

Example of research paper on global warming

[Environment](#), [Earth](#)



\n[[toc title="Table of Contents"](#)]\n

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1. [Introduction](#) \n \t
2. [Global Warming a fact or myth?](#) \n \t
3. [Causes of Global warming: Manmade or Natural](#) \n \t
4. [Mitigation Strategies for Global Warming](#) \n \t
5. [Conclusion](#) \n \t
6. [Reference](#) \n

\n[/toc]\n \n

Introduction

In recent years due to the rising temperature of the globe we have seen an increase in the number of natural calamities affecting us. Tsunami in Japan and Indian Ocean, Katrina in Southern United States and Icelandic volcanic eruption are few of them. The average temperature of the earth is on the rise. We hear lot of concerns voiced against the man induced causes of global warming. It is one of the topics that concern one and all in the world. Is it a fact or is it a myth? We will try to discuss and establish in the next few pages of this essay that earth is warming due to anthropogenic causes and what can we do to reduce global warming.

Global Warming a fact or myth?

Global temperatures were recorded in most of countries of the world starting in the second half of the 19th century and whatever temperatures were recorded in last 100 years shows that the average surface temperature of the earth have gone up by 0.74 ± 0.18 °C between the period 1906 to 2005.

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However, the temperature rise was much severe during the second half of the 20th century than the first half. (Kevin E. Trenberth et al, 2007). Many scientists believe that it is an unnatural rise. With the use of different indirect techniques of collecting temperature data, it was found out that the temperature of the earth is relatively stable and very few years of extreme fluctuations apart the average temperature remained almost same for the last 2000 years. (Eystein Jansen, 2007).

Even if we look at the average temperature data of recent years vs. the temperatures of the first few decades of the 20th century we see much hotter years in 21st century than during the last century. In fact in last 120 years, among the 13 warmest years 11 of those fall between 2000 and 2011 (UK Met Office). The land temperature as well as the average ocean temperature has gone up. Because of higher specific heat capacity of water the temperature rise on the ocean bed is slower than the temperature rise on the land. Since 1979 the land surface temperature has gone up by 0. 25 degree per decade against 0. 13 degree of the ocean temperature rise (Gerald A Meehl et al, 2005)

Causes of Global warming: Manmade or Natural

It is almost an established fact and also we have seen in the previous section of the essay that the average temperature of the earth has increased over the last few decades at a rapid pace. There are two different schools of thought on this issue. The first category, the biggest one of the lot, believes that in recent years because of the manmade causes the earth temperature has escalated rapidly and it is not a natural phenomenon. The second school of thought believes that the earth temperature has gone up but not owing to

manmade causes; rather natural causes have a role to play in the increase of temperature. We will try to discuss all the points that are put forth by those two groups and see what makes most sense among all the evidences.

The biggest group of all who believes that global warming is a manmade phenomenon argues that the major reason for global warming is an increase in greenhouse gases in the atmosphere. With the normal percentage of those gases in the air, the earth tries to maintain an average temperature of around 59°F. However, an increase in the percentage of greenhouse gases contributes to the retention of more heat in the atmosphere resulting in warming of the planet. Over the last two centuries, we have burnt a lot of fossil fuels (Coal, Oil) for running automobiles, industrial machines and power plants. Consequently, the percentage of greenhouse gases has gone up in the air; especially the percentage of CO₂ has doubled and that of methane has almost tripled. Average temperature of the earth surface during this period has shot up by more than 2°F. It is evident now that the greenhouse gases in the environment have gone up in the atmosphere causing the earth to absorb and retain more heat and that is the main cause of global warming. The data is consistent and the theory seems the most suited one to describe the current global warming trend but before coming to any conclusion we also will like to take a look at other arguments.

The group which believes that it is a natural phenomenon and earth changes its temperature pattern in every few thousand years presents periodic Ice Age phenomenon as one of the evidences to validate their points. It is also a well augmented truth that earth goes through temperature changes based on natural causes like sun flares, El Nino, Volcanic activities and chemical

weathering. However, many of those processes like chemical weathering are very slow process and take millions of years to cause any significant temperature change in the atmosphere. Sun flares also are not known to have changed or increased much in last few decades to explain the recent temperature rise. These reasons including earth orbital cycle, sun flares, and chemical weathering all attribute to global temperature rise or fall but they do it at a very slow pace over thousands of years. In the current scenario the average temperature of the earth has shot up significantly in a very short span of time which can only be explained by the man-made causes such as burning of excessive fossil fuels to create huge greenhouse gases in the atmosphere.

Mitigation Strategies for Global Warming

In order to reduce global warming, the most important mitigation strategy involves reducing greenhouse gases in the atmosphere. There are many different ways to control greenhouse gases. The power sector should try to shift towards energy sources that are environment friendly. Energy sources like nuclear, wind, hydroelectricity and ocean current based power sources should be incentivized over the conventional power sources. Another big reduction in greenhouse gases may come from automobile sector. Increasing the fuel efficiency of vehicles and using more electric powered vehicles will contribute to the reduction of greenhouse gases. Globally, all the countries and organizations should be levied a carbon credit and carbon emission based taxes. Any organization operating in an environment friendly way will receive tax credits over others. Hopefully, if all these measures are taken the

green houses gases will reduce in the environment and the temperature of the earth surface will not rise.

Conclusion

In recent years, as our understanding of the nature is getting better, we are able to measure even the minute changes happening around us more and more accurately. With very accurate data available from satellites, modern sophisticated observatories and hi-tech meteorological offices we can say with much more conviction today that whatever may be the other reasons for global warming the significant rise in temperature of the earth in recent decades is best reasoned by the increase of excess greenhouse gases in the atmosphere. It is a warning sign for all of us and we should be very responsible in our way of dealing with nature in future. Incorporation of more green ways of leading life and less fossil fuel burning will definitely curb global warming considerably.

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