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Becoming a Volunteer at HVO

How do I become a volunteer?

- Choose the Work Group for the position you want to volunteer.
- Complete and submit the application form for the specific Work Group. Your application will be sent electronically to the project team leader; your entries will appear in your browser immediately after you click on the submit button; save or print your entries for your records.
- The project team leader will review your application and if accepted, will contact you directly for additional information. This process can take up to four weeks. **If you do not hear back from us within one month of submitting your volunteer application to HVO, it has not been accepted.** You are welcome to re-apply, or to apply for another position, at any time. *Please note that the number of applications from qualified candidates often exceeds the number of available volunteer positions at HVO. We regret that not all applicants can be accepted and that we do not have sufficient staff resources to contact every applicant individually. We thank you for your interest in volunteering at HVO and appreciate your understanding if you are not selected.*
- If you are selected for the volunteer position, make your travel arrangements to and from Hilo International Airport, Hawai`i. You will be met at the airport and then driven to HVO or the guest house in the Hawai`i Volcanoes National Park. Please read **USGS Housing for Volunteers of HVO** below.

How do I choose a Work Group?

- Thoroughly read the various **Project Descriptions, Volunteer Duties, and Knowledge & Skills Required**, found below, for each position. Once you have read them, apply for the suitable Work

Group position on the Volunteer webpage at https://volcanoes.usgs.gov/observatories/hvo/hvo_volunteer.html.

What about health insurance?

- All volunteers must have their own health insurance for non-work related medical issues and injuries. You will be asked to show proof of your health insurance when you arrive at HVO.

Work Group

Seismology

PROJECT DESCRIPTION	The HVO Seismology group is responsible for the monitoring of all earthquake activity in Hawai`i with particular focus on earthquakes associated with eruptions or magma movement. Our activities are varied, from maintaining our seismometer network, to cataloging, posting, and archiving of ongoing seismic activity.
VOLUNTEER DUTIES	We seek volunteers to assist with all aspects of our network operations. Recent seismology volunteers have worked on web-page composition and programming, data archival and earthquake location. They have also assisted with station construction, installation and maintenance.
KNOWLEDGE & SKILLS REQUIRED	<p>Relevant skills and background include electronics, computer operations and programming. Additional experience and background specifically in seismology, electrical engineering, physics or computer programming are required for higher level project assignments.</p> <p>Candidate(s) should demonstrate good written, communication, and documentation skills, and the ability to work with minimal supervision is preferred.</p>
BENEFITS TO VOLUNTEERS	The diligent and motivated volunteer will benefit in taking part in the planning of their project upon arrival. The extent of the project will be dependent on the length of time spent at HVO, however, the goal will be to create a project that can be summarized in a poster to be presented at a regional or national conference (e.g. AGU, GSA, SSA). Volunteers will benefit from exposure to all aspects of network seismology from the seismometer, to telemetry, to the tools used to collect, analyze and store seismic data.

Geodesy/Deformation

PROJECT DESCRIPTION Patterns and rates of surface deformation provide important information about active volcanic processes. This information is used to monitor Hawaiian volcanoes for potential hazards and to advance our scientific understanding of the volcanoes as physical systems. HVO monitors deformation in real time with tiltmeters and dilatometers and in near real-time with the Global Positioning System (GPS). We also collect interferometric satellite radar (InSAR) data, and conduct periodic GPS, leveling and gravity surveys. We have a variety of field and office projects related to our scientific and monitoring efforts.

VOLUNTEER DUTIES Routine field work includes conducting GPS, leveling and/or gravity surveys and maintaining continuous GPS, tiltmeter, and dilatometer stations. Most of these stations are remote and can be accessed only by off-road vehicle (4x4), helicopter, or foot. Work can be strenuous and, occasionally, at altitudes to 13,500 ft (4,100 m).

Typically, volunteers divide their time between field and office work. Ongoing office projects available for interested volunteers include:

Assistance in creating and archiving interferograms from InSAR data. Programming assistance, including Matlab coding, writing web-based and other applications that interface with MySQL databases, debugging existing Java packages and porting Fortran programs to newer platforms and/or languages.

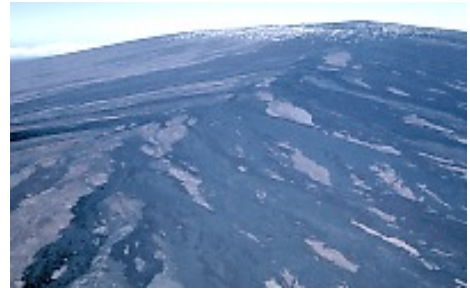
KNOWLEDGE & SKILLS REQUIRED Applicants must be U.S. citizens, and should be either working toward a degree in earth science, have already completed such a degree, or have equivalent work experience. Applicants must be in good physical condition and be willing to spend a day hiking over uneven ground in the rain with a heavy pack. Applicants should not have respiratory or other health problems that might be aggravated by exposure to volcanic fumes or intense heat. They must provide their own field gear, including a large-sized day pack, raingear, and sturdy, leather hiking boots.

Familiarity with Linux, Java, MySQL, HTML, Perl, Fortran, Matlab, Windows are all helpful. Electronics and construction skills are helpful for the building and maintenance of continuous deformation monitoring stations. A background in geology, geophysics, geodesy, mathematics or physics would be useful for data analysis and interpretation.

Mauna Loa Geology

PROJECT DESCRIPTION

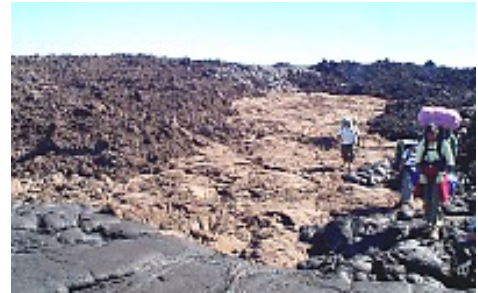
The primary goal of this project is to produce detailed geologic maps of Mauna Loa Volcano (photo at right, aerial view of northeast rift zone) and compile a temporal and spatial record of the volcano's eruptive activity for the past 10,000 years (the period of time recorded by surface lava flows).



To accomplish this, every significant surface flow needs to be mapped, its composition characterized, and its age determined by radiocarbon dating or stratigraphic position. This will be by far the most detailed map ever made of any volcano on Earth; over 500 separate flows have been mapped to date, requiring the establishment of large databases to archive and compile flow attributes. All mapping and flow attributes are being compiled into a GIS system to allow quantitative analyses of the distribution and variation of eruptive products over time. These analyses will allow quantitative refinement of volcanic-risk assessments for Mauna Loa in ways never before attempted for any volcano.

VOLUNTEER DUTIES

Volunteers working on this project gain experience in geologic mapping and map production. Volunteers will assist in a variety of mapping and field methods, including sampling charcoal, collecting rock samples and preparing them for analysis and petrographic study, identifying flow boundaries, and



determining ages of lava flows. Volunteers may also help in paleomagnetic drilling of lava flows and processing paleomagnetic samples and data. Volunteers will assist in constructing digital geologic maps at 1:24,000 scale, and compiling, cataloging, and entering Mauna Loa geologic data into a database. Volunteers will also assist in making plots and figures, preparing reports, and other project support work.

KNOWLEDGE & SKILLS REQUIRED

Applicants should either have a Bachelor's degree (or higher) in the physical sciences, particularly geology, earth science, or environmental sciences or (2) have equivalent work experience. Volunteers must be in top physical shape and have a working knowledge of location and outdoor survival skills in a wide range of environments ranging from arid desert and dense rain forests to alpine snowfields (yes, it snows on Mauna Loa!). Familiarity with GIS, computer spreadsheets, word processing, and a good work ethic is necessary. Field experience is essential.

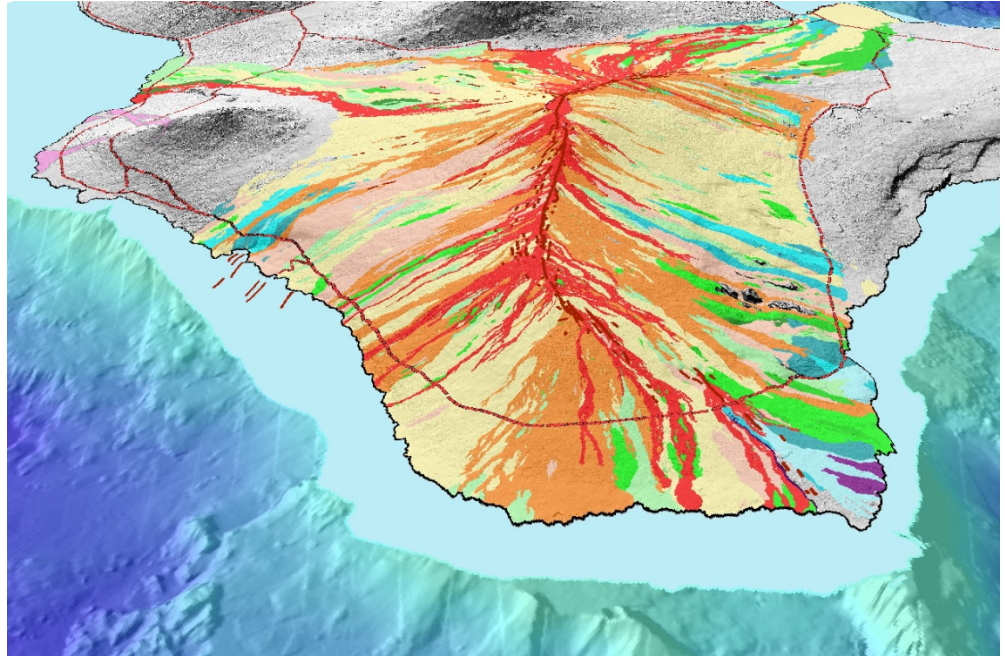
Applicants should demonstrate good written, communication, and documentation skills. The ability to work with minimal supervision preferred. **Applicants currently**

who have a Bachelor's degree or are working towards a higher degree in geology or physical volcanology are strongly desired.

Geographical Information Systems (GIS)

PROJECT DESCRIPTION

This project supports the ongoing GIS projects at the Hawaiian Volcano Observatory and applies GIS techniques and modeling to geologic and geophysical investigations.



Map of lava flows from Mauna Loa

VOLUNTEER DUTIES

Generally, volunteers will help to apply GIS techniques to geologic problems on the Island of Hawai'i. Volunteers will assist in the construction and production of geologic maps and spatial datasets. The volunteer will assist other GIS and scientific staff in analysis of data, development of new data, distribution of GIS data and products, collection of data with GPS units, editing spatial data, generating various plots, and assisting USGS personnel in the field. The GIS volunteer may also help train researchers, technicians, and administrators in the use of GIS software and hardware (as appropriate).

KNOWLEDGE & SKILLS REQUIRED

Applicants should either (1) be working toward a degree in cartography, geography, or natural sciences (including geology, earth science, and environmental sciences); (2) have already completed such a degree; (3) have equivalent work experience; or (4) have a Computer Science background with extensive programming experience with Python and/or Visual Basic

Preference will be given to candidates with GIS experience. Familiarity with GIS, computer spreadsheets, word processing, and geodatabases is essential. Experience with one or more of the following software packages is required:

- ArcMap, ArcCatalog, ArcInfo, ArcView, Spatial and/or 3D Analyst, Model

Candidates should demonstrate good written, communication, and documentation skills. The ability to work with minimal supervision is preferred.

HVO researchers encourages candidates with a background in remote sensing and familiar with image analysis and photogrammetric software to apply.

Library

PROJECT DESCRIPTION

The library and photo archive materials at HVO are used by scientists both within and outside the USGS and by writers, officials, students, and individuals from the lay public whose special projects require information from our collections.

The HVO research/reference library contains a collection of approximately 5,000 volumes, 50 geologic and geophysical journal series, historical and current topographic maps, a reprint collection of more than 10,000 papers on Hawaiian volcanic processes dating from the 1700s, and searchable bibliographic databases containing records of the reference materials.

The photo archive is a repository of more than 500,000 slides, prints, negatives, films, videotapes, and aerial photographs on HVO and its work and on Hawaii's volcanic and seismic activity, produced primarily by HVO's staff, volunteers, and collaborators.

VOLUNTEER DUTIES

Volunteer will spend at least four days in the library or photo archive cataloging, organizing, labeling, and filing library or photo reference materials. One day per week may be spent in the field assisting in monitoring activities, including photographing eruptive activity or monitoring work. Volunteer's duties will include the following:

- Catalog reference materials (videotapes, photos, papers) into a bibliographic database and scan, edit, and enter abstracts into the record, with instruction.
- File reference materials, including papers, videotapes, and photos, following organizational scheme.
- Communicate with supervisor about work accomplished and database updating procedures.
- Optional: Do photo documentation of eruptive activity, seismic events, and eruption monitoring.

KNOWLEDGE & SKILLS REQUIRED

Volunteer should have good organizational skills, and pay attention to detail. Ability to enter data into computerized bibliographic database with consistency and accuracy, following established procedure, are essential. Especially important are volunteer's willingness to keep track of work and communicate that to supervisor on a daily basis. Personal qualities desirable are neatness and order for labeling, organizing, handling, and filing of materials.

USGS Housing for Volunteers of HVO

What is the guest house?



The USGS has a dormitory house in Hawai'i Volcanoes National Park that is available to USGS volunteers at no charge. The house is co-ed, and as many as seven volunteers share the house at any one time. There are several shared rooms (same-sex only). Facilities include kitchen, laundry equipment (washer, dryer, detergent provided), beds, sheets and blankets, television, WiFi, and two bathrooms. Volunteers are expected to keep the house clean.

Located in the park's residential area, the house is only a few hundred meters from Kilauea's Caldera and trails. HVO is 4 km from the house. Government vehicles and mountain bikes are provided for travel to and from HVO and for other travel within the park; the vehicles are only for work-related activities.

Kitchen is fully furnished!

The kitchen is equipped with electric stove and oven, two refrigerators, microwave oven, toaster, coffee maker, silverware and cooking utensils, pots and pans, and a double sink (no automatic dishwasher!).

Depending on the mix of volunteers at the guest house, meals are prepared individually or on a shared rotating basis. Volunteers are expected to keep the kitchen clean!



What expenses will I have to pay at the guest house?

- Volunteers are responsible for travel expenses to and from Hilo, Hawai'i. You will be greeted at the airport and driven to HVO.
- Volunteers must pay for their own food; food prices are about 15% higher in Hawai'i than on the mainland United States. Previous volunteers have estimated their food costs averaged about \$75-\$100 (US) per week.
- Volunteers must provide their own personal field gear (boots, back pack, rain gear, sun protection, etc.); specialized equipment needed for work will be provided by HVO (gas mask, tools, hard hat, etc.).

- Volunteers must have their own health insurance. You will be asked to show proof of your health insurance when you arrive at HVO. On-the-job injuries are covered by workmen's compensation.
- Volunteers must pay for non-work related transportation on the Big Island and travel to neighboring islands. Many volunteers make trips to various locations on the Big Island by renting a car over weekends and extended holidays.

What about transportation when I arrive at the guest house?

- Government vehicles and mountain bikes are provided for travel between the guest house and the Observatory, for work in the National Park and elsewhere, and for all work-related activities. Volunteers are responsible for all other travel costs. Non-work related travel on the Big Island and neighbor islands must be paid for by volunteers (rental cars and airline tickets).

Where do volunteers staying at the guest house shop for food?

- Small grocery/convenience stores are located in the park between the dorm and HVO and just outside the park in Volcano village, 3 km from the park entrance. A farmers' market in Volcano every Sunday morning provides the opportunity to purchase a variety of locally grown fruit and produce.
- The nearest place for complete shopping is Hilo, the county seat of the Big Island. Hilo is 45-50 km distant—about a 45 minute drive. It is usually possible to arrange an occasional ride to town with someone from the Observatory or the Park.