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# The Necessary Restructuring of the UN to Avoid the Extinction of Humanity from Threats Caused by Human Beings, by Planet Earth and Coming from Outer Space

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**ABSTRACT**

This article aims to demonstrate the imperative need for the UN to be restructured to prevent the extinction of humanity from threats caused by human beings, by the forces of nature existing on planet Earth and those coming from outer space.

**Keywords:** global climate change; pandemics; 3rd World War; cooling of planet Earth's core; catastrophic volcano eruptions; reversal of the Earth's magnetic poles; collision on planet Earth of asteroids, comets or pieces of comets; collision on planet Earth of planets of the solar system; collision on planet Earth of orphan planets roaming outer space; emission of cosmic rays, especially gamma rays emitted by supernova stars; continuous distancing of the Moon from the Earth; death of the Sun; collision of the Andromeda and Milky Way galaxies; end of the Universe; restructuring of the UN

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## INTRODUCTION

This article aims to demonstrate the imperative need for the UN (United Nations) to be restructured to prevent the extinction of humanity from threats caused by human beings, by the forces of nature existing on planet Earth and those coming from outer space. The threats to the extinction of humanity caused by human beings themselves concern global climate change, pandemics and the outbreak of the 3rd World War, the threats caused by the forces of nature existing on planet Earth concern the cooling of the core of planet Earth, the catastrophic eruptions of volcanoes and the reversal of the Earth's magnetic poles which process would lead to the loss of the Earth's magnetic field and threats coming from outer space concern the collision of asteroids, comets or pieces of comets on planet Earth, collision on planet Earth of planets of the solar system, collision on the planet Earth of orphan planets roaming outer space, emission of cosmic rays, especially gamma rays emitted by supernova stars, catastrophic consequences on the Earth's environment resulting from the continued distancing of the Moon from the Earth, death of the Sun, collision of Andromeda and Milky Way galaxies where the Earth is located, and the end of the Universe.

This article consists of four parts: 1) The threats of extinction of humanity by human beings themselves, how to deal with them and how to avoid them; 2) The threats of extinction of humanity caused by planet Earth, how to deal with them and how to avoid them; 3) The threats of extinction of humanity coming from outer space, how to deal with them and how to avoid them; and, 4) The role of the UN in adopting measures to avoid the extinction of humanity from threats caused by human beings, by the forces of nature existing on planet Earth and those coming from outer space.

### 1. The threats of extinction of humanity caused by human beings themselves, how to deal with them and how to avoid them

The threats of extinction of humanity caused by human beings themselves concern global climate change, pandemics and the outbreak of the Third World War.

#### *1.1- The threats of extinction of humanity caused by global climate change, how to deal with them and how to avoid them [1]*

Overcoming the threats to the extinction of humanity caused by global climate change means avoiding global warming, which is a climate phenomenon that, to a large extent, represents an increase in the average temperature of the Earth's surface that has been occurring over the last 150 years. The IPCC (Intergovernmental Panel on Climate Change), established by the UN (United Nations), states that the warming observed on the planet is most likely due to an increase in the greenhouse effect and there is strong evidence that global warming is largely due to human action. Many meteorologists and climatologists consider it proven that human action is actually influencing the occurrence of the phenomenon. There is no doubt that human activity on Earth causes changes in the environment in which we live.

Global warming is already having an impact and will have a huge impact on the health of the world's population. In 2022, people around the world were exposed, on average, to 86 days of potentially lethal temperatures, according to a countdown by the medical journal The Lancet. The number of people over 65 who die from heat-related causes increased by 85% between 1991-2000 and 2013-2022, according to The Lancet. More than 5,000 people died due to heat during the summer of 2023, according to the French Public Health Agency (l'agence Santé publique France (SPF)). Elderly people over 75 were the most affected, with 3,700 deaths in 2023. An article published in 2021 in the Lancet Planet Health magazine calculated that 5 million people die annually due to sudden or significant thermal variations. The number is equivalent to 9.5% of all global deaths. Just over three quarters of fatal victims live in Asia or Africa. In the predicted scenario of a global temperature increase of 2°C by the end of the century (according to experts, it is currently on course to reach 2.7°C by 2100), annual deaths

are expected heat-related diseases will increase by 370% by 2050, that is, a 4.7-fold increase, according to the 2023 edition of the medical journal The Lancet.

Global warming will cause an increase in heart attacks and respiratory diseases, according to a study carried out by several researchers who emphasize that they are only now recognizing the repercussions of global warming on human health. This study considers that the increase in the frequency of heat waves will result in a doubling or even a tripling of cases of heart attacks and respiratory diseases by 2050. There will also be an increase in the number of people affected by asthma, infections transmitted by mosquitoes, cases of food poisoning and viral infections, such as bird flu and atypical pneumonia (SARS). Climate change directly affects human health through extreme weather events, the spread of vector-borne and other infectious diseases, and worsening air pollution. Indirectly, climate change affects human health by causing malnutrition, worsening working conditions and generating mental stress.

Extreme heat is one of the leading causes of climate-related death that is already occurring in many parts of the world. The combination of climate change and urbanization continues to intensify heat extremes around the world. Heat stress affects productivity and can increase the risk of cardiovascular, respiratory and kidney diseases. Even heating by raising the temperature by 1°C potentially reduces productivity by between 1% and 3% for those working outdoors. Poor populations without access to air conditioning will be most affected, as they will find it more difficult to escape the extreme heat. Heat stress combined with physical exertion and lack of hydration can cause chronic kidney disease (CKD), which decreases kidney function over time. CKD disproportionately affects poor populations and manual workers who work in hot thermal conditions.

There may be a reduction in food availability because of climate change. Food availability problems will become more pronounced as global temperatures rise. For every degree of temperature increase, world wheat production falls by 6% and world rice production falls by 10%. Changes in rainfall, an increase in the planet's average temperature and changes in soil composition are determining factors for the growth and quality of crops. Climate change could reduce the nutritional value of crops, causing malnutrition to be considered by some researchers to be the biggest potential impact of climate change on health this century. New research suggests that in a warmer world insect metabolism increases, causing them to eat more and increase crop losses.

There may be water shortages. Climate change is putting further pressure on water security by altering the hydrological cycle, just as warming glacier sheets are impacting freshwater supplies. The Middle East, India, Antarctica and Greenland are experiencing significant freshwater loss. 80% of the world's population is already facing threats to their water security, including water availability, water demand and water pollution. Populations living in low-lying areas are at greater risk of flooding and contamination of their freshwater sources due to rising sea levels and soil salinization. Higher water temperatures, increased rainfall and drought can increase water pollution and harm human health.

Vector-borne diseases may occur. Climate change causes changes in temperature, precipitation and humidity, and as a result, increases the risk of disease transmission. Climate change is expected to change disease patterns with some regions experiencing increases while others may see decreases. Malaria, dengue fever, Japanese encephalitis and tick-borne encephalitis are infectious diseases transmitted by insects that will be caused by climate change. Air pollution is today one of the main health risk factors, leading to significant increases in mortality and morbidity from cardiovascular and pulmonary diseases. Air pollution around the world often caused by the use of the same fossil fuels that cause climate change can worsen the effects of air pollution. Air pollution is a major problem especially in urban areas.

Science shows that the impacts of climate change on human health in a global warming scenario with a temperature increase of 1.5°C are lower than those expected in a scenario of a

2°C increase, which, in turn, are significantly smaller compared to the situation created in a 3°C increase scenario. Therefore, limiting global warming to 1.5°C brings substantial benefits to people's health. Nevertheless, even in this scenario, climate change will still create health problems for many. Global warming and climate change tend to produce a true crisis of humanity by threatening its survival, making it essential to build a new model of society or a new world order based on the model of sustainable development that makes each country act at a level planetary system in an interdependent and rational way with common objectives without which the survival of human beings and life on the planet could be put at risk.

To change this situation that threatens humanity with extinction, it is necessary to promote a profound transformation of current society. The unsustainability of the current capitalist development model is evident as it has been extremely destructive of the planet's living conditions. In view of this, it is essential that a sustainable society be built by replacing the current economic model dominant throughout the world with another that takes into account man integrated with the environment, with nature, that is, the model of sustainable development.

To build a sustainable society, the objectives described below should be pursued:

• Reduce global carbon emissions, promoting changes in the current global energy matrix based on fossil fuels (coal and oil) to one based on renewable energy resources, hydroelectricity, biomass, solar and wind energy and green hydrogen to prevent or minimize global warming and, consequently, the occurrence of catastrophic changes in the Earth's climate, as well as in the global transport matrix aiming at its rationalization and the use of electricity and renewable fuels to replace fossil fuels.

• Reduce nitrous oxide emissions to meet the UN target of limiting the increase in Earth's temperature to 2°C.

• Improve energy efficiency by developing actions to achieve energy savings in the city and countryside, in buildings, agriculture, industries and transport in general, thus contributing to the reduction of global carbon emissions and, consequently, avoiding the effect greenhouse.

• Make motor vehicles and equipment for domestic, agricultural and industrial uses more efficient, buildings are designed for maximum day lighting, natural cooling and heating savings, agriculture and industry are designed to require the minimum of energy resources and raw materials, also including the self-production of energy with the use of waste from its production processes based on reverse logistics and, finally, new transport alternatives are used, from bicycles to high-capacity railway-based transport, among other initiatives.

• Combat soil, air and water pollution, reducing waste by recycling used and discarded materials.

• Restore and stabilize the biological base by ensuring that land use follows the basic principles of biological stability (nutrient retention, carbon balance, soil protection, water conservation and preservation of species diversity) and ensuring that rural areas have greater diversity than currently with balanced land management where there is crop rotation and species cultivation, there are no wasted crops, tropical forests are conserved, there is no deforestation to obtain wood and other products, new trees are planted, there is efforts to contain desertification by transforming degraded areas into productive land, the extensive use of pastures is eliminated, as well as the food chain of affluent societies includes less meat and more grains and vegetables.

• Adjust population growth to the resources available on the planet, reducing birth rates, especially in countries and regions with high population growth rates to limit the world population to 10 billion inhabitants.

• Reduce social inequalities, including the adoption of measures that contribute to meeting the basic needs of the world population, such as food, clothing, housing, health services, employment and better quality of life.

• Ensure that economic growth and resulting wealth are shared by the entire population, education services allow the population to increase qualification levels for work and culture, health services are effective in combating child mortality and contribute to the increase in the population's life expectancy, all men and women have decent housing and there are public and private investments at the necessary level that contribute to the reduction of mass unemployment as a result of the general crisis of the world capitalist system which tends to worsen in the future.

### *1.2- Threats to the extinction of humanity caused by pandemics, how to deal with them and how to avoid them [2]*

The Black Death (also known as Bubonic Plague) was the most devastating pandemic recorded in human history, resulting in the deaths of 75 to 200 million people in Eurasia, reaching its peak in Europe between the years 1347 and 1351 and causing a reduction in 1/3 of the population of the European continent. The Spanish Flu was a pandemic caused by the influenza virus that emerged in 1918 and spread rapidly around the world, causing around 50 million deaths and at least 600 million people becoming ill from the disease between 1918 and 1919. The pandemic Coronavirus or Covid-19 caused the deaths of almost 15 million people around the world, according to an estimate by the World Health Organization (WHO). To overcome the threats of death and extinction of humanity caused by pandemics, preventing their occurrence on planet Earth, such as the Bubonic Plague, the Spanish Flu and the Coronavirus, it is necessary to immediately stop degrading and deforesting forests, strengthen health surveillance systems for all countries and the World Health Organization (WHO), reduce social inequities between and within nations, remove subsidies that favor deforestation and offer more support to indigenous peoples, to contain deforestation and produce a multiplicity of vaccines capable of combating new viruses and new bacteria.

It is necessary to internationally ban the trade of species at high risk of virus transmission and eradicate the consumption of wild meat in the world, create a library of virus genetics, which helps in mapping places where new high-risk pathogens may emerge, carry out investments of US$22 billion to US$31 billion per year for a decade, to monitor and police the wildlife trade and prevent tropical deforestation, and in health surveillance and biosafety in the farming of food animals, which are potential virus intermediaries that affect humans, especially in areas close to forests to help prevent future pandemics, as well as keep the world's population well informed about the risks of new pandemics with reliable data, conceived by experience and science. If the destruction of nature does not end, it is likely that even more deadly and destructive diseases will hit humanity in the future, more quickly and frequently. The warning comes from the world's leading biodiversity experts who say rampant deforestation, uncontrolled expansion of agriculture, intensive farming, mining and infrastructure development, as well as the exploitation of wild species have created what they call a "perfect storm" for spread of diseases.

Throughout history, vaccines have helped to significantly reduce the incidence of various viral and bacterial diseases. Today, vaccines are considered the most cost-effective treatment in public health. In addition to adopting measures to protect forests and combat the exploitation of wild species to avoid new pandemics, it is urgent to develop and produce vaccines capable of immunizing the population against new viruses and new bacteria. Humanity will have to make profound changes in its relationship with nature to prevent new pandemics that threaten its very existence and invest massively in R&D aimed at developing vaccines to combat current and new viruses and new bacteria.

### *1.3- Threats to the extinction of humanity caused by the outbreak of the 3rd World War and how to avoid them [3]*

It is necessary to avoid the proliferation of wars in the world and the outbreak of the 3rd World War, which could result in the use of nuclear weapons by the contenders and could lead

to the extinction of the human species. Based on various sources, it appears that in the First World War (1914-1918) there were 9 million deaths and, in the Second World War (1939-1945), between 40 and 52 million deaths. From the end of the Second World War until 1992, there were 149 wars, in which more than 23 million people died. In the 20th century, until 1995, without considering the First and Second World Wars, there were a total of 241 wars, of which 166 broke out after 1950. No less than 70 countries were involved in wars from 1994 to 1997. Since creation of the United Nations in 1945, more than a thousand major conflicts occurred around the world, which left around 20 million dead. Since the end of the Second World War, the world has known 160 wars, in which around 7 million soldiers and 30 million civilians died. Former US Secretary of State, Zbigniew Brzezinski, made an estimate covering all "mega deaths" that have occurred since 1914 and reached a total of 187 million deaths.

More people were killed by wars in the 20th century than in all previous human history combined. The violence of conflicts in our time has no parallel in history. The wars of the 20th century were “total wars” against combatants and civilians without discrimination. After the Second World War ended, the Cold War began between the United States and the Soviet Union, giving way to an endless series of localized wars such as those in Korea and Vietnam, so numerous that they ended up becoming part of our daily lives. From 1945 until the fall of the Soviet Union, the 40 years of the Cold War, around 17 million people died on the planet in armed conflicts and from 1990 to 2003 wars took more than 3 million lives. It is estimated that throughout the world, in the last ten years, more than 2 million children have died in conflicts and another 4 million have suffered mutilations such as those that have occurred in the Israeli massacre against the Palestinians in the Gaza Strip. The suffering, the horrors and the rivers of blood that flow from all these conflicts are due to so-called conventional wars. However, there is always the danger of the outbreak of "unconventional" ones, with the use of chemical, biological and nuclear weapons. The war between Russia and Ukraine, the conflict between the State of Israel and the Palestinian people and the Cold War between the United States and China could trigger the Third World War, which, if it actually occurs, there will be no winners nor defeated among the peoples, who will exterminate each other.

To avoid the proliferation of wars in the world and the outbreak of the 3rd World War which results in the use of nuclear weapons by the contenders, a democratic world government must be established that is elected by the world parliament to be constituted with the participation of countries from all over the world. The world democratic government would avoid the empire of a single country, as has existed throughout the history of humanity, and the anarchy of all countries, as is currently the case. A world government will only be sustainable if it is truly democratic. The new world order must be built not only to organize relationships between men on the face of the Earth, but also their relationships with nature. It is therefore necessary that a planetary social contract be drawn up that enables the achievement of world peace, economic and social progress and the rational use of nature's resources for the benefit of all humanity.

## 2. The threats of extinction of humanity caused by planet Earth, how to deal with them and how to avoid them

The threats to the extinction of humanity caused by the forces of nature existing on planet Earth concern the cooling of planet Earth's core, the catastrophic eruptions of volcanoes and the reversal of the Earth's magnetic poles.

### *2.1- The cooling of the core of planet Earth*

The first major threat to humanity posed by planet Earth concerns the cooling of planet Earth's core, which has remained hot for more than 4.5 billion years, but is slowly and inevitably cooling. It is worth noting that the Earth is formed by an inner core, an outer core, the mantle and the crust [2] [4] (Figure 1). The Earth's core is almost 3,000 km deep in the

Earth's crust (the outermost layer of the planet). Planet Earth's core temperatures can fluctuate between 4,400° C and 6,000° C, that is, with temperatures similar to those of the Sun. The Earth's inner core is a solid sphere, composed mostly of iron. The outer core is formed by a malleable liquid, composed of iron and nickel. It is in the outer core that the Earth's magnetic field is formed. The colossal amount of thermal energy that emanates from the interior of planet Earth sets in motion phenomena such as the movement of tectonic plates and volcanic activity. Recent research has calculated that the center of the Earth is cooling faster than previously thought [4].

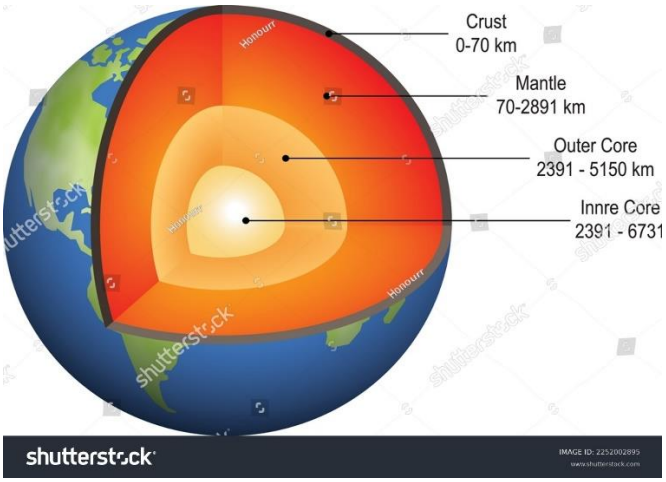


**Figure 1- Internal structure of planet Earth**
Source: https://www.shutterstock.com/pt/search/earth-structure

As the Earth's core cools, the tectonic plates, which are kept in motion by the flow of the Earth's mantle, slow down faster than expected. Without core activity, volcanoes would not erupt. But without the heat from Earth's interior, fish and plants that live at the bottom of the sea would be threatened, which would cause a major imbalance in the planet's food chain. Another major problem is that the Earth's magnetic field, essential for life on its surface, will be greatly weakened or disappear completely. Cosmic radiation and solar radiation, a stream of charged particles emitted by the Sun, will reach us directly and will deteriorate our atmosphere.

To deal with the cooling of the core of planet Earth, which has remained hot for more than 4.5 billion years, but is slowly and inevitably cooling, it is very important that there is constant monitoring of the temperature of the core of planet Earth to adopt, when necessary, strategies for escaping human beings to places that can be inhabited in the solar system, such as Mars, or outside it with the possibility of housing human beings, before the loss of the Earth's magnetic field and the imbalance in the planet's food chain. Furthermore, it is necessary to set up a global structure, a World Organization for the Defense Against Natural Catastrophes of global scope, which has the capacity to technically coordinate actions around the world in confronting the cooling of the Earth's core [2] [4].

### *2.2- Volcano eruptions*

Volcanoes are openings in mountains and the Earth's surface that spew gases, fire and lava. Planet Earth currently has many active volcanoes that are fractures or openings in the Earth's surface through which materials that originate from the planet's interior are expelled, such as lava, gases and other materials called “pyroclasts” [2] [5]. Volcanoes arise when the so-called tectonic plates that are part of the Earth's crust collide, moving the material present on them and leaving openings to deeper layers of the planet. Volcanoes generally occur in places where there is intense movement of tectonic plates. Magma can escape through these

openings in the form of lava present between the crust and the mantle, the middle layer of the Earth. The structure of the volcano consists of a magmatic chamber, a volcanic crater, a cone, a chimney and, in some cases, there are lateral or peripheral outlets (secondary chimneys) [5].

There are approximately 1,500 active volcanoes across planet Earth, and annually on our planet, about 70 volcanoes erupt. Inactive volcanoes can become active again, such as the Japanese volcano Shinmoe, which erupted after 52 years of being dormant. Other inactive volcanoes can still scare and even threaten life on Earth, such as the "supervolcano" Yellowstone, in Wyoming (United States), which can be catastrophic, as they have been several times in the past. In the case of Yellowstone Park, which includes much of the caldera area of the volcano of the same name, there is currently no active volcanic building. What exists is magmatic activity and underground magmatic chambers, kilometers deep beneath the park, which could form new surface volcanic buildings in the future. The park is also known for its geysers [6]. Yellowstone's supervolcano is thousands of times more powerful than a normal volcano. If it erupts, the ash cloud will cover regions of several North American states such as Wyoming, Montana, Idaho and Colorado, and could even reach cities such as Los Angeles, San Francisco, Portland and Seattle and have a negative impact on the climate of planet Earth [7].

The map below shows the Earth's seismic zones, which are the regions of the planet that have the strongest earthquakes and are also very prone to the occurrence of volcanism [2].

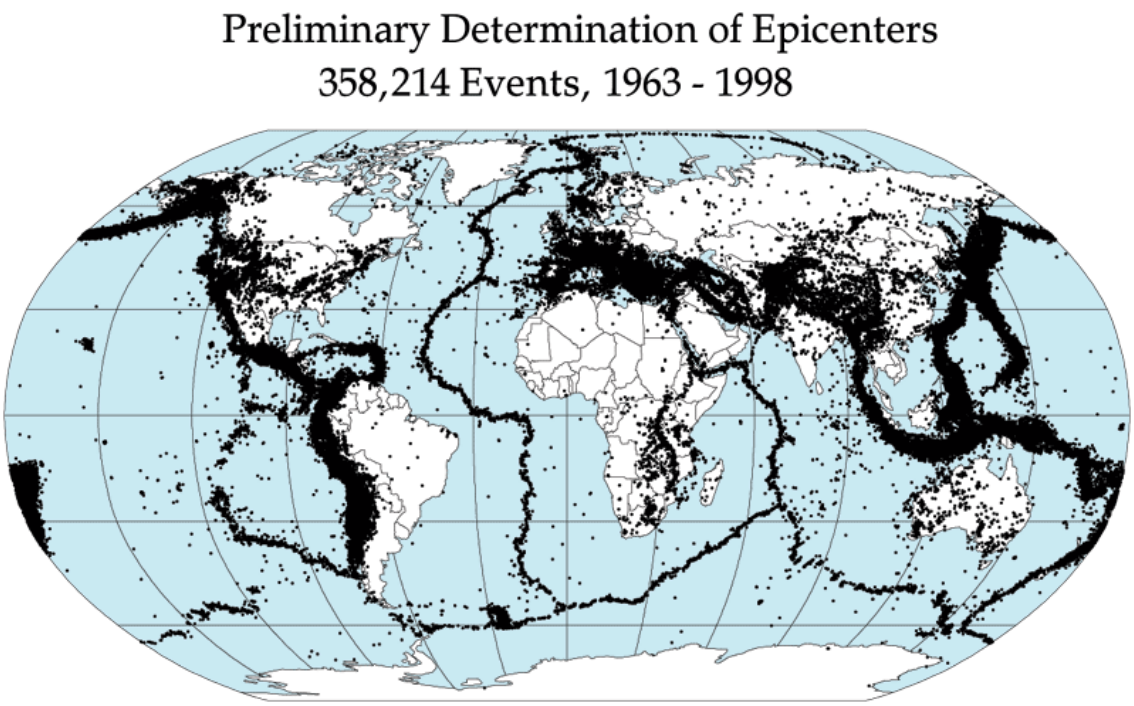


**Figure 2- Earth's seismic zones**
Source: https://en.wikipedia.org/wiki/Earthquake

In the United States, around 130 volcanoes are active. Kilauea, in Hawaii, is the best known, being one of the most active in the world, since 1983. In addition, Mount Saint Helens, in the State of Washington, was known for a major eruption in 1980, which resulted in 57 deaths. In Indonesia, there are around 120 active volcanoes. In Java, alone (Indonesia) 140 million inhabitants live close to 30 volcanoes and more than 500 million people live close to volcanoes (8% of the world population). Chile is one of the countries with many active volcanoes in the world. There are around 95 active volcanoes. The Chilean volcano Calbuco located 1,000 kilometers south of Santiago, the capital of Chile, has returned to activity.

Located 2,015 meters above sea level, Calbuco has not erupted since 1972. It is considered dangerous due to its geological constitution and its proximity to urban areas [7].

Japan has around 66 active volcanoes, including Mount Fuji, which could erupt soon, according to geological studies. Mount Fuji in Japan has been inactive for more than 300 years. The volcano could threaten the lives of around eight million people in the Tokyo region and surrounding areas. In Italy, in Sicily, Etna is the most active volcano in Europe whose last eruption occurred in November 2013. More than 600,000 people live on the slopes and surroundings of the volcano Vesuvius that buried Pompeii and Herculaneum in the year 79. Since then, it has erupted on about 30 occasions. In the 1906, eruption around a hundred people died and, in the last one in 1944, it destroyed 88 North American bombers during the Second World War. Iceland is home to the Eyjafjallajökull volcano, which closed European airspace in 2010 and affected thousands of flights. In Russia, most volcanoes are concentrated on the Kamchatka peninsula, in Siberia, in the easternmost region of the country [7].

Volcanoes can lead to the extinction of species and life on the planet depending on the scale of their eruption. According to the scientific publication Nature Geoscience, Canadian researchers from the University of Calgary discovered evidence to explain how large volcano eruptions, which occurred 250 million years ago, ended a cycle of life on Earth [2] [8]. The volcanoes would have produced enough coal to form ash clouds in the atmosphere, which generated greenhouse gases and decimated 95% of marine life, in addition to 70% of terrestrial living beings. A study published by the renowned magazine "Science" provides evidence that the intense activity of volcanoes around 200 million years ago probably led to the extinction of around half of Earth's animal species in the period, known as the end of the Triassic, which is a geological period extending from about 252 to 201 million years ago. The research was carried out by scientists from the Massachusetts Institute of Technology (MIT), Columbia University, Rutgers University and Stony Brook University, all in the United States. Intense volcanic activity released enormous amounts of gases into the planet's atmosphere during this period, which abruptly changed its climatic conditions. The new climate conditions have modified the species' habitat both in the oceans and on dry land, researchers say. Evidence suggests that climate change occurred so suddenly that animals were unable to evolve and adapt. For scientists, the extinction that occurred at the end of the Triassic probably paved the way for the emergence of dinosaurs, which dominated the planet for the next 135 million years, until they reached extinction, approximately 65 million years ago [2] [8].

Scientists have long used data from satellites, seismic sensitivity equipment and other sources to detect upcoming volcano eruptions. It is possible to predict volcanic eruptions with constant monitoring of volcanoes to prevent disasters of catastrophic proportions with the adoption of evacuation plans for populations in areas covered by volcanoes. All of these measures must be adopted, especially in countries where volcano eruptions occur most in the world. In each of these countries, structures must be set up to monitor volcano eruptions and evacuation plans must be drawn up for populations in places that could be affected by these catastrophic events. Furthermore, it is necessary to set up a global structure, a World Organization for Defense Against Natural Catastrophes of global scope that has the capacity to technically coordinate the actions of countries in confronting volcano eruptions whose consequences have local, regional and global scope, especially of volcanoes that could lead to the extinction of life on the planet, such as the large eruptions of volcanoes that occurred 250 million years ago that ended a cycle of life on Earth. This world organization should, if necessary, adopt necessary measures to evacuate human beings to safe locations and, even, if necessary, outside planet Earth in places likely to be inhabited in the solar system or outside it in the case where the eruption of volcanoes, as has already occurred in the past, could lead to the threat of extinction of human beings [2] [8].

### *2.3- The reversal of the Earth's magnetic poles*

There is evidence to suggest that a process of reversal of the Earth's magnetic poles is in full swing, and many people believe that this event could trigger a series of cataclysmic effects during which the Earth would be without the protection of the Earth's magnetic field [9]. Among the most mentioned catastrophes are the displacement of continents, the occurrence of violent earthquakes, the extinction of thousands of species and marked climate change. Hundreds of magnetic pole reversals have already occurred on our planet. According to scientists, the geomagnetic field has been showing increasing signs of weakening over the last 160 years. The exchange of poles — when the south changes place with the north — happens when groups of atoms present in the molten iron of the Earth's core undergo realignment. Little by little, these groupings (which work like small magnets) increase in size, influencing the rest of the nucleus and causing the magnetic field to invert [9]. The magnetic north pole, where the compass needle points, has no permanent location. In reality, it generally oscillates near the geographic north pole — the point around which the Earth rotates — over time due to movements within the planet's core. For reasons that are not yet entirely clear, the movements of magnetic poles can sometimes be more extreme than a simple wobble. One of the most dramatic migrations of these poles occurred around 42,000 years ago and is known as the Laschamps event, named after the French city where it was discovered [10].

Many scientists believe that most of us would not even notice a weakening in the magnetic field. However, although it is likely that humans would not notice much of the weakening of the magnetic field, our technology would suffer terribly. With the Earth more vulnerable to solar storms, artificial satellites, telecommunications systems and electrical power grids would be damaged, and this would affect our lives. Perhaps one of the worst scenarios would present itself if the continents actually moved thanks to the reversal of the magnetic poles. However, according to geological records from the last exchange, there is no evidence that planetary disasters or continental movements occurred because of this type of event. As some scientists explained, the pole reversal process takes between a thousand and 10 thousand years to occur, unless it ends up being “aborted” midway. One of the most dramatic effects would be the strong weakening of the magnetic field just before the exchange, which would make the Earth more vulnerable to radiation resulting from possible solar storms. Particles emitted by the Sun could interact with the Earth's atmosphere, triggering a series of chemical reactions that would result in holes in the ozone layer that, in turn, would result in various problems for humans. In the opinion of some researchers, processes like this may have caused the disappearance of several species 42 thousand years ago, including Neanderthals [9]. 42 thousand years ago, the world faced a few centuries of apocalyptic conditions caused by a reversal of the Earth's magnetic poles combined with changes in the behavior of the Sun. This is the main finding in a new multidisciplinary study, published in the journal Science. This last major geomagnetic reversal triggered a series of dramatic events that had far-reaching consequences for our planet. The ozone layer was destroyed, electrical storms swept across the tropics, solar winds generated light shows (auroras), arctic air spread across North America, ice sheets and glaciers grew, and weather patterns changed violently. During these events, life on Earth was exposed to intense ultraviolet light. Neanderthals and mega fauna went extinct, while modern humans found protection in caves. During centuries of apocalyptic conditions, Neanderthals became extinct [10].

There is a wealth of evidence strongly suggesting that the effects of Earth's magnetic pole reversal were global and far-reaching. This was found when scientists analyzed ancient New Zealand Kauri trees, which have been preserved in peat and other sediments for more than 40,000 years. New Zealand's kauri trees have revealed a prolonged rise in atmospheric radiocarbon levels caused by the collapse of Earth's magnetic field as the poles shift. Using the annual growth rings of kauri trees, scientists were able to create a detailed timescale of how

Earth's atmosphere changed during this period. The trees revealed a prolonged rise in atmospheric radiocarbon levels caused by the collapse of Earth's magnetic field as the poles shifted. This provided a way to accurately link widely geographically dispersed records. Using the newly created time scale, scientists were able to show that the tropical Pacific rain belts and the Southern Ocean westerly winds changed abruptly at the same time, causing arid conditions in places like Australia. In turn, a variety of mega fauna, including giant kangaroos, became extinct. Further north, the vast Laurentide Ice Sheet grew rapidly in the eastern United States and Canada, while in Europe Neanderthals became extinct. Importantly, during the magnetic shift, the field strength dropped to less than 6% of what it is today. A compass from that era would have had difficulty finding north. Without any magnetic field, our planet completely lost its effective shield against cosmic radiation and many penetrating particles from space entered the upper part of the atmosphere. This combination of factors had an amplifying effect. High-energy cosmic rays from the galaxy and also huge bursts of rays from solar flares were able to penetrate the upper atmosphere, carrying particles into the air and causing chemical changes that caused the loss of stratospheric ozone. Most likely, dramatic changes and unprecedentedly high levels of ultraviolet radiation led early humans to seek refuge in caves, which explains the apparent sudden flowering of rock art around the world 42,000 years ago. Due to the coincidence of seemingly random cosmic events and extreme environmental changes found around the world 42,000 years ago, this period is called the "Adams Event", a tribute to the great science fiction writer Douglas Adams, author of "The Hitchhiker's Guide of Galaxies" [10].

Faced with the threat of extinction of humanity represented by the reversal of the Earth's magnetic poles, which would cause our planet, during this process, to completely lose its effective shield against solar radiation and cosmic radiation and many penetrating particles from space would enter the upper part of the atmosphere causing the loss of stratospheric ozone, it is very important that there is constant monitoring of the pole reversal to assess its effects. To protect human beings and avoid the extinction of humanity, it is necessary to build underground dwellings and underground cities across the planet capable of sheltering human life, protecting it from cosmic and solar radiation and adopt, when necessary, strategies for escaping human beings from the Earth to Mars or other locations in the solar system or beyond capable of supporting human life. Furthermore, it is necessary to set up a global structure, a World Organization for Defense Against Natural Catastrophes with a global scope that has the capacity to technically coordinate the actions of countries in confronting the reversal of the Earth's magnetic poles.

### *2.4- Conclusions*

The threats to the extinction of humanity caused by the forces of nature existing on planet Earth, which concern the cooling of the core of planet Earth, the catastrophic eruption of volcanoes and the reversal of the Earth's magnetic poles, require the adoption of the strategies described below:

a) To save humanity from the threat of cooling of the Earth's core that could lead to the extinction of humanity on planet Earth, it is very important that there is constant monitoring of the temperature of planet Earth's core to adopt, when necessary, escape strategies of humans to places such as Mars or other locations in the solar system or beyond capable of supporting human life, prior to the loss of Earth's magnetic field and the imbalance in the planet's food chain resulting from the cooling of the Earth's core. Furthermore, it is necessary to set up a global structure, a World Organization for Defense Against Natural Catastrophes with a global scope that has the capacity to technically coordinate actions around the world in confronting the cooling of the Earth's core, among other catastrophic events.

b) To save humanity from the threat posed by the catastrophic eruption of volcanoes, especially those that could lead to the extinction of humanity on planet Earth such as the great eruptions of volcanoes that occurred 250 million years ago that ended a cycle of life on Earth, it is necessary constant monitoring of volcanoes with the use of satellites, seismic sensitivity equipment and other sources to detect upcoming eruptions of volcanoes in order to prevent disasters of catastrophic proportions. These measures should be adopted, above all, in countries where volcano eruptions occur most in the world. In each of these countries, structures must be set up to monitor volcano eruptions and evacuation plans must be drawn up for populations in places that could be affected by these catastrophic events and, if necessary human escape strategies must be adopted to places like Mars or other places in the solar system or beyond capable of supporting human life. Furthermore, it is necessary to set up a global structure, a World Organization for Defense Against Natural Catastrophes of global scope that has the capacity to technically coordinate the actions of countries in confronting volcano eruptions whose consequences have local, regional and global scope, especially of volcanoes that could lead to the extinction of life on planet Earth.

c) To save humanity from the threat posed by the reversal of the Earth's magnetic poles that could lead to the extinction of humanity during this process, such as the exposure of humans to the galaxy's high-energy cosmic rays and also the enormous ray blasts from solar flares that penetrate in the upper atmosphere, carrying particles in the air and causing chemical changes that would cause the loss of stratospheric ozone, it is very important that there is constant monitoring of the pole reversal to assess its effects. The objective fact is that without any magnetic field, our planet would completely lose its effective shield against solar radiation and cosmic radiation and many penetrating particles from space would enter the upper part of the atmosphere. Faced with high levels of ultraviolet radiation, it is necessary to protect human beings and prevent their extinction by building underground dwellings and underground cities across the planet capable of sheltering human life and adopting, when necessary, strategies for escaping human beings from Earth to Mars or other locations in the solar system or outside it capable of supporting human life. Furthermore, it is necessary to set up a global structure, a World Organization for Defense Against Natural Catastrophes with a global scope that has the capacity to technically coordinate the actions of countries in confronting the reversal of the Earth's magnetic poles.

## 3. The threats of extinction of humanity coming from outer space, how to deal with them and how to avoid them

The threats of extinction of humanity coming from outer space, how to deal with them and how to avoid them were analyzed in the books *A humanidade ameaçada e as estratégias para sua sobrevivência* (*Humanity threatened and strategies for its survival*) with the subtitle *Como salvar a humanidade das ameaças à sua extinção* (*How to save humanity from threats to its extinction*) [2] and *How to protect human beings from threats to their existence and avoid the extinction of humanity* [8]. There are countless threats to the survival of humanity coming from outer space today and in the short, medium and long term future. The threats existing in outer space concern: 1) collision on planet Earth of asteroids, comets or pieces of comets; 2) collision on planet Earth of planets of the solar system; 3) collision on planet Earth of orphan planets roaming outer space; 4) emission of cosmic rays, especially gamma rays emitted by supernova stars; 5) catastrophic consequences on the Earth's environment resulting from the continued distancing of the Moon from the Earth; 6) death of the Sun; 7) collision of the Andromeda and Milky Way galaxies where the Earth is located; and, 8) end of the Universe. All these catastrophic events, which could occur in the short, medium and long term, could contribute to humanity being driven to extinction as a species if nothing is done to protect humanity in the short, medium and long term.

### *3.1- The collision of asteroids and comets or pieces of comets on planet Earth*

The collision on planet Earth of asteroids and comets or pieces of comets, which threaten to collide with Earth, requires the adoption of strategies to avoid their collisions with Earth (Figure 3). To deal with asteroids that could collide with planet Earth, the strategy consists of diverting them from their course if they are detected with enough time to launch interceptors. The same solution must be adopted for comets whose pieces may reach planet Earth. It is very important that there is constant monitoring of outer space to identify not only asteroids, but also comets or pieces of comets, which could collide with the Earth and powerful rockets capable of diverting them from their routes are developed. Another alternative is to destroy threatening asteroids and comets with the use of nuclear bombs if they are at a great distance from planet Earth [2] [8] [11] [12].

**Figure 3- Collision of asteroids and comets with planet Earth**
Source: https://br.sputniknews.com/ciencia_tecnologia/2019092114542394-rota-de-colisao-nasa-rastreia-asteroide-em-direcao-a-terra-neste-sabado/

### *3.2- The collision on planet Earth of planets of the solar system*

The collision of planets in the solar system on planet Earth requires the adoption of strategies to promote constant monitoring of outer space to identify the threat of destabilization of the solar system by the planet Mercury and other planets and research to identify possible locations outside the solar system with the possibility of being inhabited by human beings to plan their escape, as is the case with the exoplanet "Proxima b", which orbits a star that is part of the Alpha Centauri system, the closest to the solar system, where space colonies would be established that would require great scientific and technological advancement to make them viable [2][8][13][16] (Figure 4).

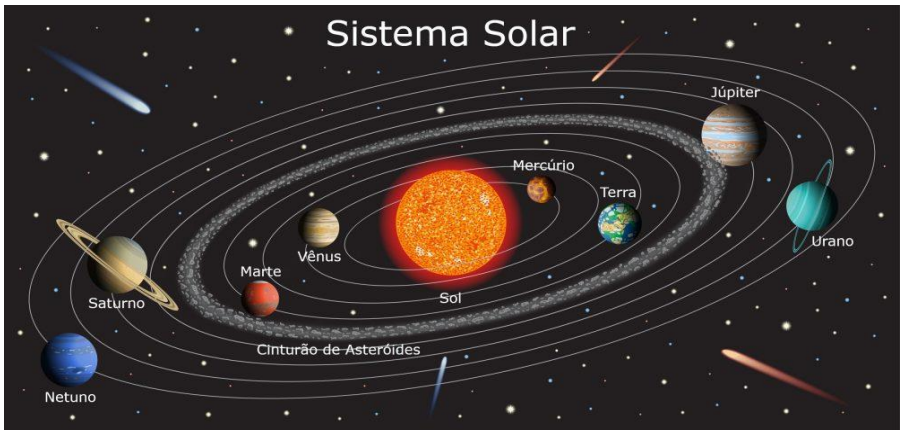


**Figure 4- Collision of planets in the solar system with planet Earth**
Source: https://www.infoescola.com/astronomia/planetas-do-sistema-solar/

### *3.3- The collision on planet Earth of orphan planets*

The collision on planet Earth of orphan planets that roam in outer space requires constant monitoring of space to identify orphan planets that could collide with Earth and determine the time of their collision with a view to adopting measures that indicate the need to plan the escape of human beings to other places located in the solar system such as Mars, Titan (Saturn's moon) and Callisto (Jupiter's moon) with the possibility of being inhabited by human beings with the implementation of space colonies that would require great scientific and technological advances to make them viable [2] [8] [14] (Figure 5).

**Figure 5- Collision of orphan planets with planet Earth**
Source: https://www.youtube.com/watch?v=92cO0L1rETU

### *3.4- The emission of cosmic rays, especially gamma rays emitted by supernova stars*

The emission of cosmic rays from the Sun and outer space requires the adoption of strategies that allow: 1) using the Soho satellite, which operates in an intermediate position between the Earth and the Sun, to detect explosions on the solar surface and send messages about the arrival of the storm cosmic approach to Earth to avoid damage to electricity distribution networks and satellite operators can protect themselves by correcting satellite courses or turning off their equipment; and, 2) protect human beings from cosmic radiation in long-term space travel in outer space, promoting scientific and technological advances in addition to increasing the biological capacity of human beings to undertake space travel and live outside the Earth [2] [8] [15] (Figure 6).

**Figure 6- Emission of cosmic rays**
Source: https://www.astropt.org/2015/06/07/a-particula-que-quebrou-um-limite-de-velocidade-cosmica/

The emission of gamma rays emitted by supernova stars, which have the power to annihilate life on Earth, requires the adoption of strategies that allow: 1) the colonization of

other worlds in the solar system, such as Mars among others, before the explosion of some supernova star whose gamma rays can reach planet Earth; and, 2) monitor the explosion of supernova stars permanently to assess whether the Earth could be hit by gamma rays so that, if possible, before and during the occurrence of their explosion, the necessary measures are adopted to promote escape human beings to places with the possibility of being inhabited in the solar system such as Mars, Titan (Saturn's moon) and Callisto (Jupiter's moon [2] [8] (Figura 7).


**Figure 7- Gamma rays emitted by supernova stars**
Source: https://www.youtube.com/watch?v=oQ95J9OQVs0

### *3.5- The catastrophic consequences on the Earth's environment resulting from the Moon's continued distancing from the Earth*

Earth and Moon are united by a strong gravitational bond and affect each other (Figure 8). Because the Earth rotates on its axis faster than the Moon rotates around the Earth, the greater force of gravity from the water relief on Earth tries to speed up the Moon's rotation, while the Moon attracts the Earth and slows the planet's rotation. With this friction, this "tug of war" forces the Moon into a wider orbit, moving away from the Earth. It was through lasers fired towards reflectors installed on the surface of the Moon by astronauts from the Apollo mission that it was possible to accurately measure the exact speed at which the Moon is moving away from Earth. It has been confirmed that it moves 3.8 centimeters away per year. This process must continue until the Moon, which is currently 384,400 km away from Earth, reaches 560,000 km. When this happens, days on Earth will become progressively longer. During the night, the temperatures would freeze everyone to death. Throughout the day, no one could bear the heat. On the coast, there would be very violent winds of 200 km/h. In terms of life, there would be almost nothing left, except super-resistant bacteria and worms. When this occurs, the Earth's rotation will stabilize, the days will be 1,152 hours long and life on the planet will be unviable. The consequences for the Earth's environment resulting from the continued distancing of the Moon from Earth will therefore be catastrophic. The continued distancing of the Moon from Earth will require the adoption of human escape strategies to places that can be inhabited by humans in the solar system, when necessary (Mars, Titan - Saturn's moon and Callisto - Jupiter's moon) [2] [8].

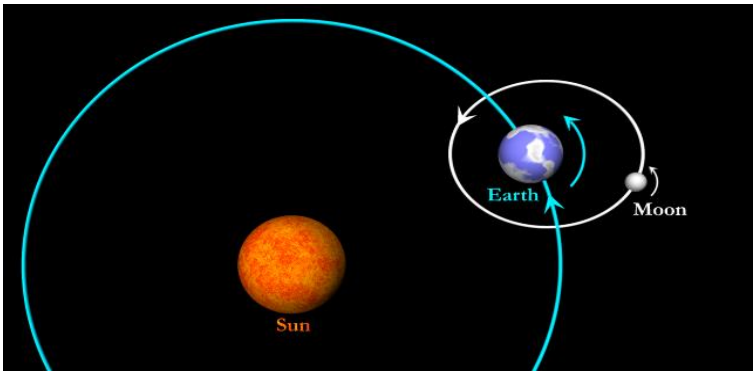


**Figure 8- Earth-Moon System**
Source: https://moonblink.info/Eclipse/why/solsys

### *3.6- The death of the Sun*

The Sun emerged about 4.6 billion years ago, being one of more than 100 billion stars in the Milky Way galaxy orbiting around the center of this galaxy at a distance of about 24 to 26 thousand light years from the galactic center. During its evolution, Sun gave rise to the rocky planets (Mercury, Venus, Earth and Mars) and the gaseous planets (Jupiter, Saturn, Uranus and Neptune) [1] [2] (Figure 9). The death of the Sun will occur when it is at an advanced stage of its life. As its fuel (hydrogen) is consumed, the temperature increases and the Sun expands. As it grows, the Sun loses mass and dies, bringing the solar system to an end. At this stage, it is called a red giant. Astronomers' calculations indicate that, when the Sun becomes a red giant, the diameter of the Sun at its equator will grow to the point of surpassing the planet Mars, consuming all the rocky planets: Mercury, Venus, Earth and Mars. And this will, in fact, be the end of planet Earth [9]. After this stage, the gravitational force begins to prevail and the Sun begins to shrink. When this happens, the solar system becomes chaos and the Sun loses a tremendous amount of mass. The evolution of the Sun until its death requires strategies for human beings to escape from Earth to places with the possibility of being inhabited in other star systems before the death of the Sun, such as the exoplanet "Proxima b" orbiting the closest star to the Sun that is part of the Alpha Centauri system which is 4.2 light years from Earth which corresponds to 39.9 trillion kilometers away [2] [8] [17].

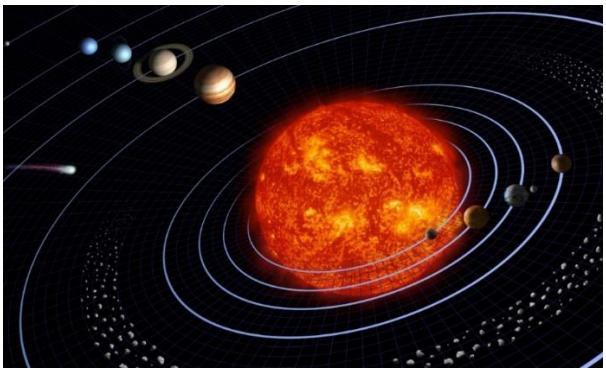

**Figure 9- The Sun and its planets**
Source: https://olhardigital.com.br/2020/07/31/ciencia-e-espaco/animacao-mostra-que-o-sol-nao-e-o-centro-do-sistema-solar/

### *3.7- The collision of the Andromeda and Milky Way galaxies*

NASA scientists have revealed that the collision of the Milky Way and Andromeda galaxies will happen approximately four billion years from now (Figure 10). The Milky Way is one of the galaxies in the Universe where the solar system is located, which brings together a group of planets like the Earth that revolve around the Sun (Figure 11).

**Figure 10- Collision of the Andromeda and Milky Way galaxies**
Source: https://astronomy-universo.blogspot.com/2012/04/as-bizarras-diferencas-entre-via-Láctea.html


**Figure 11- The Solar System in the Milky Way**
Source: https://blogs.ne10.uol.com.br/mundobit/2017/05/19/sistema-solar-esta-em-endereco-seguro-na-via-Láctea-dizem-cientistas-da-usp/

Both galaxies are attracting each other thanks to the force of gravity that acts between the bodies. This prediction of the collision of the Milky Way and Andromeda galaxies was possible thanks to measurements carried out by the Hubble Space Telescope when monitoring the movement of Andromeda, located 2.5 million light years from Earth. The collision of the Andromeda and Milky Way galaxies requires the adoption of escape strategies by human beings to places with the possibility of being inhabited in other galaxies before the collision of the Andromeda and Milky Way galaxies, such as the Canis Major Dwarf Galaxy located 25 thousand years-light from Earth, which corresponds to 237,500 trillion kilometers away from Earth, which is a satellite galaxy of the Milky Way located in the constellation Canis Major, or the Large Magellanic Cloud which is located 163 thousand years-light from Earth, which corresponds to 1,548,500 trillion kilometers away from Earth [2] [8].

***3.8- The end of the Universe***

The Universe, which is 13.8 billion years old since the Big Bang, could come to an end considering three scenarios: 1) the thermal death of the Universe; 2) the Big Crunch of the Universe; or, 3) the Big Rip of the Universe [2] [8] [19]. The thermal death of the Universe, considered the most likely scenario for the end of the Universe, could occur between 1 and 100 trillion years if the Universe continues to expand as it currently does. On a time scale on the order of a trillion years, existing stars will burn out, and the Universe will go dark and approach a highly entropic state. On a much longer time scale, galaxies will collapse into black holes that will eventually evaporate. The Universe will be brought to a frozen state.

With the Big Crunch or Great Collapse of the Universe, a scenario that could occur 100 billion years from now, Universe would contract after expansion due to gravitational attraction until it collapsed in on itself, which would be analogous to a Big Bang reversal. This scenario

assumes an oscillatory Universe, as a cyclical model that conflicts, however, with current observations that suggest that this universe model is probably not correct because the expansion of the Universe tends to continue.

With the Big Rip or Great Rupture of the Universe, which could happen in 22 billion years, the expansion rate of the Universe would increase without limit. Gravitationally bound systems such as galaxy clusters, galaxies and, ultimately, the solar system would be torn apart. The expansion of the Universe would be so rapid that it would overcome the electromagnetic forces that hold molecules and atoms together. The atomic nuclei would also be torn apart and the Universe would expand so much that the electromagnetic force that holds things together would fall, causing everything to fall apart.

Figure 12 presents the Universe observable from Earth and Figure 13 presents the evolution of the Universe from its birth with the Big Bang to its end with the Big Rip. With the Big Rip, everything in the Universe, even spacetime, will be torn apart by the expansion of the Universe until the distances between particles become infinite.

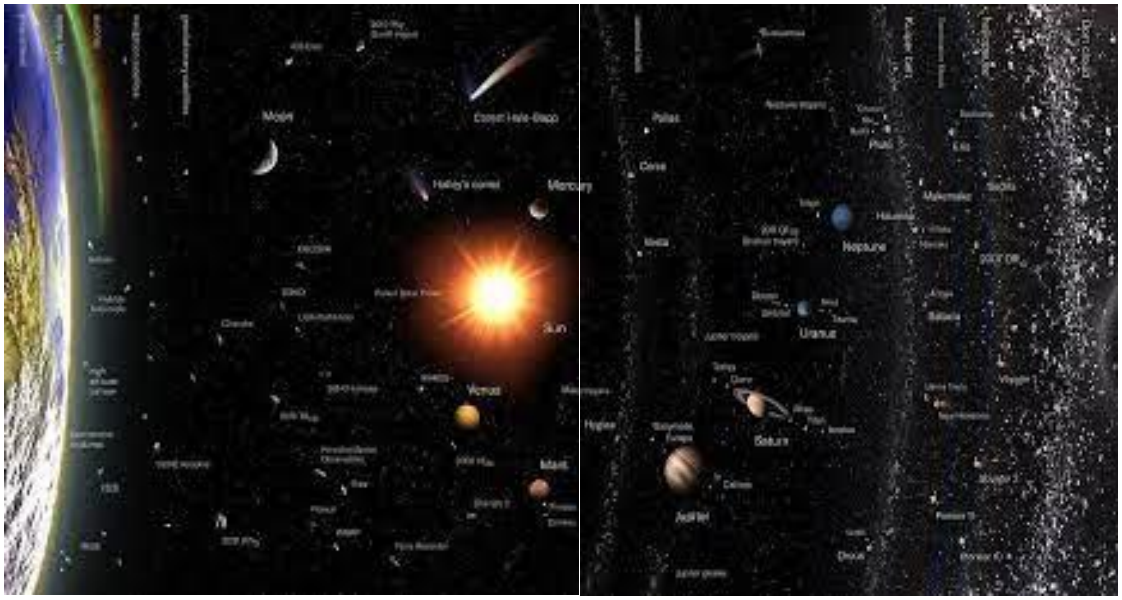


**Figure 12- Observable Universe seen from planet Earth**
Source: https://www.facebook.com/decifrandoastronomia/posts/2534658206777733/

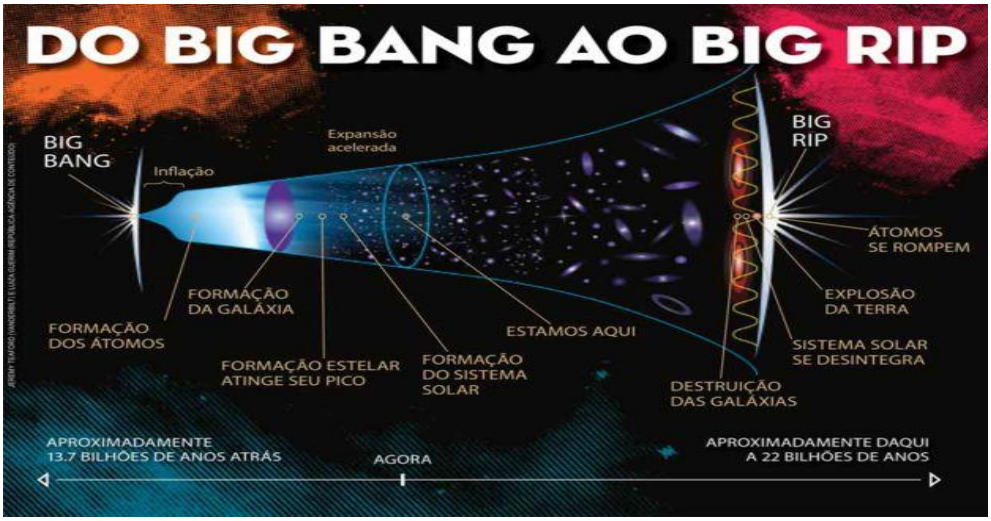


**Figure 13- From the birth to the end of the Universe**
Source: https://www.bbc.com/portuguese/geral-38058979

With the end of the Universe, the existence of multiverses or parallel universes opens up the possibility for human beings to survive by heading to other parallel universes [10]. Multiverse is a term used to describe the hypothetical set of possible universes, including the Universe in which we live. Together, these universes comprise everything that exists: the totality of space, time, matter, energy, and the physical laws and constants that describe them. The concept of Multiverse has its roots in extrapolations, up to the moment of modern Cosmology and Quantum Physics and also encompasses several ideas arising from the Theory of Relativity in order to configure a scenario in which it may be possible for the existence of countless universes where, on a scale Globally, all probabilities and combinations occur in one of the universes. The idea that we live in a multiverse made up of an infinite number of parallel universes has, for many years, been considered a scientific possibility. The challenge is to find a way to test this theory [18] [20].

Parallel universes would be, in an analogy, similar to bubbles floating in a larger space capable of housing them (Figure 14).

**Figure 14- Parallel universes**
Source: https://www.epochtimes.com.br/multiplas-dimensoes-supercordas-mundos-paralelos/

One of the ideas that Stephen Hawking delved into, by the way, was the concept that there are many other universes than the one we live in with completely unknown galaxies, stars and planets [12]. Although there is no evidence that these parallel universes actually exist, Hawking had been working with Thomas Hertog to prove that it is possible to observe the cosmos and find evidence of these mysterious places. After Hawking's death, Hertog remains researching the deepest questions of the Universe at the Institute for Theoretical Physics at the University of Leuven, in Belgium. According to Hertog, finding evidence of the Big Bang would add further support to the idea that this type of event is responsible for creating other universes – a reality that would momentarily alter people's understanding of space and themselves. In-depth research needs to be carried out to determine whether or not there is a multiverse or parallel universes where humanity would head with the end of the Universe in which we live [2] [8].

Carrying out research to elucidate the fate of the Universe and the existence of parallel universes are very important, but the main one concerns the development of the final theory or theory of everything or unified field theory because, based on your knowledge, would collaborate in the sense that science provides the conditions for humanity to face the threats to its survival that exist in outer space and, above all, collaborate in the sense of pointing out ways for humanity to survive and escape to parallel universes. The final theory or theory of everything, that is, the unified field theory, would seek to explain and connect all physical phenomena into a single theoretical structure, bringing together quantum mechanics and the theory of general relativity in a single theoretical and mathematical treatment. Completing a

theory of everything would also allow us to verify the consequences of using advanced technologies for the benefit of humanity. Success in elucidating these cosmological questions will certainly provide the conditions for the scientific and technological advancement essential to the survival of humanity as a species [21].

### *3.9- Conclusions*

Based on the above, the only possibility for humanity to avoid its extinction from all threats coming from outer space is for human beings to spread and colonize other worlds in the Universe. The only threat that does not demand the escape of humans beings to other worlds in the solar system or outside it is the collision of asteroids and comets or pieces of comets on planet Earth. The other threats will require human beings to flee to other worlds. To avoid the threat of extinction of humanity, it is necessary to face the challenges presented in the article we authored, *The human challenges of conquering space and colonizing other worlds* [22], which are described below:

1) Production of rockets that reach speeds close to that of light to travel to the ends of the Universe.
2) Production of technologies capable of protecting human beings during space travel.
3) Identification of other worlds similar to Earth capable of being habitable by human beings.
4) Enabling humans to survive in space and in habitable places outside the Earth.

The first great human challenge is the production of rockets that are capable of reaching speeds close to the speed of light (300,000 km/s) given the need to promote intergalactic travel by human beings to the ends of the Universe and even to universes parallels. This action is necessary due to the need for human beings to colonize other worlds in the solar system or outside it, and even in parallel universes. This action is also necessary because current rockets are quite limited in their escape velocity. The following are being tested: 1) the ion engine, an ion propulsion system, which could reach speeds close to that of light; and, 2) the Bussard propulsion for spacecraft that could accelerate to a speed close to the speed of light, and would be a very efficient type of spacecraft.

The second great human challenge is the production of technologies capable of protecting human beings in space travel, such as those that NASA is developing to protect humans on Mars: 1) Inflatable thermal shield to land astronauts on other planets; 2) High-tech space suits for astronauts; 3) Martian house and laboratory on wheels; 4) Uninterruptible power as a source of reliable energy supply to explore Mars; and, 5) Laser communications to send more information to Earth.

The third great human challenge is to identify other worlds similar to Earth capable of being habitable by human beings by designing and sending space probes to carry out research in possible locations inside and outside the solar system. To date, there is no evidence that there is another place inside or outside the solar system that is conducive to life similar to Earth. Currently, there are efforts to colonize the planet Mars. However, from what is known about Mars, this planet does not present the necessary conditions for human beings to inhabit it because it does not have a magnetic field or atmosphere and biosphere similar to those of Earth, as well as having an average gravitational acceleration of around 38% at of the Earth harmful to human life.

The fourth great human challenge is to enable human beings to survive in space and in habitable places outside the Earth. The colonization of Mars and other worlds in the Universe indicates that there is an extreme need for the development of more biologically evolved human beings with the use of science and technology to enable them to defy the limits imposed by nature and survive as a species today and in the future. It is necessary to ensure that the formation of supermen and superwomen occurs, which can be achieved through the use of

science and technology (biotechnology, nanotechnology and neurotechnology) to increase cognitive capacity and overcome the physical and psychological limitations of humans beings.

**4. The role of the UN in adopting measures to avoid the extinction of humanity from threats caused by human beings, by the forces of nature existing on planet Earth and those coming from outer space.**

The UN (United Nations) needs to be restructured in order to coordinate actions aimed at preventing the extinction of humanity from threats caused by human beings, by the forces of nature originating from planet Earth and those coming from outer space. To achieve these objectives, the UN should acquire the status of world government. Neither the current UN nor any country, no matter how powerful, will be able to carry out this task. The existence of a democratic world government would represent the most advanced stage of humanity's evolution by creating the conditions for true political, economic, social, scientific, technological and environmental integration of all countries in the world based on a planetary social contract approved by all the people of the world. The democratic world government is absolutely necessary to coordinate the action of all countries in the world at the levels of the global economy, the environment, science and technology and, above all, to ensure world peace on our planet. The new international system should work based on a Planetary Social Contract. The Planetary Social Contract would be the Magna Carta of the people of planet Earth.

To draw up the Planetary Social Contract, the UN General Assembly should convene a Constituent World Assembly with the participation of representatives from all countries in the world elected for this purpose. The Planetary Social Contract should establish the foundations that would serve as the basis for the union of the peoples of the world and the existence of a world Government whose president should be elected with more than 50% of the votes of the world Parliament and also be democratically constituted. To ensure democratic practice and governance on planet Earth, world power should be exercised by the world Parliament that, in addition to electing the President of the world Government, should draft and approve international laws based on the Planetary Social Contract. The world Parliament should be composed of a determined and equal number of representatives from each country democratically elected for this purpose. The President of the World Government will only exercise command of the World Government as long as he has the support of the majority of the World Parliament. The world Government must have an organizational structure that is capable of dealing with international relations, military issues, the global economy, the global environment, education, health, infrastructure, science and technology, among others, to dialogue with the world Parliament and the countries that are part of the international system.

Parliamentarians should elect the board of directors of the world Parliament, which would have an appropriate organizational structure. The World Supreme Court should be composed of high-level jurists from around the world approved by the world Parliament who would act for a fixed period of time and should elect the President of the Court to serve a mandate for a determined period of time. The World Supreme Court should judge cases involving disputes between countries, crimes against humanity and nature committed by national states and rulers in light of the Planetary Social Contract, judge conflicts that exist between the world government and the world parliament and act as guardian of the Planetary Social Contract. The world government will not have its own Armed Forces and must rely on the support of the Armed Forces of the countries that would be called upon when necessary. Therefore, the new rule of international law would be executed by the three constituted powers: World Government, World Parliament and World Supreme Court. World power would rest in the world Government, the world Parliament and the world Supreme Court. World government, world Parliament and world Supreme Court would act as checks and balances aimed at the efficiency and effectiveness of the international system.

A democratic world government would not transform the governments of each nation into its vassals because national governments would maintain their autonomy in their territories and be governed in accordance with the interests of their people, while the democratic world government would aim to defend the general interests of the nations of the world. What would not be acceptable is for any national government to adopt measures that are dissonant with decisions of general interest taken by the world parliament that would reflect the will of the majority of people around the world. The fact is that a democratic world government would avoid the empire of a single country, as has occurred throughout history, and the anarchy of all countries, as is currently the case. The construction of a global democratic government is necessary to face major systemic disasters such as an extreme ecological crisis resulting from global warming, a large-scale economic crisis such as the one currently occurring and likely to worsen in the future, the globalization of organized crime, threats to life on planet Earth caused by planet Earth and those coming from outer space and the advance of terrorism. The defense of humanity against threats to its existence existing on planet Earth and coming from outer space and the preservation of international peace would be the great missions of the new UN restructured as a democratic world government.

It is necessary to understand that there will not be world peace nor will the world market function properly without the Rule of International Law, which can only be applied and respected with the presence of a world government that is accepted by all countries. A world government will only be sustainable if it is truly democratic. Humanity must understand that it has everything to gain by uniting around a democratic world government that would be established with the restructuring of the UN. The new world order must be built not only to organize relationships between men on the face of the Earth, but also their relationships with nature. The UN must coordinate global actions to ensure that humanity is provided as urgently as possible with the instruments necessary to control its destiny. The new UN to be restructured as a world government should pursue five major objectives: 1) avoid the threats of extinction of humanity caused by global climate change; 2) avoid the threats of extinction of humanity caused by pandemics; 3) avoid the threats of extinction of humanity caused by international conflicts; 4) avoid the threats of extinction of humanity caused by the forces of nature originating from planet Earth; and 5) avoid threats to the extinction of humanity coming from outer space. The new UN to be restructured as a world government should set up an organizational structure capable of proposing to the world government the measures necessary to achieve the objectives described above, such as those described below:

- To avoid the extinction of humanity with global climate change, the new UN to be restructured as a world government should coordinate global actions to make environmental progress in each country and globally based on the sustainable development model to ensure that the needs current generations occur without compromising the needs of future generations, putting an end to the constant environmental degradation that is characterized by the depletion of the planet's natural resources and climate change that threaten the future of humanity. The unsustainability of the current model of capitalist development is evident, as it has been extremely destructive of living conditions on the planet. In view of this, it is imperative to replace the current capitalist economic model dominant throughout the world with another that takes into account man integrated with the environment, with nature, that is, the model of sustainable development that can only be achieved with the celebration of a Planetary Social Contract that would establish the foundations of relations between countries in terms of the environment and relations between human beings and nature.
- To avoid the extinction of humanity with the occurrence of pandemics, the new UN to be restructured as a world government should coordinate global actions to make each country make profound changes in its relationship with nature to prevent new pandemics that

threaten the existence of human beings and invest massively in R&D aimed at developing vaccines to combat current and new viruses and new bacteria. Human beings need to start living in harmony with nature, without which their survival will be threatened. The facts of reality demonstrate that the health of human beings depends on the health of the planet. There must be a mobilization of civil society across the planet to build a new world order in which there is a radical change in the concept of development as that which has been practiced for centuries. The UN must coordinate global actions to change the economic matrix in general (agricultural, industrial and services) to consider the need to preserve nature, respect the limits of the environment and its recovery time and stop producing so much rubbish. The UN must coordinate global actions to immediately stop the degradation and deforestation of forests and strengthen the health surveillance systems of all countries and the World Health Organization (WHO), reduce social inequities between and within nations, remove subsidies that favor deforestation and offer more support to indigenous peoples, to contain deforestation, among other measures.

- To avoid the extinction of humanity with the outbreak of the 3rd World War, the new UN to be restructured as a world government needs to avoid the proliferation of wars in the world and, above all, those that contribute to the outbreak of the 3rd World War which could result the use of nuclear weapons by the contenders that could lead to the extinction of the human species. The new UN to be restructured as a world government must coordinate global actions to ensure that humanity is provided as urgently as possible with the instruments necessary to build world peace and control its destiny. The new UN to be restructured as a world government must act to achieve perpetual peace on our planet. The new international system should work based on a Planetary Social Contract that would be the Magna Carta of the people of planet Earth. The new UN to be restructured as a world government should mediate international conflicts based on the Planetary Social Contract approved by all countries in the world. All international conflicts should be mediated by the world government, which would prepare a proposal or proposals for resolving the conflicts in common agreement with the disputing parties, which would be analyzed by the World Parliament, which would approve the proposal or proposals for resolving the conflicts and then be analyzed. by the World Supreme Court to assess whether they would be in compliance with the Planetary Social Contract. The conflict resolution proposals approved by the World Supreme Court would then be implemented by the World Government in agreement with the disputing parties through a resolution based on the decisions of the World Supreme Court.
- To avoid the extinction of humanity with the threats caused by forces of nature originating from planet Earth, which concern the cooling of the core of planet Earth, the catastrophic eruption of volcanoes and the reversal of the Earth's magnetic poles, the process of which would lead to the loss of the field magnetic Earth, the new UN to be restructured as a world government should coordinate global actions, bringing together all the essential competencies that exist around the world with the implementation of a World Organization for the Defense of Humanity Against Forces of Nature Originating from Planet Earth that has the capacity to technically coordinate actions around the world to face these threats originating from planet Earth. It is important that, faced with the threat of extinction of the human species, strategies for escaping human beings to places such as Mars or other places in the solar system or outside capable of sheltering human life are drawn up well in advance, before the loss of the magnetic field of the Earth and the imbalance in the planet's food chain resulting from the cooling of the Earth's core, adopt necessary measures to evacuate human beings to safe locations and, even, if necessary, off planet Earth in places likely to be inhabited in the solar system or outside it in the event that the eruption of volcanoes could lead to the threat of extinction of human beings as has already occurred in the past

and protect human beings by building underground dwellings and underground cities throughout the planet capable of sheltering human beings by protecting them of cosmic and solar radiation during the reversal of the Earth's magnetic poles.

- To avoid the extinction of humanity with threats coming from outer space that concern the collision of asteroids, comets or pieces of comets on planet Earth, collision of planets of the solar system on planet Earth, collision on planet Earth of planets orphans roaming outer space, emission of cosmic rays, especially gamma rays emitted by supernova stars, catastrophic consequences on the Earth's environment resulting from the continued distancing of the Moon from Earth, death of the Sun, collision of the Andromeda and Milky Way galaxies where the Earth is located, and the end of the Universe, the new UN to be restructured as a world government should coordinate global actions to bring together all the essential competencies existing around the world with the implementation of a World Organization for the Defense of Humanity Against Threats Coming from Outer Space that has the capacity to technically coordinate actions around the world in confronting these threats from outer space. It is important that, faced with the threat of extinction of the human species, strategies for escaping human beings to other locations in the solar system such as Mars, Titan (Saturn's moon) and Callisto (Jupiter's moon) with the possibility of to be inhabited by human beings, the escape of human beings from Earth to places with the possibility of being inhabited in other star systems, such as the exoplanet "Proxima b" orbiting the star closest to the Sun, part of the Alpha Centauri system, the escape of human beings to places with the possibility of being inhabited in other galaxies such as the Canis Major Dwarf Galaxy located 25 thousand light years from Earth, or the Large Magellanic Cloud which is located 163 thousand light years from Earth, and the escape of human beings from Earth to places with the possibility of being inhabited in other parallel universes whose existence needs to be scientifically proven.

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