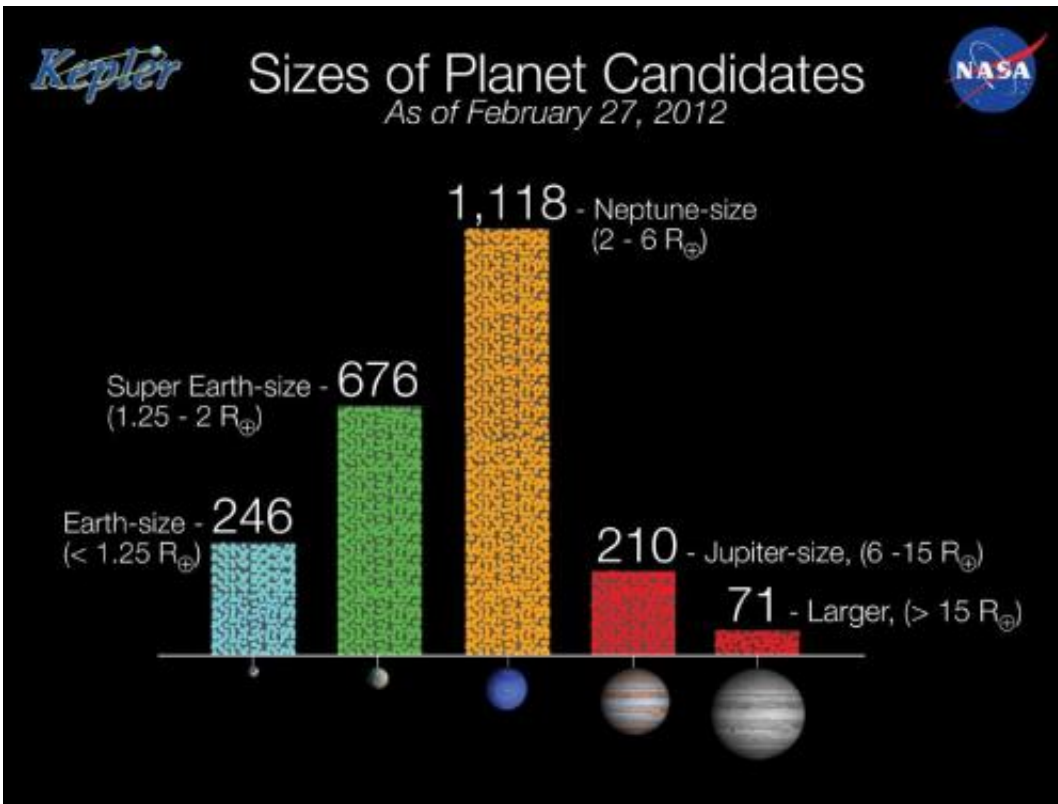


Kepler releases new catalog of planet candidates

March 6 2012, By Michele Johnson



The histogram summarizes the findings in the Feb. 27, 2012 Kepler Planet Candidate catalog release. The catalog contains 2,321 planet candidates identified during the first 16 months of observation conducted May 2009 to September 2010. Of the 46 planet candidates found in the habitable zone, the region in the planetary system where liquid water could exist, ten of these candidates are near-Earth-size. Credit: NASA Ames/Wendy Stenzel

Since science operations began in May 2009, the Kepler team has released two catalogs of transiting planet candidates. The first catalog ([Borucki et al. 2010](#)), released in June 2010, contains 312 candidates identified in the first 43 days of Kepler data. The second catalog ([Borucki et al. 2011](#)), released in February 2011, is a cumulative catalog containing 1,235 candidates identified in the first 13 months of data.

Today the team presents the third catalog containing 1,091 new planet candidates identified in the first 16 months of observation conducted May 2009 to September 2010. These are the same candidates that the team discussed at the [Kepler Science Conference](#) held at [NASA Ames Research Center](#) in December 2011.

Here are the highlights of the new catalog:

- Planet candidates smaller than twice the size of Earth increased by 197 percent, compared to 52 percent for candidates larger than twice the size of Earth.
- Planet candidates with orbital periods longer than 50 days increased by 123 percent, compared to 85 percent for candidates with orbital periods shorter than 50 days.

Since the last catalog was released in February 2011, the number of planet candidates identified by Kepler has increased by 88 percent and now totals 2,321 transiting 1,790 stars.

The cumulative catalog now contains well over 200 Earth-size planet candidates and more than 900 that are smaller than twice Earth-size. Of the 46 planet candidates found in the habitable zone, the region in the planetary system where liquid water could exist, ten of these candidates are near-Earth-size.

The number of planetary systems found with more than one planet

candidate also has increased. Last year, 17 percent, or 170 stars, had more than one transiting planet candidate. Today, 20 percent, or 365, stars have more than one.

"With each new catalog release a clear progression toward smaller planets at longer orbital periods is emerging, " said Natalie Batalha, Kepler deputy science team lead at San Jose State University in California. "This suggests that Earth-size planets in the habitable zone are forthcoming if, indeed, such planets are abundant."

Nearly 5,000 periodic transit-like signals were analyzed with known spacecraft instrumentation and astrophysical phenomena that could masquerade as transits, which can produce false positives. The most common false positive signatures are associated with eclipsing binary stars- a pair of orbiting stars that eclipse each other from the vantage point of the spacecraft.

The Kepler space telescope identifies [planet candidates](#) by repeatedly measuring the change in brightness of more than 150,000 stars in search of planets that pass in front, or "transit," their host star. Kepler must record at least three transits to verify a signal as a planet.

The findings are published in the "[Planetary Candidates Observed by Kepler III: Analysis of the First 16 Months of Data](#)". The catalog is available at the Kepler data archive at the Space Telescope Science Institute and can be downloaded from the [NASA Exoplanet Archive](#).

NASA's Ames Research Center in Moffett Field, Calif., manages Kepler's ground system development, mission operations and science data analysis. NASA's Jet Propulsion Laboratory, Pasadena, Calif., managed the Kepler mission's development.

More information: For information about the Kepler Mission, visit:

www.nasa.gov/kepler

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