26 Aug 2024

Brenton A. Wilder

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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

2022 Scientists in Parks (SIP) Fellow, Cabrillo National Monument, National Parks Service

Professional Memberships

2019-present American Geophysical Union (AGU)

Awards and Honors

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

Funding

2022-2025 FINESST Grant, NASA (21-EARTH21-0249), $150,000 [16% acceptance; 3 years of support]

2019-2021 GRIN Award, JFSP (#19-1-01-55), $24,958 [24% acceptance; 2 years of support]

Conference Presentations

- **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 K-MEANS 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.
- **Oral Presentation**, "Coastal Fog - A Lifeline for Native Plants" Naturally Speaking Series, July 15, 2022.
- **Poster Presentation**, "Improving snow distribution estimates to increase drought resilliance 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 (virtual), 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.
- **Poster Presentation**, "Seismic Energy and Friction Dampers" Kellogg Honors College Convocation, in Pomona, California April 30, 2018.
- **Poster Presentation**, "Seismic Energy and Friction Dampers" Southern California Undergraduate Research Symposium, in Pomona, California, November 18, 2017.

Publications

Bair, E. H., Roberts, D. A., Thompson, D. R., Brodrick, P. G., **Wilder, B. A.**, Bohn, N., ... & Dozier, J. (2024). Brief communication: Not as dirty as they look, flawed airborne and satellite snow spectra. *EGUsphere*, *2024*, 1-8.

Wilder, B. A., Meyer, J., Enterkine, J., & Glenn, N. F. (2024). Optimally solving topography of snow-scaped landscapes to improve snow property retrieval from spaceborne imaging spectroscopy measurements. *EGUsphere*, *2024*, 1-45.

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 spectral clustering. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.

Wilder, B. A., Glenn, N. F., Lee, C. M., Marshall, H. P., Brandt, J., Kinoshita, A. M., ... & Enterkine, J. (2023, July). Global Optical Snow properties via High-speed Algorithm With K-means clustering (GOSHAWK). In *IGARSS 2023-2023 IEEE International Geoscience and Remote Sensing Symposium*(pp. 118-120). IEEE.

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.

Teaching

- **Co-instructor**, Undergraduate course in applied hydrology and hydraulics for Fall 2019 and Spring 2020 semesters, respectively, at San Diego State University. Highlights included successfully implementing a MATLAB script to create a water balance experiment with the HM-145 machine (which has the potential to be used in virtual settings as well). Additionally, I coordinated with teams of students via Zoom (during COVID-19 pandemic) to assist in the development of semi-distributed HEC-HMS models of the Arroyo Seco watershed located in Los Angeles, California.

- **Supplemental Instructor**, Undergraduate courses in structural mechanics for Fall 2017, Winter 2018, and Spring 2018 at Cal Poly Pomona. Responsible for helping other engineering students with their coursework including calculus, differential equations, and structural analysis. I was a crucial part of the pilot Supplemental Instructor (SI) program where tutors used IPad's and focused learning sessions to facilitate learning.

Service and Leadership

- Volunteered and led groups (300+ hours) with the San Diego River Park Foundation during the course of my master's degree at San Diego State University

- Volunteered at several events at Cal Poly Pomona through Kellogg Honors College including Matt's Run and Showcase of Excellence

Certifications

- **Remote Pilot**, via FAA for Small Unmanned Aircraft System (#4411570)

- **Engineer in Training**, via California Board for Professional Engineers, Land Surveyors, and Geologists (#162671)

- **CPR/AED for Professional Rescuers with First Aid**, via American Red Cross (#0159LMD, expires 03/25)

- **Wilderness First Aid (WFA)**, via National Outdoor Leadership School (expires 03/25)