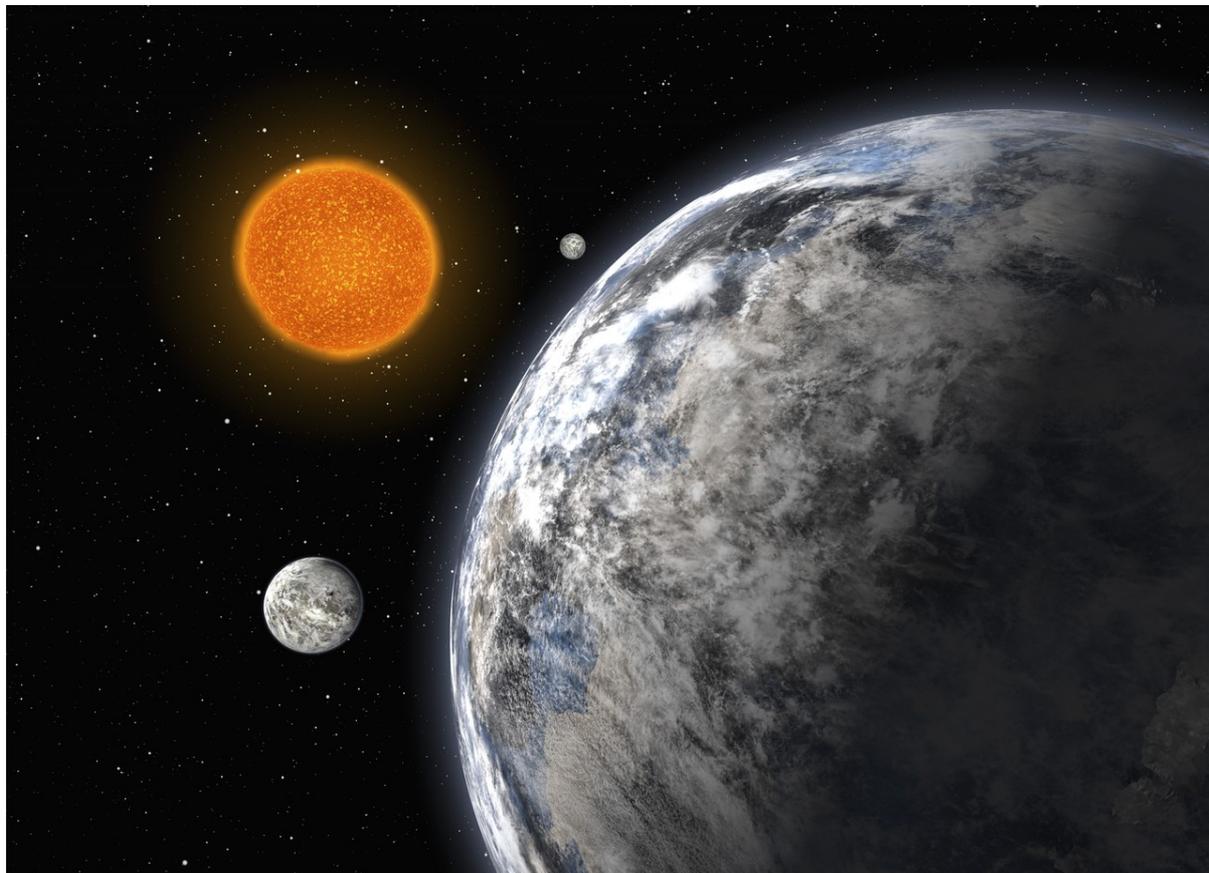




The Oxygen Illusion

Sept. 18, 2015



One of the most common questions about the Universe is “Do aliens exist?” The answer is: we don’t know. However, in the last 25 years almost 2000 planets have been discovered orbiting distant stars. This has brought us much closer to an answer.

These distant worlds are called exo-planets. They are all so far away that they appear much too small and dark to photograph. Yet by using some very clever techniques (such as [wobble-watching](#)), astronomers can still gather lots of information about these alien worlds.

One important piece of information we can extract is what their atmospheres are made of. An atmosphere is a layer of gases surrounding a planet. Earth’s atmosphere contains the oxygen we breathe. This oxygen is created by plants through a process called ‘photosynthesis’

(pronounced foto-sin-thesis). Plants use carbon dioxide from the atmosphere (along with water and sunlight) to produce oxygen.

Because plant life is responsible for the large amount of oxygen in Earth's atmosphere, the existence of oxygen on other planets was thought to be a definite sign of alien life. But now, scientists in Japan have suggested that large amounts of oxygen can also form on planets without life.

They showed that oxygen can be produced in large amounts from a chemical called titanium oxide. What's more, this chemical is known to exist on the surfaces of rocky planets, meteorites, and our own Moon!

So, although oxygen on distant worlds could still be a sign of life, we now need to find another way to check for life before we can be sure aliens live there.



COOL FACT

The International Space Station orbits above Earth's atmosphere. To allow astronauts to breathe, gases are pumped into the Space Station to simulate the atmosphere.

This Space Scoop is based on a Press Release from [NAOJ](#).
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This website was produced by funding from the European Community's Horizon 2020 Programme under grant agreement n° 638653