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Space

Meteorite left Earth then returned to the surface

Alex Wilkins

A METEORITE found in the Sahara desert in Morocco may have originated on Earth, before being blasted into space and returning from orbit thousands of years later. If confirmed, this boomerang space rock would be the first of its kind we know about.

Almost all the meteorites we have found come from asteroids, but a tiny fraction are from planetary bodies, such as Mars and the moon. These come from violent impacts that launch debris into space, which later falls back to Earth. Astronomers have shown that debris from similar impacts on Earth may also have fallen back to its home planet, but we have yet to find a compelling sample.

Now, Jérôme Gattacceca at the French National Centre for Scientific Research and his colleagues think they may have found a 600-gram meteorite from Earth. The rock, called NWA 13188, has the same chemical make-up as volcanic rock from our planet. It also has a thin layer of melted crust consistent with an impact and contains isotopes of elements that only form when an object has been bombarded with cosmic rays in space.

“It’s a meteorite from the Earth that has spent time in space, between 2000 and a few tens of thousands of years,” Gattacceca told the Goldschmidt geochemistry conference in Lyon, France, on 11 July.

NWA 13188 was originally found in the Sahara desert by a Bedouin group that scours the landscape for potential meteorites to sell, so its exact location is unknown. It was certified as a meteorite by the Meteoritical Society in 2021, but was classified as “ungrouped”

because its origin was unknown.

When Gattacceca and his team examined the rock, they found it had a similar chemical make-up to rocks on Earth, such as the same oxygen isotope fingerprint, as well as geological structures made at the boundary between tectonic plates. Only Earth has plate tectonics.

600

Weight of the meteorite NWA 13188, in grams

They then looked for evidence of irradiation from cosmic rays, which produce elements like beryllium-3 and helium-10 in asteroids. The levels of these elements were lower than in other meteorites, but were still significantly higher than any material found on Earth. This suggests that NWA 13188 spent a brief period outside Earth’s magnetic field, from a few thousand to possibly up to 100,000 years, says Gattacceca.

But not everyone agrees. “When you’re claiming extraordinary hypotheses, you need extraordinary

evidence to back it up. I am still unconvinced,” says Philippe Claeys at the Free University of Brussels (VUB) in Belgium.

The lack of a known impact crater, which Gattacceca estimates should be around 20 kilometres wide, counts against it, says Claeys. “When you have an impact crater that young, you would have an impact melt that is still ‘hot and smoking’ – it would be really hard to miss.”

Gattacceca and his team are now trying to determine the age of the meteorite more accurately, using argon and carbon dating, to help narrow down a potential source.

There is also a question of whether the object can even be called a meteorite if it comes from Earth and only orbits the planet for a relatively short time. There are many other rocks that reach high in Earth’s atmosphere from processes like volcanic eruptions, says Stepan Chernozhkin at the University of Leoben in Austria. “If you define an Earth meteorite, you’re stretching the definition of meteorite.” ■



The meteorite NWA 13188 seems to have travelled to space and back

ALBERT JAMBON

Longevity

Giving birth at an older age linked to longer life in women

Sara Novak

WOMEN who give birth at an older age live slightly longer than those who do so earlier.

Niels van den Berg at Leiden University Medical Center in the Netherlands and his colleagues looked at more than 11,500 women from two existing studies. All lived to age 50 or older and had at least one child without the use of assisted reproductive techniques. No transgender men were included.

Those who gave birth to their last child at an older age lived longer, with each additional year linked to an extra 22 days of life overall (medRxiv, doi.org/kjqh).

When comparing the women who gave birth to their last child while aged 40 or younger to those who did so at 45 or older, they found that the latter group lived 17 months longer. “Given all the risk factors of mortality, a 1.41-year difference can be considered as quite large,” says van den Berg.

Previous research has linked giving birth at age 40 or older to an increased risk of complications, compared with giving birth while younger than 40. But according to van den Berg, women who give birth later in life may live longer because they are healthy, which extends their lifespan and enables them to conceive at an older age.

However, having long-lived relatives wasn’t linked to the women giving birth at a later age. The length of their reproductive health may not just be genetic, but also related to their lifestyles, according to the researchers. Van den Berg adds, though, that the team can’t rule out the role of genetics.

Better understanding the relationship between reproductive health and longevity could have profound implications for women’s health, says Jennifer Garrison at the Global Consortium for Reproductive Longevity and Equality in Novato, California. ■