

Gliese 581g: the most Earth like planet yet discovered

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A team of planet hunters has announced the discovery of Gliese 581g, an Earth-sized planet orbiting a nearby star at a distance that places it squarely in the middle of the star's "habitable zone," where liquid water could exist on the planet's surface.

If confirmed, this would be the most Earth-like planet yet discovered and the first strong case for a potentially habitable one.

The relative speed and ease at which it was found also suggests there are millions of others waiting to be discovered.

"Our findings offer a very compelling case for a potentially habitable planet," said Professor Steven Vogt at the University of California.

"The fact that we were able to detect this planet so quickly and so nearby tells us that planets like this must be really common."

The findings are based on 11 years of observations at the W. M. Keck Observatory in Hawaii.

"Advanced techniques combined with old-fashioned ground-based telescopes continue to lead the exoplanet revolution," said Prof Vogt and Paul Butler, of the Carnegie Institution in Washington, team's new findings are reported in a paper to be published in the *Astrophysical Journal*.

The paper reports the discovery of two new planets around the nearby red dwarf star Gliese 581.

The most interesting of the two new planets is Gliese 581g, with a mass three to four times that of the Earth and an orbital period of just under 37 days.

Its mass indicates that it is probably a rocky planet with a definite surface and that it has enough gravity to hold on to an atmosphere, according to Prof Vogt.

Gliese 581g is located 20 light years away from Earth in the constellation Libra.

The planet is tidally locked to the star, meaning that one side is always facing the star and basking in perpetual daylight, while the side facing away from the star is in perpetual darkness.

The researchers estimate that the average surface temperature of the planet is between -24 and 10 degrees Fahrenheit (-31 to -12 degrees Celsius).

Actual temperatures would range from blazing hot on the side facing the star to freezing cold on the dark side.

The surface gravity would be about the same or slightly higher than Earth's, so that a person could easily walk upright on the planet, Prof Vogt said.