

## Let Climate take Time-Out

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Insufficient time has passed to demonstrate that the increase in Earth's temperature from 1970-th to 2000 was caused by increasing CO<sub>2</sub>, resulting from the burning of fossil fuels. Major changes in Earth's surface temperature during the last million years of glacial periods and interglacials were apparently not driven by changes in CO<sub>2</sub> in the atmosphere.

**Ключевые слова:** climate, warming, carbon dioxide, temperature.

Прошло недостатньо часу для демонстрації того, що причиною підвищення температури Землі у період між 1970 та 2000 рр. є підвищення вмісту CO<sub>2</sub> внаслідок спалювання викопних палив. Більшість змін у температурі поверхні Землі на протязі останнього мільйона років під час льодовикових та міжльодовикових періодів відбувались не внаслідок змін концентрації CO<sub>2</sub> у атмосфері.

**Ключові слова:** клімат, потепління, діоксид вуглецю, температура.

The Intergovernmental Panel on Climate Change (IPCC) told the world, in 2007, that it was 90 % certain that the warming of the planet during the last thirty years had been largely due to CO<sub>2</sub>, generated by the burning of fossil fuels. This expression of certainty by IPCC was political; it had nothing to do with the science. Despite an alliance with science from conception, birth and early marriage in the 1980's, IPCC has been primarily a political organization, thriving under the auspices of the United Nations.

Measurements of Earth surface temperature and CO<sub>2</sub> in the atmosphere, from the mid 1970's to about 2000, show that both have been rising. Whether the latter causes the former, or the former the latter (with CO<sub>2</sub> being of little relevance – too trivial to influence on-going natural change), is open to debate. But, under all circumstances, what is happening to climate today can only be understood in a longer term historical context. A focus on the last thirty years tells us nothing; it presents a hypothesis, some would say a plausible hypothesis; no more.

Fig. 1 shows generally accepted surface temperature data since the end of the Little Ice Age. Over this period, for the last 160 years, temperature has gone up 0,7–0,8 °C, essentially thanks to two intervals of relatively rapid warming, the first between 1910–1940 and the second 1970–2000, separated by a thirty-year period of cooling. If we plot CO<sub>2</sub> together with the temperature curve (see the lower panel on Fig.1), it is obvious, at a glance, that there is no simple correlation between them. From 1850 to 1950, CO<sub>2</sub> went up about 20 ppm (from 290 ppm to 310 ppm) and from 1950 to 2000 about 75

ppm, i.e. for the first hundred years at about 0.2 ppm/year and, during the following fifty years gently increasing to ten times this rate (i.e. 2 ppm/year).

After the last glacial maximum, about 22 000 years ago, temperature jumped 10 °C and the

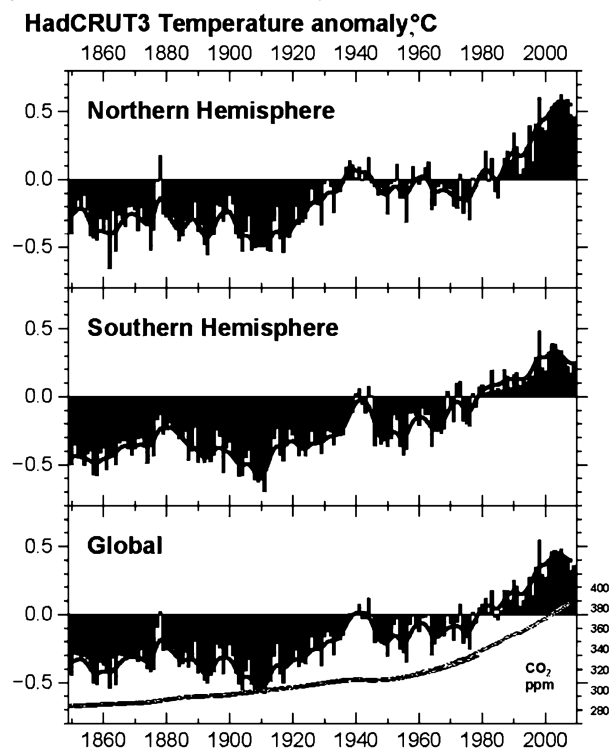


Fig.1. Surface temperature anomalies – Global and Northern and Southern Hemispheres (from Hadley Center, UK, 2009). CO<sub>2</sub> in parts per million, from ice-core data and, more recently, from the Mauna Loa laboratory.

transition into our present Holocene interglacial was rapid. Temperature reached a maximum during the so-called Holocene Optimum (c. 6000–8000 years ago) when it was about two degrees higher than now. The warmth of the Holocene Optimum melted the ice in the Arctic and promoted the development of Earth's early civilizations in Egypt, Mesopotamia and China and the greening of the Sahara. Thereafter, temperature decreased into the Little Ice Age and then, fortunately for us, has warmed a little. The drop in temperature from the Holocene Optimum to the Little Ice Age was 2–3 °C. This downward trend was not a steady decline; it was characterized by warmer periods (e.g. in Roman and Medieval times) separated by intervals of cooling (e.g. in the Dark Ages). According to IPCC, during all these changes from the glacial maximum to the beginning of the last century, the Earth's atmosphere retained a level of CO<sub>2</sub> of about 280 ppm.

If we look back even further, prior to the last glacial maximum, during the 2.5 million years of Quaternary glaciations and interglacials, CO<sub>2</sub> apparently only varied between about 180 and 400 ppm (based on ice-core measurements), following temperature up and down with a delay of a few hundred years. Seen in the even longer perspective of Earth's history, our Quaternary experience has been one of the coldest in the last 500 million years and with 10 to 20 times less

CO<sub>2</sub> than in the past. In this geological context, IPCC's confidence in the dominance of anthropogenic warming and its predicted negative impact on society is indisputably politics, not science.

During the last 10 years, despite continued rising CO<sub>2</sub>, temperature on Earth has stopped increasing and recently has been going markedly downwards, as it did in the 1940's. This is particularly surprising because the CO<sub>2</sub> influence on temperature is considered to be logarithmic. One obvious possibility is that temperature will continue to drop for the next twenty to thirty years, as it did between 1945 and 1975. Maybe the impact of CO<sub>2</sub> has been overestimated and the role of clouds, albedo and other phenomena in controlling temperature, has been underestimated. Apparently, the CO<sub>2</sub> – driven climate models are having difficulty simulating the on-going change.

The record both prior to and since the 1970's provides no basis for alarmism or drastic political action. We need to use our fossil fuels more efficiently, but we do not need to fear them, demonise them or abandon them. Let Climate take Time-Out – only time can tell how climate will change.

P.S. For how many years must the Planet cool before politicians understand that the Globe is no longer warming?

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## Климат нуждается в передышке

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Прошло недостаточно времени для демонстрации того, что причиной повышения температуры Земли в период с 1970 по 2000 год является повышение содержания CO<sub>2</sub> вследствие сжигания ископаемых топлив. Большинство изменений в температуре поверхности Земли в течение последнего миллиона лет во время ледниковых и межледниковых периодов происходило не вследствие изменений концентрации CO<sub>2</sub> в атмосфере.

**Key words:** климат, потепление, диоксид углерода, температура.

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