

## Proxima b could be a life-friendly planet, says one of the co-discoverers

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In late August, the European Southern Observatory (ESO) announced the discovery of Proxima b, the closest exoplanet to Earth. The news fueled hopes of finding an Earth-like planet that could support life. Now, Mikko Tuomi of the University of Hertfordshire, U.K., confirms that the newly found alien world could be one of the best currently known extrasolar places to search for microbial organisms.

Proxima b, located some four light years away, has a mass about 30 percent greater than Earth's, and orbits its parent red dwarf star Proxima Centauri every 11.2 days. While the planet's precise radius and density is still undetermined, the astronomers revealed that it lies within the 'habitable' zone of its host star and has an equilibrium temperature in the range suitable for liquid water on its surface.

"Everything we know about Proxima b suggests that, although it is different, it shares similar features with the Earth such that it could be a life-friendly planet," Tuomi told Astrowatch.net.

The exoplanet's similar mass to Earth means there is hardly any doubt about the fact that the planet has a [rocky surface](#), with comparable composition. According to Tuomi, that in turn implies that the planet's radius is likely only slightly larger than Earth's radius. However, this is theoretical guesswork, as currently the researchers have no observational information about the exoworld's radius and cannot therefore estimate its density.

While many physical parameters of Proxima b are still uncertain, it is known that the radiation flux on the planet's surface is some 70 percent of the flux on Earth, making the exoplanet's surface temperature somewhat lower than on our planet. Moreover, slightly larger mass suggests that a denser atmosphere is possible, enabling a stronger greenhouse effect than on Earth and thus similar conditions.

But could Proxima b really host alien lifeforms? It is important to note that when geochemical processes turn into biochemical ones and become then identifiable as life, only three basic ingredients are needed. Does our neighboring exoplanet have what it takes to harbor microbial organisms?

"First, we need rock, and Proxima b indeed is a planet that certainly has

a rocky surface. Second, the most common molecule in the universe, water, has to be present. We have no evidence of this, but water can be found everywhere in space and there are no reasons why it would not exist on the surface of Proxima b—and the temperatures on its surface likely allow the water to be liquid and for oceans as well. Third, there needs to be carbon dioxide, but that is simply a common primitive atmospheric molecule on all the Earth-sized [planets](#) in the solar system," Tuomi said.

Thus, he concluded that this means all the ingredients for life are the most likely there.

"If that is the case, I believe the formation biochemical processes we can call life is rather an inevitability than a once-in-a-blue-moon rare event," Tuomi noted.

However, much work still needs to be done to confirm Proxima b's ability to support life. The proximity of the newly detected planet means that it can be studied with near-future space telescopes like the James Webb Space Telescope. Therefore, scientists hope to obtain more information regarding the planet's properties and also about the existence of additional planets in the system by conducting further observations over the coming years. The exoplanet could even be within reach of interstellar missions within our lifetime.

"This is not the case for the majority of known 'Earth-like' exoplanets found by the Kepler spacecraft, because they are hundreds of light years away," Tuomi said.

Source: [Astrowatch.net](http://Astrowatch.net)

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