

Boring Star May Mean Livelier Planet, Astronomer Says

June 9 2007

“Boring” light from red dwarf star Gliese 581 means better odds for extraterrestrial life in that planetary system, according to University of British Columbia astronomer Jaymie Matthews.

Approximately 20.5 light years from the Earth, Gliese 581 made the headlines in April 2007 when European scientists discovered a planet, named Gliese 581c. Dubbed “superEarth,” the planet orbits Gliese 581 and could have water -- and thus able to support life.

“The Gliese 581 system is the first to be found -- beyond our own Earth -- that might have a liveable planet,” said Matthews.

Using Canada Space Agency’s suitcase-sized space telescope, the Microvariability and Oscillations of STars (MOST), Matthews put Gliese 581 on a six-week scientific stakeout following the April discovery. He will present his findings today at the Canadian Astronomical Society’s annual meeting in Kingston, Ontario.

Matthews and his team searched for the subtle dips in the light from the star when the planet’s orbit carried it directly between the star and the Earth, resulting in a “mini-eclipse” every 13 days. The depth of the dips would help researchers determine the size of the planet Gliese 581c, while the behaviour of the starlight at other times would help astronomers gauge the suitability of Gliese 581 as a “home star,” a star able to sustain life on planets around it.

“Gliese 581 seems remarkably stable over the six weeks it was monitored by MOST,” said Matthews. “The brightness of the star changed by only a few tenths of a percent over that time. This level of stability means that it provides a stable source of light -- hence heat -- to the surface of planet Gliese 581c.

“The climate there should not be a wild rollercoaster ride that would make it difficult for life to get a foothold,” said Matthews. “It also suggests the star is quite old, and settled in its ways, and that the planets around it have probably been around for billions of years.”

It took approximately 3.5 billion years for life on Earth to reach the level of complexity that we call human, said Matthews. “So if Gliese 581 has been around for at least that long, it’s more encouraging for the prospects of complex life on any planet around it.”

With space missions like MOST, the French satellite COROT, which joined MOST in orbit late last December, and the American Kepler mission due for launch in November 2008, Matthews predicts that other ‘Earthy’ worlds will come to light in the coming months and years.

“Some of them will have orbits that produce planetary alignments,” said Matthews. “Not the kind that excites somebody reading a horoscope but the kind that’s exciting for astronomers because they will allow us to test our models of alien worlds -- worlds that might be homes to neighbours in our Galactic city, the Milky Way.”

MOST is a Canadian Space Agency mission, jointly operated by Dynacon Inc., the University of Toronto Institute for Aerospace Studies and the University of British Columbia, with the assistance of the University of Vienna.

Source: University of British Columbia

Citation: Boring Star May Mean Livelier Planet, Astronomer Says (2007, June 9) retrieved 20 April 2024 from <https://phys.org/news/2007-06-star-livelier-planet-astronomer.html>

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