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THE OCEANIC WORLD BEANTEH THE SURFACE OF ENCELADUS AND APPLICATION OF HYDROTHERMAL VENTS

Abstract

For several years Mars and moons have been the subject of finding the right environment for deep space habitats, but now is the time to think from a different perspective. There are numerous planets in our solar system, and one of the most interesting discoveries in the last 25 years of our life is that, we can have access to water in our Solar system. Therefore, there is no need to just focus on the other space systems, but the question arises: is water the only factor we need for a habitat?

Let's revise how life started on our own planet. Millions of years ago, our planet's surface was filled with water and only water. Over millions of years, the evolution of living creatures, from molecules to the diverse life we have today, occurred. Even when the era of prehistoric creatures such as Dinosaurs ended, again from the oceanic world new life was appeared on the surface of the earth. This part can conclude that where we can find water, there is a great chance that we can find life too.

However, the environment on Earth is quite different from the planet I want to focus on in this paper—Enceladus, one of Saturn's moons with a diameter of 500 kilometers. Observation that we had with different space missions specifically Cassini mission, revealed that there is a great chance that this small moon hides a vast ocean of water, probably salty, under its icy surface.

For having a sustainable life on any planet, there are three crucial parameters which are the organic matters, Energy, and Water. Water is the reason that would allow us to have all the chemical reaction needed, which on the Enceladus we would be able to have access to water! Energy is the other parameters that we should deal while talking about space habitat which in this case based on the distance between this moon and the Sun the solar power is not reliable source of energy, this alternatively would lead to using the hydrothermal vents located just over the rocky core of this planet as source energy. These hydrothermal vents are quite similar to what we have on the earth which is discussed deeply in this paper.

In conclusion, we can state that where we find water, we should be able to find life as well which is the main subject of this paper.