



GEOSCIENTISTS-IN-THE-PARKS Internship Program

2019 – PROJECT DESCRIPTION

NPS UNIT: YELLOWSTONE NATIONAL PARK	PD #: 2019100
<p>Position Title: Hydrology Assistant Position Type: Guest Scientist Primary natural resource discipline: Water resources Project keywords: Yellowstone, hydrology, research, inventory and monitoring, geysers, springs, lakes, rivers, wetlands, geochemistry, statistics, R, geothermal, water resources, geology, environmental, field work, backcountry, database management, microbiology Location: Mammoth, Wyoming</p>	
PROJECT DESCRIPTION AND WORK PRODUCTS	
<p>Position Description: Many of Yellowstone National Park's most recognized and iconic water features are hot springs and geysers. Landmarks like Old Faithful and Grand Prismatic Spring are among the most captivating water features on Earth, but what makes the hydrology of Yellowstone more remarkable is that these distinctive hydrothermal features share a landscape with starkly different non-thermal surface water features, like lakes and rivers. The Hydrology Assistant will assist the Yellowstone Park Hydrologist with stream flow measurements, water quality monitoring, and hydrothermal system monitoring in diverse hydrologic settings across Yellowstone National Park. The Hydrology Assistant will be encouraged to create a novel research project in Yellowstone National Park that takes advantage of their skill set and hydrology interests while making meaningful contributions to the Park's long-term water quality monitoring program. Ideally, the internship will contribute to an in-progress thesis or dissertation.</p> <p>Duties include multi-faceted hydrologic field work, such as collecting water quality samples, maintaining/downloading data loggers, sampling microbial biomass, measuring water quality field parameters such as pH and conductivity, and analyzing time-series data.</p> <p>Other duties may include:</p> <ul style="list-style-type: none"> • Operate and maintain hydrologic monitoring equipment. • Organize and catalog hydrologic data in a georeferenced database. • Conduct time-series, spectral, and/or advanced statistical analysis for water resources applications using R or Python • Create print and web-based science content derived from assignments and interactions with researchers to educate visitors and increase environmental literacy for the park. • Interact with a diverse staff of geoscience researchers, educators, law enforcement rangers, microbiologists and other interns and seasonal staff. • Review science research proposals and projects. Emphasis will be placed on geoscience research. Yellowstone hosts approximately 175 permitted researchers per year. <p>We endeavor to challenge the intern with projects that require the acquisition new skills and experiences. The intern will receive training and development in a variety of skills including hydrology field research and water resources management, database development techniques and NPS data management. The intern will also work</p>	

on a weekly basis with other Park research staff, educators, and ranger professionals to gain a broad understanding of NPS careers.

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).

Expected work products:

- Create, analyze, and present hydrologic data.
- Create content for visitor interpretive displays and presentations.
- Create and display georeferenced datasets on maps with GIS software.
- Create reports describing field and laboratory work findings and share these findings with Park management and other vested parties.

QUALIFICATIONS

The applicant must possess an undergraduate degree in hydrology, environmental engineering, geology, geochemistry, microbiology, or related geoscience degree by the start of the internship. An advanced degree is preferred. Experience with hydrology field methods is required. Experience with the Microsoft Office suite (Excel, Word, PowerPoint, etc.) is required. Proficiency in ArcGIS 10.x and ability to learn mobile mapping software is necessary. Experience with natural resource field data collection is required. Applicant must have a valid driver's license. Applicant must be able to hike five miles with a 30-40 lb pack over steep or uneven terrain.

- Minimum B.S. in hydrology, environmental engineering, or geology; M.S. or PhD in progress is preferred.
- Ability to work both independently and as part of a team.
- Solid proficiency with the Microsoft Office suite and similar software programs.
- Demonstrated skills with field hydrology
- Include minimum of three professional references.
- Demonstrated skills in hydrologic data management.
- Proficiency with remote sensing and the ArcGIS software suite.

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'S LICENSE REQUIREMENTS

Applicant must have a valid driver's license and a good driving record. A personal vehicle is required to drive from park headquarters to nearby towns. The intern will be required to drive a government vehicle to locations throughout Yellowstone National Park for data gathering efforts.

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

The park will provide on-site housing at no cost to the participant. Housing will be either dormitory-style living with communal kitchen and bath facilities, or a private bedroom with shared kitchen/bath. Participant will need to bring their own linens and bedding as well as pots, pans, dishes and eating utensils. Personal access to the

internet or satellite television is not provided. A personal vehicle is required to drive from park headquarters to nearby towns.

INTERNSHIP START/END DATES

Start Date: 5/13/2019
Number of weeks: 20 weeks
Flexibility of dates: Yes

LIVING ALLOWANCE

20 weeks (\$400/week = \$8,000)

TRAVEL ALLOWANCE

\$250

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 travel/housing allowance.

Upon successful completion of the GIP position, the GIPs (AmeriCorps members) are eligible for a \$1,612 - \$6,095 pre-tax education 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, he/she will not be eligible to apply for an additional GIP position.

PHYSICAL/NATURAL & WORK ENVIRONMENT

Physical/Natural Environment: The participant will be stationed at Mammoth Hot Springs, Wyoming (Park headquarters), located approximately 5 miles from Yellowstone National Park's north entrance. Immediately outside of Yellowstone’s north entrance, the town of Gardiner, Montana is the closest community to Mammoth. The town of Livingston, Montana is approximately 50 miles north of Mammoth Hot Springs. Bozeman, Montana is a 90-minute drive from Mammoth and the home of Montana State University, major shopping centers, movie theaters and the Museum of the Rockies.

Visitors and employees alike enjoy the diverse geology within Yellowstone National Park. Rocks from Precambrian through Cenozoic time can be seen. The Laramide Orogeny, which formed the current Rocky Mountains, left its impact upon the Yellowstone landscape. But, it is the numerous volcanic eruptions of the Yellowstone Volcano and glaciers that constructed and finally sculpted the diverse landscape that we see today. The numerous hydrothermal features are evidence of heat from Yellowstone’s active volcano. Protection of Yellowstone’s geologic resources and natural processes is the main reason why we still see a large concentration of hydrothermal features within the world’s first national park.

Weather varies greatly from the low elevation of Mammoth (~6,200 feet) to moderate elevation around Yellowstone Lake (~8,000 ft.). High elevation (11,000-12,000 ft.), rugged mountains surround Yellowstone Lake. Within Yellowstone, passing storms can drop snow at any time of the year. At Mammoth, summer, temperatures can vary from lows in the 30’s to highs in the 90’s. Dressing in layers is highly recommended for Yellowstone’s extremes in temperature.

Work Environment: The ratio of office work to field work is 50/50 office/field, but could vary based on project needs. Overnight stays at government dorms/trailers in the Old Faithful area may be a possibility; backpacking may also be a possibility. Yellowstone is known for its wildlife including, large animals such as bears, bison,

moose, wolves and elk. The selected participant will be encouraged to take seasonal safety training for working in Yellowstone's wildlife-rich habitat.

GIP's often work in dangerous geothermal areas so each intern will be instructed on how to travel through these areas safely. Interns may also carry heavy gear through difficult terrain at high elevations, so it is imperative that candidates are familiar with and comfortable carrying 30-40 lb. loads in backcountry settings.

MENTORING AND LEARNING GOALS

Mentoring: The intern will be supervised directly by an NPS hydrologist. S/he will have many opportunities to interact and learn from permitted researchers involved in a range of physical and biological investigations related to hydrology and park management issues. The intern will also attend and participate in staff meetings, park-level trainings and seminars, and have many opportunities to network with land management and education professionals working throughout the Greater Yellowstone Ecosystem.

The park will provide:

- Weekly (at least 2-3 times per week) interaction with the intern to assess progress, answer questions, etc.
- Shadowing opportunities with other NPS staff and/or partners tailored to the interns interests.
- Opportunities to attend a Yellowstone Association field seminar.

Learning Goals: The GIP Hydrology Assistant is encouraged to create a research project that takes advantage of their skill set, hydrologic interests and hopefully contributes to their thesis or dissertation. We also endeavor to challenge the GIP with projects that require the acquisition of new skills and experiences.

Our GIP's receive training and development in a variety of skills including hydrology field research and management, GIS field and database management techniques and NPS data management. The intern will also work on a weekly basis with other Park research staff, educators, and ranger professionals to gain a broad understanding of NPS careers.

Intern will:

- Participate in planning and staff meetings to understand the day-to-day water resources management activities of Yellowstone NP.
- Gain a working knowledge on NPS databases.
- Become familiar with NPS research permitting process.
- Use water quality monitoring equipment to support resource management activities.
- Have access to free on-line ArcView GIS classes.

SUPERVISORS

Primary Supervisor: Erin White	Secondary Supervisor: Jefferson Hungerford
Title: Park Hydrologist	Title: Supervisory Geologist
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