

Thaxted Astronomical Society

News

Features

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Possible Source Of The
Notorious 'WOW!' Signal

<https://www.dailymail.co.uk/sciencetech/article-8985997/Amateur-astronomer-traces-possible-source-notorious-WOW-signal.html>

Amateur astronomer traces possible source of notorious 'WOW!' signal first detected in 1977 to a sun-like star 1,800 light years from Earth

Daily Mail 25th Nov 2020 >

- **The Wow signal lasted just 72 seconds and was 'unusual' and has yet to be traced**
- **This led many to theorise the signal came from an intelligent alien civilisation**
- **Amateur astronomer Alberto Caballero has been searching the Gaia catalogue**
- **This catalogue contains details on 1.3 billion stars from around the universe**
- **He found a Sun like star in the region of space the signal is known to originate**

The source of the notorious 'WOW!' signal, that some believe was produced by an intelligent alien civilisation, may have come from a Sun-like star 1,800 light years from Earth.

The radio signal captured the world's attention in 1977, when astronomers working with the Big Ear Radio Telescope - at the time in Deleware, Ohio - recorded a unusually strong 72-second signal from somewhere in space.

It may have lasted longer than 72 seconds, but that was the maximum amount of time the Big Ear radio telescope could observe.

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Astronomer Jerry Ehman scrawled the world 'WOW!' on the printout of the signal and, despite hours of analysis, nobody has been able to trace the source.

Now amateur astronomer Alberto Caballero claims that the most likely candidate for the source of the signal is a planet orbiting the star 2MASS 19281982-2640123 in the constellation Sagittarius.

The finding is based on data from the European Space Agency Gaia mission, which has so far mapped 1.3 billion stars.

There are a number of other possible candidate stars for the source of the signal, but Caballero, who runs an Exoplanet channel on YouTube, says this is the most likely.

Due to the unique nature of the signal, and the fact it couldn't be determined where it came from, many astronomers believe it was produced by an intelligent civilisation.

The issue in determining where it came from is the uncertainty surrounding its detection - it could have come from anywhere in two large patches of sky.

With this idea in mind, Caballero started filtering through the millions of stars in the Gaia catalogue to look for ones that are the most like our Sun in size and age.

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This is because the only life we know for certain exists in the universe evolved on Earth - which orbits the Sun within the 'goldilocks zone' where liquid water can exist.

He reasoned that if the source was made by some other life form it would likely be living on an exoplanet orbiting a similar star to the Sun.

That drew him to a star named 2MASS 19281982-2640123 which, according to Caballero, is a 'mirror image of the Sun'.

This is one of thousands of stars identified by researchers examining data from Gaia in a part of the sky the Wow signal is known to have originated.

However, Caballero is confident 2MASS is the most likely candidate, as it has the same temperature, luminosity and radius as our Sun - 'it is an identical twin,' he said.

Caballero identified a total of 66 stars from the region the signal came from - but the others weren't as close in size, radius and luminosity to the Sun as 2MASS.

There are also other stars in the region that 'could' be the source of the signal, but they were too dim to be included in the Gaia catalogue.

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It would take some time for a signal to get from 2MASS to Earth as it is 1,800 light years from Earth - it would have been sent 1,800 years ago in 177 AD

A time when Britain was still under Roman rule and Marcus Aurelius was emperor.

'This star is located too far for sending any reply in the form of a radio or light transmission,' said Cabellero, who added 'it could be a great target to make observations searching for exoplanets around the star.'

He says the next stage will be for future, more sensitive telescopes, to look for exoplanets surrounding the Sun like star and possible signs of life on that world.

Astronomers should focus their search for exoplanets on stars within the wide region thought to be the source of the WOW! signal, added Cabellero.

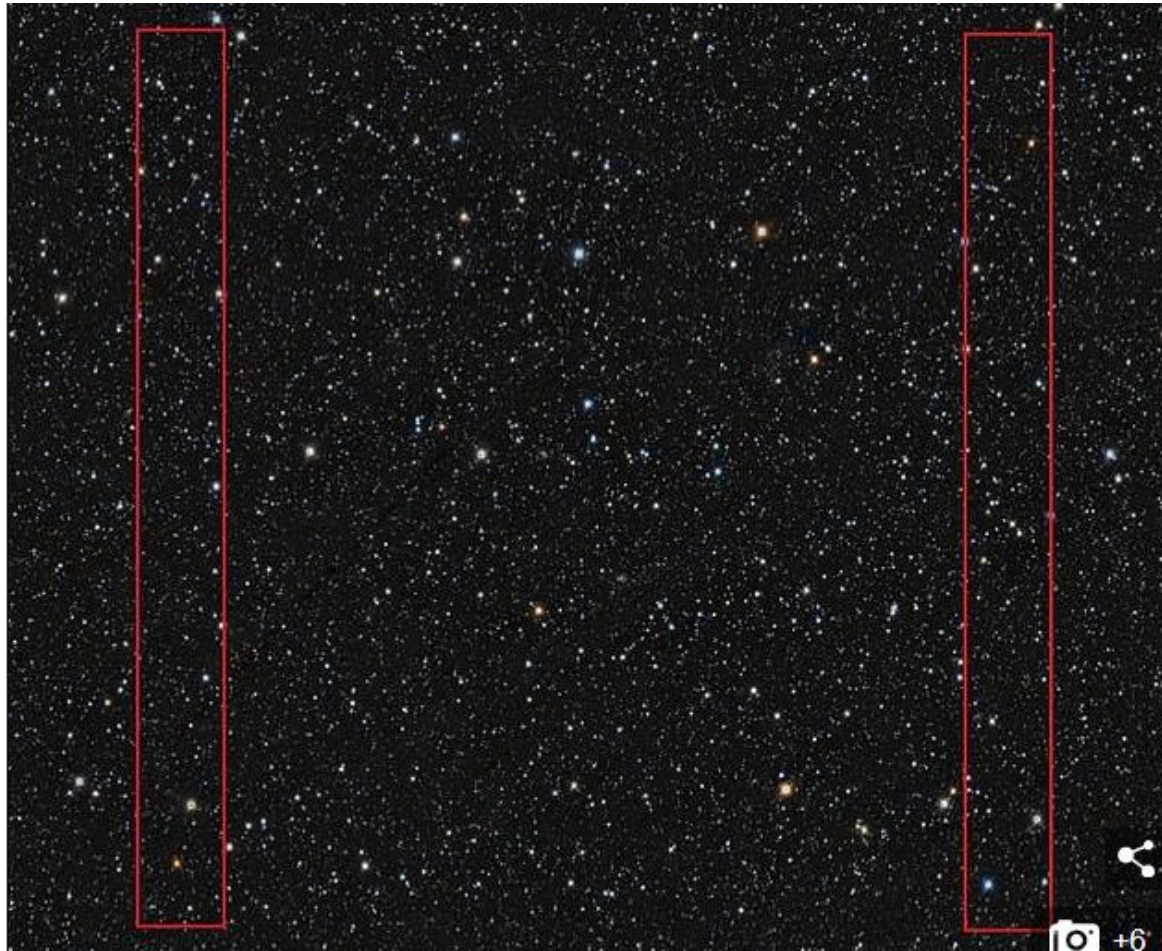
The findings have been published on the arXiv preprint server.

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In red, the two regions where the WOW! Signal could have originated. Caballero says it is likely to have come from a Sun-like star within these regions - a potential 66 candidates



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WOW! signal: A narrowband radio signal first received in 1977 in the US

The Wow! signal was first received by astronomers at the Big Ear radio telescope in Ohio.

It was 72 seconds long - although may have been longer as that was the maximum observation time of the telescope.

But what made it particularly remarkable was how unusual it is and the fact it has never been repeated.

Astronomer Jerry Ehman scribbled the word 'Wow!' on a print out of the data from the signal - represented by the the letters and numbers: 6EQUJ5.

To this day it is still the strongest known candidate for a signal from an intelligent alien civilisation.

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KEY DISCOVERIES IN HUMANITY'S SEARCH FOR ALIEN LIFE

Discovery of pulsars

British astronomer Dame Jocelyn Bell Burnell was the first person to discover a pulsar in 1967 when she spotted a radio pulsar.

Since then other types of pulsars that emit x-rays and gamma rays have also been spotted.

Pulsars are essentially rotating, highly magnetised neutron stars but when they were first discovered it was believed they could come from aliens.

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KEY DISCOVERIES IN HUMANITY'S SEARCH FOR ALIEN LIFE

'Wow!' radio signal

In 1977, an astronomer looking for alien life in the night sky above Ohio spotted a powerful radio signal so strong that he excitedly wrote 'Wow!' next to his data.

The 72-second blast, spotted by Dr Jerry Ehman through a radio telescope, came from Sagittarius but matched no known celestial object.

Conspiracy theorists have since claimed that the 'Wow! signal', which was 30 times stronger than background radiation, was a message from intelligent extraterrestrials.

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Fossilised Martian Microbes

In 1996 Nasa and the White House made the explosive announcement that the rock contained traces of Martian bugs.

The meteorite, catalogued as Allen Hills (ALH) 84001, crashed onto the frozen wastes of Antarctica 13,000 years ago and was recovered in 1984.

Photographs were released showing elongated segmented objects that appeared strikingly lifelike.

However, the excitement did not last long. Other scientists questioned whether the meteorite samples were contaminated.

They also argued that heat generated when the rock was blasted into space may have created mineral structures that could be mistaken for microfossils.

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Behaviour of Tabby's Star in 2005

The star, otherwise known as KIC 8462852, is located 1,400 light years away and has baffled astronomers since being discovered in 2015.

It dims at a much faster rate than other stars, which some experts have suggested is a sign of aliens harnessing the energy of a star.

Recent studies have 'eliminated the possibility of an alien megastructure', and instead, suggests that a ring of dust could be causing the strange signals.

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KEY DISCOVERIES IN HUMANITY'S SEARCH FOR ALIEN LIFE

Exoplanets in the Goldilocks zone in 2015

In February this year astronomers announced they had spotted a star system with planets that could support life just 39 light years away.

Seven Earth-like planets were discovered orbiting nearby dwarf star 'Trappist-1', and all of them could have water at their surface, one of the key components of life.

Three of the planets have such good conditions, that scientists say life may have already evolved on them.

Researchers claim that they will know whether or not there is life on any of the planets within a decade, and said 'this is just the beginning.'