William Burke

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EDUCATION

University of California, Santa Barbara Santa Barbara, California, USA

- Ph.D. in Environmental Science and Management — Sep 2016 – Jun 2022
  - Dissertation: Modeling the Interconnected Effects of Fuel Treatments on Forests, Water, and Fire.
  - Adviser: Prof. Naomi Tague
  - Focus: Ecohydrologic modeling, fuel treatment effects, mechanistic model development.

Indiana University, Bloomington, Indiana, USA

- M.S. in Geography — Sep 2014 – Jun 2016
  - Thesis: Future projections of streamflow magnitude and timing differ across coastal watersheds of the western United States.

Santa Clara University, Santa Clara, California, USA

- B.S. in Environmental Science — Sep 2009 – Dec 2013
  - Minor in Economics
  - Graduated Cum Laude.
  - Cumulative GPA: 3.55 / 4.00

EXPERIENCE

University of Nevada, Reno, Reno, Nevada, USA

- Post-doctoral Researcher, Dept. of Natural Resources & Environmental Science — Jun 2022 – Present
  - Project: GigaFire
  - Supervisor: Prof. Erin Hanan
  - Hours per week: 40
  - Conducted ecohydrologic modeling using the Regional Hydro-Ecologic Simulation System (RHESSys) to simulate fuel treatment effects on streamflow across multiple Sierra Nevada basins.
  - Created R-based tools and workflows to integrate novel landcover data into RHESSys using multiscale routing.
  - Performed statistical analysis, produced visualizations, and led writing on reports delivered to grant funders (California Air Resources Board, CalFire).

PUBLICATIONS

JOURNAL ARTICLES

[1] Ren, J., Hanan, E. J., Greene, A., "Simulating the role of biogeochemical hotspots in driving nitrogen export from dryland watersheds," *Water Resources Research*, vol. 60, no. 3, e2023WR036008, Mar. 2024, ISSN: 0043-1397, 1944-7973. DOI: 10.1029/2023WR036008. [Online]. Available: https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2023WR036008 (visited on 04/07/2024).

[2] **Burke, W.**, Tague, C. N., Kennedy, M., Moritz, M., "Understanding fuel treatments: How treatments interact with climate and biophysical setting to affect fire, water, and forest health," *Frontiers in Forests and Global Change*, vol. 3, p. 143, 2020, Publisher: Frontiers. DOI: 10.3389/ffgc.2020.591162.

[3] **Burke, W. D.**, Ficklin, D. L., "Future projections of streamflow magnitude and timing differ across coastal watersheds of the western united states," *International Journal of Climatology*, vol. 37, no. 13, pp. 4493–4508, 2017, _eprint: https://rmets.onlinelibrary.wiley.com/doi/pdf/10.1002/joc.5099, ISSN: 1097-0088. DOI: 10/gcj2qz. [Online]. Available: https://rmets.onlinelibrary.wiley.com/doi/abs/10.1002/joc.5099 (visited on 06/15/2020).

[4] Stewart, I. T., Bacon, C. M., **Burke, W. D.,** "The uneven distribution of environmental burdens and benefits in silicon valley's backyard," *Applied Geography*, vol. 55, pp. 266–277, 2014, Publisher: Elsevier. DOI: 10.1016/j.apgeog.2014.09.016.

CONFERENCES

[0] **Burke, W.**, Alawode, G. L., Rawal, A., Adam, J. C., Liu, M., Hanan, E. J., "Balancing fire management and water quality: Modeling DOC export under prescribed and wildfire scenarios," in *AGU25*, Publisher: AGU, 2025.

[0] **Burke, W.**, Alawode, L., "Post-fire DOC in gate creek," presented at the Wildfire & Water Security All-Hands Workshop & Meeting, Corvallis, OR, 2025.

[5] Motasem Abualqumboz, Erin J. Hanan, Jianning Ren, William Burke, David Tarboten, "Streamlined r tools for preparing RHESSys model inputs," presented at the RHESSys Conference, Virtual, 2024.

[6] William Burke, “RHESSys-preprocessing & RHESSysIOinR: Overview and demonstration of r packages used to setup and run of RHESSys in r,” presented at the RHESSys Conference, Virtual, 2024.

[7] Ashley Cale, Jianning Ren, William Burke, Benjamin Sullivan, Erin J. Hanan, “Climate change alters fuel treatment effects on fire behavior in the sierra nevada mountains,” presented at the 10th International Fire Ecology and Management Congress, Monterey, CA: Association of Fire Ecology, 2023.

[8] **Burke, W.**, Hanan, E. J., Ren, J., Greenberg, J. A., Tague, C. N., “How the effect of fuel treatment on streamflow changes across aridity gradients in sierra nevada watersheds,” in *AGU23*, AGU, 2023. [Online]. Available: https://scholar.google.com/scholar?cluster=6208870567788811597&hl=en&inst=5693673605474343 39&inst=13656645964079683212&oi=scholarr (visited on 06/30/2024).

[9] Erin J. Hanan, Jianning Ren, William Burke, Maxwell K Strain, Ashley Cale, Elena Cox, “Assessing postfire water quality in chaparral amidst changing precipitation patterns,” presented at the 10th International Fire Ecology and Management Congress, Monterey, CA: Association of Fire Ecology, 2023.

[10] **Burke, W.**, Hanan, E. J., Ren, J., Greenberg, J. A., Tague, C. N., “Modeling fuel treatment effects on streamflow in california watersheds.,” in *AGU Fall Meeting Abstracts*, vol. 2022, 2022, H32O–1106. [Online]. Available: https://ui.adsabs.harvard.edu/abs/2022AGUFM.H32O1106B/abstract (visited on 06/30/2024).

[11] Bart, R. R., Tague, C., **Burke, W.**, Kennedy, M. C., Wagenbrenner, J., Safeeq, M., “Evaluating how climate-induced changes in wildfire regimes affect forest hydrology in the sierra nevada,” in *AGU Fall Meeting Abstracts*, vol. 2020, 2020, H087–0030. [Online]. Available: https://ui.adsabs.harvard.edu/abs/2020AGUFMH087.0030B/abstract (visited on 06/30/2024).

[12] Niemeyer, R. J., Tague, C., **Burke, W.,** “Forest restoration in seasonally dry forests: Stakeholder perspectives and simulations of impacts on streamflow in the pacific northwest,” in *AGU Fall Meeting Abstracts*, vol. 2020, 2020, H123–04. [Online]. Available: https://ui.adsabs.harvard.edu/abs/2020AGUFMH123...04N/abstract (visited on 06/30/2024).

[13] Tague, C., **Burke, W.**, Khorchani, M., Rog, I., Klein, T., Moritz, M., “How changing forest structure and species composition can influence the hydrologic impacts of climate change,” in *AGU Fall Meeting Abstracts*, vol. 2020, 2020, H098–01. [Online]. Available: https://ui.adsabs.harvard.edu/abs/2020AGUFMH098...01T/abstract (visited on 06/30/2024).

[14] **Burke, W.**, Tague, N., “Multiscale routing-integrating the tree-scale effects of disturbance into a watershed ecohydrologic model,” in *AGU Fall Meeting Abstracts*, vol. 2019, 2019, H53O–2022. [Online]. Available: https://ui.adsabs.harvard.edu/abs/2019AGUFM.H53O2022B/abstract (visited on 06/30/2024).

[15] Choate, J., Tague, C., Turpin, E., “Future mountain: An interactive visualization of people, fire, water and climate in forested landscapes.,” in *AGU Fall Meeting Abstracts*, vol. 2019, 2019, ED21B–16. [Online]. Available: https://ui.adsabs.harvard.edu/abs/2019AGUFMED21B..16C/abstract (visited on 06/30/2024).

[16] Niemeyer, R., Tague, C., Adam, J. C., **Burke, W.**, Perleberg, A. B., Schnepf, C., “Forest restoration, streamflow, and stakeholder engagement: Integrating forest owner & manager input with hydro-ecological simulations,” in *AGU Fall Meeting Abstracts*, vol. 2019, 2019, H43K–2173. [Online]. Available: https://ui.adsabs.harvard.edu/abs/2019AGUFM.H43K2173N/abstract (visited on 06/30/2024).

[17] **Burke, W.**, Tague, C., “Accounting for small scale heterogeneity in ecohydrologic watershed models,” in *AGU Fall Meeting Abstracts*, vol. 2017, 2017, H13C–1382. [Online]. Available: https://ui.adsabs.harvard.edu/abs/2017AGUFM.H13C1382B/abstract (visited on 06/30/2024).

[18] Tague, C., **Burke, W.**, Bart, R. R., Turpin, E., Wood, T., Gordon, D., “Communicating why land surface heterogeneity matters,” in *AGU Fall Meeting Abstracts*, vol. 2017, 2017, H51A–1249. [Online]. Available: https://ui.adsabs.harvard.edu/abs/2017AGUFM.H51A1249T/abstract (visited on 06/30/2024).

[19] **Burke, W.**, Ficklin, D. L., "Spatial divergence of projected trends in streamflow magnitude and timing in western united states coastal watersheds," in *AGU Fall Meeting Abstracts*, vol. 2016, 2016, GC13C–1207. [Online]. Available: https://ui.adsabs.harvard.edu/abs/2016AGUFMGC13C1207B/abstract (visited on 06/30/2024).

[20] **Burke, W.**, Ficklin, D., "Assessing the impact of projected climate changes on small coastal basins of the western US," presented at the SWAT Conference 2015, 2015. [Online]. Available: https://www.easydatings.com/media/114953/a2_1_burke.pdf (visited on 06/30/2024).

[21] William Burke, Darren Ficklin, "Assessing projected climate impacts on streamflow in small coastal basins of the western US," presented at the Graduate Climate Conference, Cape Cod, MA, 2015.

[22] William Burke, Iris Stewart, Chris Bacon, "A spatial analysis of cumulative environmental impacts in santa clara county, CA," presented at the SCGIS Annual Conference, Monterey, CA, 2013.

MODEL AND DATA ANALYSIS PRODUCTS

- 2018 - Present: Active contributor to Regional Hydro-Ecologic Simulation System Model (RHESSys): https://github.com/RHESSys/RHESSys.
- 2016 - Present: Primary developer of RHESSysPreprocessing R Package: https://github.com/RHESSys/RHESSysPreprocessing.
- 2018 - Present: Active contributor to RHESSysIOinR: https://github.com/RHESSys/RHESSysIOinR.
- 2022 - Present: Contributor to Fire & Dryland Ecosystems Lab Organization, which develops and maintains open source code for a variety of biogeochemical and ecohydrological applications: https://github.com/Fire-and-Dryland-Ecosystems-Lab .
- 2023 - Present: Mentored development of the Soil Heating in Fire Model (SheFire): https://github.com/Fire-and-Dryland-Ecosystems-Lab/SheFireModel.
- 2024 Ren J, Hanan EJ, Greene A, Tague C, Krichels AH, Burke WD, Schimel JP, Homyak PM. Data for: Simulating the role of biogeochemical hotspots in driving nitrogen export from dryland water- sheds. Water Resources Research. Open Science Forum. DOI 10.17605/OSF.IO/UKPJG

RESEARCH INTERESTS

Ecohydrology, ecohydrologic modeling, fuel treatments, forest change, hydroclimate, model development, ecoinformatics.

SKILLS

RHESSys, R, C, Bash, MATLAB, SWAT GIS.

TEACHING

University of California Santa Barbara

- Spring 2019 Teaching Assistant – ESM 232: Environmental Modeling
- Winter 2018 Teaching Assistant – ESM 263: Geographic Information Systems
- Spring 2017 Teaching Assistant – ESM 232: Environmental Modeling
- Winter 2017 Teaching Assistant – ESM 215: Landscape Ecology

Indiana University

- Spring 2016 Assistant Instructor – GEOG 109: Weather and Climate
- Fall 2015 Assistant Instructor – GEOG 109: Weather and Climate

Santa Clara University

- Fall 2012 Teaching Assistant – ENVS 115: GIS in Environmental Science

[*CV compiled on 2025-12-31*]