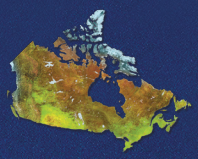
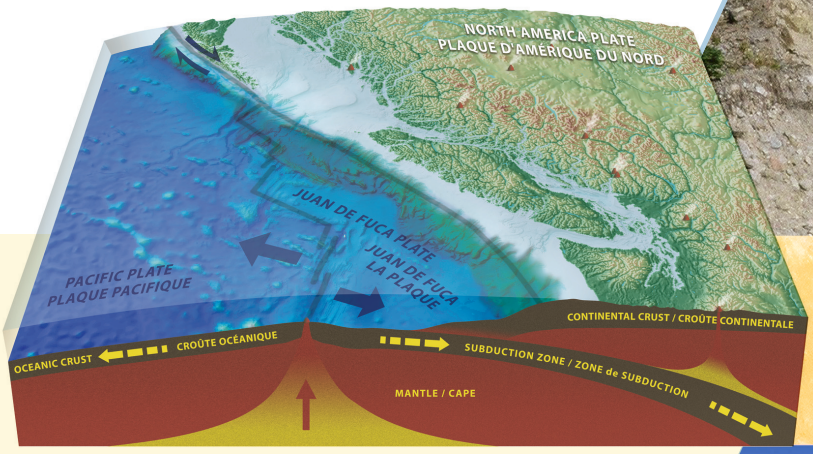


SEA TO SKY STORY: VOLCANOES

Potentially active volcanoes along the Sea to Sky Highway contribute to the natural beauty of southwest British Columbia's geologically dynamic environment. While there are no historical records of volcanic eruptions in southwest British Columbia, several have occurred within the last 10,000 years. In geologic terms, that's very recent!

Southwest British Columbia sits atop the North American tectonic plate while, west of Vancouver Island, the Juan de Fuca Plate is sliding eastward beneath the Earth's surface.



Some of the most explosive, young volcanoes in Canada exist in the Garibaldi Volcanic Belt. These are also close to large populations. Mounts Garibaldi, Cayley and Meager are well-known stratovolcanoes built over thousands of years.

As this oceanic plate descends, heat and pressure cause it to expel water and lower the melting temperatures of overlying mantle rocks. Melting mantle then rises and erupts through the volcanoes of southwest British Columbia's Garibaldi Volcanic Belt (GVB), the northern extension of the American Cascades.

A stratovolcano consists of many layers of lava and pyroclastic rocks, built over long time periods by alternating lava eruptions and explosive eruptions. Many famous stratovolcanoes, like Japan's Mount Fuji, have steep sides, a pointed top and a symmetrical shape, while others, like Mount Garibaldi, do not.

Much of Mount Garibaldi as seen today was built 13,000 -15,000 years ago. Repeated pyroclastic eruptions (consisting of hot lava fragments, gas and ash) built a cone onto the glacier during the last Ice Age. When the ice melted, part of the mountain collapsed.

Through its long eruptive history, many massive landslides have occurred on Mount Cayley's steep southwest flank. One landslide, 4,800 years ago, removed enough rock (200 million cubic metres) to fill more than 80,000 Olympic-sized swimming pools.

Canada

MOUNT MEAGER EXPLODED 2,350 YEARS AGO AND TEMPORARILY DAMMED THE LILLOOET RIVER. THIS DAM LATER COLLAPSED AND CAUSED A HUGE FLOOD AT LEAST 30 METRES DEEP, FIVE KILOMETRES DOWNSTREAM. ASH WAS SCATTERED SO WIDELY THAT A LAYER STILL EXISTS IN BOGS AND SOILS OF SOUTHERN BRITISH COLUMBIA AND PARTS OF ALBERTA.

As lava cools and contracts, it can form columnar joints. The Tricouni Southeast lava flow sequence, visible near the Sea to Sky Highway, possesses excellent examples of these.

Logger's Lake Volcano is another volcanic feature in the Whistler area that is easy to access. The volcano formed when lava erupted under an ice sheet, producing a pile of volcanic debris (probably less than 25,000 years old). Today the area is mostly covered with trees.

Most Sea to Sky volcanoes are dormant, not extinct:

Several things tell volcanologists that these volcanoes are still "alive": their rocks are geologically young, earthquakes occur beneath them, and heated (geothermal) springs exist nearby. But, no need to worry! Eruptions of Sea to Sky volcanoes occur hundreds or thousands of years apart and are likely to be preceded by weeks to years of increased seismic activity.

A nationwide seismograph network allows scientists to monitor earthquakes, including those that may have been caused by volcanic activity. This network can detect very small earthquakes to allow for ample warning in the unlikely event of an eruption.

Scientists at Natural Resources Canada gather geological and geophysical data related to volcanoes and take part in emergency planning and public education activities.

For more information, contact the Geological Survey of Canada, or visit the Natural Resources Canada website:

625 Robson Street
Vancouver, B.C. V6B 5J3
Phone: (604) 666-0529
gscvan@nrcan.gc.ca

9860 West Saanich Road
Sidney, B.C. V8L 4B2
Phone: (250) 363-6500
pgc_info@pgc.nrcan.gc.ca

gsc.nrcan.gc.ca/volcanoes
seatosky.nrcan.gc.ca

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