Alexander Fox

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EDUCATION

Ph.D. Candidate in Hydrologic Science, University of Wyoming Planned: May 2025
Advisor: Brent E. Ewers   GPA: 4.0
Relevant coursework: Adv. Hydrology, Geosci. Data Analysis, Env. Biophysics

B.A. Physics (conc. in astrophysics) and Math, Oberlin College May 2018
Relevant coursework: Classical Mechanics, Electronics, Differential Equations GPA: 3.38

RELEVANT WORK EXPERIENCE

University of Wyoming   Laramie, WY
Graduate Research Assistant   June 2020 – Present
- Developing a high-throughput workflow for eddy covariance data pre-processing.
- Process modeling to differentiate drought tolerance between perennial and annual grains
- Studying compound disturbance effects on ecosystem processes in the Rockies
- Constraining springtime energy budget measurements in snow-dominated ecosystems
- Managing the US-CPk Ameriflux site and other UW micrometeorological stations

Graduate Teaching Assistant
- Courses: Water Resources Seminar, Forest Mgmt., Intro. to Research and Data Analysis

Oak Ridge National Lab & UT Battelle   Oak Ridge, TN
RSI Intern, Watershed Dynamics and Evolution SFA   Jun–Aug 2024
- Modeling the dynamics of flow activation of headwater streams and river network expansion and contraction in watersheds.
- Optimizing sensor placements within watersheds using simulated watershed topographies and morphologies.

University of Wyoming   Laramie, WY
Eddy Covariance Field Technician   Jun– Nov 2019
- Maintenance of the US-CPk Ameriflux site, including data processing and QA/QC

Cooperative Institute for Satellite and Earth System Studies (CISESS)   College Park, MD
Research Assistant, OpenET Project   Nov 2018 – May 2019
- Developed code for a rapid water balance assessment tool using the ALEXI algorithm

AWARDS AND HONORS

Rhoads Hydrology Scholarship – University of Wyoming	2023
Professional-Producer Grant – Western SARE	2021-2024
Graduate Student Fellowship – Wyoming NASA Space Grant Consortium	2021-2022
Grant A. Harris Fellowship – METER Group	2021
Sigma Xi Scientific Research Honor Society	2017

PRESENTATIONS

Fox, A.S., Ewers, B.E., Frank, J.M. Impacts of Compound Bark Beetle-Forest Fire Disturbance on the Water Budget of a Subalpine Rocky Mountain Forest Ecosystem (2024). *AGU24. Poster.*

Fox, A.S., Mainzer, L., Ewers, B.E., Frank, J.M., et al. A High-Throughput Workflow for Exploring Eddy Covariance Data Processing Using EddyPro (2023). *AGU23. Poster.*

Fox, A.S., Rodgers, H.R. Linking Plant-Scale Processes to Ecosystem Functions (2023). *University of Wyoming Plant Sciences Seminar. Oral Presentation.*

Fox, A.S.. Uncertainty in Surface Energy Fluxes in Mountain Environments (2023). *University of Wyoming Hydrologic Science Program Seminar. Oral Presentation.*

Fox, A.S.. Snow Season Vapor Losses Associated with Reduced Runoff Efficiency in Rocky Mountain Watersheds (2023). *University of Wyoming Hydrology & Water Resources Student Poster Session. Poster.*

Fox, A. S.. Linking plant physiology to ecosystem-scale processes using biophysical first-principles (2023). *University of Wyoming Botany Department Seminar. Oral Presentation.*

Fox, A. S., Rodgers, H. R., Norton, J. B. et al. Modeling Sustainability of Annual and Perennial Cropping Systems in Eastern Wyoming. (2022). *2022 Perennial Grain Early Career Researchers Workshop. Oral Presentation.*

Fox, A. S., Frank, J. M., Blanken, P., Bretfeld, M., Burns, S., Hubbard, R., Ewers, B. E. et al. Understanding ecosystem processes in the subalpine forests of Wyoming and Colorado under synergistic disturbances from bark beetles, wildfire, and climate change. (2022). *Ameriflux Annual Meeting 2022. Poster.*

PUBLICATIONS

Webb, R.W., Knowles, J.F., **Fox, A.S.**, et al. Energy-Water Asynchrony Principally Determines Water Available for Runoff from Snowmelt in Continental Montane Forests. (2024) *Accepted for Publication in Hydrologic Processes.*

Owen, R., **Fox, A. S.**, Freiberg, J. A., Jacques, T. P. Black hole spin axis in numerical relativity. *Phys. Rev. D 99, 084031* (2019).

OTHER WORK AND LEADERSHIP EXPERIENCE

The Land Institute	**Salina, KS**
Research Intern	Sep – Oct 2018
Oberlin College	**Oberlin, OH**
Teaching Assistant: Energy Sci. & Tech.	Jan – May 2018
Research Assistant, Dept. of Physics and Astronomy	May – Aug 2017
Research Assistant, Dept. of Mathematics	Feb – Sep 2016
Telescope Technician	Nov 2014 – May 2017

PROFESSIONAL TRAININGS

Fluxcourse, University of Colorado Mountain Research Station, Nederland, CO	2023
LI-COR Photosynthesis Workshop, Colorado State University, Fort Collins, CO	2022
New Advances in Land Carbon Cycle Modeling, Northern Arizona University, Virtual	2021

SKILLS

Advanced: Python, R
Intermediate: Bash, SQL, Supercomputing, Git, QGIS, Julia,
Beginner: FORTRAN, C.
Interests: Rock climbing, canoeing, cooking, reading, chess grand-amateur