

Could life on Earth have come from Ceres?

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Science

Astrobiologists hope to find life elsewhere in the universe, or possibly even in our own cosmic neighborhood, the solar system. Their efforts are usually concentrated on worlds such as the planet Mars, or icy moons like Europa. However, there are other, less conventional locations in the solar system where scientists think life may be found.

At the International Society for the Study of the Origin of Life conference in Florence, Italy, Joop Houtkooper from the University of Giessen divulged a theory that life could have originated on the asteroid Ceres.

The distant world Ceres, the smallest known dwarf planet in the solar system, lies within the asteroid belt. It was called a planet after its discovery in 1801, then later downgraded to asteroid status. With the latest planet definition from the International Astronomical Union, the round object is now considered a dwarf planet. Is there a chance that this exotic world is home to extraterrestrial organisms?

“This idea came to me when I heard a talk about all the satellites in the solar system that consist of a large part of ice, much of which is probably still in a liquid state,” says Houtkooper. “The total volume of all this water is something like 40 times greater than all the oceans on Earth.”

This reminded Houtkooper of a theory about how life originated. Organisms may have first developed around hydrothermal vents, which lie at the bottom of oceans and spew hot chemicals. Many icy bodies in our solar system have rocky cores, so they may have had or still have hydrothermal vents. Houtkooper realized, “if life is not unique to the Earth and could exist elsewhere, then these icy bodies are the places where life may have originated.”

Early in the history of the solar system was a period known as Late Heavy Bombardment, a turbulent time when cataclysmic asteroid impacts were common. If there was life on Earth before this dangerous era, it was most likely eradicated and had to begin again after much of this cosmic debris had cleared out of the inner solar system. Interestingly, evidence indicates that Ceres avoided being pummeled by devastating impacts during this time.

If it had been bombarded, it would have completely and forever lost its water mantle, as its gravitational force is too weak to recapture it. This is probably what happened to the asteroid Vesta, which has a very large impact crater and no water.

“The evidence points to Ceres having remained relatively unscathed during the Late Heavy Bombardment,” states Houtkooper. He says this means Ceres still could have a “water ocean where life could have originated early in the history of the solar system.”

(Source: Space.com)