ARCS Forward National Speaker Series, distinguished speaker (August 24, 2021). Ohio ARCS Chapter, Cleveland, OH, USA.
6. Ruehr, S. Celebration of Distinguished Fellows Selected Student Speaker (April 26, 2021). University of California Berkeley, CA, USA.
7. Ruehr, S. Achievement Rewards for College Scientists Symposium Selected Scholar (April 20, 2021). National presentation, USA.

8. Ruehr, S., Lee, X., Smith, R... Latent heat drives cooling over oases (December 2020). H026-01A. AGU Fall Meeting, USA.
9. Ruehr, S. Stakeholder feedback for a paleoclimate study. (December 10, 2019). Coastal Research Laboratory, Woods Hole Oceanographic Institution, Woods Hole, MA, USA.
10. Ruehr, S. Tracing ancient cyclones: paleoclimate, oral history & climate futures. (November 8, 2018). University of the South Pacific Emalus Campus, Vanuatu.
11. Ruehr, S. The Oasis Effect: Evaluating Intrinsic Biophysical Mechanism Theory and its Implications for Sustainable Water Management in Zhangye, Gansu, China. (May 11, 2018). Dept. of Geology & Geophysics, Yale University, New Haven, CT, USA.
12. Ruehr, S. & Lee, X. Intrinsic Biophysical Mechanism Theory & the Oasis Effect. (March 15, 2018). Key Laboratory of West China's Environmental System, Lanzhou University, Gansu, China.
13. Ruehr, S. & Lee, X. Intrinsic Biophysical Mechanism Theory & the Oasis Effect. (March 13, 2018). School of Geography, Beijing Normal University, Beijing, China.

POSTER PRESENTATIONS

1. Ruehr, S., Gerlein-Safdi, C., Falco, N., Keenan, T.F., Torn, M. S. Picturing SIF: field readiness and initial results from a novel SIF imaging instrument (Fall 2021). B22C-09. AGU fall meeting, New Orleans, LA, USA.
2. Ruehr, S., Giroto, M., Keenan, T.F. Quantifying ecosystem reliance on groundwater (Fall 2021). H51E-01. AGU fall meeting, New Orleans, LA, USA.
3. Ruehr, S., Keenan, T.F., Giroto, M. Inter-annual groundwater variation affects ecosystem productivity. (October 2021). AmeriFlux Fall Meeting.
4. Ruehr, S., Lee, X., Smith, R... A mechanistic investigation of the oasis effect in the Zhangye cropland in semiarid western China. (October 2020). AmeriFlux Fall Meeting.
5. Castagno, K., Ruehr, S., Donnelly, J., Woodruff, J. Grain-size distribution and patterns in storm-induced event beds in a coastal pond. (October 2018). EP13D-2125. American Geophysical Union Fall Meeting.
6. Ruehr, S., Castagno, K., Donnelly, J. Newfound aspects of ancient hurricanes: reconstructing storm intensity and sediment deposition dynamics in northeastern coastal ponds. (August 2017). Summer Student Fellow Poster Session, Woods Hole Oceanographic Institution, Woods Hole, MA.

SERVICE

- 2022-present UC Berkeley College of Natural Resources LGBTQ+ Coalition
- 2021-present AmeriFlux Diversity, Equity & Inclusion Committee member
- 2020-present UC Berkeley ESPM Graduate Diversity Council member

OUTREACH & JOURNALISM

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| 2023 | FLUXNET blog |
| 2022 | Keenan Group TikTok |
| 2022 | AmeriFlux 25 years data visualization tool |
| 2022 | Berkeley Science Review |
| 2019, 2020 | Provincetown Independent |
| 2019 | InsideClimate News |
| 2019 | WOMR Cape Cod's Outermost Radio |
| 2016, 2018 | Provincetown Banner |

MENTORING & TEACHING

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| Spring 2024 | Ecosystem science, ESPM 111 (graduate student instructor) |
| 2023-4 | Adam Rashid, UC Berkeley graduate (mentor) |
| 2022-4 | Megan Hur, UC Berkeley undergraduate student (mentor) |
| 2022-3 | Tyler Goldstein, UC Berkeley undergraduate student (mentor) |

FELLOWSHIPS

2022 **FLUXNET Secondment** FLUXNET

Funding for a 6-week research visit to CREAF, Barcelona, Spain

2022 **Future Investigators in NASA Earth and Space Science and Technology**

National Aeronautics and Space Administration (NASA)

Three years of graduate funding

2020 **Carol Baird Fieldwork Grant**

University of California Berkeley

In support of fieldwork at UC reserve sites

2020 **Environmental Forum Starter Grant**

Dept of Environmental Science, Policy and Management, University of California Berkeley

In support of conference attendance and dissertation research

2020 **Achievement Rewards for College Scientists Fellowship**

ARCS Northern California Chapter

Financial support for first two years of graduate study

2018 **Parker Huang Undergraduate Travel Fellowship**

Yale University

In support of independent research in Vanuatu

2017 **Karen Von Damm 1977 Fellowship**

Yale University Dept. of Geology & Geophysics

In support of senior honors thesis field research in China

2017 **Summer Student Fellowship**

Woods Hole Oceanographic Institution

In support of hurricane paleoclimatology research

2015 **Michael Coe Fieldwork Fund**

Council on Archaeological Studies at Yale
In support of archaeology research in Israel

AWARDS

2021 **First Place: Science/Technology Reporting**

New England Newspaper Association

2021 **First Place: Health Reporting**

New England Newspaper Association

2018 **Hammer Prize**

Yale University Department of Geology & Geophysics

WORKSHOPS

2022 **FluxCourse**

Nederland, CO

Participation in a two-week field course on eddy covariance flux data and modeling

2022 **AmeriFlux Field Safety Workshop**

Leading a one-day workshop for safety and inclusivity in field work

2024 **FieldFutures Harassment Prevention Training**

Berkeley, CA

Participation in a full-day workshop on sexual harassment prevention in fieldwork

REVIEWING

2021 Journal of Arid Environments

2023 AGU Advances

2023 Proceedings of the National Academy of Sciences

2023 Geophysical Research Letters

2024 Nature Communications

2024 Earth's Future

SKILLS

Languages

Bislama (advanced), French (advanced), Italian (basic)

Computer languages

Python, R, MATLAB, Bash, Git

Software

LaTeX, Wordpress, GIS, ENVI, RStudio, Google Earth Engine

Field work

Hyperspectral imager deployment, snow depth and water equivalent, GPS survey, sediment core collection and processing, tree diameter measurement, in situ leaf-level physiology measurements, anthropological research methods, eddy covariance flux tower deployment,