

Space researchers hope to find the next "Earth" among 7 distant planets

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An artist's conception of the view from the surface of the exoplanet TRAPPIST-1f. Image courtesy of NASA/JPL-Caltech handout illustration

Scientists have found a star with seven planets that are like Earth. They are rocky and are about as warm as our planet. This means they may be able to support life.

This is the first time scientists have found so many planets like Earth around just one star. They say the system is a good study of worlds outside our solar system. It could be the best place to search for life beyond Earth.

TRAPPIST-1 Might Be Just Right

The newly discovered solar system is like ours but smaller. The star at its center is called TRAPPIST-1. It is much smaller than our sun and not as warm. Its planets circle tightly around it. TRAPPIST-1 is so cool that all seven of the planets can get just the right amount of warmth to hold liquid water. Three of them get as much heat as Venus, Earth and Mars. This means life may thrive there.

However, scientists still do not know what makes up the planets. They need to find out if the planets have atmospheres. A planet's atmosphere is the gas that surrounds the planet. Earth has an atmosphere. It is made of a few gases, but mostly nitrogen gas.

The scientists also need to see what type of atmospheres the new planets have to see if they are right for life. Elisabeth Adams, a scientist at the Planetary Science Institute, said people are rushing to test these things.

Researchers Discovered Planets In Transit Across Star

The lead scientists in the study is Michaël Gillon. He is a scientist in Belgium. Gillon and his fellow scientists have been interested in TRAPPIST-1 since late 2015. They found out that there were small dips in the star's brightness at regular times. These dips were caused by planets crossing between the star and Earth. This was how they realized the planets were there.

Last May, the scientists published that they had discovered three rocky bodies moving around the star. They studied the system for 20 days and found out that the star actually had seven planets.

Six of the planets pull on each other with a gravitational force. The denser, or more full of mass a planet is, the more gravitational pull it has. Scientists can then use the forces to figure out what makes up the planets. Heavy elements like metals make a planet more dense. Then it's gravitational pull is stronger.

Scientists also think the planets were formed far away from TRAPPIST-1 and then moved closer. This means they may have water, as water is found farther away from stars.

Best Bet For Finding Other Life

Scientists know there are more planets in our galaxy, the Milky Way, that are like Earth. However, the TRAPPIST-1 scientists say this solar system is our best bet yet to find life on other planets. The star is dim enough that the planets are easy to see. They are also close enough to study the planets' air.

However, even if three of the planets turn out to be warm and wet, they may not be livable. The planets' closeness to the star and one another means that one side of each planet probably always faces the sun. The other is stuck in darkness. The temperature across the planet would be very different. This change in temperature would cause very strong winds.

Adams said it is hard to tell if a planet is livable. For instance, an outside observer might think Venus and Mars are livable. However, they are not. Scientists have never been to any of these planets. Still, they can use math and science to figure out what the planets are made of.

"There are a lot of ways in which a planet could be like Earth, but not enough," Adams said.

Earth Still The Number One Most Livable Planet At The Moment

She also said scientists only have ideas about what makes a planet livable. They cannot test their ideas. The only planet they know with life on it is Earth. They do not know what life would really be like on other planets.

Even if the planets do not have life, they are a good way for scientists to study solar systems. Each planet is different in size and distance from each other. They give scientists new worlds to study.

Quiz

- 1 Which sentence from the article BEST supports the idea that planets around TRAPPIST-1 might have the right conditions to support life?
- (A) The star at its center is called TRAPPIST-1.
 - (B) TRAPPIST-1 is so cool that all seven of the planets can get just the right amount of warmth to hold liquid water.
 - (C) Gillon and his fellow scientists have been interested in TRAPPIST-1 since late 2015.
 - (D) Scientists also think the planets were formed far away from TRAPPIST-1 and then moved closer.

- 2 Read the sentence from the section "Researchers Discovered Planets In Transit Across Star."

They found out that there were small dips in the star's brightness at regular times.

Which sentence uses "dips" in the SAME way as the sentence above?

- (A) My brother always dips his toes in the pool before diving.
 - (B) The chips at the restaurant came with many different kinds of dips.
 - (C) Roller coasters that have a lot of dips and loops make me dizzy.
 - (D) There were large dips in the temperature that made snow possible.
- 3 Read the paragraph from the section "Researchers Discovered Planets In Transit Across Star."

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Which phrase from the paragraph helps you understand what a "gravitational force" does?

- (A) pull on each other
- (B) full of mass
- (C) elements like metals
- (D) make a planet

4 Read the section "Best Bet For Finding Other Life."

Which sentence shows a reason why the planets might NOT be livable?

- (A) The star is dim enough that the planets are easy to see.
- (B) They are also close enough to study the planets' air.
- (C) The temperature across the planet would be very different.
- (D) Scientists have never been to any of these planets.