



Educational Topic

Volcanologist

Related Job Titles:

Geologist, Geological Scientist, Geoscientist, Earth Scientist

Job Description:

Volcanologists are geologists who study volcanoes and volcanic eruptions. They examine the lava, ash, and rock that are the products of volcanic eruptions to learn about the physical processes that happen within and at the surface of planets. They may study the ancient rocks and ash that formed from volcanoes that are thousands or even many millions of years old, examining their composition and making maps of ancient lava flows. Or, they may investigate active volcanoes, such as those that make up the Hawaiian Islands, taking samples of molten lava and measuring the temperature and speed of the lava as it flows. Volcanologists also study volcanic hazards (like earthquakes and giant explosions of ash and rock) to help warn people and protect them from these dangers.

Interests / Abilities:

- Are you interested in volcanoes?
- Do you enjoy the open air and four-wheel-drive travel?
- Are you interested in what goes on inside the Earth?
- Would you like to visit countries around the world?
- Do you like camping?
- Do you find it fun to play with maps and various devices?
- Do you like to hit rocks so hard they break?
- Would you like to meet people from all over the world?
- Do you enjoy solving mysteries?
- Do you like to collect rocks?

Education / Training Needed:

Volcanologists begin their careers with a bachelor's degree in *Geology*, *Geochemistry*, *Geophysics*, or a related science. A strong background in math, science, and geography is necessary. You will most likely need at least a master's degree to become a Volcanologist, and a Ph.D. will greatly improve your chances of achieving your dream career. Part-time fieldwork and laboratory work during college is highly recommended to gain hands-on experience. Field experience is invaluable to your studies and to your later career.

Suggested School Subjects / Courses:

- Earth Sciences
- Physics
- Math
- Other Science courses (chemistry, astronomy, planetary science, courses involving laboratory research and fieldwork)
- Geography
- Computer skills are a must!
- Another course that can help greatly is English, to help with written and verbal communication in the reports, meetings, and presentations that are a part of many careers.
- As in other sciences, a second language is very valuable because geologists do a great deal of traveling.

Areas of expertise:

- *Volcanology*: study of volcanoes and all of the processes and features that go with them
- *Volcanic eruptions*: how lava moves from a planet's interior to the surface, and the different ways it may erupt when it reaches the surface
- *Lava composition*: the chemical composition and other characteristics of the lava, ash, and cooled rock that form after an eruption
- *Hazard Assessment*: use of computers, satellite data, and fieldwork to study earthquakes and explosions that happen before and during volcanic eruptions in order to educate and warn people about potential dangers

Additional Resources:

- **American Geological Institute**
<http://www.agiweb.org/>
- **Astrobiology Summer Academy**
<http://academy.arc.nasa.gov/>
- **Graduate Student Researchers Program**
<http://spacelink.nasa.gov/Instructional.Materials/NASA.Educational.Products/Graduate.Student.Researchers.Program.Brochure/.index.html>
- **MATHCOUNTS Competition**
<http://mathcounts.org/>
- **Minority University Research and Education Programs**
<http://mured.nasaprs.com/>
- **NASA Cooperative Education Program for college students**
<http://spacelink.nasa.gov/Educational.Services/NASA.Education.Programs/Student.Support/NASA.Cooperative.Education.Program/.index.html>
- **NASA SHARP Internship Program for high-schoolers**
<http://www.mtsibase.com/sharp/>
- **NASA Student Employment**
http://nasajobs.nasa.gov/stud_opps/employment/index.htm
- **NASA Student Involvement Program student contests**
<http://www.nsip.net/index.cfm>
- **National Science Foundation**
<http://www.nsf.gov>

What can I do right now?

- Call the American Association of Science and Technology Centers for information on science museums in your area that you might visit. (202) 783-7200
- Join a local environmental club or organization.
- Take summer jobs or internships at parks, laboratories, museums, or camps.
- Participate in science fair projects.
- Start a rock collection and learn about the rocks you gather.
- Obtain a geology field guide and use it when you travel.

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- **Student's Guide to Astrobiology**
<http://www.astrobiology.com/student.html>
 - **Tech-Interns.com**
<http://www.tech-interns.com/>
 - **U.S. Geological Survey**
<http://www.usgs.gov>

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- Please take a moment to evaluate this product at:
http://ehb2.gsfc.nasa.gov/edcats/educational_topic
 - Your evaluation and suggestions are vital to continually improving NASA educational materials.
 - Thank you.
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<http://quest.nasa.gov/people/index.html>

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