



## APPENDIX IV

## INTERNET RESOURCES

The Internet Resource List provides guidance for acquisition of additional resources that pertain to the subjects in this educator guide. The parent Internet address is listed as well as some specific links to educational resources. The list consists of selected government and organization Web sites. Authors do not intend this list to be comprehensive.

General topics covered on the following pages:

*Plate Tectonics*

*Cascades Volcanoes General Information*

*How Volcanoes Work*

*Glaciers*

*Topographic Maps*

*Monitoring Volcanoes*

*Community Preparedness*

*Visiting Mount Rainier*

*Other Teacher Resources*



## PLATE TECTONICS

Obtain additional information that is germane to the following activities:

*Surrounded by Volcanoes*

*Riding the Magma Elevator*

*Cascade Volcano Timeline*

### U.S. Geological Survey (USGS) This Dynamic Earth: The Story of Plate Tectonics

<http://pubs.usgs.gov/gip/dynamic>

This publication provides an overview of the concept of plate tectonics and the scientific studies that led to our understanding of the concept. Originally published in hard copy, it is now available in .pdf and .html versions on-line. The publication is the source of many commonly published graphics about plate tectonics, and can be a resource for individual educators.

### Smithsonian Global Volcanism Program

<http://www.volcano.si.edu/>

This Web site lists the volcanoes of the world that have been active during the past 10,000 years, and tabulates their eruption histories. Also found are regional volcano maps; global maps of tectonic plates; volcanoes and earthquakes; volcanic activity reports and special announcements; photo examples of volcano types and processes; frequently asked questions; and products for sale. Educators should take particular note of items in Mapping and Products pages, such as the interactive version of This Dynamic Planet—World Map of Volcanoes, Earthquakes, Impact Craters and Plate Tectonics, and the Earthquake and Eruptions CD-ROM. These and other products are available for purchase by mail at the Products Web page.

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# Internet Resources-continued . . .



## Pacific Northwest Seismic Network (PNSN)

<http://www.pnsn.org>

This Web site posts real-time data and statistics about earthquakes in Washington and Oregon including: latest earthquakes; earthquakes specific to volcanoes; hazards from earthquakes; emergency preparations; research and operations projects; and links to educational products and services. Find webicorders that display real-time earthquake signatures at Cascade volcanoes, links to the USGS World Earthquakes map, and entry to the Did You Feel It? Web page at:

<http://earthquake.usgs.gov/>

## National Oceanic and Atmospheric Administration (NOAA) Pacific Marine Environmental Laboratory (PMEL)

<http://www.pmel.noaa.gov/>

Visit these Web pages for information about submarine volcanism off the coast of the Pacific Northwest. See NOAA's *New Millennium Observatory (NeMO)*, <http://www.pmel.noaa.gov/vents/>, a seafloor observatory at Axial volcano, located 450 kilometers (250 miles) off Oregon's coast and 1.6 kilometers (1 mile) underwater on the Juan de Fuca Ridge. Educators should note curriculum materials on the *NeMO* pages; interactive dives to a submarine volcano; expedition results; text and photographs about tools and technology and underwater volcanic features.

## Incorporated Research Institutions for Seismology (IRIS)

<http://www.iris.edu/>

This Web site contains animations, explanations and lectures about earth movements, and a Teachable Moments page to help you teach about recent earthquakes.

## CASCADE VOLCANOES GENERAL INFORMATION

Obtain additional information that is germane to the following activities:

*Fire, Flood and Fury*

*Cascade Volcano Timeline*

*Volcano Hall of Fame*

*Planning your Trip to Mount Rainier*

*Living Well with a Volcano in Your Backyard*

*Nineteenth-Century Newspaper Accounts of an Eruption at Mount Rainier*

*Cascade Volcano Timeline*

*A String of Volcanoes*

*Perilous Beauty*

*The Next Eruption of Mount Rainier*

*A Volcano Tussle*

# Internet Resources-continued . . .

## U.S. Geological Survey (USGS) Volcano Hazards Program

<http://volcanoes.usgs.gov>

The USGS-Volcano Hazards Program Web site provides news reports about volcanic unrest within the United States and its territories, and describes the work of volcanologists in the USGS Volcano Hazards Program. Find detailed descriptions of volcano hazard types, volcano monitoring, methods to reduce volcanic risk, and warning schemes. Educators should visit the Web pages about volcanic ash and the photoglossary. Look for publications and other materials highlighted for educators.

## U.S. Geological Survey (USGS) Cascades Volcano Observatory

<http://volcanoes.usgs.gov/observatories/cvo/>

This Web site contains Cascade Range histories, hazards and current activity updates, hazards assessment reports and maps, information about glaciers on volcanoes, volcano monitoring techniques, maps, photographs, movies, and educational outreach materials. Teachers and students who wish to stay apprised of current volcanic unrest in the Cascades can view the *Cascade Range Weekly Update*. Of particular interest to educators will be the comprehensive background material, geologic timelines, maps, and photographs. Under Mount Rainier Publications find a variety of scientific reports about Mount Rainier.

[http://volcanoes.usgs.gov/volcanoes/mount\\_rainier/](http://volcanoes.usgs.gov/volcanoes/mount_rainier/).

## Smithsonian Global Volcanism Program

<http://www.volcano.si.edu/>

This Web site, described in detail in the Plate Tectonics section of this list, includes information about Cascade volcanoes, as well as volcanoes and current volcanic activity around the world.



# Internet Resources—continued . . .

## HOW VOLCANOES WORK

Obtain additional information that is germane to the following activities:

*Magma Mash*

*Riding the Magma Elevator*

*Volcanic Processes*

*Tephra Explorer*

*Rock Stars, Lahar in a Jar*

*Fire and Ice*

*Earth Blocks*

*Soda Bottle Volcano*

*Understanding Volcanic Hazards*

*Tephra Popcorn*

*Volcano Fan Club*

*Rock Rubble Review*

*Shoebox Geologist*

*Lava—Building Blocks of Mount  
of Mount Rainier*

## Volcano World

<http://volcano.Oregonstate.edu/>

This Web site contains interviews with volcanologists, general information about volcanoes, FAQ's, simple earth science lessons, and links to current eruption Web pages and blogs.

## U.S. Geological Survey (USGS) Volcano Hazards Program

<http://volcanoes.usgs.gov>

See information about volcano processes and hazards with in-depth descriptions, photographs, case studies, discussions of effects on communities, and links to other pertinent Internet sites.

## San Diego State University—How Volcanoes Work

[http://www.geology.sdsu.edu/how\\_volcanoes\\_work/](http://www.geology.sdsu.edu/how_volcanoes_work/)

Educational resources at describe the science behind volcanoes and volcanic processes. It is appropriate for university-level geology students and Earth science teachers. Each menu section builds upon previous segments. For users who lack fundamental knowledge of volcanological principles and terms, it is best to make a stepped progression through the Web site material. More advanced users will find each section self-contained and can navigate the Web site readily. The site is sponsored by NASA and maintained under the auspices of *Project ALERT (Augmented Learning Environment and Renewable Teaching)*.



# Internet Resources—continued . . .

## GLACIERS

Obtain additional information that is germane to the following activities:

*Fire and Ice*

*Lahar in a Jar*

### Mount Rainier National Park

<http://www.nps.gov/mora/naturescience/glaciers.htm>

Find information about glaciers and glacier change at this site and its linked Web pages.

### Portland State University—Glaciers of the American West

<http://glaciers.research.pdx.edu/>

This Web site contains maps, information and diagrams about glacier dynamics, facts and statistics, and comparative photographs of glaciers throughout the 20th and early 21st centuries.

## TOPOGRAPHIC MAPS

Obtain additional information that is germane to the following activities:

*Planning Your Trip to Mount Rainier*

*Topographic Maps at Mount Rainier*

*Play-dough Topo*

### U.S. Geological Survey (USGS) Map Information

<http://www.usgs.gov/pubprod/maps.html>

Order topographic maps, find locations of local map dealers, learn about different types of maps, view maps and images on line. Download the four-page color booklet Topographic Map Symbols, which provides a key to symbols published on topographic maps, such as buildings, streams, streets and woods. <http://pubs.usgs.gov/gip/TopographicMapSymbols/topomapsymbols.pdf>

## MONITORING VOLCANOES

Obtain additional information that is germane to the following activities:

*Perilous Beauty—Video*

*The Next Eruption of Mount Rainier*

*Reducing Volcanic Risk—Video*

*Don't Be Scared—Be Prepared*

*A Volcano Tussle*

*Volcano Fan Club*





## American Meteorological Society (AMS) (Use for Volcano Fan Club activity extension)

<http://www.ametsoc.org/>

This Web site contains weekly weather and climate news, weather maps and summaries, weather data, and weather education information. To obtain real-time data for the Volcano Fan Club activity extension, visit <http://www.ametsoc.org/amsedu/dstreme> and click the *Upper Air* box to obtain maps that indicate wind barbs and the chosen pressure in millibars (850, 700 or 500) in height above the surface.

## U.S. Geological Survey (USGS) Volcano Hazards Program

<http://volcanoes.usgs.gov>

In addition to earlier mentioned material about volcanic processes and hazards, the Web site contains information about hazards, monitoring strategies, alert levels, warning schemes and general strategies for reducing volcanic risk. Visit the U.S. Geological Survey's technical report that describes aerial and satellite monitoring of Mount Rainier at <http://pubs.usgs.gov/of/2000/ofr-00-0027>, and a more general publication about volcano monitoring at <http://pubs.usgs.gov/gip/monitor/conclusions.html>

## COMMUNITY PREPAREDNESS

Obtain additional information that is germane to the following activities:

*The Next Eruption of Mount Rainier*

*Volcano Tussle*

*Don't Be Scared—Be Prepared*

*Living Well with a Volcano in Your Backyard*

## American Red Cross (ARC)

<http://www.redcross.org/>

See *Plan and Prepare* for general information about personal and community disaster preparedness, emergency preparedness kits and how to help children cope with disasters.

## Federal Emergency Management Agency (FEMA)

<http://www.fema.gov/>

The FEMA Web site contains general information about hazard preparedness.

## Pierce County Department of Emergency Management (PCDEM)

<http://www.co.pierce.wa.us>

See *Emergency Plans*, for the Mount Rainier Volcanic Hazards Response Plan, hazard and also for vulnerability assessments, lahar evacuation plan and other links.

# Internet Resources—continued . . .

## U.S. Geological Survey (USGS) Cascades Volcano Observatory

<http://volcanoes.usgs.gov/observatories/cvo/>

See *Prepare*, for information on *How to Prepare, Action During Unrest, Accessing Volcano Info* and *Links to Preparedness Resources*.

## U.S. Geological Survey (USGS) Volcano Hazards Program

<http://volcanoes.usgs.gov/ash>

See *Volcanic Ash—What it can Do and How to Prevent Damage* for practical information about living with volcanic ash. These Web pages contain detailed information about the effects of volcanic ash on human health, agriculture, buildings, communication systems, power supplies, transportation, water supply, and wastewater facilities. It describes actions to be taken for preparedness and recommended methods for ash cleanup.

## Washington Military Department Emergency Management Division (WaEMD)

<http://www.emd.wa.gov>

See *Government Departments, Emergency Management* pages. Find emergency response plans for people at risk in the vicinity of volcanoes, volcano educational publications and volcanic ash cleanup brochures. See recommendations for school, community and home preparedness.

## VISITING MOUNT RAINIER

Obtain additional information that is germane to the following activities:

*Rock Stars*

*Journey Back in Time*

*Planning Your Trip to Mount Rainier*

*Living Well with a Volcano in Your Backyard*

## National Park Service (NPS) Mount Rainier National Park

<http://nature.nps.gov/geology/tour/>

Visit *Park Geology Tours* for a complete list of geologic landforms within the National Park Service system and general geology information about each location. Obtain general information, such as regulations and current road and trail conditions at the Mount Rainier National Park Mount Web site <http://www.nps.gov/mora>. Educators should take note of recommendations for field trips, teacher workshops and curriculum, and information about the Junior Ranger Program. For a virtual visit, view the multimedia gallery.



## OTHER TEACHER RESOURCES

Obtain additional information that is germane to all of the activities.

### U.S. Geological Survey (USGS) homepage

<http://www.usgs.gov>

See Education to obtain earth science news and information, online geology curriculum, and the USGS Store. See Maps, Products and Publications to reach the Publications Warehouse, where thousands of agency publications are posted. Search for Mount Rainier scientific publications, fact sheets, and volcano hazards assessments.

### U.S. Geological Survey (USGS) Cascades Volcano Observatory

<http://volcanoes.usgs.gov/observatories/cvo/education.html>

See *CVO Education* for educational resources.

### Digital Library for Earth Science Information (DLESE)

<http://www.dlese.org>

DLESE is a National Science Foundation digital online library of earth science educational materials. The Web site serves as a resource for information, teaching boxes, curriculum links, digital models and other products useful for teaching of earth sciences. Guided inquiry is used throughout, and where possible, authors seek to have students replicate the discoveries of science that have led to our understanding of geologic processes.

### International Association for Volcanology and Chemistry of the Earth's Interior (IAVCEI)

<http://www.iavcei.org>

IAVCEI is a primary international volcano science organization for volcanologists and serious volcano enthusiasts. The Web site provides information about upcoming meetings, commission activities, and publications. The *About Volcanoes* pages connect you to Web sites that contain education resources, and information about volcano observatories and data centers, professional associations, research groups, image databases, photo/slide sets, online journals and upcoming events designed for educators.

