

Atmosphere and clouds:

[Science](#), [Physics](#)



GLOBAL CLIMATE CHANGE (Carbon Dioxide: Atmosphere and Clouds) of the Submitted:

The global warming phenomenon has been a subject of much contention and debates. It has prevented some people from taking climate change more seriously and doing the preventive actions that will slow down the global warming and maybe even reverse this warming trend (Lutgens, Tarbuck & Tasa, 2011, p. 12). Scientific research shows there is direct connection (a positive correlation) between the level of carbon dioxide (CO₂) in the atmosphere and global warming because CO₂ is a greenhouse gas. A close examination of available scientific data shows the current atmospheric CO₂ to be at around 394.49 ppm (concentration as measured in parts per million) for July 2012 (latest data available), 392.59 ppm for July 2011 and 390.49 ppm for July 2010 (Mauna Loa Observatory, 2012, p. 1). Safe level is determined to be at around 350 ppm only and this data set shows ppm has been exceeded. Global temperatures had certainly soared over the last 150-year period, since this coincided with the first use of fossil fuels on a wide scale by man-made machines invented during the Industrial Revolution. However, data over a longer time frame (going back to 450,000 years) will show us that temperatures are not significantly higher or lower today than it was several millennia ago. This is shown by the graph indicating the carbon dioxide concentrations for the last 450,000 years which shows patterns over the long-term trend (Schlumberger Excellence in Educational Development Incorporated, 2012, p. 1) has not changed very markedly but just a part of the normal cycle. The three main ways by which human interventions (daily human activities) add CO₂ by releasing it to the atmosphere are by burning

fossil fuels (coal, oil and natural gas), deforestation and cement production (ibid.). Other activities result in additions to atmospheric CO₂ like power generation and industrial activities (cement factories, industrial farms, etc.) and increasing urbanization. The end result is that the world is getting warmer as global temperatures continue to rise all over.

The two major ways by which carbon dioxide is removed from the atmospheric system are through living green plants and the actions of oceans. The plants and trees remove the CO₂ by using carbon during photosynthesis or the process when light energy from sun is converted into chemical energy, using carbon dioxide as one of the elements (Mauseth, 2009, p. 224) during their growth and food production by turning these into organic compounds. The second sink, the ocean, is when air gets into contact with the surface water during wave action. This absorbs the CO₂ into the water and dissolves it, effectively removing and reducing the CO₂ from the atmosphere known as sequestration (Johansen, 2009, p. 453). The oceans remove about 24% of all the CO₂ from human activities or equal to approximately 8.8 billion metric tons annually.

Deforestation has two adverse effects on the carbon dioxide balance in the atmosphere. Firstly, cutting down trees reduces the amount of CO₂ that could be absorbed by photosynthesis, as mentioned earlier. Before the advent of chainsaws, people burn down entire forest stands just to hasten the process of clearing the land for other uses such as agriculture, housing or urban development. All that burning releases so much CO₂ into the atmosphere at once. Secondly, lost forest cover is not replaced immediately

or adequately by these alternative uses, such that the CO₂ sink provided by forests is lost forever due to the denudation. The place becomes hotter. In my considered opinion, humans are certainly contributing to global warming trends, but not that much as some experts would like people to believe. There are more people today and they also consume more products, thereby increasing their carbon footprints. But to put things in a larger context, it is also important to note that some 550 million years ago, the CO₂ levels in the atmosphere were 18 times more than what it is today, at an incredible 7, 000 parts per million!

Reference List

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