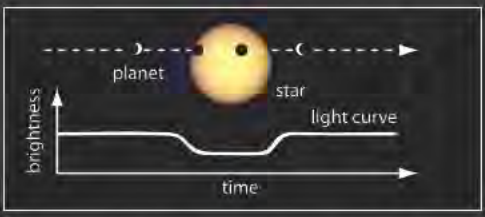
discover

National Aeronautics and
Space Administration

Kepler is NASA's first mission capable of finding Earth-size planets in a star's habitable zone, the region around a star where a planet's surface could be the right temperature for liquid water to exist. It was launched March 6, 2009 into orbit around our Sun.

Kepler is a specially designed wide-field telescope and uses a photometer that functions as a very precise light meter. It can detect very faint periodic decreases in a star's brightness caused by a planet transiting a star. Transits occur when a planet, whose orbit is along our line of sight to a star, passes in front of the star.



Transits last from a few hours to about half a day and happen once per orbit of the planet around its star. At least three transits with consistent period, brightness change, and duration are required to confirm the discovery of an extrasolar planet. Observing transits, scientists can determine both a planet's size and its orbit. The planet's size determines if it could have a rocky surface. Knowing the orbit and type of star, scientists can determine if the planet is in its star's habitable zone.

Kepler is pointed at a rich star field in the Cygnus and Lyra regions of our Milky Way galaxy and continuously monitors more than 100,000 stars to search for planets.

Kepler's findings will tell us if Earth-size planets are common orbiting around other Sun-like stars, or if they are rare.

Learn more, visit the *Kepler* web site
http://kepler.nasa.gov

www.nasa.gov

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