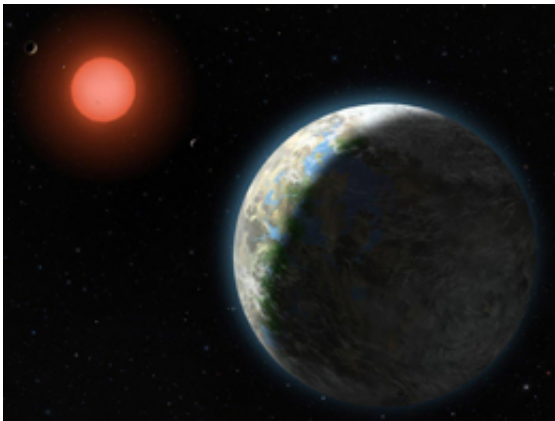


Finding a new Earth: Holy grail of astronomy

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Artist's impression of an exoplanet. Credit: Lynette R. Cook.

(Phys.org) -- Determining the habitability of rocky, Earth-like planets in the universe will be crucial for us as a species, according to scientists from The Australian National University.

But the good news is that these planets are probably more abundant than stars, researchers from the ANU Planetary Science Institute have discovered. The institute is a joint venture of the Research School of [Astronomy and Astrophysics](#) and the Research School of [Earth Sciences](#).

“Determining whether these planets are habitable has become the new holy grail of astronomy,” said planetary scientist Dr. Charley Lineweaver, lead author of the study.

“The new-found abundance of planets, combined with the much larger range of inhabited terrestrial environments suggests that habitable [planets](#) are common. This increases the probability of finding some kind of extraterrestrial life,” he said.

Fellow researcher and PhD student Aditya Chopra said our best estimates of [habitability](#) come from the planet we know best: [Earth](#).

“By comparing the inhabited and uninhabited regions of Earth, we can identify the most important factors that determine habitability. For terrestrial life, those factors are liquid water, a narrow range of temperature, and an energy source,” he said.

Dr. Lineweaver added: “Habitability is not just a question of abiotic environmental conditions – the presence of life may be required to maintain the habitability of a planet over billions of years. The study of the habitability of other Earths is the major focus of astrobiology – and increasingly planetary science and astronomy.

“Planetary habitability is a complex and confusing concept that we are only beginning to get our heads around, but as a species that wants to survive, it is in our interest to get our heads around it soon.”

More information: The research has been published in the paper, *The Habitability of Our Earth and Other Earths: Astrophysical, Geochemical, Geophysical, and Biological Limits on Planet Habitability*, online in the *Annual Reviews of Earth and Planetary Sciences*:

www.annualreviews.org/doi/abs/...-earth-042711-105531

Provided by Australian National University

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