

Title: *The Kepler-186 System Fly-through*

Credit: NASA Ames/SETI Institute/JPL-Caltech

This artist's movie illustrates Kepler-186, a five-planet system located about 500 light-years from Earth in the constellation Cygnus, from an overhead view. The green circular band depicts the habitable zone—a range of distances from a star where liquid water might pool on the planet's surface.

The blue streak shown in the habitable zone depicts the orbital path of Kepler-186f -- the first validated habitable-zone, Earth-size planet around another star. Kepler-186f orbits its star once every 130 days and receives one-third the energy that Earth does from the sun, placing it near the outer edge of the habitable zone.

Zooming in, the four yellow streaks depict the orbital paths of the inner companion planets. They whiz around the host star once every 4, 7, 13 and 22 days, respectively, making them very hot and inhospitable for life as we know it. The four companion planets each measure less than 1.5 times the size of Earth.

At the center of the system is a star that is half the size and mass of the sun. Called an M dwarf, this star-type emits light in the infrared and has an amber-like glow compared to our sun.

Continuing passed the star and inner planets is Kepler-186f. Kepler-186f is less than ten percent larger than Earth in size, but its mass, composition and density are not known. While scientists don't know the density of the planet, previous research suggests that a planet the size of Kepler-186f is likely to be rocky.