

# International science team could help to predict future earthquakes

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For the first time, a New Zealand-led international science team will gather data by drilling a 1.3-kilometre hole in the Alpine Fault in the South Island.

The Deep Fault Drilling Project, led by scientists from Victoria University of Wellington, GNS Science and the University of Otago, involves researchers and funding from several organisations in New Zealand and eleven other countries. The project is predominantly funded by the Marsden Fund of the Royal Society of New Zealand and the International Continental Scientific Drilling Program based in Potsdam.

"One of the things we are working to understand is how the Alpine Fault evolves geochemically and hydraulically following a [major earthquake](#) and how these processes re-prime the fault system ahead of the next earthquake," says project co-leader Dr John Townend, an associate professor in the School of Geography, Environment and Earth Sciences.

The scientists will drill a single deep borehole near Whataroa, north of Franz Josef on the West Coast, later this year, providing a unique opportunity to probe the inside of a major plate boundary fault before it ruptures. The location is regarded as one of the best places in the world to do this because major fault activity here is late in the so-called earthquake cycle between successive large earthquakes.

"Almost 300 years have passed since the last known large Alpine Fault [earthquake](#) in 1717 AD. That's a substantial chunk of the average time

between big Alpine Fault earthquakes over the past several thousand years," says Dr Townend.

"This means that measurements made now are likely representative of the state of the Alpine Fault at the time of its next rupture."

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Provided by Victoria University

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