

Australian volcano eruptions overdue, new study confirms

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(PhysOrg.com) -- Latest research into the age of volcanos in Western Victoria and South Australia has confirmed that the regions are overdue for an eruption, potentially affecting thousands of local residents.

Using the latest dating techniques, scientists from the University of Melbourne's School of [Earth Sciences](#) and the Melbourne School of Engineering have calculated the ages of the small volcanoes in the regions and established the recurrence rate for eruptions as 2,000 years. With the last [volcano](#) eruption at Mt Gambier occurring over 5,000 years ago, scientists say the areas are overdue.

The research will be presented today by Professor Bernie Joyce of the University of Melbourne's School of Earth Sciences at the XXV International Congress of Geodesy and Geophysics, in Melbourne.

"Although the volcanos in the region don't erupt on a regular sequence, the likelihood of an eruption is high given the average gap in the past has been 2,000 years," Professor Joyce said.

"These are small eruptions and very localised but depending on the type of eruption, they could cause devastation to thousands of people," he said.

The regions of Western Victoria and adjacent south-eastern South Australia demonstrate a history of activity by young monogenetic (single short-lived activity) volcanoes. Similar young monogenetic provinces

are found in northeast Queensland.

Professor Joyce and his colleagues from the University's School of Earth Sciences have spent years cataloguing the hundreds of small volcanic cones, [lava flows](#) and craters in the regions. The distribution of activity including lava flows and ash deposits has been mapped in detail.

The latest findings are due to more recent studies using a range of state of the art dating techniques, which have provided more information on the ages of the individual volcanoes, providing information about the occurrence rates.

Professor Joyce said there are several kinds of eruptions which can cause damage and harm to local communities.

“Among the hazards which may need to be prepared for in this closely-settled region are the localised effects of cone building leading to lava flows which run downhill towards the coast.’

“The long lasting and often extensive lava flows can travel for tens of kilometres, and so would be hazardous to modern infrastructure such as bridges, roads and railways, powerlines and pipelines, as well as being a major fire hazard on the dry grassland plains of summer in Western Victoria.”

“In some cases rising magma can meet ground water and cause steam explosions. This can form wide craters and produce a lot of ash.”

“Depending on where the eruption occurs, ash can cause huge damage to people who are down wind, clogging up streams, road and rail transport and perhaps affecting local air travel,” he said.

The cause of the volcanic activity may be the movement of the Australian tectonic plate, which is moving north.

“The plate is hitting up against PNG, lifting the southern margin upwards. This allows magma to move upwards towards the surface,” Professor Joyce said.

Professor Joyce said communities need to have some knowledge of what to do after an eruption. “So far we have no action plans in place if eruptions occur. If they happen close to Melbourne or Geelong it could be hugely devastating. It is more likely however, that eruptions would occur further west, closer to areas such as Colac, Port Fairy, Portland and Mt Gambier.”

“We need to note the concerns of other cities such as Auckland in New Zealand which sits on a similar young volcanic region, with a local government which has plans in place to respond if eruptions occur,” he said.

Provided by University of Melbourne

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