

Earth-like planets around Sun-like star

Astronomers have found a pair of Earth-sized planets orbiting a star similar to the Sun, scientists on Nasa's Kepler telescope team said. While the finds — Kepler-20e and Kepler-20f — are too hot to sustain life, they are an encouraging sign for prospects of finding life elsewhere.

The discovery follows confirmation earlier this month of a super-Earth sized planet, called Kepler-22b, that circles the right distance from its parent star for liquid water to exist on its surface. "Kepler-22b has the right temperature, but it is too big. The planets we're announcing today are just the right size, but too hot," astronomer David Charbonneau of Harvard University said. "But you can bet the hunt is on to find a planet that combines the best of both worlds, a true Earth twin."

The planets have a calculated temperature of 760 degrees Celsius and 425 degrees Celsius, said Francois Fressin of the Harvard-Smithsonian Center for Astrophysics in Massachusetts.

This discovery of pair of Earth-sized planets orbiting a star similar to the sun has fuelled fresh hope of finding life elsewhere in the universe. The newly discovered planets have at least three gas-giant siblings, one of the larger planetary systems found to date.

But the family is nothing like our solar system, where rocky worlds like Venus, Earth and Mars are grouped together closer to the sun while gas giants like Jupiter and Saturn are segregated in the outer regions.

The two Earth-like and three Neptune-sized planets in the Kepler-20 family are interspersed and all orbit closer to the parent star than our solar system's innermost planet, Mercury. "Rocky planets and gas giants happily mingle together. This is the first time we've seen anything like this," Charbonneau said.

Kepler-20e and 20f, which are believed to be too hot for liquid water, probably are not habitable — at least not today. "If Kepler-20f was formed with water, which I think is likely, then it could have held on to its water for several billions of years," said astronomer Linda Elkins-Tanton with the Carnegie Institute in Washington DC.

“And that means that this planet could have been habitable in the past for a long period.” Since it was launched in 2009, Nasa’s planet-hunting Kepler telescope has found evidence of dozens of possible Earth-sized planets. But Fressin’s report, published online in the journal Nature (22-12-11), is the first to provide confirmation, said Alan Boss of the Carnegie Institution for Science in Washington.