Study reveals that Earth's precursor may form within 5 mln years, much faster than previously thought

Danish scientists found that the precursor of the Earth formed within a time span of approximately 5 million years, much faster than previously thought.

The findings published in the latest edition of journal Science Advances showed that the proto-Earth formed in what corresponds to about a minute and a half if the solar system's estimated 4.6 billion years of existence is compared with a 24-hour period.

The result contradicted a traditional theory that the proto-Earth formed by random collisions between larger and larger planetary bodies throughout several tens of millions of years, but supported an alternative theory about the formation of planets through the accretion of cosmic dust, according to the study.

Researchers at the University of Copenhagen examined the isotopic mixture of the metallic element in different meteorites, identifying one type of meteoritic dust with a composition similar to Earth.

It was this dust with gas that was funnelled via a circumstellar accretion disk onto the growing Sun and this process lasted about 5 million years.

Also, the researchers estimate that the proto-Earth's ferrous core also formed during this period, removing early accreted iron from the mantle.

Based on the evidence for the theory that planets form through the accretion of cosmic dust, the researchers suggested that the same process might occur elsewhere in the universe.

It means that other planets may also likely form much faster than if they grow solely from random collisions between objects in space.

"If the theory of early planetary accretion really is correct, water is likely just a by-product of the formation of a planet like the Earth, making the ingredients of life more likely to be found elsewhere in the universe," said the paper's coauthor Martin Bizzarro with the University of Copenhagen.

Source: Xinhua

---

https://www.radiohc.cu/index.php/en/noticias/ciencias/215243-study-reveals-that-earths-precursor-may-form-within-5-mln-years-much-faster-than-previously-thought

Radio Habana Cuba