

Volcanic Activity in Australia



Mt Kaputar, NSW, active between 17 and 21 million years ago

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The Australian mainland is roughly located in the middle of a continental plate. Given that volcanoes usually occur near the boundaries of a continental plate, why is there evidence of past volcanic activity in eastern and southern Australia?

One reason is that our continental plate is moving northward over a **hotspot** where magma is closer to the Earth's crust. Thinner areas of crust above the hotspot are affected by the heat and magma is able to spread towards the surface through weaknesses in the rock layers. Interestingly, once the continent has moved beyond the hotspot, volcanic activity in that area will stop and the volcano will become extinct.



The Cosgrove Hotspot Track

In 2015, scientists announced that they had discovered the world's longest volcanic hotspot track, located in eastern Australia.

Volcanoes in this chain are located in a line stretching from Mackay in North Queensland to Cosgrove in Victoria. Because the Australian plate is moving north, each volcano further south in the chain is progressively younger than the one before it.

Scientists found that the ages of the volcanoes matched up with the estimated rate of movement due to continental drift. They came to the conclusion that a mantle plume or hotspot was responsible for the volcanic activity along the line.

Currently, it is estimated that the hotspot is located under Bass straight between King Island and Tasmania.



The lithosphere (crust and upper mantle) is about 80 km (50 miles) thick in Queensland and about 100 km (60 miles) thick in NSW and Victoria. There is a large gap in the middle of the chain of volcanoes because the lithosphere there is thicker at about 150 km (90 miles). Volcanoes did not develop because the thicker depth made the area less affected by the heat from the magma below.

Mt Gambier

South Australia

Another type of volcanic activity that exists in Australia is due to differences in the thickness of the lithosphere.

The 'New Volcanic Province' is located on the southern part of the Australian mainland between Melbourne and Mt Gambier. The lithosphere thinned out here because this is where Antarctica pulled away from the Australian plate between 85 and 30 million years ago. The magma below bulged up slightly and led to volcanic activity in the area.

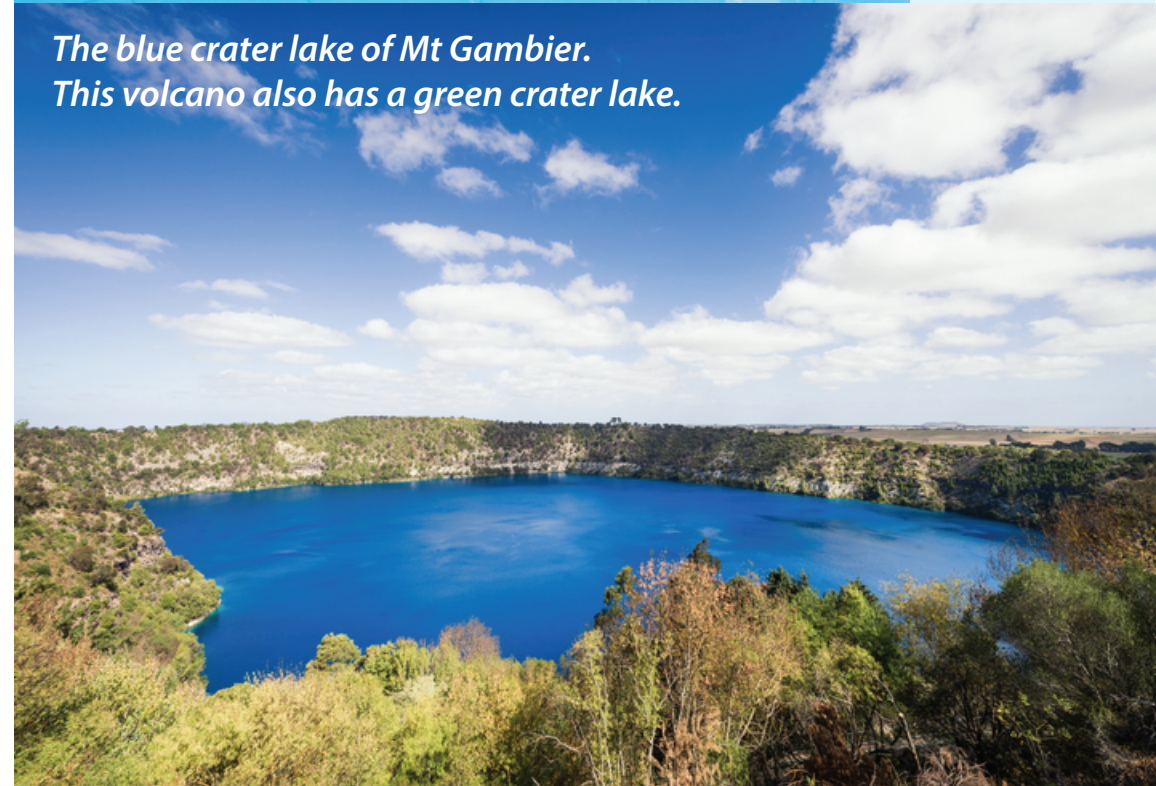
Mt Gambier and nearby Mt Schank are Australia's most recently active volcanoes. They last erupted about 5000 years ago and it is estimated that they may erupt again in about 5000 years!

Today Mt Gambier has two craters filled with water. One crater lake is bright blue and the other is green.

Studyladder



The New Volcanic Province contains more than 400 volcanoes, most of which are considered extinct.



*The blue crater lake of Mt Gambier.
This volcano also has a green crater lake.*

Who would have thought that there were once active volcanoes in Australia!

Who knows... maybe those tree covered hills you can see are extinct volcanoes!



Tower Hill, Victoria



Glasshouse Mountains, Queensland