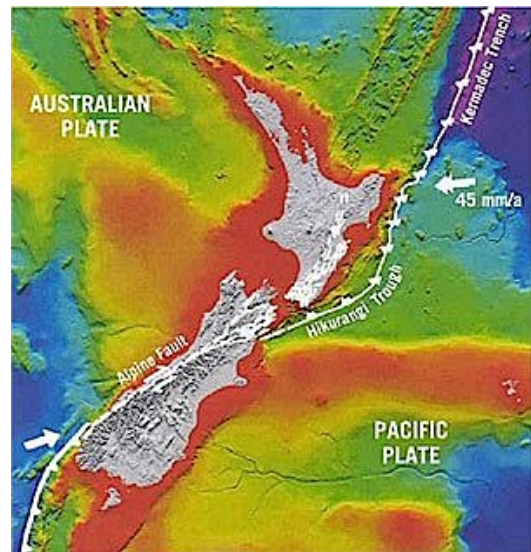


## Understanding megathrust behaviour of the Hikurangi subduction zone, New Zealand

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The Hikurangi Plateau is a Cretaceous oceanic plateau that is being subducted along the east coast of the North Island of New Zealand. Here, relative plate motion is oblique and partitioned along the margin via strike slip faulting and clockwise rotation. Six characteristics of the margin exhibit systematic along-strike changes: [1] geometry of the seismogenic zone, [2] convergence rate, [3] a shift from accretion to subduction erosion, [4] thickness of sediment on the subducting plate, [5] upper plate contraction to extension, and [6] an increase in taper of the accretionary wedge. The similarities between subduction zones offshore North Island New Zealand and northern Honshu may suggest that Hikurangi could rupture and produce a large earthquake similar to the 2011 Tohoku event. Proposed IODP drilling of the Hikurangi margin may give fundamental insights into why some subduction thrusts are strongly coupled and produce Great thrust earthquakes, while others do not.



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