

Twinkle, twinkle, any star - Sun not so special

May 21 2008



ANU astronomers have found there is nothing special about the Sun after conducting the most comprehensive comparison of it with other stars – adding weight to the idea that life could be common in the universe.

Scientists have long argued about whether or not the Earth has some special characteristics that led to the evolution of life. PhD researcher Jose Robles and Dr Charley Lineweaver from the Planetary Science Institute at ANU contend that this is a difficult question to answer because we don't have information about other Earth-like planets.

“Yet the question ‘How special is the Sun?’ is easier to address because we do have observations of thousands of other Sun-like stars,” explains Dr Lineweaver.

Rather than guess what properties a star should have to enable life, the researchers decided to compare the Sun – which already hosts a life-bearing planet – to other stars.

“Our research goes further than previous work which only looked at single properties such as mass or iron content,” says Robles, who is the lead author on the research paper. “We looked at 11 properties that could plausibly be connected with life and did an analysis of these properties: The upshot is that there doesn’t seem to be anything special about the Sun. It seems to be a random star that was blindly pulled out of the bag of all stars.”

The researchers found that the Sun’s mass is the most anomalous of its properties; the Sun is more massive than 95 per cent of stars. The Sun’s orbit around the centre of the galaxy is also more circular than the orbits of 93 per cent of its peers. “But when analysing the 11 properties together, the Sun shows up as a star selected at random, rather than one selected for some life-enhancing property,” Robles says.

The research is part of the ongoing scientific understanding of our place in the universe. “Those who are searching for justification for their beliefs that terrestrial life and humanity in particular are special, will probably interpret this result as a humiliating dethronement,” says Dr Lineweaver. “Those who believe we are the scum of the universe may find our non-special status uplifting.”

The research paper A comprehensive comparison of the Sun to other stars: searching for self-selection effects, is a collaborative work between ANU, UNSW and European astronomers. It has just been accepted for publication in the *Astrophysical Journal* and is available online at www.mso.anu.edu.au/~josan/astrophysics.html

Source: Australian National University

Citation: Twinkle, twinkle, any star - Sun not so special (2008, May 21) retrieved 19 April 2024 from <https://phys.org/news/2008-05-twinkle-star-sun-special.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.