

Global warming and climate change essay sample

[Environment](#), [Climate](#)



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Attention has begun to shift from local, short-term seasonal patterns of temperature, rainfall, other elements of the weather, toward longer-term trends that can affect the entire Earth, so long-term (typically 30-year) weather trends are called “climate.” It is therefore important understand the difference, as well as the relation, between “weather” and “climate.” An example of the relationship between weather and climate is El Nino, which is weather with local, short-term consequences as well as with global, long-term importance. In the short-term. El Nino can bring a dry summer for some regions and a wet winter for others; however, over the course of many years, the number of times El Nino conditions occur may decide changes in the global climate.

Variations in the behaviour of the weather over long time periods, such as from one century another, are referred to as climate change. Climate itself adjusts from the times of ‘ice ages,’ when huge ice sheets covered large areas that are currently ice-free, to periods similar to today when ice sheets are largely confined to Antarctica, Greenland, and the floating Arctic sea ice. Paleo-climate records indicate that much of the climate changes over the last two million years occurred in a rather cyclical manner; with glacial periods lasting roughly 100, 000 years with warmer interglacial periods of 10, 000 years occurring in between. The sun, of course, is the ultimate source of heat energy reaching the Earth, fueling our weather systems, and establishing our major climate zones.

There is, however, good evidence that larger variations in the sun’s activity do occur. For example, during the last half of the 17th century, there was a period of greatly reduced solar activity. This was also a time of harsh winters

and extended bitter cold referred to as the Little Ice Age. Scientists do not yet understand the underlying cause of such larger scale variations in solar activity, but do know that they can play a key role in shaping the Earth's climate. Global climate has been changing and still continue to change. Over a long period of time, climatic fluctuations may be such that, a shift in type of climate prevailing over a given area, takes place. In that case, we talk of a change in climate or climatic change. Various terms used to describe variations in climate, namely, climate variability. Climatic fluctuations, climatic trends, climatic cycles and climatic change, refer to some appropriate time scales and can only be validly used within such time scales. The evidence of past climatic change is many and varied, such biological, lithogenic and morphological. Prior to the 1990s, scientists largely believed that the shifts in climate between ice ages and warmer periods occurred over centuries and millennia due to the large amount of time necessary to build up or melt an ice sheet over a kilometer in thickness. Geologic evidence from the last decades, however, shows that there have also been rather abrupt periods of climate change spanning anywhere from years to decades.

Abrupt climate changes can occur when variable that change gradually push the Earth's system across some limit of instability. One of the known examples of this rapid change is the Younger Drays, which was a sudden interruption gradual global warming that began 12, 800 years ago after the end of the last glaciations. The sudden return to a cold global climate lasted for 1, 200 years and was followed by a very rapid warming of about 8°C over the course of 10 years. Climate' variation occurs as a response to " climate

forcing,” which are factors that cause either a warming or cooling of the atmosphere. Over most of the Earth’s history forcing have been entirely natural, caused by continental drift, variability in solar radiation, change in the Earth’s orbit, and volcanic emissions. However, since the industrial revolution, human activity has had a large impact on the global climate system, increasing the amount of greenhouse gases in the atmosphere, trapping heat and contributing to global warming. The Intergovernmental Panel on Climate Change (IPCC) reported that the Earth’s average surface temperature during the 20th century increased approximately 0.6°C. While this may seem like a small change, global temperatures are generally quite stable. The difference between today global temperature and the average global temperature of the last ice age is only about 5°C.

However, over the last century we have witnessed a decrease of nearly 10 percentage snow cover and a 10-15 percentage decrease in spring and summer sea-ice in the northern hemisphere] Other observed changes that have been linked to climate include longer growing seasons, increases in rainfall and rainfall intensity in the northern hemisphere, and shifts in when ice freezes and breaks up on rivers and lakes. The IPCC has projected that global average surface temperatures could increase 1.4 to 5.8°C by 2100. Daily maximum and minimum temperatures will increase as well as the number of hot days-, with less cold and frosty days. The global average precipitation and evaporation is also expected to increase by about one to nine percent. The precipitation changes are expected to vary from region to region, with increases over the northern mid to high latitudes and in Antarctica during the winter. The intensity of extreme weather events is also

likely to increase, with greater extremes of both flooding and drought.

Despite all of the information and evidence that scientists have uncovered related to changes in climate, there continues to be uncertainty around the causes of climate change and its potential impacts.

These uncertainties stem primarily from the science itself as well as from the future of human behaviour, especially as it relates to the amount of natural climatic variability and future greenhouse gas emissions. Many of these factors will depend on human behaviour, which may be influenced by effects on health and the quality of life, technological advances, and policy changes. Therefore, when dealing with climate change, scientists need to make a number of assumptions with an ever increasing number of models that focus on different parts of the climate system; all of which makes pinpointing exactly what to expect in terms of future climate change that much more difficult. However, climate involves the entire climatic systems including hydrosphere, lithosphere, [biosphere, and atmosphere and cry sphere. It affects geomorphologic process, soil formation process, plant growth and development. In exchange, man also exerts influence on climate through various activities and is consistently changing the atmospheric conditions. It goes without saying that man is the worst enemy and polluter of environment. Though, natural environment is essential for the very existence of man and is the primary source of his life and social production.

The energy balance of our planet is also affected by changes in the transparency of the atmosphere as a result of man's production activities. 2 Population growth intensifies the whole process through which

anthropogenic interventions alter the climate. More people exploit more natural resources, cut more trees, use more fossil fuels, produce more wastes, build more roads, dams and cities, pollute more soil, water and air, and contribute more greenhouse gases to the atmosphere ' which may lead to the ozone depletion and global warming, i. e., ultimately damaging the entire environment and aggravating the climatic change. Thus, man is capable of influencing global climate deliberately or inadvertently through his various actions and activities.