

## SOME MYTHS ABOUT GLOBAL WARMING

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### Problem

Do we have global warming? Looking back to our life's experience it seems so, but individual subjective feelings are not a scientific fact. Only during the last 50 – 70 years we have average global temperature estimates from reliable satellite data. These data show that we really are witnessing very fast temperature increase. If this trend will continue then consequences can be very serious. What is the cause of this trend? I am told that it is caused by the greenhouse effect due to increase of CO<sub>2</sub> emission in atmosphere.

Half a century is very short period in the Earth history. All efforts to make detailed estimates for the longer years backward are based on scarce isolated data and are not reliable. However, we knew for sure that there were long hot geological periods and several Ice Ages. What were reasons for such drastic climate changes? How high was CO<sub>2</sub> concentration in the atmosphere during these periods? Scientists say that during at least the last 650,000 years, CO<sub>2</sub> levels have tended to track the glacial cycles. That is, during warm interglacial periods, CO<sub>2</sub> levels have been high and during cool glacial periods, CO<sub>2</sub> levels have been low. Why this happened?

We do not have answers to these questions.

### Greenhouse effect and CO<sub>2</sub>

The greenhouse effect is the process in which the emission of infrared radiation by the atmosphere warms a planet's surface. The greenhouse effect was discovered by Joseph Fourier in 1824 and first investigated quantitatively by Svante Arrhenius in 1896

In the Earth's atmosphere, the dominant infrared absorbing gases are water vapor, carbon dioxide, and ozone. Other absorbers of significance include methane, nitrous oxide and the chlorofluorocarbons. The relative importance of different infrared absorbers is confused by the overlap between the spectral lines of different gases. As a result, the absorption due to one gas cannot be thought of as independent on the presence of other gases. Water vapor can be thought of as providing 36% of the greenhouse effect, carbon dioxide 9%, and ozone about 3%.

Why we are considering only CO<sub>2</sub> as main reason of temperature increase? What about the impact of other greenhouse gases?

### Proposed solutions

Due to important consequences of the possible climate changes, lots of preventive measures are recommended, mainly to decrease CO<sub>2</sub> emission. Let us investigate only few more popular.

*Deep see burying.* This is a fantastic project. All big chimneys must be equipped with CO<sub>2</sub> traps, big tanker fleet must be ready to carry CO<sub>2</sub> to the burying sites, elaborate deep see platforms must be erected to pump CO<sub>2</sub> to 7000 – 10000 meters under the sea level, etc. The crucial question, however, is – how long carbon dioxide will stay underwater before it will start to go back to atmosphere due to diffusion?

*Biofuel* is derived from recently dead biological material, most commonly plants.

Industrialized countries started the biofuels boom by demanding ambitious renewable-fuel targets. These fuels are to provide 5.75% of Europe's transport power by 2010 and 10% by 2020. The United States wants 35 billion gallons a year.

It seems a small percentage, but these targets far exceed the agricultural capacities of the industrial countries. Europe would need to plant 70 percent of its farmland with fuel crops. The entire corn and soy harvest of the United States would need to be processed as ethanol and biodiesel. Can we accept such strategy when millions of people are starving? Besides, we must account also for the vast quantities of additional water needed, pesticides, and additional nitrous oxide emission from fertilizers which is also a greenhouse gas and can fully destroy the effect of CO<sub>2</sub> reduction.