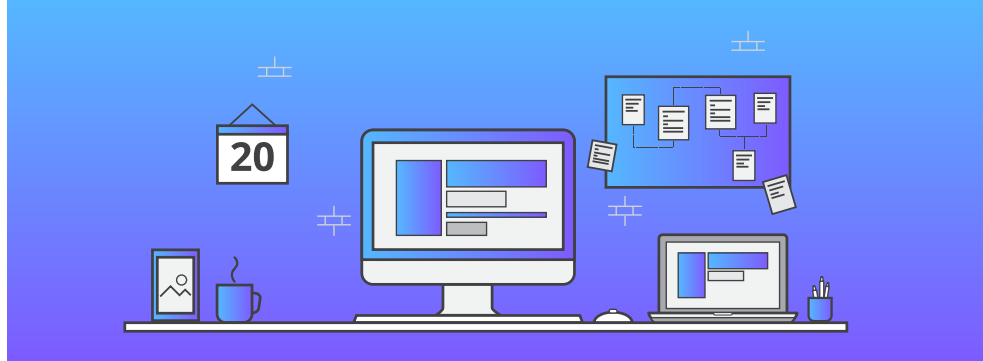


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FORMAL RESEARCH PERSUASIVE ESSAY

Abstract

Global warming has been in the centre of public attention due to its potentially destructive effects. For a long time, greenhouse gases were the undisputable cause of global warming. However, in recent times, skeptics have come up to questioning the credibility of the information available about global warming. They have concluded that global warming may not be a reality, and even if it is, the threat it poses does not warrant the aggressive measures of decarbonization that most nations have endorsed. This article focuses on this debate, presenting the argument of both sides of the divide in as non-partisan a manner as it can afford. The article will then proceed to take a stand based on the information it will present and defend the stand by using credible knowledge. The article will conclude by re-evaluating the argument surrounding global warming and suggesting the way forward.

Introduction

The concept of global warming is based on the rising of average temperatures from all around the world since the late 19th century and its continuation into the future as projected. From the beginning of the twentieth century to the current day, the average temperature of the earth's surface has increased by about 0.8°C, and most of this increase has

happened since the 1980s. Most scientists are in consensus that this increase in global temperatures has been occasioned by the effect of increased concentrations of greenhouse gases which is a result of such anthropogenic activities like deforestation and burning fossil fuels.

Background Information

The climate of the world responds to external forces that may act to either cool or warm the atmosphere of the world. External forces that influence climate include changes in the composition of the atmosphere such as the concentration of greenhouse gases, the luminosity of the sun, volcanic eruptions, and the variation in the orbit of the earth around the sun.

One of the most significant forces that would influence the climate of the world is the orbital changes in the distance between the earth and the sun. Over thousands of years, the orbital cycles of the earth gradually change to vary the distance between the sun and the earth. If this is considered, scientists expect that the atmosphere of the world would be cooling towards the ice age. Therefore, the baffling rise in earth temperatures suggests that global warming is due to a force different from the orbital changes that affect the distance between the earth and the sun. Therefore, various theories have emerged to explain the puzzling rise in the world temperatures that has occurred since the late nineteenth century.

Opposing Perspectives

According to the Joseph Blast, there are seven theories of climate change that enjoy the support and endorsement of most climate change scientists. These theories are elaborated in his book *Seven Theories of Climate Change*. This article will review these theories. The article will then briefly assess each of them and come up with one credible theory.

The first theory is the bio-thermostat theory, which holds that as the levels

of atmospheric carbon dioxide increase, biological and chemical mechanisms act to offset the imbalance (Blast, Joseph). These mechanisms may lead to the decrease in general atmospheric temperatures. This works as though it is a thermostat with the mechanisms compensating for the imbalance in the atmospheric levels of the gas. One of these mechanisms is the increased uptake of carbon dioxide by plants.

The second theory is the cloud formation and albedo theory. This theory posits that changes in formation of albedo clouds serve as a negative feedback mechanism that balance and cancel out the effects of the rise in carbon dioxide levels (Blast, Joseph). The third theory postulates that there are other anthropogenic forces apart from greenhouse gases that impact the climate even more than the greenhouse gases do (Blast, Joseph). These forces include desert irrigation, construction of cities and deforestation. According to the fourth theory those ocean currents which have a cooling effect on the atmosphere have slowed down over the last century, especially in the last thirty years (Blast, Joseph). This theory posits that the slowing of the thermohaline circulation has served to increase the average atmospheric temperatures leading to global warming. This theory is, however, inconclusive, because it does not elaborate how the major anomalies of climate such as El Nino and La Nina affect it.

Another theory claims that climate change is as a result of planetary motion of the earth as it revolves around the sun (Blast, Joseph). The theory holds that natural gravitational and magnetic oscillations of the solar system induced by the planet's movement through space drive climate change.

The sixth theory is that of solar variability. Cloud formation, ocean currents and wind patterns define climate change. Changes in the brightness of the sun or, more accurately, the intensity of sunlight, influence these elements of weather, and therefore cause climate change (Blast, Joseph).

The seventh is, of course, the anthropogenic global warming theory that postulates that human activities that cause a rise in the level of greenhouse

gases lead to global warming and the consequent climate change (Blast, Joseph). It is the most widely accepted theory, and its critics have argued that it has stolen so much attention that it has obscured other theories that could better explain the rise in average world temperatures.

Many scientists have conducted studies whose findings agree with this theory. One was conducted by Professor Shyamal Chakraborti of the Chemistry Department of Calcutta University. He published an article on the "Times of India". The article addresses the projections of the effects of global warming based on the causative factors. It provides information on the various causative factors and the quantitative aspect of their contribution to global warming (Chakraborti Shyamal). In this article, Chakraborti postulates that anthropogenic activities have led to pollution that has caused global warming and would give rise to the massive outbreak of malaria and dengue by 2020.

Another is the article by George Christodoulou. This article reviews the top 10 causes of global warming. It gives explanations of various natural and human influences on the global temperatures that lead to their increase. The author, George Christodoulou, works as an environmental scientist in London. The article is a part of a summary report on the causes of global warming. The article has ten listed references at the end of it (Christodoulou, George). This article implicates methane as a potent greenhouse gas. According to the article, methane is approximately 60 times stronger than carbon dioxide as a greenhouse gas. According to scientists, in the past, a rapid release of methane has led to immense heating of the earth. In the past, when the earth's temperature rose to a certain level such as 8 degrees above normal, the earth's temperature then increased an additional 14 degrees. Again, according to this article, about 10 percent of greenhouse gases is emitted by airplanes.

Another proponent of the anthropogenic theory is the inventor and researcher Rob Roberts. He gives an explicit account of the mechanics of global warming in his article "Causes, Effects and Solutions of the Global

Warming Crisis". According to him:

“Third Assessment Report projects that the Earth's average surface temperature will increase between 2.5° and 10.4°F (1.4°-5.8°C) between 1990 and 2100 if no major efforts are undertaken to reduce the emissions of greenhouse gases (the "business-as-usual" scenario”(Roberts, Rob).

Rob asserts that the increased levels of carbon dioxide and other greenhouse gases (GHGs) released by the burning of fossil fuels, land clearing and agriculture, and other human activities, are the primary source of the human-induced component of warming. These sentiments are backed in the work of Andrew Revking, who reviews the international understanding of causes of global warming and also provides the basis under which control measures for global warming are formulated (Revkin, Andrew C). He argues that the scientific case that presents human activity as the prime cause of global warming is quite strong. He says that scientific evidence from as far back as the 1950s asserts that the primary cause of the global warming is the emission of gases from burning fossil fuels.

Some disconcerted scientists have cast doubts in the anthropogenic theory of global warming. They have tried to exonerate industrial activities of all blame that they have received for global warming. An article published in “The Wall Street Journal” examines the effectiveness and outcomes of the attempts to reduce causes of global warming and builds an argument against the anthropogenic global warming from this. According to this article, the evidence presented by the proponents of the anthropogenic theory of global warming is not compelling enough to warrant drastic action to “decarbonize” the world economy. This argument seems to be economically based, because it emphasizes that even if the projections of the IPCC concerning global warming are acceptable, the aggressive policies for controlling greenhouse gases cannot be justified in light of the economy.

An article which focuses on tundra and arctic regions of the world posits that the rate in decline of the Arctic Sea ice corresponds better with coal consumption in China than it does with global warming. The argument of the paper is that soot that falls on the ice darkens it and results in its faster melting. The ice does not really melt as a result of global warming (Ridley, Matt). This is an argument that is antagonistic with the more popular argument that global warming is the result of anthropogenic activities that release greenhouse gases into the atmosphere.

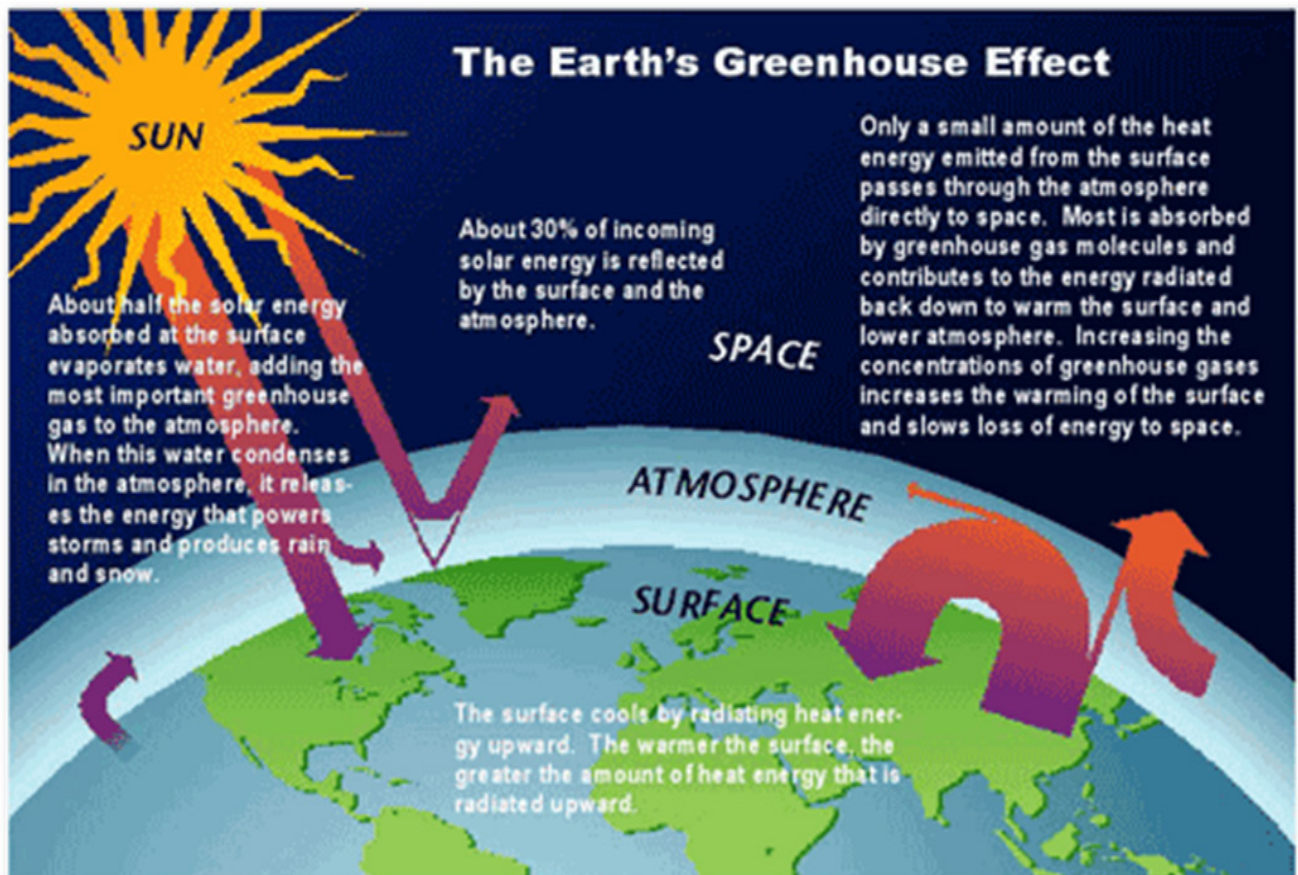
This argument in essence attacks one of the purported indicators of global warming, which is the melting of ice in the Arctic Sea. The article claims that the melting of ice in the Arctic Sea cannot be used to quantify global warming since it could be due to a totally different cause.

Thesis and Support

The causes of global warming and hence the solution to the problem are highly controversial issues. In fact, even the existence of global warming is disputed by some scientists who think that other researchers are simply misleading the masses by fabricating statistics that raise false alarm. This issue has engendered heated discussions. On the one hand, some scientists fiercely defend the fact that mostly anthropogenic activities affect global temperatures. On the other hand, the argument is thwarted by scientists who believe that there is no cause for alarm, because there is no substantial proof for the fact that global warming is a reality. Moreover, these scientists claim that the suggested remedies for global warming are not economically practical. However, an analytical scrutiny of the facts, statistics and opinions suggests that anthropogenic issues are the main causes of global warming.

In order to understand what causes global warming, it is important to look into the proposed mechanism of global warming. Thence, it is possible to make a justified assessment as to which theory is acceptable and most credible.

This image illustrates the greenhouse effect within the earth's atmosphere. It shows the quantity of retention of heat by the thickness of the arrows going in and out of the atmosphere. This shows a resultant increase in the earth's heat energy with time. The temperature of the atmosphere is heavily influenced by the quantity of heat that is retained within it (Strickland, Jonathan). Therefore, if the capacity of the environment for retaining heat is increased in whatever way, it logically follows that more heat will remain within the atmosphere causing a rise in temperature.



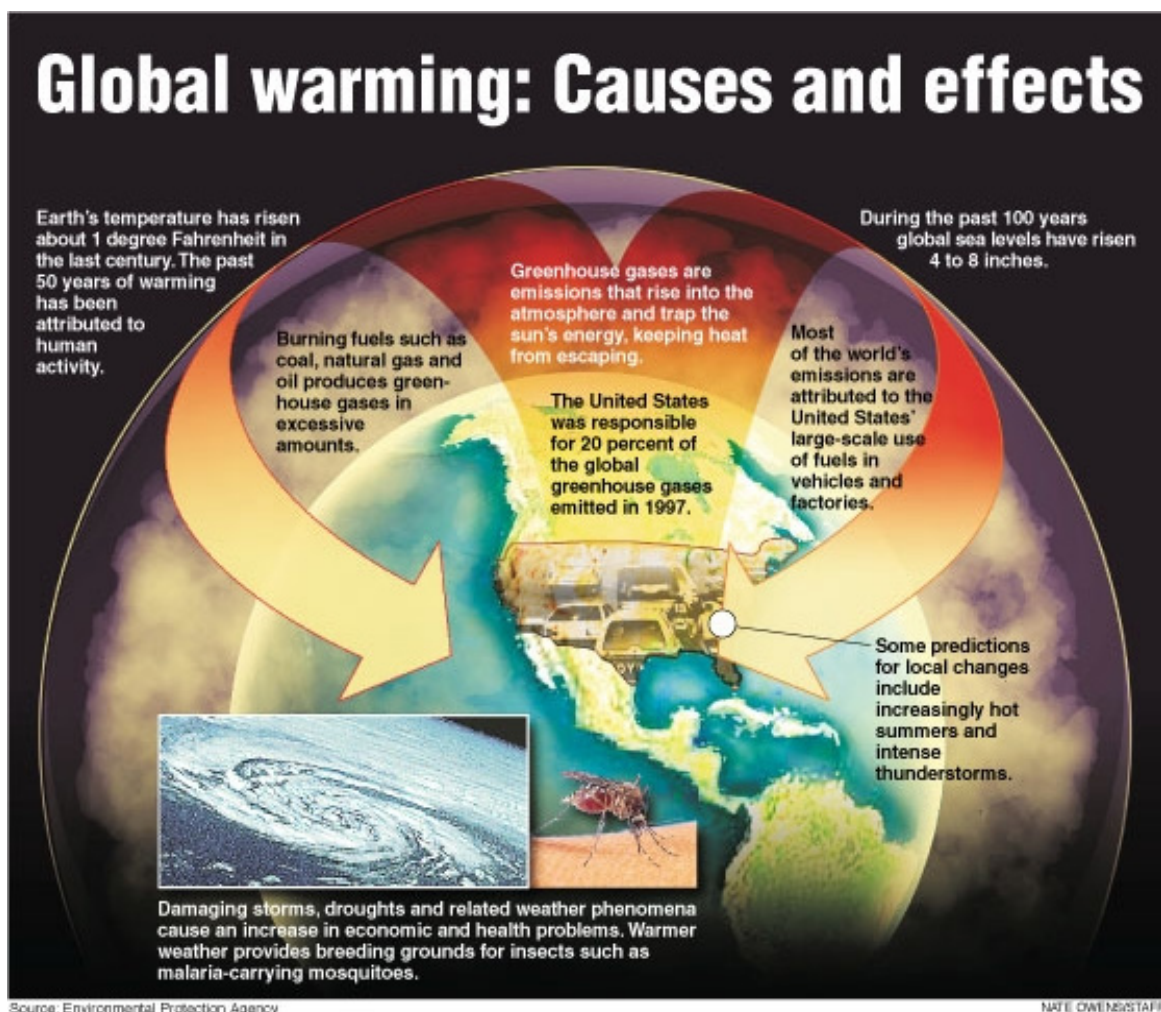
The effect of greenhouse gases is to increase the retention of heat within the atmosphere thus causing a rise in the atmospheric temperatures. Greenhouse gases, in effect, act as if they are a blanket to the atmosphere, preventing heat loss to outer space.

The anthropogenic theory of global warming therefore holds more weight than all the other theories, because it is not only direct, but because it has been endorsed by the largest number of scientists who are also aware of

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This image stresses on the various causes and effects of global warming. It attributes most of the greenhouse production to the US industries that burn a significant amount of fossil fuels. It provides insight into the causes of global warming. This image is a representation of the seriousness of the causes of global warming, and its main point is that global warming comes mostly from industrialization. This is because industries emit the biggest amount of greenhouse gases (Blue Marble).



Conclusion

The concept of global warming has been sensitive, with several scientists coming up with conflicting facts and opinions. In all this mayhem, the truth is obscured. However, basic knowledge of the factors that influence the temperatures of the atmosphere is helpful in sorting out the reliable facts from the unreliable ones. Given the knowledge of how temperature in the atmosphere is regulated, it is safe to say that the anthropogenic theory of global warming is the most credible theory that explains global warming. Therefore, it is time nations started looking at the issue of global warming through a clearer lens and acting appropriately to reduce the emission of greenhouse gases into the atmosphere.

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