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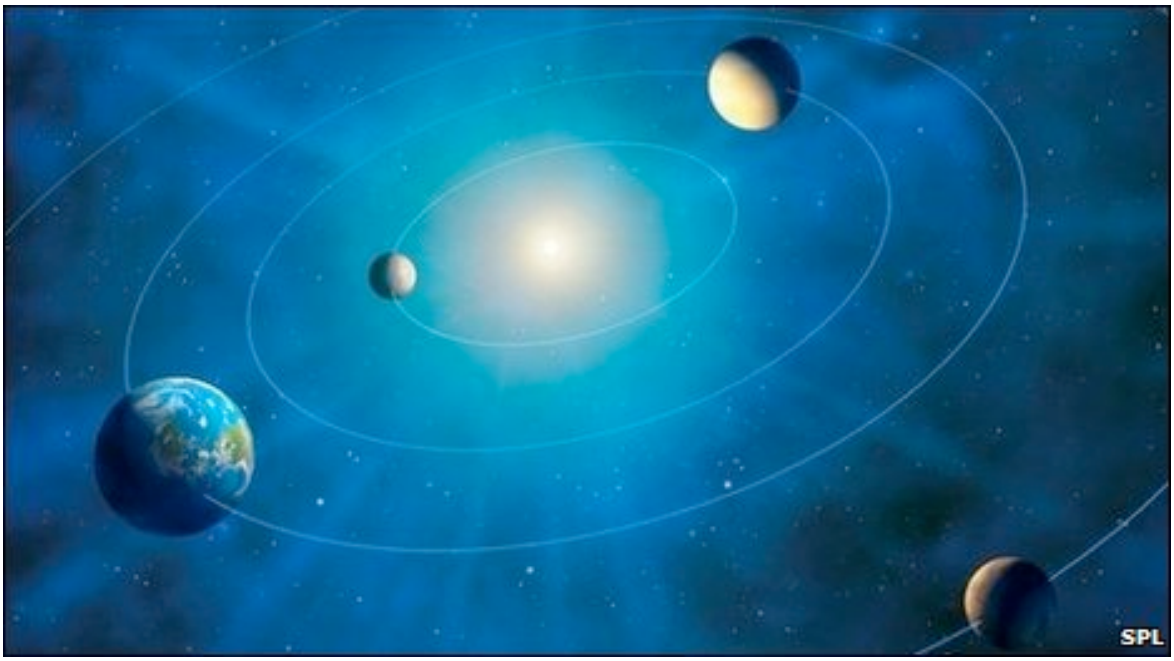
'Super-Earths' orbit nearby stars



The discoveries suggest that we may be close to finding habitable planets

Planet-hunters have discovered two "super-Earths" orbiting two nearby Sun-like stars.

These rocky planets are larger than the Earth but much smaller than ice giants such as Uranus and Neptune.

Scientists say the discoveries are a step towards finding potentially habitable planets - smaller planets that are comparable to the Earth.

Details of the new planets are described in two papers in the Astrophysical Journal.

Two US-based scientists led the international research effort - Paul Butler from the Carnegie Institution's Department of Terrestrial Magnetism in Washington and Steven Vogt of the University of California, Santa Cruz.

They combined several years' worth of data from the W M Keck Observatory in Hawaii, and the Anglo-Australian Telescope in New South Wales, Australia.

> **The discovery of potentially habitable nearby worlds may be just a few years away**
>
> Steven Vogt
> University of California, Santa Cruz

By detecting the subtle "wobbling" of the stars, caused by the gravitational tug of orbiting planets, the researchers were able to determine each planet's size and orbit.

The scientists saw evidence of three of these "low-mass planets" orbiting a star called 61 Virginis, which is just 28 light-years from Earth and is visible with the naked eye in the constellation of Virgo.

The smallest of the three was five times the mass of Earth, and orbited the star once every four days.

Dr Butler said that the signal produced by this planet was one of the smallest ever detected.

"One has to be very cautious when you claim a discovery," he said. "What gives us confidence is that we see the signal from two separate telescopes, and the two signals match up perfectly."

The other newly-discovered system was orbiting the star HD 1461, which is 76 light-years from Earth. The researchers found clear evidence for a planet 7.5 times the mass of Earth, and possible indications of two others.

Both stars resemble our Sun in size and age.

The planets have orbits too close to their stars to support life or liquid water. But, according to Dr Butler, they point the way toward finding other planets in similar orbits around nearby "M-dwarfs" - stars that are typically less than half the mass of the Sun.

"These sorts of planets around M-dwarfs actually would be in a liquid water zone," he said. "So we are knocking on the door right now of being able to find habitable planets."

Professor Vogt said: "These detections indicate that low-mass planets are quite common around nearby stars.

"The discovery of potentially habitable nearby worlds may be just a few years away."