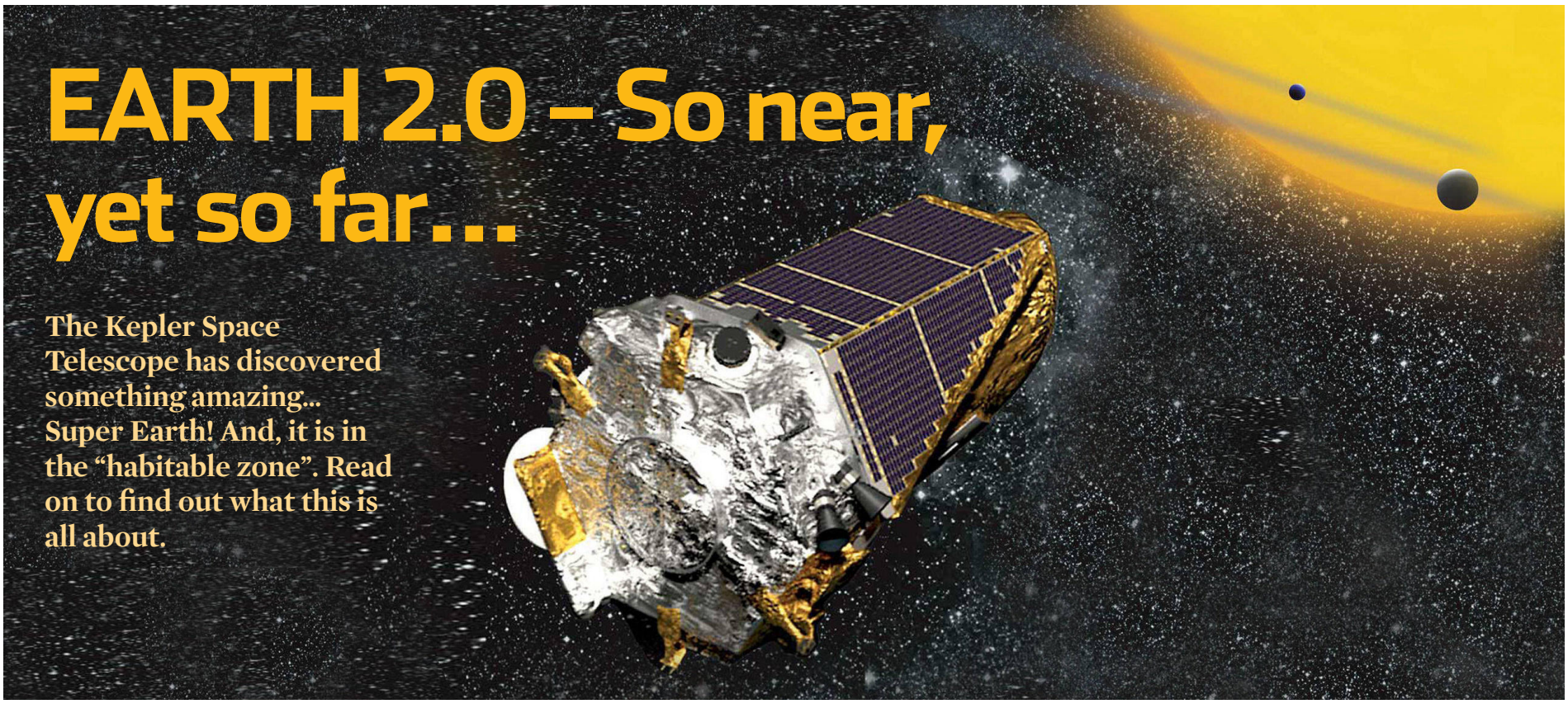
EARTH 2.0 – So near, yet so far...



The Kepler Space Telescope has discovered something amazing... Super Earth! And, it is in the "habitable zone". Read on to find out what this is all about.

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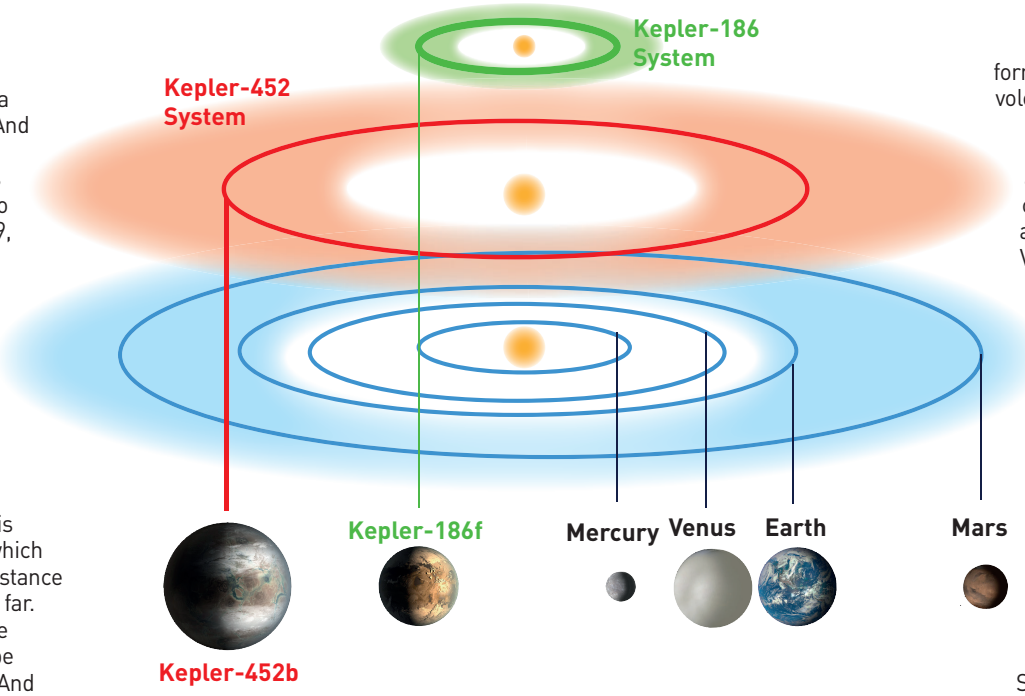
A long time ago, in a galaxy far, far away, a planet was formed. And weeks ago, we discovered it. NASA's Kepler Mission did, to be precise. Since its launch in 2009, the Kepler Space Telescope has been scanning the cosmos in search of planets that are similar to earth. It has found more than 1030 somewhat Earth-like planets, but one among them stands out. It's called Earth 2.0, sometimes Super-Earth, but mostly just Kepler-452b.

This is quite exciting because this planet is in the "habitable zone", which means it orbits at a comfortable distance from its star, not too close, not too far. This leads to the possibility that the temperature on this planet could be pleasant, not too cold nor too hot. And this means that water could be present in its liquid form at some parts on this planet, where it is not too hot to evaporate the water, nor too cold to freeze it. And as we know, life originated in water...



Aliens possibly?

This was the first thought that crossed the minds of scientists working at SETI (Search for Extraterrestrial Intelligence), and so they tuned a bunch of antennas to listen to any broadcasts that may be emanating from Kepler-452b. So far, there haven't been any readings. But there is no need to get discouraged, says Dr. Seth Shostak, a senior astronomer at SETI, "Bacteria, trilobites, dinosaurs — they were here but they weren't building radio transmitters!" [1]

Yes, there is hope. The star that Kepler-452b revolves around is a lot like our sun. This means that this planet receives about as much light as our Earth does, so there is a good chance that it also has the same atmospheric conditions as Earth. This suitable atmosphere proved favourable and that's how life happened on earth!

Just that this star is about 1.5 billion years older than our sun. This means that it has grown warmer and brighter, so there's a chance the water might have evaporated. This could be Earth a billion years from now — a place where life may have originated, but has now turned into who-knows-what, with all the climate change and greenhouse effect. But this is a very depressing possibility, so let's not dwell on it. Instead, let us ponder on what else this could mean.

Change of address

Why not? Life wouldn't be too different on Kepler-452b, considering it takes a satisfyingly familiar 385 days to complete a revolution. Twenty more days to the year! It is also 60 per cent bigger than the Earth, but hey, more room for all of us, right?

However, because of its bigger size, and also because its star is much bigger than our sun, you may experience twice the amount of gravity than you are used to on Earth. You would feel heavier, but you could get used to that.

Kepler-452b, orbiting around G class star Kepler-452, in the constellation Cygnus, would make for a very snazzy address.

Don't say goodbye, yet!

Well, there are a few things you should know, and the fact is that there are more things we don't know about this planet than we do. For one thing, we can't be sure that the surface is rocky. If it turns out to be a gas planet, it would make our landing very awkward. And if it does turn out to be rocky, it is likely that the rocks formed from lava, so watch out for volcanoes!

Rough calculations indicate that the clouds in this planet would be thick and misty. The aged star could be causing runaway greenhouse effects, and the atmosphere could be more like Venus than Earth. That's not very hospitable.

Sadly, Kepler-452b is not really Earth's "twin". At best, a distant cousin. Very distant, in fact, because here's the thing — it is in a galaxy that is *really, really* far, far away — 1400 light years away, to be precise. If you could hop on to the spacecraft New Horizons (which flew past Pluto in July this year), it would take you 26 million years to reach Kepler-252b, covering a distance of roughly one light year every 20,000 years.

So let's not pack our bags just yet.

Travel light

A light year is used to measure the immense distances across space. It is a convenient measure, a bit like saying, "My school is a 15 minute drive from my house." Another way of saying this is: "My school is 15 car-minutes away." If it takes you an hour to walk to school, you could say: "My school is 60 walk-minutes away."

Light from the sun takes eight minutes to reach the earth. So the sun is eight light-minutes away from us. The North Star, Polaris, is a little more than 400 light years away. So how does it feel when you gaze up at the North Star and realise that the light you are seeing left this star 400 years ago? And if exploded, you would know 400 years later.

Works Cited: N.T. Redd, "Space.com," 31 July 2015. (Online). Available: http://www.space.com/30114-seti-alien-life-kepler-452b-earth-cousin.html. (Accessed 10 August 2015).