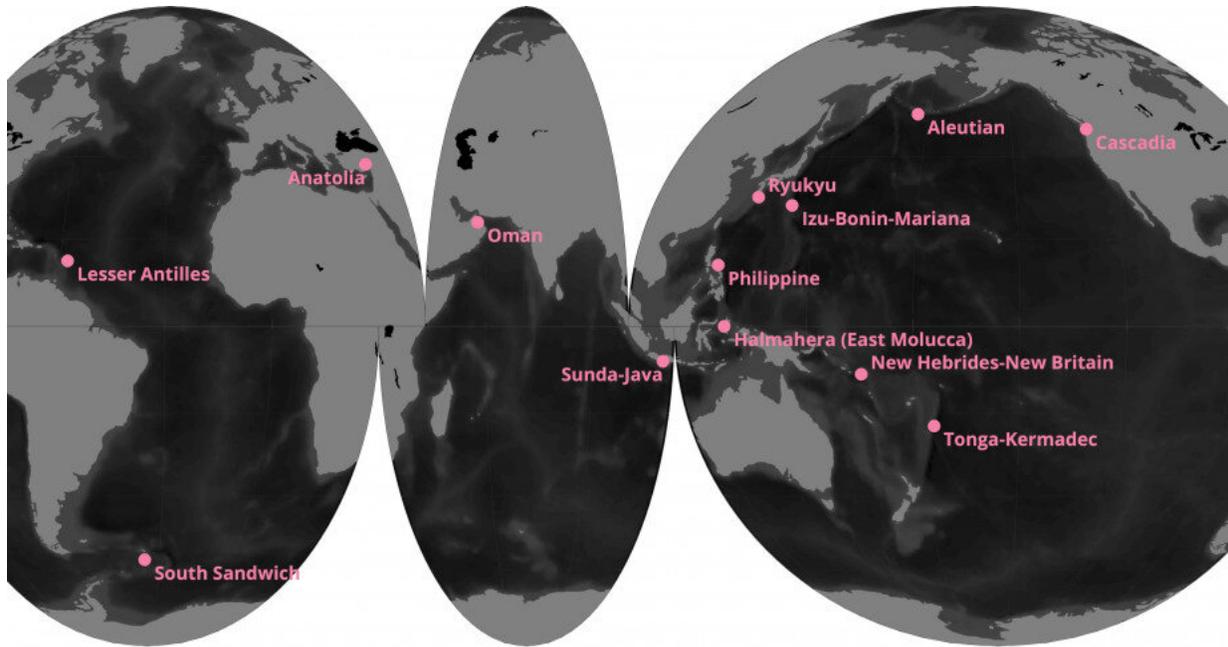


# New study unravels secret to subduction

July 30 2020



Interrupted Mollweide projection of world oceanic plates · by SZIdatabase.org

Credit: Australian National University

A new study by an international team of researchers offers new clues about where and how subduction starts on Earth, the process behind our most deadly volcanic eruptions.

Co-author Dr. Caroline Eakin from The Australian National University (ANU) says the Earth's biggest earthquakes and most explosive volcanoes occur at so-called "[subduction zones](#)"—where a tectonic plate

sinks back into the Earth's interior.

"Subduction zones are a vital ingredient for [plate tectonics](#), and thus for maintaining a habitable planet," Dr. Eakin said.

"But how they originate is one of the biggest unsolved puzzles in modern Earth Science. Now we've been able to compile 100 million years of existing evidence for Subduction Zone Initiation (SZI). One of the biggest things this showed was that subduction breeds subduction. Truly spontaneous [subduction](#) in 'pristine' places is practically unheard of."

The research—led by the Centre for Earth Evolution and Dynamics at the University of Oslo—was undertaken by a team of 14 early-career researchers from around the world.

It has resulted in a new database on Subduction Zone Initiation, which is now also open for community input.

"By looking at multiple events, we found SZI clustering around two time periods: six to 16 million years ago and 40 to 55 million years ago," Dr. Eakin said.

"Going forward, ANU researchers will also be deploying ocean-bottom seismometers around Macquarie Island, a location chosen due to its potential for future Subduction Zone Initiation."

The study has been published in *Nature Communications*.

**More information:** Fabio Cramer et al. A transdisciplinary and community-driven database to unravel subduction zone initiation, *Nature Communications* (2020). [DOI: 10.1038/s41467-020-17522-9](https://doi.org/10.1038/s41467-020-17522-9)

Provided by Australian National University

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