

PRESS RELEASE + + + PRESS RELEASE + + + PRESS RELEASE

August 15, 2003

HABITAT IN SPACE

What would happen if we were to relocate the Earth into another planetary system? Would life still be possible? In the planetary system of 47 Ursae Majoris, which shows strong similarities to our own solar system, there is in fact a habitable zone. These findings were published in the recent issue of the *International Journal of Astrobiology* by scientists from The University of Texas at Arlington (UTA) and the Potsdam Institute for Climate Impact Research, Potsdam, Germany.

Dr. Manfred Cuntz from the University of Texas at Arlington (UTA) and Drs. Siegfried Franck, Werner von Bloh, and Christine Bounama from the Potsdam Institute for Climate Impact Research examined the planetary system 47 Ursae Majoris (47 UMa). This system is located approximately 45 light-years from Earth in the constellation Big Dipper (or Greater Bear; Ursae Majoris), and contains a solar-mass star.

So far, two giant planets, comparable to Jupiter and Saturn, have been discovered in this system. They play an important role, as they shield the inner realm of the planetary system from the impacts of comets and asteroids. Such giant planets, however, can also disturb the orbits of other planets, including Earth-like planets.

The scientists looked at the following problem: In order to be located in the so-called habitable zone, an Earth-like planet in the system 47 UMa has to orbit its central star at a suitable distance. Habitable means that photosynthesis-based life forms can exist on the surface of the planet. Additionally, the orbit of such a planet must remain stable over a timespan of biological significance.

The scientists discovered that the chances for a habitable planet are especially good if the planet's surface is covered to a significant extent by water. Such planets are referred to as waterworlds. If it were located within the system 47 UMa, the Earth - a waterworld by virtue of its 2/3 surface covered by water - would at 1.2 times the distance Earth-Sun to its central star, be able to exist on a stable orbit in the habitable zone. These findings have brought scientists a step closer to finding an Earth twin within the Milky Way.

The *International Journal of Astrobiology* is a peer-reviewed publication of Cambridge University Press. It was founded in 2001 to provide a journal able to accept papers from the burgeoning field of astrobiology.

Contact:

Dr. Manfred Cuntz
Department of Physics
Science Hall, Box 19059
University of Texas at Arlington

phone: 817-272-2467
fax: 817-272-3637
email: cuntz@uta.edu

Original Article

Franck, S., Cuntz, M., von Bloh, W., and Bounama, C. (2003). The habitable zone of Earth-mass planets around 47 UMa: results for land and water worlds. *International Journal of Astrobiology* 2 (1), 35-39.