

PREPARE FOR VOLCANO HAZARDS IN BRITISH COLUMBIA



Are there volcanoes in British Columbia?

Yes, there are. Several mountains that many British Columbians look at every day are active (but “sleeping”) volcanoes.

Mounts Garibaldi, Cayley and Meager in the Whistler area are three of our volcanoes, and there are others stretching in a belt all the way north to the Yukon border. Their names are less familiar - Nazko, Kostal, Tseax, Lava Fork, Hoodoo, and Edziza. There was a volcanic eruption in the Nass Valley over 200 years ago. This reportedly caused the death of over 2,000 people. Over 2,000 years ago Mount Meager blew, dumping ash as far away as southern Alberta.

Volcanoes can sleep for centuries and then come to life. This is because our volcanoes are a result of the subduction of offshore tectonic plates under the continental plate, causing molten rock to rise to the surface. The rate of subduction (and the amount of melting) varies.

Most people have seen what volcanoes can do and many vividly remember the 1980 eruption of Mount St. Helens, only 300 kilometres away, in the United States.

Mounts Baker, Rainier, Hood, Shasta and Glacier Peak are other prominent and well-known United States volcanoes.

The greatest potential hazard to British Columbia is from Mount Baker

Volcano eruptions may be felt for many hundreds of kilometres. Vancouver, the lower Fraser River valley and northern Washington are all within the risk distance of Mount Baker.

In recent years, scientists have been looking very closely at the geology and past history of activity of Mount Baker. They are not saying that Mount Baker will erupt soon, but they are forecasting that it will probably erupt again.

Mount Baker erupted (mildly) in 1870, and is now cooling off. On a cold winter day we can see steam venting from near the peak, but that does not indicate anything ominous, except that we are being reminded that it is alive. One thing is pretty certain, Mount Baker will erupt again..., but we don't know when.

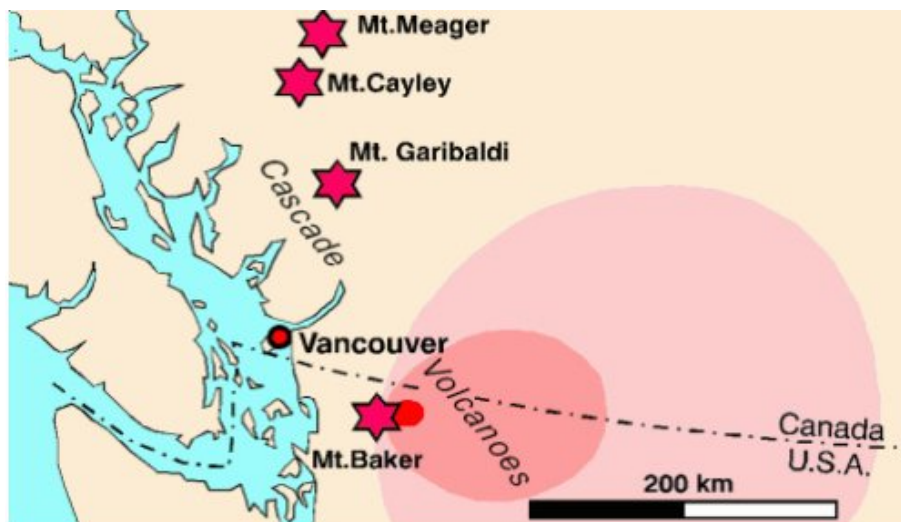
What happens when a volcano erupts?

Not all volcanoes behave the same way when they erupt. Volcanoes in Hawaii eject rivers of lava. Mount St. Helens virtually exploded under the pressure of gas buildup, spewing mainly hot rock and ash and causing mudflows and debris flows which blocked rivers and caused flooding far away from the actual volcano peak.

Mount Baker is expected to behave more like Mount St. Helens than the Hawaiian volcanoes. It will probably explode on one flank. Much of the explosive effects will be directed that way.

Here is a projected sequence of events for an eruption of a volcano like Mount Baker:

- Molten rock (also called magma or lava) oozes upward toward the surface of the earth in the volcano's existing vertical channels, but it cannot proceed to the surface because it is too thick, or the channels are blocked by older, solidified magma.
- The pressure of gases builds up behind the rising magma, usually causing many small earthquakes within the volcano.
- There is an explosive eruption and an eruption cloud, consisting of hot lava fragments, ash and volcanic gas proceeds outward, away from the volcano. This is called a pyroclastic flow. A pyroclastic flow affects only the immediate vicinity, but it destroys all life in its path and knocks down trees and structures, sometimes setting them afire.
- Ash (also called tephra) is projected upward by explosions and heat. Heavier pieces fall to the earth short distances away, but lighter ash is carried high into the atmosphere, and is blown far away by the prevailing winds. Ash can fall in a thick layer, suffocating plants and animals, collapsing buildings, and choking machinery. Ash will eventually wash into rivers and streams and cause them to silt up and change their course.
- Fast-moving slurries of rock, mud and water (called lahars), that behave much like flowing concrete, follow river courses and destroy and bury bridges and buildings. Pyroclastic flows can melt snow and ice and become lahars.



Likely area of ash fallout in a Mt. Baker eruption, based on prevailing winds to the east
(Geological Survey of Canada image)

Can volcano effects be prevented?

We cannot stop a volcano from erupting. We can, through awareness of what could happen, reduce some volcano effects. But, because volcanoes erupt so infrequently, the tendency is to accept or even ignore risks, or to assume that an eruption will not occur in a lifetime or more.

Development in the extreme danger area of Mount Baker is not a serious problem for British Columbia. But, we cannot ignore the danger of lahars and significant ash fall reaching Canada.

Awareness of volcano danger, emergency preparedness, and contingency planning to deal with the effects usually entails evacuations, emergency shelter for large numbers of people, extra strain on health care facilities, and recognition that the agricultural and fishing industries can be seriously (though perhaps only temporarily) damaged.

Fortunately, a volcano will often give a period of advance warning before serious effects result. Scientists and emergency managers on both sides of the Canada-USA border cooperate to assess the current situation of Mount Baker, and take steps to warn people and to implement emergency plans should danger be imminent.

What you can do

Learn about the volcano hazards that could affect you at home, work or school.

Practice a home evacuation.

Plan what you and your family will do if you have to leave home.

Keep an emergency kit ready.

Participate in community emergency preparedness activities.

THE MOUNT BAKER/GLACIER PEAK COORDINATION PLAN

In the event of unrest at Mount Baker (and Glacier Peak not too far away), agencies on both sides of the international border work together to understand, prepare for, and respond to a common threat. As a result of their partnership, the Mount Baker/Glacier Peak Coordination Plan has been developed.



The BC Provincial Emergency Program, the Geological Survey of Canada, and Emergency Preparedness Canada are the main Canadian participants. State of / Washington Emergency Management, the US Geological Survey, and many other American agencies are involved south of the border. –

For additional information:

The Mount Baker/Glacier Peak Coordination Plan, along with other interesting documents about volcanoes in our area of the world can be accessed from the PEP web site at:

<http://www.pep.bc.ca/>

PEP maintains a toll-free message line with emergency preparedness information, at: 1-888-811-6233 Contact your local community emergency program coordinator, or one of the

[PEP offices](#)