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CLIMATE CHANGE and CARBON

Climate Change and Reducing Your Carbon Footprint

Introduction

The topic of climate change is a complex and controversial subject, but one of vital importance to the world community. In the words of one television commentator, "It's difficult to briefly explain climate change; it's so big, and it's about everything." But by now, most of us has at least heard of the subject, and most countries are grappling with it's implications and possible interventions.

Climate is the average weather for a place, or even the earth over a long period of time. Climate change is any distinct change in measures of climate lasting for a long period of time. So, major changes in temperature, rainfall, snow, or wind patterns for decades or longer would fit that bill. Climate change may be caused by natural causes, such as changes in the Sun's energy hitting the earth, changes in the oceans circulation, and the complex interactions of a combination of natural causes. Human activities that change the atmosphere's gaseous makeup, the land surface and the oceans may also be involved.



While the fact that the climate is changing is well accepted by now, the reasons for it are the subject of much debate. There is a broad consensus that global temperatures are increasing, and the increase in temperatures will cause major problems for the earth and the human race. So whether the cause is natural or man made, the current actions of humans are making it worse by our massive use of fossil fuels and other resources.

At the center of this problem lies a lowly molecule called carbon dioxide (CO₂). Labeled the primary "greenhouse gas", CO₂ is at the center of climate change, or alternatively, "global warming". Elemental carbon is a building block of life, and carbon dioxide is the by-product of any release of energy, whether by respiration, decay, fire or production of something. Every time we burn through a tank of gas, produce power with coal from the earth, burn a log in the fireplace, we are releasing carbon into the air. Plant growth, and other natural processes can store carbon in the earth also, but as you may have guessed, we are releasing much more carbon than the earth is storing.

To continue the chain of events, the more carbon dioxide that is released into the atmosphere, the more heat is trapped from the Sun around our world. This increase in temperature is changing the delicate balance of processes that make the ocean currents, glaciers, weather patterns, and growing zones work the way they do. These processes normally are very stable and change only over the span of tens of thousands to millions of years. With the dramatic increase in carbon into the atmosphere in just a short span of 200 years



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200 years, these processes are changing faster than the ability of plants and animals to adapt. Many researchers fear massive global changes, such as increasing ocean levels, impacts on croplands, forest areas, weather patterns, and land and ocean habitats, just to name a few.

The impacts man is having on earth are complex and not a little controversial. Some refuse to believe any link between man and climate change. The overwhelming majority of opinion however, now lands on the side that places man to blame for at least part of climate change. And regardless, we have only one earth, and it is our obligation to care for, and preserve this world for future generations.

According to NOAA and NASA data, the Earth's average temperature has increased 1.4°F in the last 100 years. Since 1850, eight of the warmest years have been since 1998. As the planet warms, scientists predict that weather events will intensify, meaning hurricanes will be more destructive. Also ecosystems may rapidly change faster than the plant and animal species living there can adapt. Unnatural melting of the massive ice sheets in our polar regions is already occurring, and scientists are uncertain of the consequences. These events are caused by incredibly complex interactions of climate, oceans, Sun and land use decisions that researchers the world over are trying to understand completely. But there is grave concern in institutions, governments, and businesses alike that we must try to find a way forward to reduce our greenhouse emissions. Only this will reduce the impact of climate change.



It is hoped this introduction of articles will spur people to investigate this issue further, starting with the resources at the end of the article. The solution to climate change starts with each of us living a "greener" life and becoming involved in the local and national drive to control our massive use and abuse of our limited resources.

The articles in this section and in the "Green Living " area of Oakland's web site are a great place to start your journey.

But enough talking, let us start now.



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Resources

United States Environmental Protection Agency, www.epa.gov/climatechange.html

The PEW Center for Global Climate Change, www.pewclimate.org

The Union of Concerned Scientists, www.ucsusa.org

www.stopglobalwarming.org. What you can do to help

The Global Climate Change Student Guide, Manchester Metropolitan University. Good comprehensive learning document on climate change.

Geology.com. A cool website on global warming.

Books

There are literally hundreds of books on climate change. The best advise is to start at the library and go from there. Here are just a few.

[A change in the Weather: People, Weather and the Science of Climate](#) by William K. Stevens.

[The Carbon Age](#), by Eric Roston

[Climate Solutions: A Citizens Guide](#) by Peter Barnes

[The Hot Topic: What We can do About Global Warming](#) by Gabrielle Walker and Sir David King



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