

Earth's Dynamic Geosphere: Volcanoes Activity 1- Where are the Volcanoes

This investigation will help you to:

- To complete the investigation, each student group will need:
- Preparing for the Chapter Challenge
- Learn more about Volcanoes Beneath the Sea
- Learn more about Volcanoes on Land
- Learn more about the Ring of Fire
- Learn more about Volcanoes Formed by Rifting on the Continents
- Learn more about Volcanoes at Hot Spots
- Learn more about Volcanoes and Water on Earth
- Learn more about Map Projections

To complete the investigation, each student group will need:

- **US Geological Survey map: *This Dynamic Planet***
Click on title ("This Dynamic Map") to download a copy of the map as a PDF file. Note that you will need Adobe Acrobat (available for free on the USGSS site) to open this file.

The map can also be purchased for \$7 (plus \$5 s/h) from:

USGS Information Services

Box 25286

Denver CO 80225

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Preparing for the Chapter Challenge

Think about how you can help the audience understand why you chose the probable location of the volcanic eruption for your story. Use the following resources to find the volcanic eruptions in California.

- Chart listing the features of 6 active or potentially active volcanoes in California.
- Map showing the major cascade range volcanoes in Washington, Oregon and California.
- Map showing potentially active volcanoes of the Western United States.
- Map showing Long Valley and vicinity, California
- Graph profiling the Cascade eruptions of the past 4,000 years.
- Map of major West Coast Volcanoes.

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Learn more about Volcanoes Beneath the Sea

- Volcano World - "Submarine Volcanoes"
Reviews the basics of plate tectonics and examines closely submarine volcanoes at divergent and convergent boundaries

and hot spots. The site has good images of underwater lava flows as well as images of the organisms that live near these submarine volcanoes.

- USGS Cascades Volcano Observatory - "Submarine Volcanoes, Ridges, and Vents"

Site includes a general overview of submarine volcanic eruptions as well as information about specific underwater volcanoes including the volcanoes of the Juan de Fuca ridge in the Pacific, Kavachi of the Solomon Islands, Kick 'Em Jenny of the West Indies, the Loihi Seamount of Hawaii, and Surtsey and the Vestmannmaeyjar volcanics of Iceland.

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[Learn more about Volcanoes on Land](#)

- USGS Cascades Volcano Observatory - "Volcano Types - Quick Reference Guide"

Review the major types of volcanoes, including calderas, cinder cones, composite volcanoes, statovolcanoes, and shield volcanoes. Provides links for further details and information about specific eruptions.

USGS Volcano Hazards Program, **Read about volcanism in the following US states:**

+ **Alaska**

+ **Arizona**

+ **California**

+ **Colorado**

+ **Idaho**

+ **Nevada**

+ **New Mexico**

+ **Oregon**

+ **Utah**

+ **Washington**

+ **Wyoming**

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[Learn more about the Ring of Fire](#)

- USGS Cascades Volcano Observatory - "Plate Tectonics and Sea Floor Spreading, Subduction Zones, "Hot Spot", and the "Ring of Fire"
Reviews the basics of plate tectonics and allows reader to further investigate specific volcanoes within the "ring of fire". Includes several maps which highlight the "ring."
- USGS Alaska Volcano Observatory
Read an introduction about the volcanoes and volcanic fields of Alaska, which make up the northern portion of the "ring of fire". Also includes maps and allows further investigation of specific volcanoes in Alaska.

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[Learn more about the Volcanoes Formed by Rifting on the Continents](#)

- Columbia Plateau - Columbia River Basalt Group

Read more information about flood basalt and how they formed the Columbia Plateau. It also includes links to a map and geologic time scale for the subdivisions within the Columbia River Basalt Group.

- Mount Kilimanjaro

Learn more about Africa's tallest mountain in the East African rift valley.

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Learn more about Volcanoes at Hot Spots:

- USGS - "Hot spots:" Mantle Thermal Plumes

Learn more about the geology of the Hawaiian islands as well as other other hotshots around the world.

- USGS Hawaii Volcano Observatory

Read about the Hawaiian Volcanoes and how they formed. It also includes links to other pages about specific volcanoes on the islands of Hawaii and Maui.

- Volcano World - Hawaii

View a slide show with color photos and descriptions about the theory of "hotshots." Site also includes a list of sample lesson plans, key concepts, references, and activities about hot spots and the Hawaiian islands.

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Learn more about Volcanoes and Water on Earth

- Vents Program, Pacific Marine Environmental Laboratory

Find information on how submarine volcanoes and hydrothermal vents affect the global oceans.

- Submarine Volcanoes, Ridges, and Vents, USGS

Provides general information along with specific examples.

- Unraveling the Mystery of Underwater Volcanoes, **NOAA**

Read an article about the mysteries of underwater volcanoes.

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Learn more about Map Projections

Learn more about other kinds of map projections:

- Cylindrical Projections
- Conic Projections

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