

First life-friendly exoplanet may not exist

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Last month, a team of astronomers announced the discovery of the first alien world that could host life on its surface. Now a second team can find no evidence of the planet, casting doubt on its existence.

The [planet](#), dubbed Gliese 581 g, was found to orbit a dim, red dwarf star every 37 days, according to an analysis by [Steven Vogt](#) of the University of California, Santa Cruz, [Paul Butler](#) of the Carnegie Institution of Washington in DC, and their colleagues.

Unlike the four previously known planets in the same system and hundreds of others found throughout the Milky Way galaxy, Gliese 581 g sits in the middle of its host star's habitable zone, where temperatures are in the right range for liquid water to exist. It is also puny enough – weighing about three Earths – to have what is likely a [rocky, solid surface](#).

But it might be too early to claim a definitive detection. A second team of astronomers have looked for signals of Gliese 581 g in their own data and failed to find it.

"We easily recover the four previously announced planets, "b", "c", "d", and "e". However, we do not see any evidence for a fifth planet in an orbit of 37 days," says [Francesco Pepe](#) of the Geneva Observatory in Switzerland. He presented the results on Monday at an International Astronomical Union symposium in Turin, Italy.

Extra data

The two groups arrived at their disparate results using some of the same data, which was collected by [HARPS](#), an instrument mounted on a 3.6-metre telescope at the European Southern Observatory in Chile. HARPS, which measures the spectrum of starlight, is used to look for wobbles in the motion of stars that could result from the gravitational tugs of orbiting planets.

Vogt and Butler's team found the new planet by combining 119 star velocity measurements from HARPS with 122 measurements taken with a similar instrument called HIRES, which is mounted on the 10-metre Keck 1 telescope in Hawaii.

Pepe and his Geneva colleagues examined about 180 star velocity measurements collected by HARPS, a third more data than was available to Vogt and colleagues when they wrote their paper. The Geneva team, which manages HARPS, is allowed to keep new data for one year before it is released publicly, Pepe told *New Scientist*.

Two data sets

Although the Geneva team cannot find evidence for the new planet, they cannot exclude the possibility that Gliese 581 g exists. "We are not trying to prove the nonexistence of a planet," Pepe says. "It's really difficult to prove that something does not exist. We are just saying we do not see a significant signal that is really different from noise."

The discrepancy has raised some questions about the discovery. "The Geneva team's report at

this meeting has certainly raised doubts," says astronomer [Ray Jayawardhana](#) at the University of Toronto in Canada, who broke the news from the symposium on Facebook.

Steven Vogt, who did not attend the meeting in Turin, said he did not wish to comment on the Geneva team's result since he has yet to see the data. But he added that the negative result is not entirely unexpected. "I am not overly surprised by this as these are very weak signals, and adding 60 points onto 119 does not necessarily translate to big gains in sensitivity," Vogt told *New Scientist*.

The team found that the HIRES data – which were not used by the Geneva team – were needed in order to see the planet. "I feel confident that we have accurately and honestly reported our uncertainties and done a thorough and responsible job extracting what information this data set has to offer," Vogt added. "In 15 years of exoplanet hunting, with over hundreds of planets detected by our team, we have yet to publish a single false claim, retraction, or erratum."