# A sharp boundary in Earth's layers

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A team led by a Brown University student shows a sharp boundary exists between the Earth's hard outermost shell and its more pliable layer beneath.

Geophysicists from Brown University in Providence, R.I., and the Massachusetts Institute of Technology in Boston say their findings suggest strong evidence temperature alone can't account for differences between the regions, which allow plate tectonics to occur.

Earth's cool, rigid upper layer, the lithosphere, rides on top of its warmer, more pliable neighbor, the asthenosphere, as a series of massive plates. Plates continuously shift and break, triggering earthquakes, sparking volcanic eruptions, sculpting mountains and carving trenches under the sea.

Catherine Rychert, a graduate student in Brown's Department of Geological Sciences, found a sharp dividing line between the lithosphere and the asthenosphere, according to data culled from seismic sensors sprinkled across the northeastern United States and southeastern Canada.

The findings are published in Nature.

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