Brenton A. Wilder
Minneapolis, MN (USA)

Education

- Ph.D. in Geosciences, Boise State University, 2024
- M.S. in Civil Engineering (Water Resources), San Diego State University, 2021
- B.S. in Civil Engineering, Cal Poly Pomona, 2018

Professional Experience

- March 2025 - present: Postdoctoral Researcher at Jet Propulsion Laboratory (JPL).
- May - August 2022: Scientists in Parks (SIP) Fellow, Cabrillo National Monument, National Park Service (NPS).

Research Interests

Remote sensing of the natural environment, cryosphere and climate change, wildfire and disturbance hydrology, imaging spectroscopy and lidar remote sensing, radiative transfer, numerical optimization and statistical methods

Funding

- 2022-2025: NASA FINESST Grant (21-EARTH21-0249), $150,000 (16% acceptance)
- 2019-2021: JFSP GRIN Award (#19-1-01-55), $24,958 (24% acceptance)

Teaching Experience

Warren Wilson College
- Adjunct Instructor: BIO 4721-300 Ecological Data for Conservation, Spring 2025

San Diego State University
- Co-Instructor: CIVE 445 Applied Hydrology, Spring 2020
- Co-Instructor: CIVE 444 Applied Hydraulics, Summer 2019, Fall 2019

Cal Poly Pomona
- Supplemental Instructor: CE 304 Structural Analysis I, Fall 2017, Spring 2018
- Supplemental Instructor: CE 305 Structural Analysis II, Winter 2018

Guest Lectures

- "Understanding and working with raster data," GEOG 360/560, Boise State University, October 2022

Peer-reviewed Publications

Bair, E. H., Roberts, D. A., Thompson, D. R., Brodrick, P. G., Wilder, B. A., Bohn, N., ... & Dozier, J. (2025). Brief communication: Not as dirty as they look, flawed airborne and satellite snow spectra. The Cryosphere, 19(6), 2315-2320.

Wilder, B. A., Enterkine, J., Hoppinen, Z., Adebisi, N., Marshall, H. P., O'Neel, S., ... & Glenn, N. F. (2025). Modeling snow optical properties from single wavelength airborne lidar in steep forested terrain. *Frontiers in Earth Science*, 13, 1487776.

Wilder, B. A., Meyer, J., Enterkine, J., & Glenn, N. F. (2024). Improved snow property retrievals by solving for topography in the inversion of at-sensor radiance measurements. *The Cryosphere*, 18(11), 5015–5029.

Wilder, B. A., Lee, C. M., Chlus, A., Marshall, H. P., Brandt, J., Kinoshita, A. M., ... & Glenn, N. F. (2024). Computationally efficient retrieval of snow surface properties from spaceborne imaging spectroscopy measurements through dimensionality reduction using k-means clustering. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.

Wilder, B. A., & Kinoshita, A. M. (2022). Incorporating ECOSTRESS evapotranspiration in a paired catchment water balance analysis after the 2018 Holy Fire in California. *Catena*, 215, 106300.

Wilder, B. A., Lancaster, J. T., Cafferata, P. H., Coe, D. B., Swanson, B. J., Lindsay, D. N., ... & Kinoshita, A. M. (2021). An analytical solution for rapidly predicting post-fire peak streamflow for small watersheds in southern California. *Hydrological Processes*, 35(1), e13976.

Kohli, G., Lee, C. M., Fisher, J. B., Halverson, G., Variano, E., Jin, Y., Carney, D., Wilder, B. A., & Kinoshita, A. M. (2020). ECOSTRESS and CIMIS: A comparison of potential and reference evapotranspiration in Riverside County, California. *Remote Sensing*, 12(24), 4126.

Conference Presentations

Oral Presentation, "Improved snow property retrievals by solving for topography in the inversion of at-sensor radiance measurements" American Geophysical Union in Washington D.C., December 13, 2024.

Poster Presentation, "Mapping SSA from helicopter-borne lidar reflectance" Western Snow Conference 2024, in Corvallis, OR, April 23-24, 2024.

Poster Presentation, "Global Optical Snow Properties via High-Speed Algorithm With KMeans Clustering (GOSHAWK)" IEEE IGARSS 2023, in LA, CA, July 17, 2023.

Poster Presentation, "Helicopter-Borne Lidar to Resolve Snowpack Variability in Southwest Idaho" AGU 2022, in Chicago, IL, December 2022.

Poster Presentation, "Snow Albedo Modeling with Imaging Spectroscopy aboard Earth Observing Satellites" Surface Biology and Geology (SBG) Community Meeting, in Washington D.C., October 12, 2022.

Oral Presentation, "Coastal Fog - A Lifeline for Native Plants in Southern California" ESA Annual Conference in Montreal, Canada, August 18, 2022.

Poster Presentation, "Improving snow distribution estimates to increase drought resilience in the Boise Mountains" Western Snow Conference, April 19, 2022.

Poster Presentation, "Application of ECOSTRESS evapotranspiration in a paired catchment analysis following the 2018 Holy Fire in California" International Association of Landscape

Ecology, April 11, 2022.

Poster Presentation, "Post-fire Vegetation and Hydrologic Recovery in a Mediterranean Climate" American Geophysical Union (virtual), December 10, 2020.

Poster Presentation, "ECOSTRESS Wildfire Applications" Geo For Good Summit 2020 (virtual), October 20, 2020. Primary authors were Paa Sey from Howard University and Christine Lee from NASA-JPL.

Poster Presentation, "Flood after fire in southern California - Incorporating machine learning to identify important parameters for process-based hydrologic models" Student Research Symposium, in San Diego, California, February 28, 2020.

Poster Presentation, "Flood after fire in southern California - Incorporating machine learning to identify important parameters for process-based hydrologic models" International Erosion Control Association Annual Conference in Raleigh, North Carolina, February 25, 2020.

Oral Presentation, "Post-wildfire peak streamflow for small watersheds in southern California" American Geophysical Union in San Francisco, California, December 12, 2019.

Oral Presentation, "Predicting post-wildfire peak streamflow for small watersheds in southern California" Floodplain Management Association Annual Conference, in San Diego, California, September 5, 2019.

Awards and Honors

- 2020 Master's Research Scholarship Award, San Diego State University

Service to the Community

Journal Reviewer.
- Atmospheric Pollution Research (1x)
- Earth System Science Data (1x)
- The Cryosphere (1x)

Volunteering.
- 300+ hrs with San Diego River Park Foundation (2019)
- Kellogg Honors College events (2015–2018)

Science Outreach

- Invited talk on our coastal fog research project to the community at Cabrillo National Monument as a part of the Naturally Speaking series. July 2022
  Watch on YouTube
- Blog: "Snow Albedo from Space," November 2023
  Read post

Open-Source Code and Data Products

- `goshawk` - GitHub
- `ice-road-copters` - GitHub

- `hyperquest` - GitHub

Published Data Products

- Dataset: ASD FieldSpec4 Snow and Conifer Measurements (2023)
  DOI

Professional Memberships

- American Geophysical Union (AGU), 2019-present

Certifications

- Remote Pilot - #4411570 (expired July 2024)
- CPR/AED for Professional Rescuers - Red Cross (expired March 2025)
- Wilderness First Aid (WFA) - NOLS (expired March 2025)

References

Available upon request