

POSITION ANNOUNCEMENT:

GEORGE MELENDEZ WRIGHT INITIATIVE FOR YOUNG LEADERS IN CLIMATE CHANGE

The National Park Service (NPS) is pleased to announce the *George Melendez Wright Initiative for Young Leaders in Climate Change* Initiative (YLCC) to provide a pathway for exemplary students in higher education (graduate students and advanced undergraduate students) to apply their skills and ideas to park-based challenges and solutions. The Initiative offers 12-week paid internships which allow students to gain valuable work experience, explore career options, and develop leadership skills through mentorship and guidance while helping to advance the NPS response to climate change. Successful students may be eligible for non-competitive hire into federal positions for which they qualify following completion of all academic requirements.

Frozen in Time: Snow Patch Modeling and Human Prehistory in the Central Brooks Range, Alaska

Gates of the Arctic National Park and Preserve
Fairbanks, AK

Globally significant archaeological and paleoecological discoveries have been made recently as ancient artifacts have been found melting from alpine snow patches and ice fields. Across the North, these frozen time capsules have yielded complete arrows with wood shafts and delicate feather fletching, skin clothing, and bark containers that date to as much as 8,000 years ago. Such perishable materials decayed long ago in typical archaeological settings, so snow patch finds provide unique insights into past societies. Snow patch sites can also contain rich assemblages of plant and animal remains that shed light on long term environmental change.

This resource is not well-inventoried. Across large areas of the north we don't even know what we are losing. The central Brooks Range within Gates of the Arctic National Park (GAAR) in particular has excellent potential for snow patch finds. Reconnaissance surveys, ethnographic accounts, and reports from local residents point to several dozen snow patch locations with potential to contain archaeological and paleoecological materials. These sites are melting rapidly, and once melted the archaeological and paleoecological materials quickly decay. This threatens resources the National Park Service is committed to preserving and understanding.

An efficient effort to find and document these sites in an approximately 8 million acre park must begin with geographic modeling. By using high-resolution, up-to-date geospatial data, as well as traditional ecological and ethnographic data, a predictive snow patch model can show us where to begin the search and initiate the effort to record these important, vanishing resources.

PROJECT DESCRIPTION

The YLCC intern will develop a predictive model of snow patches of high archaeological/paleoecological potential to inform field surveys and inventory efforts by park resources staff. Successful modeling efforts will require working with content specialists within park staff as well as local residents and community stakeholders. Residents of Anaktuvuk Pass—a village within GAAR—will be an important resource to share knowledge of local climate, ecology, and traditional landscape use that will inform the model. Travel to the rural community of Anaktuvuk Pass for face-to-face discussions can be part of the intern's experience.

Other tasks required to accomplish this goal include documentation of model development, data processing and final curation. New geospatial data may need to be acquired, and all derivative data from the intern's tasks will need actively managed. Model development will entail academic and archival research. The final product will integrate geospatial data, scientific understanding, and traditional knowledge into a comprehensive and meaningful model. Ideally, the intern would participate in fieldwork to test the model outcomes. The intern will be asked to present project results and findings to NPS leadership and staff via an informal brown bag lecture at the completion of the internship.

QUALIFICATIONS

Building a predictive snow patch model for GAAR will rely on knowledge across multiple disciplines, including geography, archaeology, geology, and ecology. Applicants should be enrolled in a graduate degree program in archaeology, anthropology, geography, natural resources management or a related field. Applicants in their senior year of baccalaureate study in the same fields will be considered.

Advanced GIS experience is required. This should include courses on, but not limited to, remote sensing, image analysis, spatial analysis, geospatial information management, database management, and spatial quantitative methods. GIS experience in addition to, or in lieu of, coursework should be explained in detail in the application.

A successful intern should also have good independent research and writing skills. A component of the project will be a brief literature survey of ice-patch and alpine archaeology, and the ethnography of activities associated with alpine and snowfield settings.

LEADERSHIP DEVELOPMENT

The intern will head a substantial portion of a project that has been in development at GAAR for the past five years. The NPS project lead will mentor the intern and oversee their integration with a team of specialists who have knowledge of this project and a range of expertise. Weekly meetings between the intern and the NPS project lead will provide opportunities to evaluate progress on tasks and products.

GAAR staff have laid necessary groundwork with stakeholders in rural communities close to the project area and the intern will participate in community engagement through the project. Knowledgeable local residents—in this case, Iñupiat elders—will continue to participate in the project by shaping the study design and reviewing draft products. By participating in discussions and evaluating input from various stakeholders, the intern will gain vital career skills.

The intern will work with the project lead to develop logistical plans for field research based on the GIS model. Developing field plans based on specific research questions will provide the intern with excellent early-career experience in field science.

DATES OF POSITION

June 8-August 28 2015. Dates are flexible.

COMPENSATION

This initiative supports one student at \$14 / hour for 12 weeks, or 480 hours.

HOUSING

Housing is not available. A housing stipend may be available for students who require one. The University of Alaska Fairbanks provides summer guest housing at \$37/night. Campus is located directly across from the GAAR office site, and can be reached by walking, bike, or public bus. Rental units (apartments and cabins) can also be found nearby on public transportation and/or bike routes. Additional information can be provided by the intern supervisor.

WORK ENVIRONMENT

The work will be primarily office based with opportunities to travel to Anaktuvuk Pass as well as for fieldwork within Gates of the Arctic National Park. Travel will require transportation by small fixed wing aircraft and helicopter. Fieldwork will require the ability to carry a 30 pound backpack over challenging terrain and the applicant should be comfortable in remote backcountry settings. Mountain weather can be highly variable –even in summer– and can include rain, sleet, snow, wind, and fog. Mosquitoes will be prevalent. Training in aviation safety and bear and backcountry safety will be provided.

CONTACT INFORMATION

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