The programme will also provide valuable information on the physical characteristics of glacier ice. Last December, geophysicist Beata Csatho of the University at Buffalo in New York and her colleagues reported using surface-elevation data to estimate how much ice mass Greenland had lost between 1993 and 2012 (B. M. Csatho *et al. Proc. Natl Acad. Sci. USA* **111,** 18478–18483; 2014). The data were fairly reliable over the island's interior, Csatho says, but measurements were more difficult along its edges, where the ice tends to be warmer, thicker and full of crevices. "It's still a challenge to get the mass of these glaciers," she says.

When the aerial phase of OMG begins next year, planes will fly inland from the coast, taking measurements of slight changes in gravitational pull that can be used to produce low-resolution maps of the topography under both water and ice. Planes will also drop more than 200 temperature and salinity probes into fjords and coastal waters, and take radar measurements along the coast to track large-scale ice loss over five years. Analysing that ice loss in light of the new topographical and oceanographic data will help researchers to determine where, and to what extent, deeper saltwater currents affect glaciers.

Lipscomb says that all these OMG data should help modellers as they incorporate ocean–ice interactions around Greenland into their models. That work is still in its early stages, he says, "but the data that they are getting in this project is exactly what we need". ■

PLANETARY SCIENCE

Kepler spies most Earth-like planet yet

NASA mission finds a potentially rocky world orbiting a star that resembles the Sun.

BY ALEXANDRA WITZE

Even as astronomers are reporting what looks like the closest thing yet to an Earth-like exoplanet, NASA is winding down the prolific Kepler mission that made the find. Sometime next year, team scientists plan to release their final list of planet discoveries.

On 23 July, the Kepler team announced the existence of a planet 1.6 times the size of Earth, orbiting a Sun-like star 430 parsecs away (J. M. Jenkins *et al. Astron. J.* **150,** 56, 2015). The planet, named Kepler-452b, is in the habitable zone, orbiting its star at a distance where liquid water could exist. Team scientists say that there is a little more than a 50% chance that the planet is rocky, which would make it the closest thing to a true Earth analogue yet discovered.

Kepler's latest batch of discoveries also includes at least 11 other planets that are all less than twice the size of Earth and orbit in their stars' habitable zones. But Kepler-452b's star is slightly brighter than the Sun, in contrast to the cool, dim stars that host other known Earth-sized planets.

"It is the first terrestrial planet in the habitable zone around a star very similar to the Sun," says Douglas Caldwell, an astronomer at the SETI Institute in Mountain View, California.

Scientists cannot measure the mass of Kepler-452b directly, but modelling suggests that the planet is probably five times the mass of Earth. It whirls around its star once every 385 days, tantalizingly close to Earth's 365-day year (see 'Habitable hunt').

The planet's star is about 1.5 billion years older than the 4.5-billion-year-old Sun, and Kepler-452b is about the same age. During its first 5 billion years, the planet would have received less energy from its star than Earth does from the Sun, but it may now offer a glimpse of Earth's future. Kepler-452b's star is growing hotter and brighter as part of its natural evolution, so anyone living on the planet would see their world drying out — just as Earth will as the Sun evolves.

From 2009 to 2013, the Kepler craft stared at a small patch of sky looking for slight decreases in starlight that signalled a planet moving, or transiting, across the face of its star. It stopped taking data when it was crippled by a broken reaction wheel that guided its pointing, but engineers later revived it in a limited fashion.

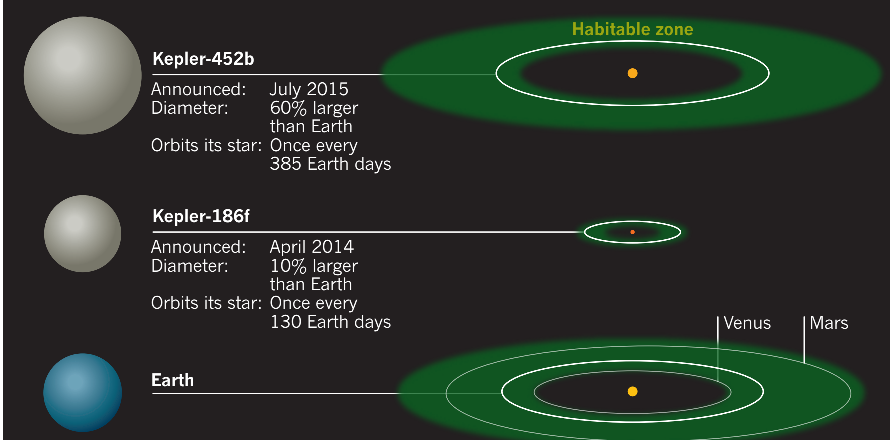
The craft has discovered more than 1,000 confirmed planets, including Kepler-452b, and more than 4,660 candidates.

In the next year, Kepler scientists will perform analyses to reduce the signal-to-noise ratio in their data, teasing out as many planets as possible. "Imagine you're trotting through the weeds in a field, looking for precious stones on the ground," says Natalie Batalha, Kepler's mission scientist and an astronomer at NASA's Ames Research Center in Moffett Field, California. "We're going through with a lawnmower so that the stones are easier to see."

In January, the European Southern Observatory began a search for transiting planets from its telescopes in Chile. NASA plans to launch a space-based successor to Kepler called the Transiting Exoplanet Survey Satellite in 2017. ■

HABITABLE HUNT

NASA's Kepler mission has found several small planets outside the Solar System that could harbour life. They orbit their stars in the 'habitable zone' where liquid water could exist.



SOURCE: NASA