

**Postdoctoral Research
Associate:
Arctic Watershed
Hydrology and
Biogeochemistry**



Position Summary

The postdoctoral position is part of a collaborative project that will investigate the fate of thawed permafrost carbon and nutrients across a large range of Alaskan Arctic watersheds. The project applies a combination of novel and conventional approaches to quantify nutrient dynamics across scales and biomes. Primarily, the project involves: 1) Repeated high-resolution spatial sampling of stream network chemistry and high-frequency monitoring at watershed outlets to quantify lateral carbon and nutrient flux across ecosystem gradients (e.g. Arctic-Boreal and coastal-upland) and scales (0.1 to 1,000 square kilometers); 2) Robust nutrient-limitation assays and tracer injection methods to estimate the magnitude of instream removal and release of nutrients in locations that exert a strong influence on watershed-scale nutrient flux; and 3) Spatial analysis and statistical modeling of geochemical tracers and hydrological data that link multi-scale nutrient fluxes with ecohydrological characteristics and thus identify drivers of hydrochemical change in the Arctic.

The postdoctoral position responsibilities include: execute and creatively expand upon ongoing data synthesis and modeling tasks, lead collaborative project papers, conduct field research in the Arctic, and assist with data management plan. The researcher will have the opportunity to mentor students and participate in STEM education and outreach activities. The position is based in the Department of Earth and Environmental Sciences at Michigan State University under the supervision of Dr. Jay Zarnetske (www.zarnetskelab.com), and involves collaboration with co-PIs: Ariel Shogren (Michigan State University), Ben Abbott (Brigham Young University), William “Breck” Bowden (University of Vermont), and Jon O’Donnell (National Park Service). A minimum of two years of funding is available for this position. The position will begin as a one-year appointment with extension available depending on satisfactory performance.

Required Degree: Doctorate

Minimum Requirements: The successful candidate will have earned a PhD in hydrology, ecology, biogeochemistry, engineering, statistics, remote sensing, data science, or related field by the position start date.

Desired Qualifications: Additional preferred qualifications include: a strong background in hydrological and/or ecosystem ecology theory; time-series analysis and spatial modeling; expertise in R, matlab, C, Google Earth Engine; analyzing large remotely-sensed and point-level data; big data management; high performance computing and cloud computing; previous project management experience; and exceptional work ethic, professionalism, and collaborative skills.

Required Application Materials and How to Apply:

- 1) a cover letter of interest detailing qualifications for the position with “Arctic Watershed Hydrology and Biogeochemistry” in the subject line, 2) curriculum vitae, 3) a list of three professional references with contact information (institution, email address, phone number).
- 2) Submit all application materials via <http://careers.msu.edu/cw/en-us/listing/> under Job Number 490237. Contact with Jay Zarnetske with questions at jpz@msu.edu.

Special Instructions: Review of applications will begin November 15, 2019, and the position will remain open until filled. Desired start date is February 17, 2020, but earlier or later start dates may be possible if identified in the application cover letter.

Website: See additional information on lab and projects here: www.zarnetskelab.com

Salary: \$48,000. Full Time, Fixed Term.

MSU Statement: Michigan State University has been advancing the common good with uncommon will for more than 160 years. One of the top research universities in the world, MSU pushes the boundaries of discovery and forges enduring partnerships to solve the most pressing global challenges while providing life-changing opportunities to a diverse and inclusive academic community through more than 200 programs of study in 17 degree-granting colleges.