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Last Updated: Thursday, 1 April, 2004, 16:38 GMT 17:38 UK

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Earth-like planet search to start

By Dr David Whitehouse
BBC News Online science editor

Astronomers will next month begin using a network of telescopes scattered across the globe to search for planets like our Earth circling other stars.

The planets cannot be seen directly but could be detected if they pass in front of their stars as viewed from Earth.

This would have the effect of boosting the stars' light and would be a strong indication of the planets' existence.

Scientists made the announcement at the UK National Astronomy Meeting, which is being held this year in Milton Keynes.

Like a lens

The international group of astronomers are led by Dr Jean-Phillipe Beaulieu, of the Institut d'Astrophysique de Paris, and Dr Martin Dominik, of the University of St Andrews.

They are hoping to secure firm evidence for Earth-like planets in a project called Planet (Probing Lensing Anomalies Network).

Over the past decade or so, astronomers have discovered more than 100 planets circling nearby stars by looking for the effect of the planet on the star's motion.

But this method is only sensitive enough to detect Jupiter or Saturn-sized worlds - planets that are hundreds of times larger than the Earth.

The only technique currently capable of detecting planets similar to Earth makes use of a phenomenon called "galactic microlensing".

In a microlensing event, a star temporarily appears brighter than it really is because its light is boosted by the gravity of an intervening body, in the same way an optical lens works.

If the intervening object is another star, it has a characteristic signal that lasts about a month. And if there is an Earth-sized world around this star then that can, in principle, be detected in the light-curve, too.

Big distance

The Planet campaign will use telescopes in Chile, Australia and South Africa to carry out a continuous survey of thousands of stars looking for those that flare.

Other telescopes will also be drawn into the search as well, including the RoboNet telescopic network comprising the Liverpool 2m telescope on the Canary Islands and the two Faulkes 2m telescopes in Hawaii and Australia.

Current microlensing surveys - Ogle and Moa - detect 500-700 events a year. Planet will select promising events for particular scrutiny.

"If 20% of these stars are surrounded by planets we expect to find 10-15 giant planets and one or two Earth-sized worlds within three years," Dr Dominik says.

"We might be able to detect a second Earth. Its typical distance would be 20,000 light-years away - much too far to think of establishing any contact."



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