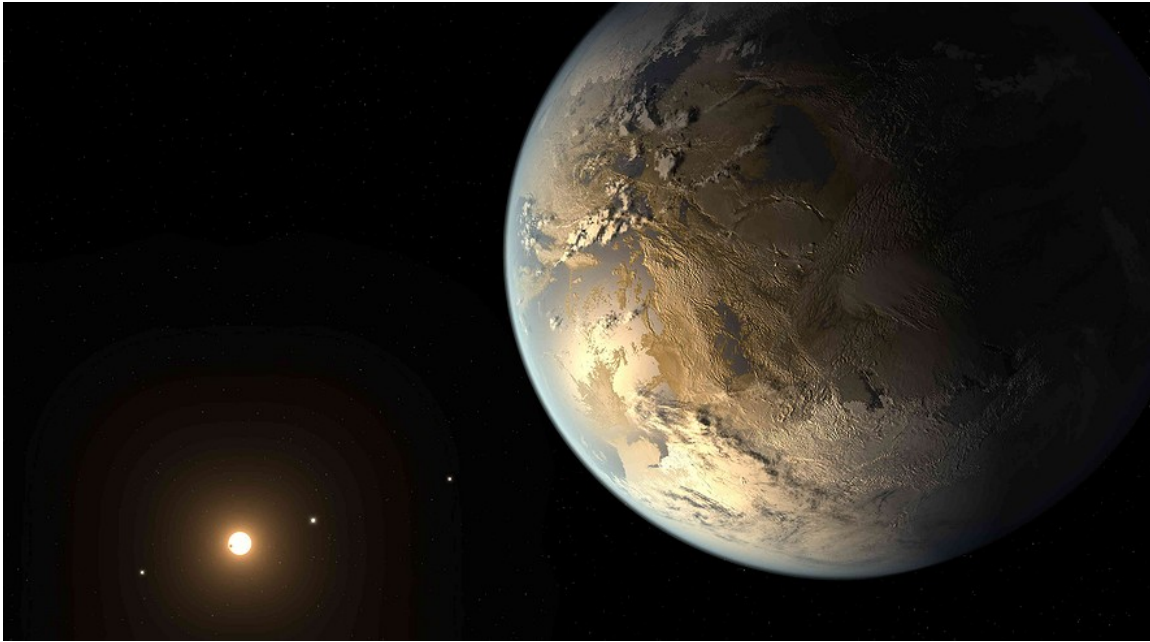


An exciting discovery deep in space

By Los Angeles Times, adapted by Newsela staff on 04.24.14

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An artist's concept depicts Kepler-186f , the first validated Earth-size planet to orbit a distant star in the habitable zone — a range of distance from a star where liquid water might pool on the planet's surface. Photo: NASA.gov

LOS ANGELES — Scientists say they have discovered an Earth-size planet that could have water on it. The planet is the first yet found that could possibly have life on it.

We have eight planets in our solar system. Except for Earth, it is believed that none of them can have any life on them. The planets are either too hot or too cold. Many of them also don't have things life needs to survive, such as water.

Now, the new planet has given scientists hope. They think that maybe finally, there is a planet that life could exist on.

There are a lot of things scientists don't know about the new planet, which is called Kepler-186f. They don't know if the planet actually has water. But, they said, it suggests there could be many other Earth-like planets much closer to home.

"A Historic Discovery"

Scientist Jason Rowe and his team spent a year studying information gathered by the Kepler Space Telescope.

Rowe and the others are still examining distant stars and planets. But after finding the Earth-like Kepler-186f, they feel certain of one thing: Other planets like it are probably out there. "The job of future missions," Rowe said, will be to find them.

Scientists who were not involved in the study praised the find.

"This is a historic discovery," scientist Geoffrey Marcy said.

Scientists are hoping to find plenty of other planets like Kepler-186f. Telescopes in space are searching for signs of water on the planet.

For now, the new discovery marks a first. The planet is not just Earth-size, it is truly Earth-like.

Kepler has so far spotted 1,800 planets. However, fewer than 24 are in an area far enough from a star that living things could exist there. The other planets are either too hot or too cold.

Orbits M-Dwarf Star

Even though there are other planets that have the right temperature, Kepler-186f stands out. It is closest to Earth's size.

Size is very important: If a planet is a lot wider than Earth, the air on the planet would be too thick for living things to survive.

Kepler-186f may be close to Earth in size, but it's very far away. It sits 490 light-years away. A single light year is around 6 trillion miles.

The planet circles its home star, Kepler-186, in just 130 days. The earth takes 365 days to circle its star: the sun.

Kepler-186f's star is called an M-dwarf: It is smaller, dimmer and cooler than our sun. Even though Kepler-186f sits close to this star, temperatures are not too hot for life.

Many scientists thought that life couldn't develop near M-dwarf stars. This is because they give off flares and damaging radiation. Kepler-186f is far enough from its star to be out of harm's way.

The discovery of Kepler-186f tells scientists something very important: There may be more than one kind of planet where life can exist. From now on, scientists won't only look at planets circling stars like our sun.

Other Life In The Universe?

It's not just that scientists will now have more planets to consider. It's also that planets where life could survive may now be easier to find.

This is because M-dwarf planets are easier to spot than planets that orbit larger stars. This is for two reasons: Their orbits are shorter and they block more of their star's light.

Seven out of 10 stars in the Milky Way are M-dwarf stars. Thus, there could be billions of planets like Kepler-186f in our galaxy.

The discovery of Kepler-186f is big news. It shows that scientists are starting to answer key questions about life in the universe.

Is life found elsewhere in the universe, or only on Earth? That question, said scientist Dimitar Sasselov, is central. It's not only a question for science. It also has to do with the meaning of life.

For "the first time in human history we have a good shot at answering that question," he said. "That's very exciting."