

# 'Creeping quakes' rumble New Zealand: researchers

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File photo shows snow capped mountains near Hanmer Springs on New Zealand's South Island. Researchers have discovered New Zealand's earthquake-prone landscape is even more unstable than previously thought, recording deep tremors lasting up to 30 minutes on its biggest fault line.

Researchers have discovered New Zealand's earthquake-prone landscape is even more unstable than previously thought, recording deep tremors lasting up to 30 minutes on its biggest fault line.

Scientists measured the so-called "creeping earthquakes" when they investigated a puzzling lack of major seismic jolts along a section of the Alpine Fault, which runs the length of the South Island.

The quakes, which caused no surface damage, occurred 20-45 kilometres (12-28 miles) beneath the Earth's crust and continued for as long as half an hour, much longer than ordinary earthquakes.

In contrast, the 6.3-magnitude [quake](#) that killed 185 people in the South island city of Christchurch in February last year lasted just 37 seconds and struck at a depth of about five kilometres.

The quakes could not be measured by regular [seismic monitoring](#) devices and researchers from Wellington's Victoria University had to place sensors in boreholes 100 metres deep to pick them up.



File photo shows the damaged Christchurch Cathedral in the New Zealand South Island city of Christchurch in September 2011. The 6.3-magnitude quake that

killed 185 people in Christchurch in February last year lasted just 37 seconds and struck at a depth of about 5 km.

[Seismologist](#) Aaron Wech said the research showed the Alpine Fault, regarded as New Zealand's most hazardous, did not remain still between [major earthquakes](#) but was constantly shifting.

Wech said the implications for future earthquakes were unclear.

"It could be that constant tremor builds up stress and may trigger a major fault movement (earthquake) or, alternatively, the activity may decrease the likelihood of a major quake by acting as a release valve for stress," he said.

"What's important is that we find out more about these tremor events, such as where they happen and how often, so we can better predict the hazard the Alpine Fault poses."

The research was published this week in the US journal [Geophysical Research Letters](#).

The government's GNS Science agency estimates the Alpine Fault has generated four quakes of magnitude 8.0 or higher in the past 900 years, most recently in the early 1700s, and another is overdue.

It says there is a high probability one will occur in the next 40 years, producing "one of the biggest earthquakes since European settlement of New Zealand (which) will have a major impact on the lives of many people".

The Christchurch earthquake was not caused by the Alpine Fault but a

previously unknown [fault line](#), part of a network of seismic fractures criss-crossing New Zealand, which lies on the junction of two tectonic plates.

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