GEOSCIENTISTS-IN-THE-PARKS
Internship Program

PROJECT DESCRIPTION
2020 SPRING/SUMMER

NPS UNIT: DENALI NATIONAL PARK AND PRESERVE	PD #: 2020015

Position Title: Geology Assistant (1)
Position Type: Guest Scientist
Primary natural resource discipline: Geologic resources
Project keywords: Geohazards, GIS, fluvial geomorphology, GPS, Permafrost
Location: Denali Park, Alaska

PROJECT DESCRIPTION AND WORK PRODUCTS

Position Description: Think you have what it takes to conduct cutting-edge research, then turn around and provide on-the-spot outreach when a kindergartner tugs on your pants and asks a hard question? Safely work in a highly dynamic and challenging natural landscape and also master hardware, software, and data in the office? You are a natural when it comes to logistical support? Feel comfortable coming face-to-face with bears, moose, and wolves? Prepared to walk long distances off trail, in thick brush, steep terrain, and blowing snow in July? If so, please apply for the Denali Park Geologist Apprentice position. The chosen candidate will be exposed to many mental and physical challenges and the reward that comes from mastering them.

The candidate will work closely with the Park Geologist on a wide range of emerging issues related to geoscience in parks. In particular the candidate will be immersed in geohazards inventory, mapping, and risk assessment and reduction. For example, in June 2014, July 2016, and August 2019, torrential rains triggered geohazards ranging from floods to landslides. These events washed out and blocked the Denali Park Road in multiple locations, endangering and stranding many visitors and staff. As of August 2019, the Pretty Rocks landslide captures the full width of a 90-m section of the dead-end Park Road and is sliding downhill at 50 mm/day (two inches per day; https://www.nps.gov/dena/learn/nature/pretty-rocks.htm). The Denali fault arcs through the park, and in 2002, released one of the highest magnitude strike-slip earthquakes in recorded history. And, of course, the park contains Denali, the tallest mountain in North America at 6,190 m (20,310'). Due to its extreme topographic relief, active seismicity, and climate extremes, Denali National Park and Preserve is an outstanding location for the study of many geohazards. National Park Service, U.S. Geological Survey, Federal Highways Administration, Army Corps of Engineers, Alaska Department of Transportation, universities, and consultants are all currently assisting Denali with known and possible problems related to geohazards. Come join the team to help us reduce risks to visitors and staff.

Because this project, and the GIP's efforts as part of it, are tied to geohazards of park infrastructure, it directly addresses the NPS' dual mandate of protecting resources and providing for visitor use.

This position is offered through the National Park Service's Geoscientists-in-the-Parks (GIP) Internship Program in partnership with Stewards Individual Placement Program (Stewards) and The Geological Society of America (GSA).

Work Products: The participant will perform an individual project that will be developed based on a balance of demonstrated abilities, interest, and park needs. For example, past participants have created publications, websites, databases, presentations, posters, and outreach programs on a wide range of topics. Once the participant has been selected, we will collaborate to agree upon an appropriate project before, or immediately after the start of, the season. This written agreement will clearly define the final product, expectations, and outcome. Because of high demand, the participant will likely focus on geohazard risk reduction. This rigorous internship will develop the participant's technical and creative thinking abilities, leadership skills, and problem-solving capabilities. At a minimum the participant will complete a technical document that summarizes their work and present project results to key decision-makers and stakeholders, internally and externally.

Secondary tasks are an opportunity for variety and to satisfy additional park needs. Typical secondary tasks include: assisting with or leading direct outreach and logistics on field trips and seminars; geophysical and GPS surveys; geologic mapping; environmental, glacier, and paleontological inventory and monitoring; mining reclamation; remote camp mobilization; database management; and equipment maintenance.

A brief GSA Final Report, photos, and thank you letter may be required as part of this project, in addition to final materials submitted to the National Park Service and Stewards Individual Placement Program. GSA will confirm this and share instructions regarding the additional reporting requirements upon selection into this project.

QUALIFICATIONS

Applicants must have completed at least three years toward a degree in the geosciences and required coursework in sedimentology, stratigraphy, geomorphology, GIS, and field methods and mapping. Additional coursework in structure, engineering geology, remote sensing, geovisualization, and environmental geology will make the applicant more competitive. Advanced GIS skills are required whether they are gained through coursework or applied experience. The applicant should be able to work well independently both in the office and in the field with limited 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 with potentially dangerous animals. Individuals that can demonstrate a positive and humble attitude through supportive letters, references, or awards will receive additional consideration.

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. Prior to starting this position a government security background clearance will be required.

VEHICLE/DRIVER LICENSE REQUIREMENTS

Applicant must have a valid driver license and a good driving record. The intern will regularly be driving a park vehicle.

A personal vehicle is not required for this position. Many seasonal staff in Denali do not have personal vehicles.

If the GIP is required to drive a park vehicle for their position, Stewards will perform a driving records search, and the GIP's ability to drive a park vehicle during work hours will be contingent upon the results. GIPs will have to have had their license for 3 years or be over the age of 21 to be insured as drivers under Stewards insurance policy. Examples of things that will preclude a GIP from driving a park vehicle include: GIP under the age of 21 years old that has been licensed less than three years, DUIs, multiple moving vehicle violations, suspended or revoked license, or three or more accidents (regardless of fault) in the last 3 years. If the driver's search is favorable, Stewards will provide driver's liability insurance while the intern is

driving a NPS vehicle for their GIP position. If the GIP is denied coverage by Stewards, they will not be permitted to drive during work hours.

HOUSING

Park housing is available and will be provided at no cost to the participant. Housing is a short and pleasant walk from the office. Housing consists of a comfortable 20' x 20' cabin shared with one other person. The kitchen, dining, and living space are shared and bedrooms are private. Running water is available during the summer months in the kitchen. Communal bathrooms are adjacent to the cabins. Commuting options include bikes (available for loan) and walking along a trail.

Some fieldwork will involve remote tent camping and sleeping in cabins, dorms, and wall tents along the park road corridor. 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 should consider bringing their own.

INTERNSHIP DATES

Start Date: 4/06/2020
Number of weeks: 36 weeks
Flexibility of dates: Yes

LIVING ALLOWANCE

36 weeks ($400/week = $14,400)

RELOCATION ALLOWANCE

$1000

AMERICORPS PROGRAM

AmeriCorps is a program that engages individuals in intensive community service work with the goal of "helping others and meeting critical needs in the community". The GIP Program is supported through AmeriCorps by providing a Segal Education Award in addition to the GIP's living stipend and relocation allowance.

Upon successful completion of the GIP position, the GIPs (AmeriCorps members) are eligible for a $1,638 - $6,195 pre-tax education award that can be used for paying back student loans or for continuing their education. The amount of the education award is based on the length of the position.

AmeriCorps limits the number of terms an individual can serve to 4 terms. If an applicant has previously completed 4 GIP or other AmeriCorps positions, they will not be eligible to apply for an additional GIP position.

NATURAL & PHYSICAL WORK ENVIRONMENT

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 magnificent 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. The office and housing is situated at a comfortable 600 m (2,000'). Fieldwork will regularly involve activities up to 1,200 m (4,000') and possibly up to 1,800 m (6,000') or more.

Some food and community services are available in Nenana Canyon outside the park entrance in the summer and in Healy (10 miles north of park) year round. 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.

Physical 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 may involve backcountry camping in all varieties of weather, and tasks will include moderate to strenuous physical exertion (long periods of standing, hiking, or climbing) so the participant must be in excellent shape. 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. 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 direct supervision from the park geologist. Park headquarters is accessible by car, bus or train.

MENTORING AND LEARNING GOALS

Mentoring: The participant will receive extensive mentoring from Denali staff and others. The Park Geologist, a previous GIP who has supervised eight former GIPs in Denali, will serve as the direct mentor. For the previous seven years, the team has consisted of up to three other previous GIPs who have also assisted with mentoring. Additionally, we expect that the participant will receive mentoring from other NPS and agency staff and university partners as in previous years.

Learning Goals:

- develop and execute useful applied research
- safely conduct fieldwork in challenging and remote environments
- further develop critical thinking abilities and problem-solving capabilities
- follow relevant government policy and law
- cultivate meaningful relationships with colleagues in both small- and large-group settings
- be both an excellent leader and follower
- effectively present scientific information to decision-makers and stakeholders

SUPERVISORS

Primary Supervisor:	**Secondary Supervisor:**
Denny Capps Park Geologist P.O. Box 9 Denali Park, AK 99755 (907) 683-9598 | Denny_Capps@nps.gov https://www.nps.gov/dena/learn/nature/denali.htm	Dave Schirokauer Science and Resources Team Lead P.O. Box 9 Denali Park, AK 99755 (907) 683-9605 | Dave_Schirokauer@nps.gov https://www.nps.gov/dena/learn/nature/scienceresearch.htm