

# The Dunedin volcano

## Stat attack

When the volcano was active:  
10-13 million years ago

Approximate area of the  
volcano: 300 km<sup>2</sup>

Estimated volume of lava that  
flowed from the volcano:  
100-150 km<sup>3</sup>

## Digging deeper...

Many smaller volcanoes were present in the coastal Otago area from 24 to 10 million years ago. There are between 200 and 300 extinct volcanic cones in the eastern Otago area. Head to the top of Mount Cargill and you will be able to see many distinctly volcano-shaped peaks, both on the Peninsula, and north into the Silverpeaks.

## Digging deeper...

The characteristic shape of basalt columns results from the shrinking of the rock as it cools and crystallises. The same patterns are formed in mud as a puddle dries up and shrinks due to water evaporation.

Did you know that a massive volcano created the landscape where Dunedin now sits? The Dunedin volcano was active 10-13 million years ago and was estimated to be around 1,000m high at its peak. Its centre was situated in the basin now occupied by Port Chalmers, the Otago Harbour and the Portobello area.

Extensive layers of sedimentary rock occurring throughout the area show that where Dunedin now sits used to be underwater. A major volcano developed on the sea floor, which spewed out ash and lava, causing the level of the land to rise up out of the sea. The Dunedin volcano covered the surrounding landscape with many lava flows and ash showers that formed successive layers on the land. Around 50 lava flow layers can be identified in the cliffs at Aramoana.

Overlying the sedimentary rock of the Dunedin area, known as Caversham sandstone, is lots of basalt. Basalt forms from cooling lava. This volcanic rock deposited over the sandstone shows us that the volcanic activity came after the formation of the sandstone.

Some spectacular basalt columns can be seen across the Dunedin area at the Organ pipes, at Blackhead quarry, and on the Peninsula. The Organ pipes can be accessed from a track on Mount Cargill Road, a walk of around 45 minutes. Their name is derived from the former organ-like formation of the columns. Earthquakes have caused many of the larger columns to fall over.



Aerial view of Otago Harbour, the centre of the Dunedin volcano



The Organ pipes on Mount Holmes, shown before earthquakes caused many of the columns to topple

