

Joseph Ammatelli

Assistant Research Scientist | Desert Research Institute
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EDUCATION

- MS in Civil and Environmental Engineering**, University of Washington, Seattle 2022
Thesis: *Measuring Tree Sway Frequency Using Video Processing*
Advisor: Jessica Lundquist
- BS in Computer Engineering**, University of Washington, Seattle 2021
Magna Cum Laude, Interdisciplinary Honors Program, Minor in Mathematics

WORK EXPERIENCE

- Assistant Research Scientist**, Desert Research Institute 2024-present
- Research Intern**, SIParCS Program, National Center for Atmospheric Research 2022
- Graduate Research Assistant**, Mountain Hydrology Lab, University of Washington 2021-2022
- Research Collaborator**, PSLE, Yosemite National Park 2020, 2021
- Undergraduate Research Assistant**, Mountain Hydrology Lab, University of Washington 2019-2021

PUBLICATIONS

Datasets

Lundquist, J., Hallnan, R., Roche, J., Forester, H., **Ammatelli, J.**, and others, 2024: Streamflow measurements from four sites on the Tuolumne River in Yosemite National Park from Water Years 2002 to 2021, doi: 10.15485/2324637

Submitted, in review, or in revision:

Ammatelli, J., and others: Measuring Tree Sway Frequency with Videos for Ecohydrologic Applications: Assessing the Efficacy of Eulerian Processing Algorithms (submitted)

AWARDS

- Knowledge Fund Grant, Desert Research Institute (\$18,000): Leveraging the Caltrans CCTV Camera Network to Monitor Water Stress in Trees 2024
- Mary Gates Research Scholarship, University of Washington (\$5000): Processing Tree Sway Videos with a FFT Algorithm to Improve Snow Interception Parameters in Hydrologic Models 2019
- Roy C. Fellows Endowed Scholarship, University of Washington 2017

CONFERENCE ACTIVITIES

Ammatelli, J., Kim, I., Chellman, N. J., Carroll, R. W., Boisrame, G., Heggli, A. E., Hausner, M. B., Meyer, J., 2024: Towards Enhanced Understanding of Snow-Soil Energy Exchanges and Their Effect on Snow Processes: An Integrated Numerical Modeling Approach, AGU24 Fall Meeting: Washington, D.C., December 9, 2024-December 13, 2024 (*poster*)

Ammatelli, J., Lundquist, J., Gutmann, E., Ciruzzi, D., Loheide, S., Bush, S., Barnard, H., Raleigh, M., 2024: Towards Improved Quantification of Snow Interception: Measuring Tree Sway Frequency With a Video Camera, NASA Community Snow Meeting: Boulder, CO, August 14, 2024-August 15, 2024 (*poster*)

OUTREACH

Outreach: Galena High School snow science field trip, Mt. Rose, facilitator (2024)
Memberships: AGU

SKILLS

Programming: Python, C, Java, Javascript, SQL, parallel computing (OpenMP, MPI, CUDA), shell scripting, Verilog
Hardware: Campbell Scientific dataloggers, Raspberry Pi, microcontrollers (Arduino or similar), FPGA
Tools: Docker, git, Google Earth Engine
Modeling: iSnobal, COMSOL, Landlab
HPC: Slurm, PBS, Spack
Training: Snow Science School, Central Sierra Snow Lab (2025)
Campbell Scientific CrBasic Datalogger Training (2025)
4x4 Offroad Driving Training (2024)
Fieldwork: snow field measurements, hydrometeorological instrumentation (installation, programming, and maintenance), stream gauging, backcountry travel, first aid

FIELDWORK

Snake Range, NV, USA – Annual NevCAN site maintenance. Helped install a snow pillow, ground heat flux plates, and a distributed temperature sensor (DTS) system (PIs Anne Heggli and Mark Hausner). Aug 2024

Yosemite National Park, CA, USA – Early summer soil moisture, infiltration rate, and time lapse photography data collection in burned and unburned areas in the Illilouette Creek Basin (PI Gabrielle Boisrame). June 2024

Yosemite National Park, CA, USA – Annual data collection, stream gauging, and site maintenance at over 10 sites across the Tuolumne front and backcountry (PIs Jessica Lundquist and Rachel Hallnan).

Jul-Aug 2020, 2021

Los Alamos National Lab, NM, USA – 3-day intensive field campaign to monitor biophysical tree properties in drought-stressed and healthy trees. Led data logger setup and recording of tree sway video data. (PI Jessica Lundquist).

Aug 2019

Cocha Cashu Biological Field Station, Manu National Park, Peru – 10-day field study in the remote Amazon rainforest. Used camera traps and sand traps to examine the relationship between mammal sightings and proximity to a lake.

Sep 2017