

Mt Taranaki 'overdue' for eruption

October 25 2005

Researchers have uncovered evidence suggesting Mt Taranaki is overdue to erupt, possibly blanketing much of the North Island in ash and disrupting power and water supplies, farming and aviation.

Although the 2518m volcano, New Zealand's second-highest, has shown little or no sign of activity for two centuries, the new research suggests it has erupted at least once every 90 years on average for the past 9000 years, with a major eruption every 500 years.

This is far greater frequency than previous realised.

The study, by Dr Shane Cronin of the Institute of Natural Resources at Massey and PhD student Michael Turner, is part of a larger programme into North Island volcanic risk funded by the Public Good Science Fund of the New Zealand Foundation for Science and Technology.

It involved extraction and analysis of a series of cores from the sediments of Lake Umutekai, 5km east of New Plymouth and about 25km north-east of the volcano.

Dr Cronin said the rapidly accumulating organic sediments within the lake were perfect for trapping ash layers from Mt Taranaki.

They collected the cores earlier this year and were astonished to find almost 100 ash layers revealed in them.

By using several radiocarbon dates throughout the core, they were able to reconstruct the most detailed view ever of the eruption history of the

mountain.

“These events have been as frequent as large-scale floods in many rivers of New Zealand and future activity from this volcano may pose a more immediate threat to the North Island that previously realised,” he said.

Each of the volcanic ash layers in the core are from millimetres to several-centimetres thick. The smaller units represent eruption magnitudes similar to the 1995-1996 Mt Ruapehu events, while the larger units represent eruptions on the scale of the 1886 Mt Tarawera eruption.

The Umutekai record also suggests that there is a larger eruption approximately every 500 years, the last occurred in 1655. These eruptions are large enough to shower New Plymouth with pumice and rock fragments the size of raisins, producing a deposit up to tens of centimetres thick.

“An eruption of this scale would undoubtedly cause substantial disruption to much of the North Island, cutting power supplies, damaging transmission lines, water supplies and stormwater.”

The bulk of the ash cloud would disrupt all main North Island airline flight paths and the prevailing south-westerly wind would the cloud directly over Auckland, closing the country’s largest international airport.

Fragments from previous Taranaki eruptions have been found in lakes near Te Awamutu in the Waikato and Tutira, Hawke’s Bay.

In addition there could be severe problems for farmers, particularly dairy and horticulture, with ash damage to pasture, crops and orchards and ash blocking air filters on milking shed cooling plants, limiting farmers’ ability to store milk. Twenty per cent of New Zealand’s dairy cattle are farmed in the Taranaki region.

Dr Cronin said at this stage there was nothing more than the statistical evidence to suggest an eruption was imminent. The mountain is monitored by six seismometers owned by the Taranaki Regional Council and managed by GeoNet, part of the Institute of Geological and Nuclear Sciences.

The monitoring should give at least six days' and possibly as much as a few months' warning of an eruption.

Dr Cronin said statistics were vital to volcanology.

“With volcanic activity, the past is the key to the future. If you consider Taranaki has been active for 130,000 years, just because it’s been quiet for the last 200 years doesn’t mean it has stopped.”

“Normally evidence for these types of eruptions cannot be found within soils, so they have been overlooked in past studies on the volcano.

More concerning than the frequency of these eruptions, is that they have often occurred in swarms – semi-continuous eruptions over many years. The last, recorded in 1755 but possibly followed up with a further eruption in the early 1800s, formed the present cone on Taranaki.

A similar volcano-type, Soufrière Hills volcano on the island of Montserrat in the Caribbean, shows a present-day example of this type of activity, since it has been continually erupting for the past decade.

These new results show only the eruptions of Mt Taranaki during south-westerly winds, indicating the average frequency of eruptions may be even higher than one every 90 years. Mr Turner, Dr Cronin and colleagues at Massey University will continue collecting new cores from swamps and lakes in other areas around Mt Taranaki to ultimately come up with the most detailed record possible of the volcano’s history.

These data are to be used to develop probability models in order to forecast the chances of future events and help authorities and businesses to plan for the next one.

Source: Massey University

Citation: Mt Taranaki 'overdue' for eruption (2005, October 25) retrieved 18 April 2024 from <https://phys.org/news/2005-10-mt-taranaki-overdue-eruption.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.