Horizon
The EU Research & Innovation Magazine

European Commission

# EU researchers spot seven earth-size planets orbiting dwarf star

**European researchers have used telescopes around the world to spot a cluster of seven planets orbiting a Jupiter-sized ultra-cool star 40 light-years from earth, increasing the chances of discovering evidence of life on distant worlds.**

23 February 2017 - By BEN DEIGHTON

Dubbed TRAPPIST-1 by the Belgium-based team, the star system has the highest number of earth-like planets ever discovered around a single star.

'It is an amazing planetary system, not only because we have found so many planets, but because they are all surprisingly similar in size to the earth,' said astronomer Dr Michaël Gillon at the University of Liege in Belgium, who leads the EU-funded SPECULOOS project behind the discovery.

The findings, outlined in a paper in the journal Nature, reveal that three of the planets - known as TRAPPIST 1e, f and g – orbit in the so-called habitable zone, where temperatures are just right for water to exist in its liquid state, thought by many to be a fundamental condition for life.

'These three planets e, f and g could harbour oceans similar to those of earth,' explained Dr Julien de Wit, who also worked on the project and is based at the Massachusetts Institute of Technology, US.

**Venus, Earth and Mars**

Due to the weak light from TRAPPIST-1, all of the planets orbit their star much more closely than earth orbits the sun, but get similar levels of energy. For example, TRAPPIST-1c, d and e get as much solar energy as Venus, Earth and Mars respectively.

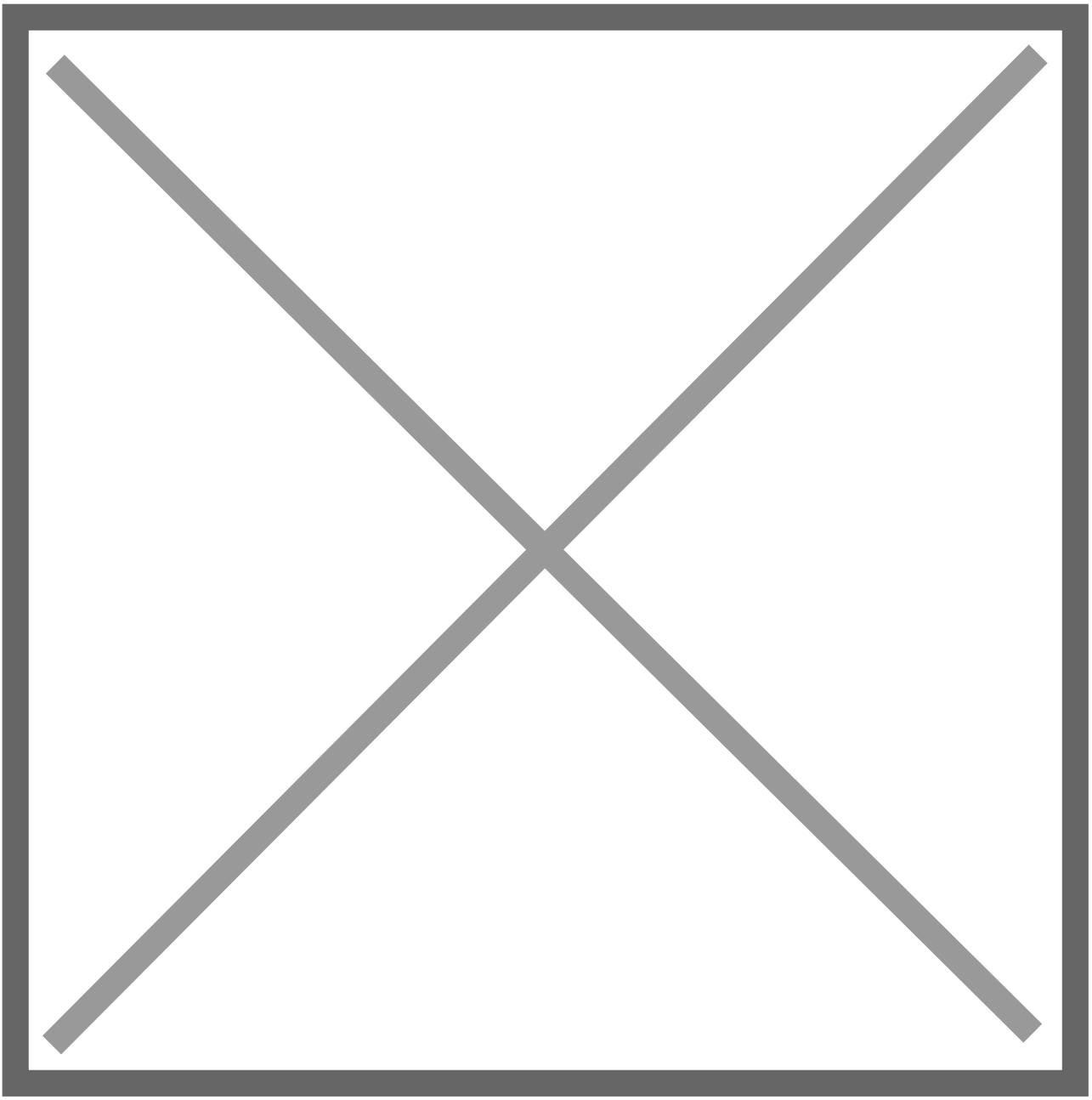
The announcement by the EU's European Research Council-funded project is the culmination of a series of discoveries that started at the end of 2015 when Dr Gillon and his team used the Belgian-run TRAPPIST-South telescope in Chile to observe the TRAPPIST-1 system, known at the time as 2MASS J23062928-0502285.

A few months later, they announced that they had discovered three potentially habitable planets by studying small dips in the light from the star, a phenomenon known as a planetary transit.

They then realised that there were in fact seven planets after getting a slot on NASA's Spitzer space telescope in the autumn of 2016 to look at the system in more detail, and combining this with data from other telescopes around the world.

'This ground-breaking discovery shows that international collaboration and the crucial support from European Commission take us closer to one of the most fascinating quests - to find life beyond our solar system,' said Carlos Moedas, European Commissioner for Research, Science and Innovation.

The next step will be to use the James Webb Space Telescope, due for launch in 2018, and the European Extremely Large Telescope, due to begin operation in 2024, to search for signs of water and potentially life in the atmospheres of the planets around TRAPPIST-1.



‘With the upcoming generation of telescopes … we will soon be able to search for water and perhaps even evidence of life on these worlds,’ said astronomer Dr Emmanuël Jehin, from the University of Liege, who also worked on the project.

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## More info

SPECULOOS

Dr Michaël Gillon video