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Multiple Planets Transiting Same Star Discovered by NASA's Kepler Mission

NASA has announced the discovery of two Saturn-size planets, as well as one likely Earth-size planet, all transiting a star called Kepler 9. This is the first confirmed planetary system with more than one planet transiting the same star.

The observations are published in this week's Science, in an article co-authored by Tim Brown, a UC Santa Barbara-affiliated scientist. The measurements were made using NASA's Kepler spacecraft and were confirmed by the W. M. Keck Observatory in Hawaii.

"This system of planets is a thrilling example of the Kepler mission's power," said Brown, scientific director of the Las Cumbres Observatory Global Network, which is based in Goleta, Calif. and affiliated with UCSB.

"It is astounding that Kepler can show us, circling one star, a pair of planets that pull each other's orbits around, and also an object that is likely a planet not much bigger than the Earth," he said. "Rich systems like this one will be the best laboratories for understanding how planets form, and how planetary systems evolve."

The Kepler mission looks for the data signatures of planets by measuring tiny decreases in the brightness of stars when planets transit or cross in front of them,

according to NASA. In June of this year, mission scientists announced that the mission has identified more than 700 planet candidates, including five candidate systems that appear to have more than one transiting planet.

Launched in 2009, the Kepler space-borne telescope is designed to search the nearby region of our galaxy for planets the size of Earth, orbiting in the habitable zone of stars similar to our sun, explains NASA's Kepler Web site. Scientists describe the habitable zone as the region around a star where temperatures permit water to be liquid on a planet's surface.

NASA's Kepler Web site further notes that liquid water is considered essential for the existence of life as we know it. Therefore, the challenge for Kepler is to look at a large number of stars in order to statistically estimate the total number of Earth-size planets orbiting sun-like stars in the habitable zone. Kepler will survey more than 100,000 stars in our galaxy.

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