



2016 – Geoscientists-in-the-Parks Project Description



NPS UNIT: Denali National Park & Preserve	PD #: 2016025
<p>Position Title: GIS Specialist</p> <p>Position Type: Standard GIP</p> <p>Primary natural resource discipline: Multidisciplinary</p> <p>Location: Denali National Park and Preserve Milepost 237 Parks Highway Denali Park, AK 99755</p>	
PROJECT DESCRIPTION AND WORK PRODUCTS	
<p>Position Description: The National Geodetic Survey (NGS) maintains a database of passive control markers throughout the US and is currently hosting a campaign to recover the existence and locations of these markers for incorporation into the National Spatial Reference System of 2022. Over 160 of these monuments exist within or around Denali National Park and Preserve (DENA) and less than 10 have been recovered within the past 30 years. Along with contributing to the national reference frame, existing benchmarks can serve as control points for survey grade GPS projects within the park, tying grid to global coordinates and allowing for better integration of engineering documents within GIS. Additionally, existence of installations within the park, especially in designated wilderness, is of interest to park management.</p> <p>The participant will firstly engage in benchmark recovery, which includes:</p> <ul style="list-style-type: none"> • Reconnaissance: locating NGS passive control monuments via GIS and field work; • Recovery: executing survey of recovered benchmark with proper documentation for submission to OPUS shared solutions; • Report: submission of findings to NGS and DENA GIS Specialist. <p>Boundary markers and Bureau of Land Management survey markers are a secondary goal for mapping grade recovery, if all NGS benchmarks are recovered. Participant may have the opportunity, in conjunction with the Alaska Geographic/Murie Science and Learning Center, to work with and lead small groups of youth (middle and high school students) through the concepts of GPS and benchmark recovery. Participant may also be expected to coordinate efforts with University of Alaska Anchorage Geomatics students also participating in benchmark recovery in DENA. Upon successful completion of the GIP internship, the participant is eligible for an AmeriCorps Education Award. This position is offered through the National Park Service's Geoscientists-in-the-Parks Internship Program in partnership with Environmental Stewards and The Geological Society of America.</p> <p>Work Products: Materials to be produced by participant:</p> <p>Survey markers documentation:</p> <ul style="list-style-type: none"> • Report on benchmark recovery in DENA • Geodatabase of all recovered or non-existent benchmarks in and around DENA • Attachments of documents, PID sheets, and photos included in geodatabase <p>RTK documentation:</p> <ul style="list-style-type: none"> • Finalize RTK Standard Operating Procedure for DENA • Create .FXL and Survey Styles for DENA • Inventory hardware and software database, links to documents of previous procurement, licenses 	

- Create a timeline/calendar for license, firmware, and hardware renewals and upgrades which can be referenced each year

QUALIFICATIONS

Applicants must have at least three years towards a bachelors degree in cartography, engineering, or a geospatial degree (including geology, geomatics, GIS, geography, etc.). Applicants must have taken coursework in geodesy and map projections. Additional coursework in surveying, engineering, and CAD will make the applicant more competitive. Advanced GIS skills are required whether they are gained through coursework or applied experience. Advanced GIS skills include spatial data management, understanding of datums, projections, and geoids, and the ability to recommend spatial analysis techniques. The applicant should be able to work well independently both in the office and in the field with little supervision, have advanced map reading and GPS orientation skills, must be able to interpret airphotos/satellite imagery, and be very comfortable hiking off trail in a rugged mountain environment.

The applicant must be a U.S. citizen or U.S. permanent legal resident (“green-card-holder”) between the ages of 18 and 35 years old. Applicant must have a valid driver’s license and a good driving record. Prior to starting this position a government security background clearance will be required.

INTERNSHIP START/END DATES

Start Date: 5/16/2016

End Date: 8/12/2016

Are these dates flexible? Yes

STIPEND PAYMENT

\$3,600 for 3 months

HOUSING PAYMENT

\$0

TRAVEL ALLOWANCE

\$1,000

HOUSING/WORK ENVIRONMENT

Housing: Park housing is provided at no cost to the participant and is a short and pleasant walk from the office. Housing consists of a comfortable shared 20’ x 20’ cabin, with private bedrooms. Some food and community services are available in Nenana Canyon outside the park entrance and in Healy (10 miles north of park). Larger city services are located in Fairbanks, 120 miles north of the park entrance. There are limited shopping opportunities after arrival, so it is very important to come prepared. Commuting options include bikes (available for loan), walking along a roadside trail, and a free shuttle system. Many seasonal employees do not have their own vehicles and find the existing transportation to be adequate for their needs.

Some fieldwork will involve remote site camping in wall tents. Portions of the work may involve backpacking for one or more nights. Backcountry camping gear (backpack, tent, sleeping bag, stove cooking pots, etc.) can be supplied by the park but the participant may consider bringing their own.

Physical/Natural Environment: Denali is a six-million-acre park with the Alaska Range as a backbone. The park is replete with extensive glaciers and braided rivers, miles of tundra plateaus, and countless glacial lakes and ponds, all capped by the magnificent 6,194 m (20,320’) Denali. The geologic core of the park consists primarily of

Paleozoic and Mesozoic marine sedimentary rocks, with some Cretaceous and Tertiary plutonic intrusions and volcanic episodes. Rock formations in the park have been modified by near-continuous tectonic compression and extensive glaciation. The sub-arctic climate has created extensive permafrost and its associated features.

Work Environment: Field work will be performed in a park environment where the terrain is steep, uneven, and rocky. Approaches are frequently lengthy and covered with thick vegetation. Almost all hiking will be off trail. Some tasks may require travel on snow or ice (glacier) conditions. Assignments involve backcountry camping in all varieties of weather, and tasks may include moderate to strenuous physical exertion (long periods of standing, hiking, or climbing). Exposure to wildlife (i.e. grizzly bears and moose) is common, and precautions when hiking or camping is emphasized. A bear safety orientation course is required and will be provided at the park. Weather is unpredictable, but summer usually has some days of dry, relatively clear conditions with intermittent and sometimes lengthy periods of wet, drizzling conditions. Good personal raingear is a must, with under layers (like fleece) for colder and windier conditions. Much of the geohazard work is on exposed ridges or mountain tops where conditions are often wet, windy and cold. Relatively water resistant hiking boots are good for most of the mountainous work, while some switch to rubber boots or light shoes for river bar or tundra travel. Don't forget the bug repellent; Interior Alaska's mosquito reputation is not a trivial issue. Past participants have developed a healthy respect and love for the physical and mental challenge of working in the Denali backcountry. Participants will conduct office work in a collaborative environment at park headquarters with other seasonal employees under supervision in the Natural Resources division. Denali, Alaska – 250 miles north of Anchorage, 120 miles south of Fairbanks. Park headquarters is accessible by auto, bus or train.

MENTORING AND LEARNING GOALS

Mentoring: The GIS/Geomatics participant will be supervised directly by the Park GIS Specialist and will also collaborate extensively with other physical science, education, and interpretation staff. The GIS/Geomatics participant may be one of two individuals selected to work together for the season. While the two participants will work closely, they will complete individual projects. Orientation will be conducted one-on-one by the Park GIS Specialist as well as collectively at the All-Employee Orientation. Much of the rest of the training occurs on the job and is dependent on the participant's level of knowledge/experience with backcountry travel, GPS surveying, GIS, data management, data analysis, and reporting. However, training will be provided at the level necessary for safe backcountry travel, Leave No Trace techniques, and informal interpretation.

Learning Goals: Participant will learn how to independently plan and implement a project, collaborate with multiple disciplines, and communicate effectively with varying audiences. Participant will learn to operate RTK survey units using NPS standard operating procedures, a skill that can be utilized in a variety of other Alaskan and lower 48 national parks. Participants will also become familiarized with survey and mapping grade post-processing software, and the integration of data produced by such into a GIS.

SUPERVISORS

Primary Supervisor:	Britta Schroeder
Supervisor's Title:	GIS Specialist
Supervisor's Address:	PO Box 9 Denali Park, AK 99755
Supervisor's Phone number:	(907) 683-6243
Supervisor's email address:	britta_schroeder@nps.gov
Park or Program Website:	http://www.nps.gov/dena/index.htm
Secondary Supervisor:	Dave Schirokauer
Supervisor's Title:	Chief of Resources
Supervisor's Address:	PO Box 9

	Denali Park, AK 99755
Supervisor's Phone number:	(907) 683-9605
Supervisor's email address:	Dave_Schirokauer@nps.gov
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