

Volcanic ash can affect people hundreds of miles away from the cone of a volcano. Several of the deaths from the Mount St. Helens volcano in 1980 were attributed to inhalation of ash. Volcanic ash can contaminate water supplies, cause electrical storms, and collapse roofs.

An erupting volcano can also trigger tsunamis, flash floods, earthquakes, rockfalls, and mudflows.

Sideways directed volcanic explosions, known as "lateral blasts," can shoot large pieces of rock at very high speeds for several miles. These explosions can kill by impact, burial, or heat. They have been known to knock down entire forests. The majority of deaths attributed to the Mount St. Helens volcano were a result of lateral blast and tree blow-down.

## DANGER ZONES

Volcanic eruptions are most likely in the Pacific Rim states of Hawaii, Alaska, Washington, Oregon and California. The chance of eruptions that could damage populated areas is the greatest for the active volcanoes of Hawaii and Alaska. Active volcanoes of the Cascade Mountain Range in California, Oregon, and Washington have created problems recently. The danger area around a volcano covers approximately a 20-mile radius. Some danger may exist 100 miles or more from a volcano, leaving Montana and Wyoming at risk.

## WHAT IS A VOLCANO?

A volcano is a mountain that opens downward to a reservoir of molten rock below the surface of the earth. Unlike most mountains, which are pushed up from below, volcanoes are built up by an accumulation of their own eruptive products lava, ashflows, and airborne ash and dust. When pressure from gases and the molten rock becomes strong enough to cause an explosion, eruptions occur. Gases and rock shoot up through the opening and spill over, or fill the air with lava fragments. Volcanic products are used as building or road-building materials, as abrasive and cleaning agents, and as raw materials for many chemical and industrial uses. Lava ash makes soil rich in mineral nutrients.

## DID YOU KNOW...

- More than 80 percent of the Earth's surface above and below sea level is of volcanic origin. The seafloors and some mountains were formed by countless volcanic eruptions. Gaseous emissions from the volcanoes formed the Earth's oceans and atmosphere.
- The May 18, 1980, eruption of Mount St. Helens in the Cascade Range of southwestern Washington occurred after more than a century of dormancy. The Mount St. Helens volcano took the lives of more than 58 people and caused property damage in excess of \$1.2 billion.
- The 1992 Mount Pinatubo eruption in the Philippines caused 342 deaths and an evacuation of over a quarter of a million people. An eruption of this size is likely to occur once every 200-400 years.
- There are more than 500 active volcanoes in the world. More than half of these volcanoes are part of the "Ring of Fire," a region that encircles the Pacific Ocean.
- The rock debris carried by a lateral blast at Mount St. Helens had an initial speed of more than 250 miles per hour. Fifteen miles from the volcano, the blast continued to move at a pace of approximately 60 miles per hour.
- Crater Lake in Oregon formed from a high volcano that lost its top after a series of tremendous explosions approximately 6,600 years ago.

Volcanic eruptions can hurl hot rocks for at least 20 miles. Floods, airborne ash, or noxious fumes can spread 100 miles or more. If you live near a known volcano, active or dormant, be ready to evacuate at a moment's notice.

## BEFORE

Learn about your community warning systems.

Be prepared for these disasters that can be spawned by volcanoes.

- Earthquakes
- Flash floods
- Landslides and mudflows
- Thunderstorms
- Tsunamis

Make evacuation plans.

You want to get to high ground away from the eruption. Plan a route out and have a backup route in mind.

Develop an emergency communication plan.

In case family members are separated from one another during a volcanic eruption (a real possibility during the day when adults are at work and children are at school), have a plan for getting back together.

Ask an out-of-state relative or friend to serve as the "family contact." After a disaster, it's often easier to call long distance. Make sure everyone knows the name, address, and phone number of the contact person.

Have disaster supplies on hand.

- Flashlight and extra batteries
- Portable, battery-operated radio and extra batteries
- First aid kit and manual
- Emergency food and water
- Nonelectric can opener
- Essential medicines
- Cash and credit cards
- Sturdy shoes

Get a pair of goggles and a throw-away breathing mask for each member of the household.

Contact your local emergency management office or American Red Cross chapter for more information on volcanoes.

Evacuation

Although it may seem safe to stay at home and wait out an eruption, doing so could be very dangerous. The rock debris from a volcano can break windows and set buildings on fire. Stay safe. Follow authorities' instructions and leave the area before the disaster begins.

**DURING**

Follow the evacuation order issued by authorities.

Avoid areas downwind of the volcano.

If caught indoors:

- Close all windows, doors, and dampers.
- Put all machinery inside a garage or barn.
- Bring animals and livestock into closed shelters.

If trapped outdoors:

- Seek shelter indoors.
- If caught in a rockfall, roll into a ball to protect head.
- Avoid low-lying area where poisonous gases can collect and flash floods can be most dangerous.
- If caught near a stream, beware of mudflows.

Protect yourself:

- Wear long sleeved shirts and pants
- Use goggles to protect eyes.
- Use a dust-mask or hold a damp cloth over face to help breathing.
- Keep car or truck engines off.

Stay out of the area.

A lateral blast of a volcano can travel many miles from the mountain. Trying to watch an erupting volcano is a deadly idea.

Mudflows

Mudflows are powerful "rivers" of mud that can move faster than people can walk or run. Mudflows occur when rain falls through ash-carrying clouds or when rivers are damed during an eruption. They are most dangerous close to stream channels. When you approach a bridge, first look upstream. If a mudflow is approaching or moving beneath the bridge, do not cross the bridge. The power of the mudflow can destroy a bridge very quickly.

**AFTER**

Listen to a battery-powered radio or television for the latest emergency information.

Stay away from volcanic ashfall.

**When outdoors:**

- Cover your mouth and nose. A number of victims of the Mount St. Helens volcano died from inhaling ash.
- Wear goggles to protect your eyes.
- Keep skin covered to avoid irritation or burns.

If you have a respiratory ailment, avoid contact with any amount of ash. Stay indoors until local health officials advise it is safe to go outside.

Avoid driving in heavy ashfall. Driving will stir up more ash that can clog engines and stall vehicles.

Clear roofs of ashfall. Ashfall is very heavy and can cause buildings to collapse.

Remember to help your neighbors who may require special assistance--infants, elderly people, and people with disabilities.

[Backgrounder](#)

[How The Public Can Help After A Disaster](#)

*Information from the Federal Emergency Management Agency*

