Committee: UNOOSA
Topic: The Creation of Colonies in Viable Planets
Chair: Rebecca Muñoz Ruiz
Moderator: Maximiliano Aristigue

Introduction

In its capacity as the UN's representative, the United Nations Office for Outer Space Affairs (UNOOSA) is an international cooperation that promotes the peaceful and correct use of exploration of space, it also promotes the application of space science and technology including economic and social advancement of all nations, particularly developing ones. Additionally, it aids nations in gaining access to space and utilizing its benefits to hasten sustainable development.
UNOOSA addresses all legal, policy, scientific, and technical facets of the peaceful use of space.

The General Assembly formed the Ad hoc Committee on the Peaceful Uses of Outer Space in its resolution 1348 (XIII) of December 13, 1958, and it was first set up as a small specialist unit within the United Nations Secretariat to support it.

The recent discovery of numerous extrasolar planets has enabled us to advance our inquiry into the fundamental astrobiology question, are we alone? Would life exist somewhere else than Earth?

The greatest choice would be to explore planets with conditions similar to our own, to have a successful search for livable or viable worlds, but what would a similar planet look like? Or, What makes a planet suited for life? The answer relies on the type of life we wish to take into consideration, because there is only one planet so far that offers the necessary resources to sustain life, our Earth

Regardless of temperature and pressure, our experience on Earth has taught us that the most basic need for life is liquid water. Almost any environment on Earth may support the existence and growth of living beings if liquid water is present.

Why, though, do we desire to search for habitable planets? Why would we relocate or settle on another planet? There exists a circle in our planet with the opportunity to contain half the world's population inside it, with its center in southern Asia, and its

radius and diameter being roughly 500 miles and 1,000 miles, respectively. India, China, Indonesia, and some of Africa are included. Given that the Pacific Ocean and a portion of Siberia are included, this is astounding. Only because some of our ancestors led Africa and colonized other continents did our species become so abundant. The urge to explore resulted in the discovery of novel foods, new habitats, and finally novel lifestyles. The human species would still have about 6.5 billion members even if Africa vanished off the face of the earth. Most of us are direct descendants of these explorers.

Additionally, individuals who dispersed dominated the environment by being the first people there. The Founder Effect is what is known for this. They then have a better advantage since they're more familiar with the terrain, the resources available, and the risks. Simply by being on the edge, you are already on the top of the pyramid.

Envisioning a thousand years in the future, you can advance in society by being the first to reach a peak or discovering something. You are immediately at the top of the totem pole with all the benefits of establishing a floating city or a new one in the tundra. You're more likely to procreate if you explore the ocean and discover ways to profit from its resources.

All of this indicates that the species now have an innate curiosity that is advantageous from an evolutionary standpoint.
So, we come to the conclusion that for a planet to be habitable, it must meet several requirements, including being in the same size range as Earth, having liquid water (which is essential for life on our planet), the proper atmospheric conditions, a source of energy, being at the proper distance from a star, light, gravitational forces, and the presence of carbon dioxide, among others.
Numerous human activities such as overpopulation, pollution, burning fossil fuels, and deforestation harm the physical environment. Poor air quality, climate change, soil erosion, and contaminated water have all been caused by changes like these.

There will come a time when the earth will no longer be able to support life due to the issues we are currently facing. As a result of this issue, NASA is searching for ways to grow the human race, one of which involves exploring other planets to determine whether they would be capable of supporting life and how we might get there.

The Canis Major Dwarf galaxy is the closest to our own and is 25,000 light-years away, therefore traveling there at Voyager's speed would take about 749,000,000 years! Even if humans could travel at the speed of light, it would still need 25,000 years.

Intergalactic travel is the name for the hypothetical voyage between galaxies that men have never started. Even the nearest galaxy is millions of light years away. A strategy

for reaching another galaxy would consider the available technology in addition to the distance. Technology that is far more sophisticated than that required for interstellar travel would be required for intergalactic travel. People have progressed considerably. There is sufficient evidence to support that. Humans are still a long way from developing the skills necessary for interstellar travel, though.

This concept should not be discarded simply because of the current lack of technology. For years, scientists have described speculative techniques and fiction that might help the goal. Let's investigate a few of them.

The first proposed strategy is based on the motion of hypervelocity stars. These stars are moving more quickly than the Milky Way's escape velocity. They go via extragalactic space. They were theorized in 1988 and then observed in 2005. According to a scientific mechanism, the black hole at the center of the Milky Way releases stars into space at a rate of around one star per hundred thousand years. If one chooses to use this approach to interstellar travel, one must consider it, they must enter an orbit around them and maintain it until they get there.

The act of directing a star in the direction of another galaxy is another way to travel between galaxies.

The effects of time dilation are the subject of the following proposed technique. Time dilation is the lengthening of the amount of time that a traveler experiences as a result of their velocity (anything less than the speed of light) and their distance traveled (length contraction). From the perspective of a traveler moving close to the speed of light, the time dilation effect would cause light to transit the distance between Earth in a shorter amount of time. This means that intergalactic travel is feasible from the perspective of a traveler.

Development

A solar system made up of seven exoplanets, also known as extrasolar planets, circling a single star called TRAPPIST-1 was discovered, according to NASA, in October 2019. a dwarf star that is extremely cold and only has 8% of the mass of the Sun.
The issue is that the outer planet is probably too far away and too cold to host liquid water, while the three innermost planets are probably too hot to do so. The next three planets, however, are in the star's habitable zone and may have seas of water on their surfaces.

1. Gravity is a Problem

Leaving Earth should be a fast process, and with as little baggage as possible. But strong forces work against you, particularly gravity. An item on Earth's surface needs to accelerate beyond 25,000 mph to fly freely.
That needs significant oomph, or money. Close to $200 million, or around 10% of the project's budget, was spent on the launch of the Mars Curiosity rover alone. Additionally, any crewed trip would be hampered by the technology needed to maintain life. By combining lighter composite materials with more potent, effective fuel combinations, such as unique metal alloys and fibered sheets, you can get more boost for your money.

2. Our Ships Move Far Too Slowly

Speeding through space is easy. Since it is a vacuum, there is nothing to slow you down. But where do I start? Since rockets are rather large, it takes more force to move them compared to smaller ones. Chemical propulsion works great for a strong initial push, but your treasured kerosene will burn out very quickly. Allow five to seven years to reach Jupiter's moons after that. That many in-flight movies are astounding. We require a whole new strategy for propulsion. Here is a list of what rocket scientists currently have, are working on, or wish they had.

3. This is a minefield Over there

Rockets are used to combat the very real issue of space debris. The US Space Surveillance Network is checking on 17,000 objects, of at least the size of a softball that travel at more than 17,500 mph. Launch adapters, lens covers, or even a tiny bit of paint might harm crucial systems. What can protect you from smaller pieces are shields made up of layers of metal and a material named Kevlar, but nothing can stop a full satellite. They orbit Earth in small numbers, generally motionless. Mission control avoids dangerous paths, but tracking isn't perfect.

4. Space GPS

The only means of navigation in space is the Deep Space Network, which consists of antenna arrays in California, Australia, and Spain. Everything relies on it to maintain orientation, from student-built satellites to the New Horizons mission meandering through the Kuiper Belt. Navigators utilize a very precise atomic clock on Earth that is used to determine the position of a spacecraft by measuring the time it takes for a signal to travel from the network to the spacecraft and back. However, when more and more missions take off, the network becomes crowded. Frequently, the switchboard is busy. NASA is therefore attempting to reduce the workload shortly. Transmission times will be cut in half by atomic clocks on the craft, enabling distance computations with just one

download. Additional huge data packages, like pictures or video communications, will be handled by higher-bandwidth lasers.

5. Cancer in Space

Subatomic particles move at speeds very near to the speed of light outside the protective bubble created by the Earth's atmosphere and magnetic field. This radiation is from space, and it is lethal. Along with cancer, it may also result in cataracts and Alzheimer's. The aluminum atoms that make up a spacecraft's hull are knocked against by these particles, and when they do, their nuclei explode, producing secondary radiation and additional ultrafast particles. We can attack this problem, simply put, with plastics. They are made of hydrogen atoms, which have small nuclei and little secondary radiation, and are light and powerful. Plastics that can reduce radiation in spacecraft or space suits are being tested by NASA. And scientists on the Space Radiation Superconducting Shield project are working on a magnesium diboride superconductor that would deflect charged particles away from a ship. Superconductors can withstand temperatures as low as -263 degrees Celsius, which would help with the extreme cold of space.

6. Food and Water in Space.

Last August, lettuce achieved hero status. At that time, astronauts aboard the ISS consumed some of the first crops of leaves produced in space. It is challenging to cultivate extensively in zero gravity, but not impossible. Engineers have developed ceramic tubes that draw water down to the roots of the plants since water prefers to float about in bubbles rather than trickle through the soil. Even though some veggies already take up very little space, scientists are working on a genetically modified dwarf plum tree that only reaches a height of 2 feet. More proteins, fats, and carbohydrates may be available from a more diverse harvest, such as potatoes and peanuts. But water is a must necessity. . The International Space Station's recycling system needs regular maintenance, and interplanetary personnel will not be able to rely on a supply of fresh parts. At NASA Ames Research Center, there is an ongoing project is developing a bacterial water filter that uses genetically altered organisms. In other words, it is about how your body will reuse the liquid consumed, becoming essentially a water recycling system.

7. Ground Zero

Weightlessness is bad for the body because it causes red blood cells to rupture and certain immune cells to become dysfunctional. You develop kidney stones from it, and it makes your heart weak. Astronauts still lose bone mass while in space despite exercising on the ISS to avoid muscle wasting and bone loss, and the zero-g spin cycles do not affect the other problems. Artificial gravity could be used to fix all of that. Laurence Young, a former astronaut, is testing a human centrifuge in his MIT lab. Participants pedal a stationary wheel while laying on their side on a platform as the machine spins. Their feet are pulled upward as a result, similar to gravity but less comfortable.

8. Interplanetary Journeys Lead Immediately to Space Madness

To decrease the consequences of oxygen deprivation, doctors may substantially lower the patient's body temperature and slow their metabolism when treating a stroke or heart attack. It's a tactic that might work for astronauts as well. Fortunately, interplanetary travel requires consent to spend at least a year living in a cramped vessel with subpar food and no privacy, which is a recipe for space sanity. Because of this, John Bradford suggests that we sleep through it. According to Bradford, co-author of a paper for NASA on extended missions and president of the engineering firm SpaceWorks said that old storage would be a beneficial situation. The crew's health is preserved, and they will require less food, water, and air as a result. He argues that to colonize multiple planets, we will need a capability like human stasis.

9. It Is Not an Option to Crash

You've spent months in space. Years, possibly. A universe that was once far away is now finally reaching your viewport. You just need to land. However, you're hurtling through space at, say, 200,000 mph (presuming you've figured out fusion). And there's also the gravity of the planet to consider.

10. Supplies in Space

Future space caravans will leave Earth loaded down with supplies. But not everything will be able to travel to space with you. Possibly a few devices for building infrastructure, seeds, and oxygen generators. However, everything else will need to be produced by the settlers through harvesting or manufacturing. Fortunately, there is much life in space. Despite varying concerns, Ian Crawford, a planetary scientist at Birkbeck University of London, asserts that "every planet has every chemical element in it." There is a lot of aluminum on the moon. Mars has iron oxide and silica. Nearby asteroids are a great source of water, platinum, and carbon ores once explorers figure out how to

harvest them. NASA is also investigating a method that would allow for the 3-D printing of entire buildings without the need to import specialized machinery.

Conclusion

Planets have been discovered both around small red dwarf stars and a binary pair of stars. We have discovered Hot Jupiters, Ice Giants like Neptune, and Super-Earths that are big and rocky like our own. Kepler has also discovered planets that are similar to Earth. One out of every five Sun-like stars in our galaxy is thought to host a planet that may harbor life, according to astronomers. A rocky planet with the potential for life was found orbiting Proxima Centauri in August 2016 by astronomers. Proxima Centauri is the nearest star to the Sun.

Additionally, in February 2017, Belgian researchers found a solar system with stony planets. There are seven rocky planets in this system, known as Trappist-1, each roughly the size of Earth.

There will come a time when the world will no longer be habitable due to the issues we are experiencing.
It is crucial to discuss this because it is predicted that the earth's land will run out in

Before it is too late, it is necessary to explore an alternative means of survival and to be able to come to a peaceful arrangement that abides by the principles and guidelines of the UNOOSA committee.

The Sun will eventually reach the end of its existence in between 10 and 11 billion years, according to data from the ESA's Gaia satellite project.. The Sun would have increased in temperature at the end of this period, turning into a red giant star. After this stage, it will eventually turn into a weak white dwarf.
Our Solar System is around 4.5 billion years old, which indicates that our Sun is nearing the end of its half-life.

As it draws to a close, the heat will build to the point where it renders the Earth a planet unfit for human life because the high temperatures will cause the water to evaporate.

However, the scientists estimate that it would take 8 billion years for this to occur. They go on to say that at that time the Sun will have grown by 10% from its present size, causing a temperature rise that would be fatal for the human species.

References

BROWNE, E. (2022). Something in the Air. Newsweek Global, 179(6), 12–14.

Planet. (2022). Funk & Wagnalls New World Encyclopedia, 1.

Quarles, O. (2022). Space Exploration: Overview. Issues: Understanding Controversy and Society. Retrieved October 12, 2022

About us. (n.d.). Retrieved October 13, 2022, from https://www.unoosa.org/oosa/en/aboutus/index.html

Garner, R. (2020, December 18). NASA Planet Hunter Finds its 1st Earth-size Habitable-zone World. NASA. Retrieved October 13, 2022, from https://www.nasa.gov/feature/goddard/2020/nasa-planet-hunter-finds-its-1st-earth-size-habitable-zone-world/

The Habitable Zone | The Search For Life –. (n.d.). Exoplanet Exploration: Planets Beyond Our Solar System. Retrieved October 13, 2022, from https://exoplanets.nasa.gov/search-for-life/habitable-zone/

Hazarika, B. (2022, September 5). Intergalactic travel: How can we travel to another galaxy? The Tech Outlook. Retrieved October 13, 2022, from https://www.thetechoutlook.com/news/science/intergalactic-travel-how-can-we-travel-to-another-galaxy/

Issues: Understanding Controversy and Society - Username. (n.d.). Retrieved October 13, 2022, from https://issues.abc-clio.com/Topics/Display/1672151?cid=41

404. (n.d.). NASA. Retrieved October 13, 2022, from https://www.nasa.gov/feature/goddard/2020/nasa-planet-hunter-finds-its-1st-earth-size-habitable-zone-world/

BBC, "Copernicus," BBC History, http://www.bbc.co.uk/history/historic_figures/copernicus.shtml (2017).

P. Brennan, "Earth-Size Planets: The Newest, Weirdest Generation," NASA Feature, 23 February2017,https://www.nasa.gov/feature/jpl/earth-size-planets-the-newest-weirdest-generation (2017).

P. Brennan, "Largest batch ofEarth-size, habitable zone planets," Exoplanet Exploration: Planets Beyond Our Solar System, 2017, https://exoplanets.nasa.gov/trappistll (2017).

T. Greicius, "ESO Discovers Earth-Size Planet in Habitable Zone ofNearest Star," Nasa.gov, 24 August 2016, https://www.nasa.gov/feature/jplleso-discovers-earth-size-planet-in-habitable-zone-of-nearest-star

C. Cofield, "How We Could Visit the Possibly Earth-Like Planet Proxima b," Space. com, 24 August 2016, http:1/www.space.com/33844-proxima-b-exoplanet-interstellar-mission.html

Explore James Webb Space Telescope, "Science: Planets and Origins of Life," NASA, 2017, https://jwst.nasa.gov/origins.html

NASA Ames Research Center, "Kepler: A Search for Habitable Planets," NASA, 07 October 2016, https://kepler.nasa.gov/index.cfm

NASA Goodard Space Flight Center, "Hubble finds planet orbiting pair of stars 8,000 light-years away," Exoplanet Exploration: Planets Beyond Our Solar System, 22 September 2016, https://exoplanets.nasa.gov/news/1389/hubble-finds-planet-orbiting-pair-of-stars-8000-light-years-away/

NASA's Jet Propulsion Laboratory, "5 Ways to Find a Planet," NASA.gov, April 2017, https://exoplanets.nasa.gov/interactable/111

NASA's Jet Propulsion Laboratory, "Exoplanet Exploration: Planets Beyond Our Solar System," NASA.gov, April2017, https://exoplanets.nasa.gov/

NASA's Jet Propulsion Laboratory, "Two Planet Profile: 51-Pegasi b," NASA, 2015, https://www.jpl.nasa.gov/infographics/infographic.view.php?id=ll287

H. Weitering, "TRAPPIST-I: How Long Would It Take to Fly to a 7-Planet System?" Space.com, 23 February 2017, http://www.space.com/35796-trappist-1-alien-planets-travel-time.html

WM Keck Observatory, "One in Five Stars Has Earth-Size Planet In Habitable Zone," Keck Observatory.org, 4 November 2013,http://www.keckobservatory.org/recent/entry/onemfivestarshasearthsizedplanetninhabitablezone