



Scientists discover gigantic 'structure' under the surface of the Moon

Story by Harriet Brewis • Saturday

Indy 100

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[The Moon](#) has been a subject of awe and fascination for millennia, with its shape-shifting powers and enigmatic dark side.

And though it's the one celestial body on which man has taken (small) steps, we still have big leaps to go in understanding its potential and uncovering its secrets.

However, one hidden feature of the Moon has been unearthed by scientists and it's very, very big, and very, very heavy.

Buried beneath its South Pole-Aitken basin – one of the largest preserved craters in the [Solar System](#) – is a structure which weighs at least 2.18 billion kilogrammes and measures more than 300km (186 miles) in depth and 2,000km (1,243 miles) in length.

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The [researchers](#) who made the discovery, all based in the US, posited that the "anomaly" could be made out of metal from the core of an asteroid or oxides from the crystallisation of a magma ocean.

"One of the explanations of this extra mass is that the metal from the asteroid that formed this crater is still embedded in the Moon's mantle," lead author Peter B. James, from Houston's Baylor University, said in a statement shared with [IFLScience](#).

Illustrating just how gigantic this thing is, he went on: "Imagine taking a pile of metal five times larger than the Big Island of Hawaii and burying it underground. That's roughly how much unexpected mass we detected."

The groundbreaking finding was made thanks to [NASA's](#) Gravity Recovery and Interior Laboratory (GRAIL) mission, which measures changes in the Moon's gravitational field

Data collected by GRAIL can then be used to study the internal composition of our cratered companion.

The South Pole-Aitken Basin has been at the centre of numerous investigations because of just how unique it is.

The region offers clues both on the interior composition of our closest satellite and its history, and who knows what other mysteries it holds...



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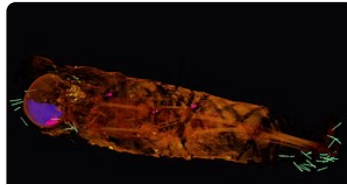
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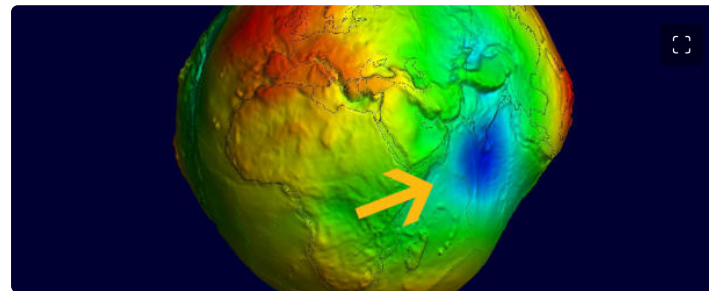


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There's a Giant Gravity Hole In The Indian Ocean, And We May Finally Know Why

Story by Clare Watson • Friday



Gravity hole in the Indian Ocean
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Gravity's pull is a constant on Earth, but our planet is no uniform sphere. It's covered in lumps and bumps, with geology of varying density yanking on nearby masses with subtly differing degrees of force in an [undulating map known as a geoid](#).

Deep beneath the Indian Ocean, that pull weakens to an extreme low, leaving what is considered a massive gravity 'hole' some three million square kilometers in size roughly where the seafloor sinks into a vast depression.

One of the most profound gravitational anomalies on Earth, its presence has been alluded to for a while. Ship-based surveys and satellite measurements revealed long ago that the sea level just off the tip of the Indian subcontinent dipped on account of the gravitational tug-of-war between the aptly named Indian Ocean geoid low and the surrounding gravitational 'highs'.

Just what caused this relative weakening has never been clear. Now two researchers from the Indian Institute of Science think they have a better idea of the kinds of planetary phenomena that could be involved.

"All these [past] studies looked at the present-day anomaly and were not concerned with how this geoid low came into existence," geoscientists Debanjan Pal and Attreyee Ghosh [explain](#) in their published paper, which describes their new working hypothesis.

They think the answer lies more than 1,000 kilometers (621 miles) beneath



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