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ASTRONOMY

Discovery of Earth-like planet hints at possibility of life

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Two weeks ago, the European Southern Observatory headquarters announced the discovery of an Earth-like planet orbiting a nearby star. This star, called Gliese 581, is about 20 light-years away from our sun in the direction of the constellation Libra.



Here, Earth-like means that the temperature is suitable for liquid water. Water is essential to the chemistry of life on Earth, and water on another planet hints at the possibility of life. Most planets are either too hot or too cold.

The star Gliese 581, named after the astronomer who first cataloged it, is much cooler than the sun. It is a red-dwarf star with a mass only one-third that of the sun and is about 50 times less bright. This kind of star is common in our galaxy.

Detecting planets around other stars has only been possible in the past decade, and it requires specialized equipment.

The basic idea is to detect a slight "wobble" in the spectrum from a star as it recoils because of the orbital motion of the planet.

This technique is most successful if the planet is close to the star, resulting in a short orbit. Such a planet can have liquid water only if the star is much cooler than the sun.

Just because a planet has liquid water doesn't mean that it supports life. Think about Mars. Earlier in the history of our solar system, the sun was hotter and it is likely that liquid water was once present on Mars. Yet there is no proof that even microscopic life ever existed on Mars.

What if we wanted to go to this new planet? Even after a huge investment in rocket technology that could get a spaceship to go at 1 percent of the speed of light, it would take 2,000 years to reach this planet!

While it's too soon to get excited about the possibility of life on the newly discovered planet, it is a tribute to advances in astronomy. This was done just with telescopes, without putting humans up into space, and at a tiny fraction of the cost of a manned space mission.

If Earth-like planets are common, then it increases the possibility that life could exist elsewhere in the galaxy. We just need to keep looking.

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