Extraterrestrial Life – Existing Life Evidence In Space

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Multiple hypotheses originated from the human mind from time to time, and a reasonable number of them revolutionized the human generation as well as this universe. Scholars and scientists nourished one such hypothetical concept or belief about extraterrestrial life in our galaxy or beyond it. It is hypothetical life that may exist on other celestial bodies in the universe other than our Earth. In other words, extraterrestrial life is such life that did not originate from the Earth and may exist outside the ground. The phase and stage of such life may range from unicellular prokaryotes to complex living beings. These living beings may have intelligentsia like sapiens, or it is also possible that they are sapiens-like existing somewhere else in the universe. In addition, it is also speculated that such living beings may be more advanced and developed than sapiens on the basis of intelligence, culture, and evolved civilization. All these concepts strongly need an evidential basis, but till today, they have been solely hit and tried like ideas by the concerned scholars and scientists. However, such conceptual presentation has deep roots in the Drake equation, which argues about the existence of a different number of such active civilizations in the universe having communicating power and capacity. Additionally, no concrete evidence in bodily form validated this hypothesis.

Exobiology and the Search for Life

Furthermore, all these imaginings are hypothetical and fall under the umbrella of exobiology, i.e., the science dealing with life outside the earth. It is also quite interesting that it is science without subject matter, i.e., proof of life in space and other celestial bodies. More precisely, we can claim that such concepts revolve around science fiction instead of walls of a real and concrete world adorned with existential evidence. However, the idea and search for extraterrestrial life have opened new horizons of discussion for humanity. The top-ranking among them is to estimate and understand basic features, characteristics, and requirements of life. The fundamental question relates to searching for answers to questions like what life is and what package of specific attributes can be entitled as life on other heavenly bodies (Cohen).

Scientific Approaches to Detecting Life

Of course, the answers to such types of questions cannot be found with authenticity and cent per cent confidence based on some universal law. However, research by scientists and astronauts may take

multiple dimensions to estimate the life evidence of other heavenly bodies in the Milky Way Galaxy or beyond that galaxy. These bases may include scientific investigations on global measurements of the earth's ionosphere, the aptitude of human evolution on the planet, and finally, the existential evidence on a biochemical basis. Meanwhile, global measurements of the Earth's ionosphere need space data from the upper layers of the solar system. In addition, it may lead experts to examine the role of the galactic environment and solar system interaction in space in terms of the origin and progress of life. At this point, exobiology may overlap with astrobiology in investigating the attributes necessary for the origin of life. Further, evolution refers to all those processes required to maintain and keep organisms functioning collaboratively in complex life. The complexity level of life on other celestial bodies, if it exists, can be judged and observed based on the concept of evolution.

Biochemical Requirements for Extraterrestrial Life

Furthermore, life evidence in space can be estimated and scientifically judged on a biochemical basis. Taking Earth as an example, it requires water as the base of life. Other than water, the six bio elements and basic life-detecting compounds like ammonia and hydrocarbons can play an active role in the existence of life or living organisms. In all these twenty-nine elements and compounds, carbon takes the central role of having tetravalent characteristics. This unique chemical composition of carbon atoms makes it appropriate evidence of life's existence on other planets, i.e., exotic life. Keenly relying on these concrete bases, researchers speculate and validate whether extraterrestrial life can exist or not on other planets. These bases determine the existence of life in our solar system. Other than the solar system and Milky Way galaxy, we have significantly less information to estimate the life in other galaxies in the universe. So, scientists' main concern deals with our planetary solar system searching and finding life evidence (Summers et al.).

Potential Habitats in the Solar System

In this context, several planets in our solar system have provided some vague to dim evidence regarding which we can predict the existence of life or the adaptability of life at them. For example, Mars is considered the most appropriate place to support life due to evidence of liquid water and brine solutions in amalgamation with methane gas. Such evidence may predict the past time on Mars having warm and wet features. Similarly, Mercury is another appealing and attractive planet in this context. According to some NASA reports, multiple pieces of shreds of evidence of water ice were found on Mercury in a spatial expedition in recent years. Scientists predict that life may exist even in the form of microorganisms, or it may become habitable for life. Another celestial body on the same list is Venus. Here, two concrete pieces of evidence predict life. The first one is Venus's atmosphere, which is full of carbon dioxide, and the second one is the temperature, which ranges from 450-47 °C. Here, striking light to erupt volcanic activity and ideas of the abiotic process provide little hope about the existence of life. In addition, no extraterrestrial life evidence is found on other heavenly bodies like the Moon, Jupiter, Saturn, etc.

Conclusion

In a nutshell, we can say that extraterrestrial life and evidence of its existence on other celestial bodies is a hypothesis that has imagination. Still, no concrete evidence is there either to believe it or vehemently deny it.

Work Cited

[1]Cohen, Erik. "Extraterrestrial life, stellar civilizations, and aliens." *Space Tourism*. Emerald Publishing Limited, 2019.

[2]Summers, Ryan, et al. "Using Claims and Evidence to Support the Search for Extraterrestrial Life: Teacher Reflections Following an Interdisciplinary English—Science Argumentation Unit." *Integrative and Interdisciplinary Curriculum in the Middle School*. Routledge, 2020. 67-86.

Worksheet

Q1: What is the title of your essay?

Answer:

Extraterrestrial Life – Existing Life Evidence in Space

(Extraterrestrial life is a hypothetical concept to search and find life on celestial bodies other than Earth. Scientists and scholars speculate about it, but still, no concrete evidence can be found to support the existence of life in space. Various bases are used to research the subject matter in the best interest of the human generation in terms of progress and development.)

Q2: What were your sources?

Answer: There are two sources, and both of the sources are mentioned at the end of the essay titled 'Work Cited'. These are the required sources according to the instructions.

Q3: Discuss the validity of each one of your sources. Be sure to make comments regarding credibility, bias, timeliness (when was your cited reference written/updated?), and information content.

Answer: My first source is an article published in 2019 in the tourism social science series under 'The Space Tourism Volume 25'. It is a detailed article giving necessary information about the origin and concept of extraterrestrial life. The work is based on a scientific basis, with predictions and speculations about the source of life in space.

Similarly, the second source used is another article that has been selected for the course curriculum.

The article addresses various dimensions and evidence of life in space, i.e., other heavenly bodies. It was published in 2020.

Q4: How did you search for these sources? What was the process you went through to find the sources?

Answer: For both of these two sources, I consulted www.google.com. A huge amount of information and many articles were available, but for more precise and reliable information, I used to consult NASA's official website and visit the following websites for scholarly articles and works. https://theconversation.com/global/topics/extraterrestrial-life-1453.

Q5: Is the topic of your paper controversial? Is it possible you would find conflicting information on this topic? Which of your sources would be more reliable for information, and how could you tell?

Answer: Yes, the topic is controversial. There is a lot of conflicting information regarding the case because the subject matter can neither be validated nor denied. There is no concrete evidence to support life in space. Similarly, one has no solid arguments for rejecting such hypothetical concepts and ideas of scientists. However, I found the first source reliable because of its valid argumentation, which was presented comprehensively.