





USGS NSF Internship Opportunity


● Point of Contact Name:	Josh Koch
● Point of Contact Email:	jkoch@usgs.gov
● USGS Center:	Alaska Science Center
● Project Title:	Quantifying groundwater resources and biogeochemical fluxes on Alaska's North Slope and in the Arctic National Wildlife Refuge
● Summary:	<p>The Arctic is in a state of rapid change related to thawing permafrost, shifting seasons, altered and novel wildlife migrations, and increasing industrial activity. Working at the interdisciplinary USGS office in Anchorage will provide the intern an introduction to many of these processes. The intern will visit remote sites, participate in and lead important science, and have broad exposure to Arctic research by the USGS.</p>
● Project Hypothesis or Objectives:	<p>The North Slope of Alaska is a unique environment defined by continuous permafrost, abundant wildlife, and substantial industrial activity that is expected to increase. Liquid water is often limited in this frozen landscape, but is a critical resource for humans, wildlife, and industry, as well as an important connection between terrestrial, freshwater, and marine ecosystems.</p> <p>The goal of this proposal is to improve our understanding of water resources on Alaska's North Slope, and particularly in the Arctic National Wildlife Refuge (ANWR), where groundwater is a critical, understudied resource. This project will utilize ancillary data collected from various North Slope locations over the past five years, as well as new data that will be collected during field visits to ANWR in April and August of 2019. A combination of physical hydrology and (bio)geochemical methods will be needed in order to quantify groundwater and solute sources and fluxes.</p>
● Duration:	2 - 6 months
● Internship Location:	Anchorage, Alaska
● Keywords:	Geochemistry, Hydrology

 **Applicable NSF Division:** GEO (Atmospheric, Earth Sciences, Ocean Sciences, Polar Programs)

 **Intern Type Preference:** Any Type of Intern

 **Duties/Responsibilities:** The intern will be a member of a team tasked with improving our understanding of hydrology, biology, and biogeochemistry of the Arctic National Wildlife Refuge (ANWR). The intern will be a key participant in hydrological and biogeochemical data collection during 1 to 2 excursions in the spring and summer of 2019, which will also allow for ancillary data collection to support the intern's research goals. The intern will spend the remainder of the summer analyzing data, with mentorship from USGS scientists and potential to interact with researchers at the University of Alaska among other local scientific organizations. The intern will also have the opportunity to participate in field and/or analysis components of related studies in arctic and boreal Alaska.

 **Expected Outcome:** The intern's research will directly contribute to our understanding of water budgets, groundwater sources, water and solute fluxes, and/or biogeochemical cycling in the Arctic National Wildlife Refuge in Alaska. The intern will contribute to an annual report of project progress that will be submitted to a partner governmental agency. It is expected that the latter portion of the internship will be focused on manuscript preparation intended for publication in a peer-reviewed journal.

 **Special skills/training Required:** A bachelors or Masters degree in Earth science is a pre-requisite. Background and experience in hydrology, biogeochemistry and/or geochemistry is also important. Experience with scientific programming languages such as MATLAB or R is a plus.

Internal Information - Not to be posted:

Center Director Name: Christian Zimmerman

USGS Responsibilities: Equipment, Facilities, Mentoring, On-boarding, Background Check, Volunteer Agreement Management

Preliminary Approval: This opportunity has my Center's approval

I already have a student in mind: Craig Connolly

Comments:
