

Scientists dig deep to reveal Earth's hidden layer

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It's an idea worthy of a Jules Verne novel; a mysterious layer at the center of our planet.

Now researchers from The Australian National University (ANU) have

confirmed the existence of the Earth's "innermost inner core."

Lead author of the study, Ph.D. researcher Joanne Stephenson, says while this new layer is difficult to observe, its distinct properties may point to an unknown, dramatic event in the Earth's [history](#).

"We found evidence that may indicate a change in the structure of iron, which suggests perhaps two separate cooling events in Earth's history," Ms Stephenson said.

"The details of this big event are still a bit of a mystery, but we've added another piece of the puzzle when it comes to our knowledge of the Earths' inner core."

Ms Stephenson says that investigating the structure of the inner core can help us understand more about the Earth's history and evolution.

"Traditionally we've been taught the Earth has four main layers: the crust, the mantle, the outer core and the inner [core](#).

"The idea of another distinct [layer](#) was proposed a couple of decades ago, but the data has been very unclear.

"We got around this by using a very clever search algorithm to trawl through thousands of the models of the [inner core](#).

"It's very exciting—and might mean we have to re-write the textbooks!"

For the very least, Verne's famous novel may need a couple of extra pages.

The research has been published in the *Journal of Geophysical Research: Solid Earth*.

More information: J. Stephenson et al. Evidence for the Innermost Inner Core: Robust Parameter Search for Radially Varying Anisotropy Using the Neighborhood Algorithm, *Journal of Geophysical Research: Solid Earth* (2020). [DOI: 10.1029/2020JB020545](https://doi.org/10.1029/2020JB020545)

Provided by Australian National University

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