



Protecting your Health during a Volcanic Eruption

Volcanic eruptions can result in a variety of environmental hazards (e.g., ash and pumice, hot ash flows, lava, debris, gases, mudslides, and tsunamis) and associated human health consequences. This fact sheet focuses primarily on the potential health consequences of exposure to volcanic ash.

How can volcanic ash affect my health?

Respiratory and cardiovascular problems

Respiratory and cardiovascular problems can result from inhaling volcanic ash. The severity of symptoms experienced by people exposed to volcanic ash depends on a range of factors, including the concentration of total suspended particles in the air; the proportion of respirable particles (<10 μm in diameter) in the ash; the concentrations of free crystalline silica, gases, or aerosols mixed in with the ash; meteorological conditions; the frequency and duration of exposure; and the presence of underlying medical conditions (e.g., asthma, COPD, cardiovascular disease, etc.).

Examples of respiratory symptoms include:

- nasal irritation and discharge (runny nose),
- throat irritation or dry cough,
- wheezing and shortness of breath, and
- worsening of pre-existing respiratory conditions

Examples of cardiovascular symptoms include:

- pressure or pain in the chest, upper back, jaw, arms, or neck;
- shortness of breath, lightheadedness, sweating, nausea, fatigue, dizziness;
- irregular heartbeat; and
- worsening of pre-existing cardiovascular conditions

If you experience symptoms, particularly if you have pre-existing respiratory and cardiovascular conditions, consult with your health care provider.

Eye irritation

Volcanic ash is abrasive and can lead to eye discomfort--especially in persons who wear contact lenses.

Examples of eye symptoms include:

- painful, itchy, or bloodshot eyes,
- foreign particle sensation,
- discharge (watery eyes), and
- corneal scratches or abrasions

Skin irritation

Because it is abrasive, volcanic ash can also cause minor skin irritation.

Accident risks

Volcanic ash can lead to accidents by way of:

- roof collapses, especially if the ash is wet and the building is not designed to support a heavy load;
- impaired visibility while driving; and
- slippery roads and walkways

Who is at greatest risk for adverse health effects from volcanic ash?

The elderly, children, and persons with pre-existing respiratory and cardiovascular conditions are at increased risk for developing symptoms as a result of exposure to volcanic ash.

What can I do to limit my exposure to volcanic ash?

The following list outlines a number of actions you can take to limit your exposure to volcanic ash:

- Monitor Air Quality Advisories (<http://dec.alaska.gov/Applications/Air/airtoolsweb/Advisories>) and act accordingly
- Wear an N95, N99, or N100 mask if you have to go outdoors in bad ash conditions (note: beards limit the effectiveness of masks). If you don't have a mask, use a wet handkerchief
- Close windows, doors, and fireplace/woodstove dampers, and minimize the use of forced air heaters and air conditioners to prevent ash and gases from getting inside the home
- Replace or clean furnace filters following a substantial ashfall event
- Wear goggles while outdoors, or while cleaning up ash that has gotten indoors
- Wet ash prior to clean-up to avoid resuspension of particulates
- Keep your skin covered to avoid irritation from contact with ash
- If there is ash in your water, let it settle and then use the clear water. In rare cases where there is a lot of ash in the water supply, do not use your dishwasher or washing machine
- Clear roofs of ash in excess of four inches to avoid roof collapse
- Minimize travel – driving in ash is dangerous to you and could damage your car
- Pay attention to warnings, and comply with instructions from local authorities (i.e., local health officials will inform the public when it is safe to go outside, drive, drink water, etc.)

What are some steps I can take to be better prepared for a volcano eruption?

- Prepare a 3–5 day supply of food and water for your household
- Ensure that you and members of your household always have a 3–5 day supply of necessary medications

How can I learn more about a current volcano eruption in Alaska?

- Volcano eruption information, including details on ash plumes: <https://www.avo.alaska.edu/>
- Alaska air quality advisories: <http://dec.alaska.gov/Applications/Air/airtoolsweb/Advisories>
- Updated health information: <http://dhss.alaska.gov/dph/Epi/eph/Pages/default.aspx>
- Local reports: <http://www.leonetwork.org>