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Rare black diamonds may have come from space

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Black diamonds found in only a few places on Earth may have crashed down from space in a kilometre-sized rock, according to new research.

The diamonds, also called carbonado, are only found in Brazil and the Central African Republic. Unlike other diamonds, they are made of millions of diamond crystals that are stuck together.

They are also porous, which is a puzzle. Scientists say it would have been difficult for gas to become trapped in rocks at depths of about 200 kilometres below the Earth's surface. The intense pressure there turns carbon into conventional diamonds.

"This is the feature that first led some of us to think, well, perhaps there has to be a different alternative," says Stephen Haggerty, a geologist at Florida International University in Miami, US, and an author of the new study.

Because carbonado diamonds have only been found in two places and never in traditional diamond fields, some scientists suspected they crashed to Earth from space.

Haggerty believes they came from a large, diamond-bearing asteroid that may have fallen to Earth billions of years ago, when the planet and the Moon were being heavily bombarded by space rocks. Carbonado has been dated to be between 2.6 billion and 2.8 billion years old.


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This black diamond, found in Brazil, may actually have come from space (Image: Steve Haggerty)

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asteroids that may have fallen to Earth billions of years ago, when the planet and the Moon were being heavily bombarded by space rocks. Carbonado has been dated to be between 2.6 billion and 3.8 billion years old.

'Plums in pudding'

At that time, South America and Africa were one land mass, which could account for the diamonds showing up on two continents today, Haggerty told **New Scientist**.

He and his colleagues believe the diamonds have ancient, rather exotic origins, forming around a star other than the Sun. Using an infrared synchrotron at Brookhaven National Laboratory in New York, US, they found hydrogen in the carbonado that indicates the diamonds came from hydrogen-rich interstellar space.

The diamond dust from which they formed may have been released when a star exploded in a supernova billions of years ago.

The diamond dust then became part of the cloud of gas and dust from which our solar system condensed. Over time, it coalesced into larger clumps that became embedded in asteroids "like plums in pudding", Haggerty says.

The new spectral measurements of the carbonado closely resemble those of other diamonds found in meteorites, as well as diamonds seen in space (see *The night sky really is studded with diamonds*).

Journal reference: *Astrophysical Journal Letters* (vol 653, p 153)

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more come from space (image: Steve Haggerty)

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