NOAA

Sun and ice on a National Oceanographic and Atmospheric Administration expedition to the Arctic.

The Sun, Not Man, Still Rules Our Climate

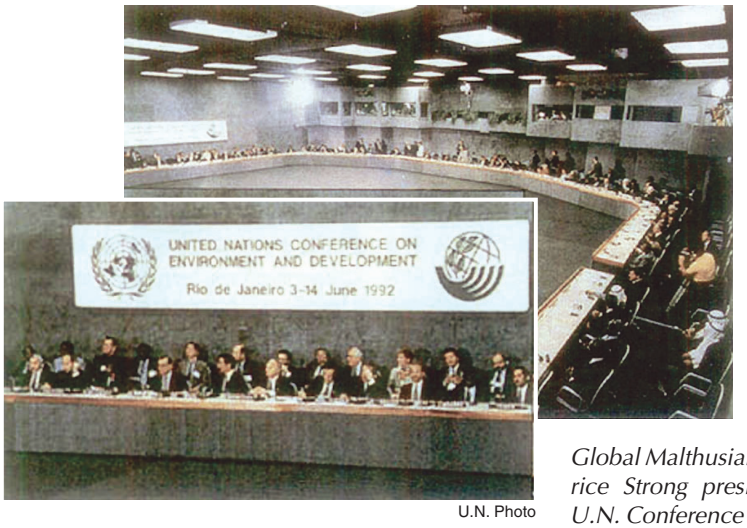
by Zbigniew Jaworowski, M.D., Ph.D., D.Sc.

In an op-ed in the Polish weekly *Polityka*,[1] I commented on a remarkable decrease of global temperature in 2008 and over the past decade. Not surprisingly, the op-ed evoked a strong reaction from the Polish co-workers of the Intergovernmental Panel on Climate Change, IPCC, denying the existence of cooling. Surprisingly, however, the criticism dwelled upon a "global climatic conspiracy," and "colossal international plot." I did not use these words nor even hint at such an idea. This idea, however, was probably apparent from the data and facts I presented, showing the weaknesses of the man-made global warming hypothesis.

A leading scientist dissects the false "fingerprint" of man-made warming and the Malthusian hand promoting it.

Without considering the irrational political or ideological factors, in fact, it is very difficult to understand why so many people believe in the human causation of today's Modern Warm Period, which was never plausibly proven by scientific evidence. I will discuss some of these factors here.

1. *Polityka*, April 12, 2008.



U.N. Photo

Global Malthusianism in action: Maurice Strong presiding over the first U.N. Conference on the Human Environment in Stockholm in 1972 (at left) and, 20 years later, presiding over the U.N. Earth Summit in Rio de Janeiro.

Suicidal Conspiracy

A conspiracy stratagem was openly presented by Maurice Strong, a godfather of the global environmental movement, and a former senior advisor to Kofi Annan, U.N. Secretary-General. In 1972, Strong was a Secretary-General of the United Nations Conference on the Human Environment in Stockholm, which launched the world environment movement, and he has played a critical role in its globalization. Twenty years later, Strong was the Secretary-General of the Earth Summit conference in Rio de Janeiro, where, on his instigation, the foundations for Kyoto Protocol were laid.

Government of Japan

In an interview Strong disclosed his mindset:

> What if a small group of world leaders were to conclude that the principal risk to the Earth comes from the actions of rich countries? And if the world is to survive, those rich countries would have to sign an agreement reducing their impact on the environment. Will they do it? The group's conclusion is "no." The rich countries won't do it. They won't change. So, in order to save the planet, the group decides: Isn't the only hope for the planet that the industrialized civilizations collapse? Isn't it our responsibility to bring that about? This group of world leaders forms a secret society to bring about an economic collapse (Wood 1990).

Strong is listed by Wikipedia in its entry on global warming conspiracy as one of the main partners in the global warming plot, together with Kofi Annan, Al Gore, George Soros, Mikhail Gorbachev, Jacques Chirac, the United Nations, the Bilderberg Group, the Club of Rome, and the ecological movement (Wikipedia 2008)).

The misanthropic ideology professed by Strong, a representative of the top echelon of the United Nations Organization, is probably more dangerous than any former intellectual aberrations of humanity. It seems that the fear of a population explosion is what motivates it. At the 1992 Earth Summit Conference in Rio, Maurice Strong stated:

> We have been the most successful species ever; we are now a species out of control. Population must be stabilized, and rapidly.

Many proposals have preceded and followed this statement, starting with Thomas Huxley's advice that "the surplus population must be disposed of somehow" and that the unfit "should be chloroformed" (Huxley 1898), followed in 1974 by a rather mild and balanced (in comparison) classified document of the U.S. National Security Council, under the direction of then National Security Advisor Henry Kissinger (Kissinger 1974). This document, National Security Study Memorandum 200 or NSM 200, targetted 13 countries for depopulation by mass sterilization, abortion, family planning, and restriction of food aid. Obviously none of the countries were European.

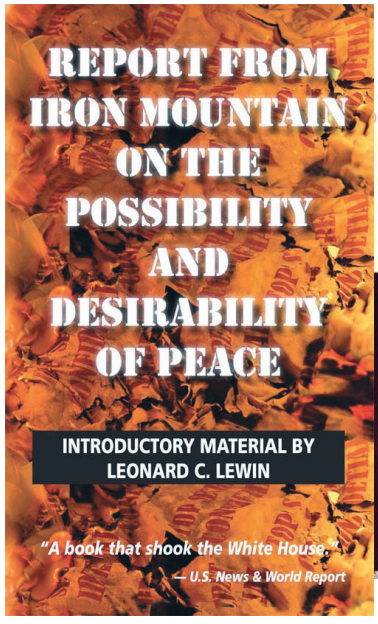
Influenced by the Malthusian ideology of Club of Rome, the United Nations suggested 1 billion people as the ideal sustainable population (UNEP 1995). Others went even further:

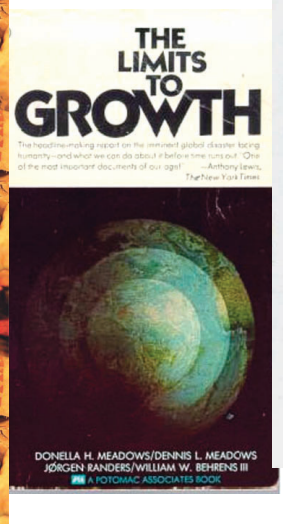
- The outspoken media mogul and owner of CNN, Ted Turner, in a 1992 interview with *Audubon* magazine said: "A total world population of 250-300 million people, a 95 percent decline from present levels, would be ideal.
- The oceanographer Jacques Cousteau suggested: "In order to stabilize world population, we must eliminate 350,000 people per day, as quoted in the UNESCO *Courier, Nov. 1, 1991.*
- A biological method was proposed by Prince Philip: "In the event that I am reincarnated, I would like to return as a deadly virus, in order to contribute something to solve overpopulation" (Prince Philip, 1988).
- Less drastic, but in a similar vein, are recommendations for the medical profession on population control by Prof. Maurice King published in the prestigious British scientific journal *The Lancet*: "… a deliberate quest of poverty … reduced resources consumption … setting levels of mortality control." As a new global strategy, King advised: "The birth rate is unlikely to be lowered by measures designed to reduce the child death rate … by programmes … for mass immunization. Arguing for "sustainable development," King demands: "Reduced childhood mortality must no longer be promoted.… We should re-

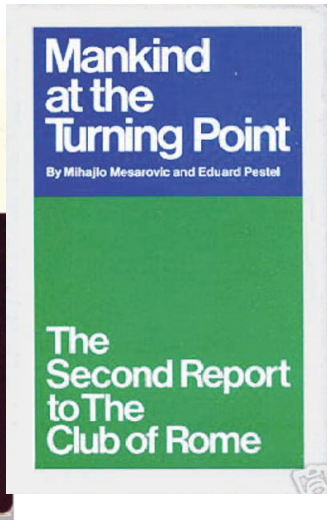
frain from advocating public health policies for other communities … such desustaining measures as oral rehydration should not be introduced on the public health scale" (King 1990).

This sounds like a faithful repetition of Thomas Malthus's hair-raising recommendations (Malthus 1798).[2]

Strong's interview mentioned above, along with similar pronouncements by top American environmentalist bureaucrats,[3] explain the motives of the IPCC and of some climatologists, politicians, and the media. The issue of climate was politicized decades ago (Lindzen 2005), and lost its purely scientific character, in the service of ideological, political, and economic aims. Involved in this game are the interests of scientists, whose professional integrity clashes with prospects of lavish projects and esteem.







The common theme here is that mankind is the global enemy.

The source of Strong's ideology may be found in the *Report from Iron Mountain,* which was advertised as the result of a four-year study by a group of 15 American intellectuals, including the future editors of *The Nation* Victor Navasky and Richard Lingeman, novelist E.L Doctorov, and economist John Kenneth Galbraith (Lewin 1967). This 152-page report, reedited in 2002 by DIANE Publishing Company, discussed the long-term perspectives of the end of the epoch of wars, and the need for introducing substitutes to counter the risks caused by standing peace.

At first the *Report from Iron Mountain* was supposedly classified by President Lyndon Johnson, but after a few years it was published in book form as a leak, and immediately became a bestseller. Although "fictional," the report probably was accurate in reflecting the opinions of the American intellectual and political elites of the time. Later on, many of the programs and institutions it called for became actual policy within the national and international agenda.

The *Report from Iron Mountain* proposed the creation of global police forces, the introduction of a modern form of slavery, eugenics, mass euthanasia, mass welfare, the invention of a new quasi-religious myth on planetary risks, and exaggerated environmental protection, including widespread government spending and controls. What followed were a string of events that led to an explosion of ecological movements including the current climatic hysteria.

Soon after the report's publication in 1967, the U.S. Congress passed the National Environmental Protection Act (1969), and on Dec. 2, 1970, President Richard Nixon established the giant U.S. Environmental Protection Agency (by 2003 the EPA had 17,648 employees), the first environment ministry in the world.

Internationally, such bodies as the U.N. Development Programme, U.N. Environmental Programme (with Maurice Strong as its first chairman), and U.N. Commission on Population and Development all promoted international environmental controls, worldwide social welfare programs, and abortion and population control measures—which seemed to fulfill the message from Iron Mountain.

One of the most important recommendations of the *Report from Iron Mountain* was a need to concentrate public opinion on the contamination of the planetary environment, and on fictitious global enemies. This recommendation was realized by the Club of Rome in its misanthropic report *The Limits to Growth* (Meadows et al. 1972) of which 3 million copies were published. In *Nature* magazine, the Club of Rome report was defined as ludicrous study (Beckerman 1994), and all its predictions of the catastrophic effects of pollution (for example, a total loss of life in the Baltic sea in 2000, caused by pollution and lack of oxygen) and of the depletion of resources, have been proved

2. Malthus wrote: "All the children born, beyond what would be required to keep up the population to this level, must necessarily perish, unless room be made for them by the deaths of grown persons.… To act consistently, therefore, we should facilitate, instead of foolishly and vainly endeavoring to impede, the operation of nature in producing this mortality, and if we dread the too frequent visitation of the horrid form of famine, we should sedulously encourage the other forms of destruction, which we compel nature to use. Instead of recommending cleanliness to the poor, we should encourage contrary habits. In our towns we should make the streets narrower, crowd more people into the houses, and court the return of the plague. In the country we should build our villages near stagnant pools, and particularly encourage settlements in all marshy and unwholesome situations. But above all, we should reprobate specific remedies for ravaging diseases: and those benevolent, but much mistaken men, who have thought they were doing a service to mankind by projecting schemes for the total extirpation of particular disorders. If by these and similar means the annual mortality were increased … we might probably every one of us marry at the age of puberty and yet few be absolutely starved."

3. Timothy Wirth, President Clinton's Assistant Secretary for Global Affairs, stated: "We've got to ride the global warming issue. Even if the theory of global warming is wrong, we will be doing the right thing, in terms of economic policy and environmental policy."

Richard E. Benedick, Special Advisor to the Secretary General of the 1992 U.N. Earth Summit, and the President of the Committee for the National Institute for the Environment, stated: "A global climate treaty must be implemented even if there is no scientific evidence to back the greenhouse effect."

false.[4] However, this did not hinder publication of its second report, under the title, *Mankind at the Turning Point* (Mesarovic and Pestel 1976). Its extremely dangerous, paranoid motto: "The World has Cancer and the Cancer is Man," was widely accepted by the Greens, together with the recommendation to limit everything, which is euphemistically called "sustainable development."

This policy of intimidation, with its endless procession of menacing specters—all imagined—was continued in the third Club of Rome report (King and Schneider 1991). Its message is as follows:

> In searching for a new enemy to unite us, we came up with the idea that pollution, the threat of global warming, water shortages, famine and the like would fit the bill.... All these dangers are caused by human intervention.... *The real enemy, then is humanity itself....*"

Thus, the "fictitious global enemy" was found, as recommended in the *Report from Iron Mountain*. This is really dangerous, because the suicidal war on such an enemy, appeals to the best altruistic instincts and good will of people, many of whom are ready to sacrifice their prosperity and future to defend the planet Earth against nonexisting threats. This trick ensured the worldwide range of eco-ideology.

The climate issue now became perhaps the most important agenda of the United Nations and politicians—at least they say so.[5] It also became a moral issue. In 2007, Gro Harlem Brundtland, the U.N. Secretary-General's Special Envoy on Climate Change, told the U.N. General Assembly, "It is irresponsible, reckless, and deeply immoral to question the seriousness of the real danger of climate change." Earlier, however, the scare-them-to-death morality of the "climatists"[6] was explained by Stephen Schneider, a top global warming guru, in an interview with *Discover* magazine:

> On the one hand, as scientists we are ethically bound to the scientific method, in effect promising to tell the truth, the whole truth, and nothing but.... On the other hand, we are not just scientists but human beings as well ... we need to get some broadbased support, to capture the public's imagination. That, of course, entails getting loads of media coverage. *So we have to offer up scary scenarios, make simplified, dramatic statements, and make little mention of any doubts we might have.... Each of us has to decide what the right balance is between being effective and being honest* [emphasis added] (Schneider 1989).

Remy Steinegger/swiss-image.ch

Shock treatment, not science: Rajendra K. Pachauri, IPCC chairman, speaking at the World Economic Forum in 2008.

The same moral standard is offered by Al Gore: "I believe it is appropriate to have an over-representation of factual presentations on how dangerous [global warming] is, as a predicate for opening up the audience to listen to what the solutions are" (Gore 2006). In similar vein, Rajendra K. Pachauri, the chairman of the IPCC, commented on the last Fourth PCCC Report: "I hope this will shock people and governments into taking more serious action" (Crook 2007). Thus, the IPCC does not intend to present an objective climatic situation, but rather to shock the people into taking actions which would bring no climatic effects (NIPCC 2008), but rather disastrous global economic and societal consequences. Implementation of these actions would dismantle the global energy system, the primary driving force of our civilization. This is what Maurice Strong and other leaders of Green Movement apparently have in mind.

The political and economic scale of the problem is reflected by the sums planned or already spent to counter the blessed

4. It was demonstrated already in 1968 that modern civilization had reduced the lead level in 20th Century human beings by a factor of 10 to 100, from the mass of sub-acute lead levels which had existed from the Middle Ages to the end of 19th Century. In 1981, it was demonstrated that the global atmospheric pollution with lead and some other heavy metals was lower in the 20th Century than in the pre-industrial period. See Jaworowski, 1968, 1990a, and Jaworowski et al. 1981.

5. For example: Angela Merkel stated, "Climate Change is the greatest threat that human civilization has ever faced." President Barack Obama stated: "Climate change is real. Not only is it real, its here, and its effects are giving rise to frighteningly new global phenomenon: the man-made natural disaster." Prince Charles stated: "Climate change should be seen as the greatest challenge to ever face mankind." Britain's Prime Minister Gordon Brown stated: "Climate change makes us all global citizens, we are truly all in this together." Former British Prime Minister Tony Blair stated: "We have reached the critical moment of decision on climate change. Failure to act to now would be deeply and unforgivably irresponsible. We urgently require a global environmental revolution."

6. We use the term climatist as defined by an anonymous observer: "Climatology is a science. Climatism is an ideology. Climatologists are scientists. Climatists are social or political organizers who abuse climatology in service of ideologues. Climatology was and still is an investigation of nature. Climatism is the exploitation of the fear of nature to gain power, wealth and social esteem."

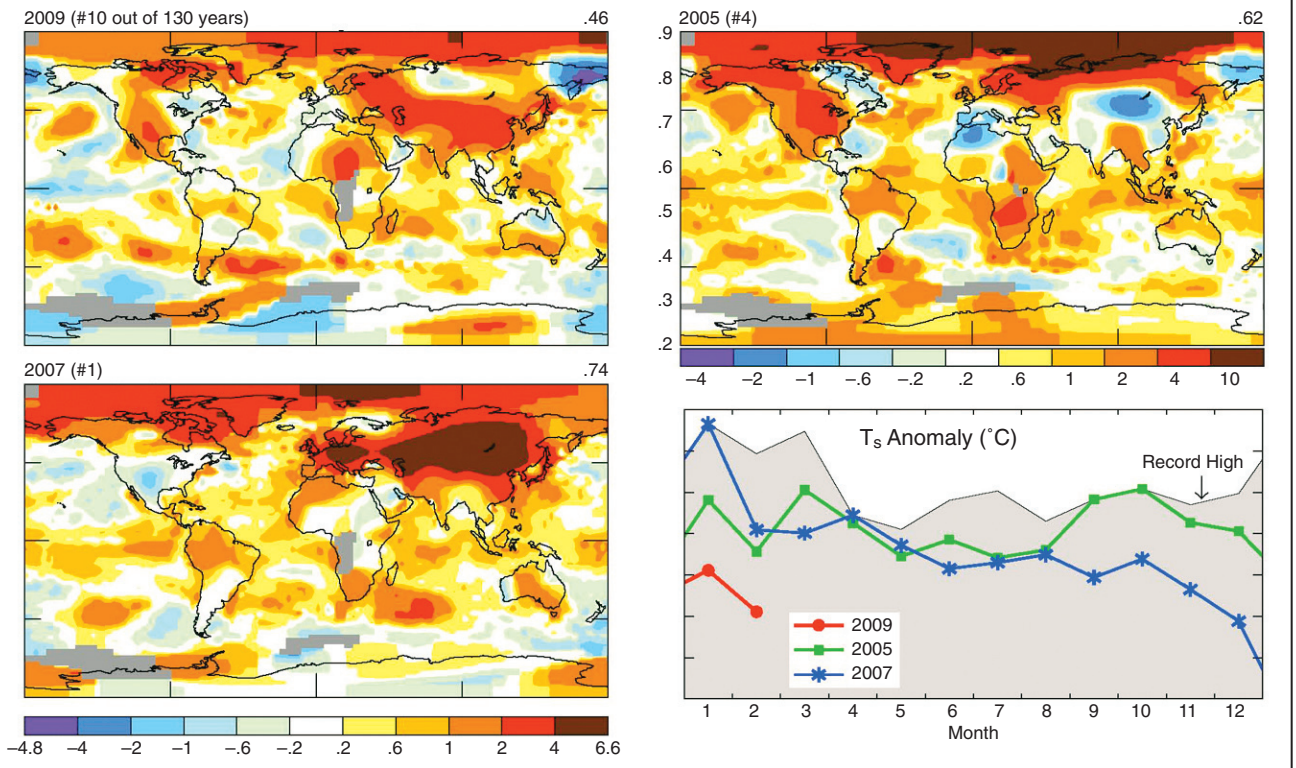


Figure 1
MEAN TEMPERATURE ANOMALY (°C) JAN.-JULY
(Base Period 1951-1980)

Source: http://data.giss.nasa.gov/gistemp/graphs/

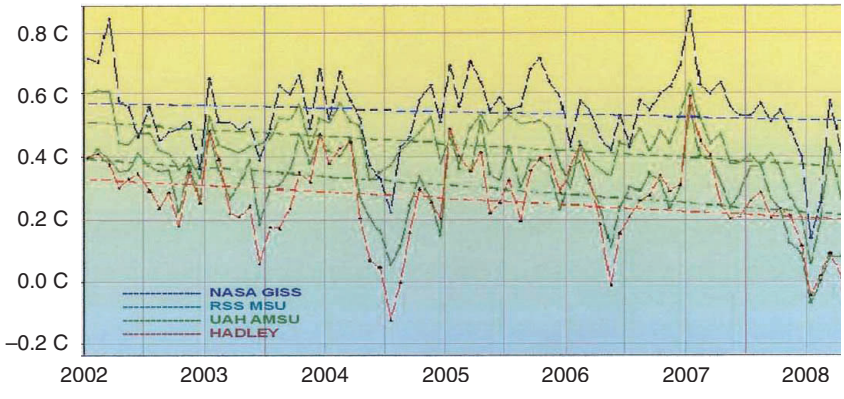


Figure 2
GLOBAL COOLING, JAN. 2002 TO MAY 2008

There has been no increase in worldwide temperatures since 1998. In the first five months of 2008, global temperatures were within the error-margin for temperatures in 1940 (McLean 2008).

The global mean surface temperature anomaly (from NASA GISS and Hadley Center model data) and lower troposphere temperature anomaly from RSS MSU and UAH AMSU model data, in °C, from January 2002 to May 2008. Note that all four data sets show a pronounced downtrend since the beginning of 2002. None of the climate models relied upon by the IPCC had predicted this cooling.

natural Modern Warm Period, one of several similar periods enjoyed by the biosphere over the current interglacial.[7] According to the U.S. Senate Committee on Environment and Public Works, during the past 10 years, promoters of the man-made global warming hypothesis received more than $50 billion in funding in the United States alone. On the other hand, the skeptics who doubt that this hypothesis is true, received only $19 million over the past 20 years from ExxonMobile, i.e. 0.04 percent of what promoters gained in half that time (EPW 2007).

The International Energy Agency announced in June that cutting CO_2 emissions by half will cost the world

7. During the Holocene Warming 7,800 to 9,500 years ago, at the dawn of the agriculture and great civilizations, the temperature of the Arctic was up to 7°C higher than now, and the polar bears and many other species survived there, and were better off than in colder periods (Jaworowski 1990b).

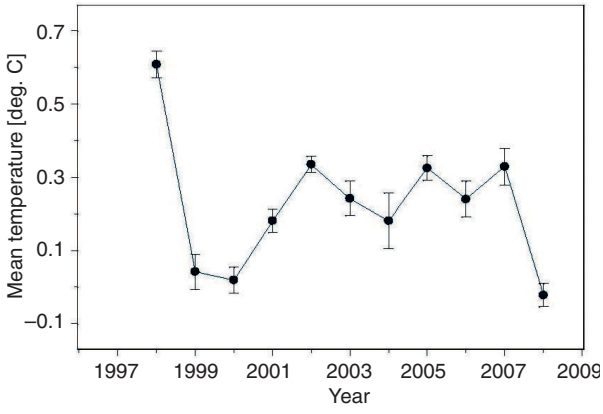


Figure 3
MEAN MONTHLY TEMPERATURE JAN.-AUG. OF LOWER TROPOSPHERE 1998-2008, °C

Source: http://vortex.nsstc.uah.edu/data/msu/t2lt/tlglhmam_5.2.

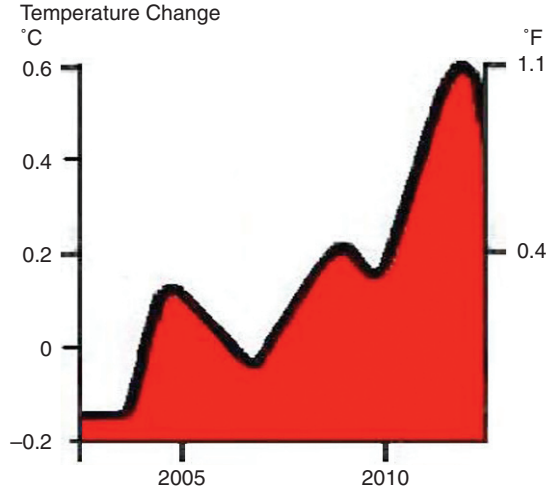


Figure 4
PREDICTED WARMING ACCORDING TO THE IPCC

Source: Easterbrook 2008

$45 trillion up to 2050; that is, 1.1 percent of the global GNP each year (Kanter 2008). For this expenditure, one may expect only a trifling climatic effect. Even if a substantial part of global warming were due to CO_2—and it is not—any control efforts currently contemplated, including the punctiliously observed Kyoto Protocol, would decrease future temperatures *by only 0.02°C*, an undetectable amount (NIPCC 2008).

Recent and Future Cooling

The maps in Figure 1 show an increasing cooling of the near-surface atmosphere in January to July of 2005, 2007, and 2008 in the Arctic, Antarctica, North America, Australia, Africa, Southern Asia, and the Pacific and Indian Oceans. This figure also shows the global temperature trends for the whole year, which in most of this period was lower than in the "record high" year of 1998, and in January 2008 was lower by about 0.8°C. Data from four major data sets show a decrease in temperature of both near-surface air and of the lower troposphere between 2001 and 2008 (Figure 2).

In the lower troposphere, the mean temperature of the first eight months of 2008 was cooler by 0.35°C than in 2007. Since 1998, there was a decreasing trend in the lower troposphere temperature. Between 1998 and 2008, the temperature in the first eight months dropped by 0.63°C (Figure 3). The year 2008 was cooler than 2007, and the cooling trend persisted during January, February, and March 2009. Both surface and troposphere observations may suggest that we are entering a cool phase of climate.

These observations are in a total disagreement with IPCC climatic model projections, based on an assumption that the current Modern Warm Period is caused by anthropogenic emissions of CO_2 (IPCC-AR4 2007). The annual increment of global industrial CO_2 emissions increased from 1.1 percent in 1990-1999 to more than 3 percent in 2000-2004 (Raupach et al. 2007), and is still increasing. Thus, according to the IPCC projections (Figure 4), the global temperature should be increasing now more rapidly than before, but instead we see a cold spell (Figures 5 and 6).

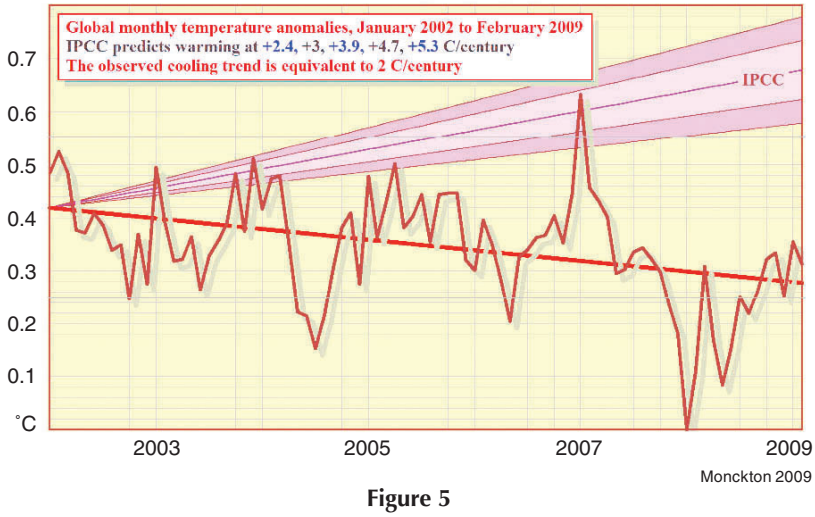
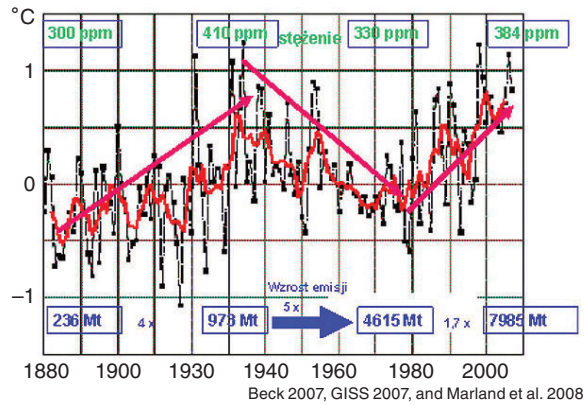


Figure 5
GLOBAL MONTHLY TEMPERATURE ANOMALIES, JANUARY 2002-FEBRUARY 2009

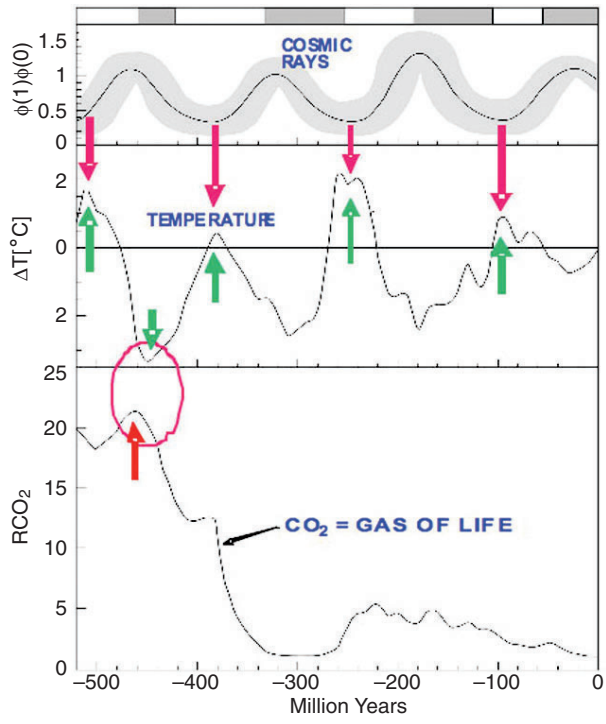
Although the IPCC predicts warming at +2.4, +3, +3.9, +4.7, +5.3°C per century, the observed cooling shows a long, fast temperature decline: Seven years of global cooling at a rate of –2°C per century.



Beck 2007, GISS 2007, and Marland et al. 2008
(http://cdiac.ornl.gov/ftp/ndp030/global.1751_2006.ems)

Figure 6
SURFACE TEMPERATURE IN THE UNITED STATES (1880-2007)

The fluctuations of CO_2 concentrations in air (green line) and temperature fluctuations (red line and arrows) are completely unrelated to the rate of increasing CO_2 anthropogenic emissions (in Mt)—blue line. The highest U.S. temperature occurred in 1934; then temperature was decreasing from 1950 to 1975, although at that time the emission of man-made CO_2 increased by a factor of 4.7. From 1975 to 2007, the temperature increased again, but was accompanied by CO_2 emissions that increased at a much lower rate—by a factor of 1.5.



Shaviv and Veizer 2003

Figure 7
LOWER ATMOSPHERE TEMPERATURES CORRESPOND TO FLUCTUATIONS OF GALACTIC COSMIC RADIATION, NOT CO_2

From a geological perspective, during the past 545 million years, fluctuations of climate were in tune with the cosmic ray flux and not with CO_2 concentrations in the atmosphere. In ancient times, temperature increased when the cosmic ray flux was low, as is observed now. Note that 450 million years ago, when CO_2 levels in the atmosphere were about 20 times higher than now, the temperature was some 3°C lower than now, and Ordovician glaciers covered large parts of the land.

In the past 800,000 years, as in more recent time, there is no causative relationship between temperature and CO_2: Temperature changes came first, followed later by changes in the atmospheric concentration of CO_2.

The lack of causative influence on climate change is visible at the geological scale (Figure 7).

The recent cooling observed after 1998 is probably casued by the Sun's activity, which recently dropped precipitously from its 60-year-long record in the second half of the 20th Century, the highest in the past 11 centuries (Usoskin et al. 2003), to an extremely low current level.

The Sun's activity is reflected in the number of sunspots, which normally shows an 11-year periodicity (or 131 months plus or minus 14 months). We are probably still in sunspot cycle No. 23, which had a maximum in 2001 (150 sunspots in September). NASA officially declared this sunspot cycle over in March 2006, with a forecast that the next cycle, No. 24, would be 20 to 50 percent stronger than the preceding one. But the Sun has remained quiet, with only a few sunspots sighted both from the old cycle, and from the new one, which was declared by NASA to start on Dec. 11, 2007. The Sun's activity was still low in the first part of 2008 (NOAA 2008), and August 2008 was (probably) the first month without sunspots since 1913. (Some observations noticed not a spot, but a tiny short-lived pore on August 21-22.) In January, February, and March 2009, the sunspot numbers were 1.5, 1.4, and 0.7 respectively, up to 13 times lower than in corresponding months of 2008 (http://anhonestclimatedebate.wordpress.com/2009/04/11/sunspot-numbers-for-march-2009/).

It seems that we still remain in cycle No. 23. William Livingston and Matthew Penn from the U.S. National Solar Observatory in Tucson, Arizona, found that not only has the number of sunspots decreased, but also the strength of their magnetic field. Between 1998 and 2005, the magnetic strength of sunspots decreased linearly with a slope of 77 gauss per year, and extrapolation showed that it will reach a minimum value in 2015. Livingston and Penn concluded that "this date is when sunspots will disappear from the solar surface" (Livingston and Penn 2008). In 2005, they submitted their study for publication in *Science* magazine, but their paper was rejected on the grounds that it was purely statistical, although their projection fits current observations.

The unusually long period of low activity of the Sun suggests that we may be entering another Maunder Minimum, a period from 1645 to 1715 when almost no sunspots were visible. This was the coldest part of the Little Ice Age (1250-1900), when rivers in Europe and America were often frozen, and the Baltic Sea was

crossed on ice by armies and travellers. Other authors suggest that the Earth will be facing a slow decrease in temperatures in 2012-2015, reaching a deep freeze around 2050-2060, similar to the cooling that took place in 1645-1715, when temperature decreased by 1° to 2°C (Abdussamatov 2004, 2005, and 2006).

Another analysis of sunspot cycles for the period 1882-2000, projected that the cooling will start in solar cycle 25, resulting in a minimum temperature around 2021-2026 (Bashkirtsev and Mashnich 2003). A long-term cooling, related to the Sun's activity, was also projected for the period around 2100 and 2200 (Landscheidt 1995 and 2003).

The current Modern Warm Period is one of innumerable former natural warm climatic phases. Its temperature is lower than in the four former warm periods over the past 1,500 years (Grudd 2008). Unfortunately it seems that the warm period is coming to an end, and recent climatic fluctuations suggest that perhaps a new, full-scale ice age is imminent. It may come in the next 50 to 400 years (Broecker 1995, Bryson 1993), with ice caps covering northern parts of America and Eurasia.

The Reliability of the IPCC

Each of four IPCC reports became a holy book for the U.N., the European Union, and national bureaucracies. The IPCC's credulously accepted reports are now the basis of long-term political and economic decisions. If implemented, the decisions will bring a global-scale disaster. The credulity is astonishing, as many impartial perusals of the IPCC work demonstrated that its assessments and foundations, notwithstanding an impressive numerical and graphic façacade, are clearly biased, and should be rejected as not providing adequate climatic information for policymakers.

Criticism of IPCC publications and methods of work comes from both outside and inside. More than a decade ago, two editorials in *Nature* (Anonymous 1994, Maddox 1991) listed similar arguments against the IPCC, as has a long string of recent critics (for example: Henderson 2006 and 2007, Castles 2008, and NIPCC 2008). The flawed process, deep-seated problems of bias and lack of objectivity, factual errors, important omissions, and "green-pledge card" were apparent from the very first report of IPCC. Among the critics are a dozen members of the IPCC, including its deputy chairman Yuri Izrael, a member of the Russian Academy of Sciences; Richard Lindzen, one of the leading meteorologists and lead author of an IPCC report; Vincent Gray, official reviewer of all IPCC reports; Paul Reiter, malaria specialist at the Pasteur Institute, who resigned from the IPCC in protest against the exaggerated and always negative assessments of the medical effects of warming;[8] and John Christy, a lead author of the IPCC.

Christy, the director of the Earth System Science Center in Huntsville, Alabama, is one of the founders of the satellite system of global temperature measurements. In an op-ed in the *Wall Street Journal* on Nov. 1, 2007, Christy told the world that he does not believe that it is proven that humans cause global warming, and he also refused his slice of the 2007 Nobel Peace Prize awarded to IPCC (Christy 2007). He said:

> … the award honor[s] promoting the message that the Earth's temperature is rising due to human-based emissions of greenhouse gases … but I see neither the developing catastrophe nor the smoking gun proving that human activity is to blame for most of the warming we see.

An effort by academics is now under way to reform this U.N. organization, and have it follow established scientific norms. Dr. Vincent Gray, who refused to endorse this reform effort, said, "The IPCC is fundamentally corrupt. The only 'reform' I could envisage would be its abolition" (Solomon 2007). This agrees with my diagnosis of IPCC: The disease seems to be persistent (Jaworowski 2004).

The name of the IPCC, Intergovernmental Panel on Climate Change, tacitly suggests that it is only just now that our climate changes. This notion, in various forms (for example, "climate change is now upon us" (CCSP-USP 2008) is repeated *ad nauseam* in the names of institutions, programs, scientific papers, and the media. This, however, is not true. Without human intervention and without the influence of CO_2, climate has been changing constantly over the past several billion years, sometimes much more, and much faster than now. The rapidity with which the Modern Warm Period appeared is often invoked as a proof of its human cause. However, the Dansgaard-Oeschger events (D-Os), extremely rapid changes of climate, occurred without human intervention about 20 times during the past 100,000 years.

The last of them, the so called "Younger Dryas," happened 12,800 years ago, when the warm climate switched rapidly to a cold one, and then after 1,300 years, almost immediately returned back into warm phase. Both times, the change occurred in just a few years, much less than the recovery from the Little Ice Age after the year 1900, which is now upon us.

Proofs of Human Causation of the Modern Warm Period

The most important argument of the IPCC report (IPCC-AR4 2007) for man-made climate warming is based on climatic models combined with observations of temperature in the period 1906-2005, over the five continents and the whole globe. However, not quite correct observations (Gray 2008), and not quite reliable models (NIPCC 2008), were used. According to IPCC-AR4 (Figure SPM.4), the highest temperature in North America was measured in 2005, whereas in reality, the highest temperature in the United States occurred in 1934 (see GISS 2007 and Figure 6).

8. Professor Paul Reiter is a member of the World Health Organization's Expert Advisory Committee on Vector Biology and Control. He found himself at loggerheads with persons who insisted on authoritative statements, although they had little or no knowledge of his specialty. At a hearing in the United States Senate, Reiter commented on the abuse of the public by the IPCC: "A galling aspect of the debate is that this spurious 'science' is endorsed in the public forum by influential panels of 'experts.' I refer particularly to the Intergovernmental Panel on Climate Change. Every five years, this U.N.-based organization publishes a 'consensus of the world's top scientists' on all aspects of climate change. Quite apart from the dubious process by which these scientists are selected, such consensus is the stuff of politics, not of science. Science proceeds by observation, hypothesis, and experiment. The complexity of this process, and the uncertainties involved, are a major obstacle to a meaningful understanding of scientific issues by non-scientists. In reality, a genuine concern for mankind and the environment demands the inquiry, accuracy, and skepticism that are intrinsic to authentic science. A public that is unaware of this is vulnerable to abuse" (P. Reiter 2006). http://commerce.senate.gov/pdf/reiter-042606.pdf.

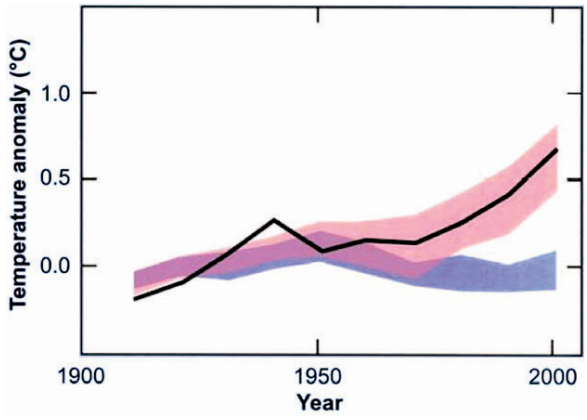


Figure 8
IPCC MODELLING OF GLOBAL CLIMATE VS. MEASURED TEMPERATURE

Shown are the results of the IPCC modelling of global climate with 10 anthropogenic radiative forcings (pink), and only 1 natural forcing (blue). The black line represents the measured *temperature for 1906-2005. Although this figure is an exercise in arbitrary selection and playing with data to fit a preconceived idea, which neglects natural factors that are more powerful than all anthropogenic forcings, it is used by the IPCC as a "proof" of man-made global warming.*

Source: Adapted from IPCC-AR4 2007, Figure SPM.4.

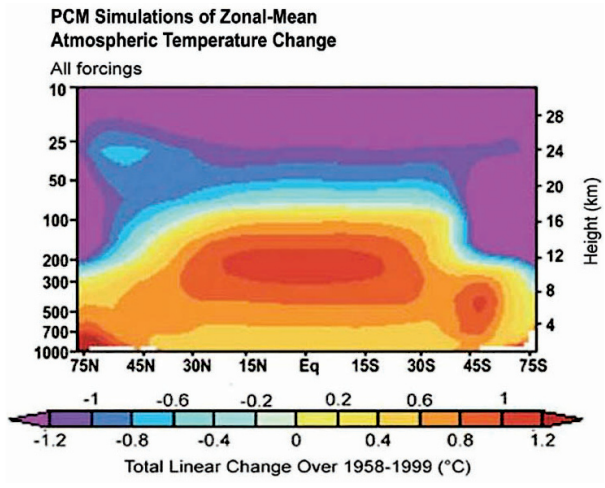


Figure 9
MODEL PREDICTED TEMPERATURE TRENDS VS LATITUDE AND ALTITUDE

These are trends predicted by the greenhouse-models. Note the increased temperature trends in the tropical mid-troposphere (~10 km). This figure is from a report issued by the U.S. Climate Change Science Program (CCSP) in April 2006, which is similar to an analogous figure in Chapter 9, p. 675 of the IPCC-AR4, 2007.

Source: NIPCC 2008.

The IPCC's Figure SPM.4 (http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf) shows the surface temperature in North America higher in 2000 than in 1934 by 0.44°C. However, the corrected GISS data show the opposite: The 1934 U.S. temperature was higher than in 2000 by 0.774°C (GISS 2007).

According to the IPCC Figure SPM.4, between 1975 and 2000, temperature in North America increased by 0.884°C. However, an advanced statistical analysis of annual temperature data from a homogenous U.S.-Canadian network of 120 radiosonde stations, covering latitude bands extending from 20°N to 80°N (Angell 1999), showed that in 1975-1995, a temperature trend in North America that was not significantly different from zero, at a 95 percent level of confidence (Watkins 2008).

The Figure SPM.4 is essential for the IPCC's "fingerprint" argument that the Modern Warm Period is caused by human activities, particularly by the burning of fossil fuels. The argument is that computer models which use only natural climatic factors, "such as volcanic activity and variations in solar [radiative] output," are unable to simulate the past temperature trends, but "When the effects of increasing levels of greenhouse gases are included in the models, as well as natural external factors, the models produce good simulations of the warming that has occurred over the past century (IPCC-AR4 2007)."

This is not true, however, but rather represents a classic example of a biased selection of data and of unilateral interpretation. The models are unable to correctly match the real warming in long-term global temperature trends, and in vertical and horizontal distribution of temperature. Both the the long-term global trends from Figure SPM.4 in IPCC 2007 (Figure 8) and the IPCC's vertical and horizontal distribution of temperature (Figure 9) are a result of the modelling of global climate based on 10 anthropogenic radiative forcings and only 1 weak natural forcing. In these simulations, the greenhouse effect of man-made CO_2 was assumed to be a most important and best understood forcing, 14 times more powerful than natural solar irradiance.

The values of the radiative forcings used by the IPCC are given in Table 1. In this list, the IPCC ignored the forcing of the natural content of water in the troposphere and stratosphere (assuming that it is stable), which contributes about 95 percent of the global greenhouse effect, and ignored the forcings of natural clouds, probably the most important agent for temperature fluctuations.

Using all the anthropogenic and natural factors listed in Figure SPM.2 in the IPCC-AR4 report, the models are unable to correctly match the real warming trends with altitude (Figure 10).

The greenhouse models predicted about two times higher temperature at 10 kilometers than at the surface (Figure 9), and a strong warming at 45°S and in polar regions, while the balloon measurements gave the opposite result: no increase of warming, but rather a cooling, both vertically and horizontally (Figure 10).

There are three errors in the IPCC "fingerprint argument": First, it limits natural factors only to solar irradiance and ignores other cosmic factors. Second, it incorrectly assumes—

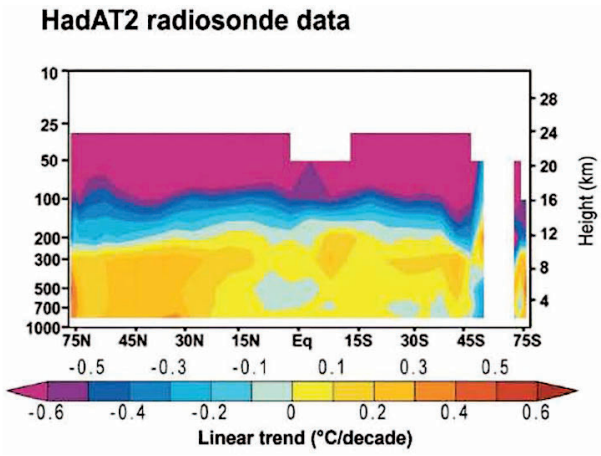


Figure 10
MEASURED TEMPERATURE TRENDS VS. LATITUDE AND ALTITUDE

These trends are based on balloon data. Note the absence of increased temperature trends in the tropical mid-atmosphere. This figure, published in the U.S. Climate Change Science Program report of 2006 was not presented for comparison by the IPCC in IPCC-AR4 2007.

Source: NIPCC 2008.

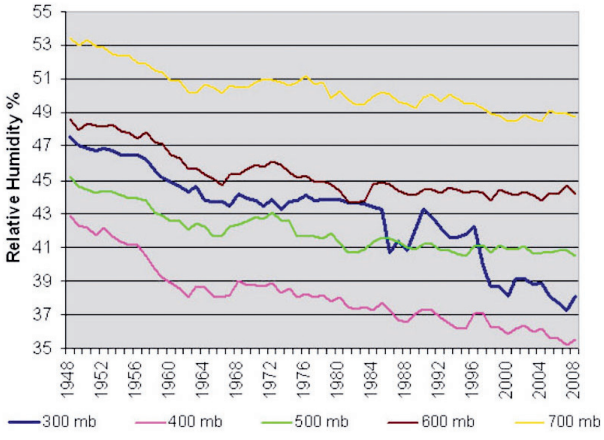


Figure 11
RADIOSONDE MEASUREMENTS OF RELATIVE HUMIDITY IN UPPER TROPOSPHERE (1948-2008)

These radiosonde measurements of relative humidity in the upper troposphere show that increased temperature and CO_2 did not increase humidity there—the opposite of the assumptions of both General Climate Models and the IPCC. The data are from the National Centers for Environmental Predictions, Gregory 2009.

See http://www.climateaudit.org./?p=5416.

on the basis of unreliable ice core studies, and after rejecting a large body of direct measurements of CO_2 in the 19th and most of the 20th Century atmosphere—that during the past 650,000 years the natural concentration of atmospheric CO_2 never exceeded the concentration of 180 to 300 ppm (parts per million), that the pre-industrial value was about 280 ppm, and that human activity increased it to about 380 ppm, i.e. by about 36 percent.

The third important error is the "water vapor feedback problem." In the general circulation models (GCM) used by the IPCC, this feedback is large and positive. The models assume that the relative humidity remains constant under the influence of global warming, at all heights in the troposphere (IPCC 2007, Chapter 8, p. 632). The tiny increment of anthropogenic CO_2 contribution to the greenhouse warming of about 0.15 percent, is supposedly enough to increase evaporation from the ocean, and thus to increase the humidity of the upper troposphere, and to unrealistically multiply the small initial CO_2 warming by a factor of 2, 4, or more.

As explained recently by Professor William Gray:

> The predicted global warming due to a doubling of CO_2 has been erroneously exaggerated by the GCMs due to this water vapor feedback. CO_2 increases without positive water vapor feedback could only have been responsible for about 0.1-0.2°C of the 0.6-0.7°C global mean surface temperature warming that has been observed since the early 20th century. Assuming a doubling of CO_2 by the late 21st century (assuming no positive water vapor feedback), we should likely expect to see no more than about 0.3-0.5°C global surface warming and certainly not the 2-5°C warming that has been projected by the GCMs.

However, the real world is different from GCMs and the assumptions of the IPCC: For the past half century, the increased temperature and steadily increasing CO_2 emissions did not increase humidity of the upper troposphere, but rather decreased it, as was already proposed years ago by Professor Richard Lindzen (Lindzen 1990). Lindzen's proposition was recently con-

Table 1
THE MAIN RADIATIVE FORCINGS USED IN THE IPCC MODELS (in watts per square meter)

Anthropogenic— 10 forcings	
CO_2	1.66
CH_4, N_2O, halocarbons	0.98
Ozone in stratosphere and troposphere	0.30
Stratospheric water vapor from CH_4	0.07
Surface albedo	–0.1
Aerosols	–1.2
Linear contrails	0.01
Total net anthropogenic	**1.6 W/m²**
Nature—1 forcing	
Solar irradiance	0.12 W/m²

Source: IPCC-AR 2007, Figure SPM.2.

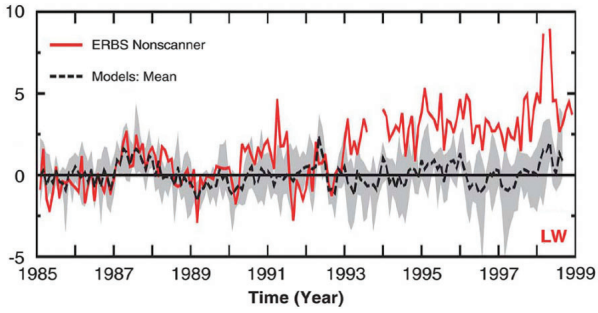


Figure 12
EMISSION OF LONG-WAVE RADIATION FROM THE ATMOSPHERE TO OUTER SPACE
(in watts per square meter)

Thermal radiation emitted to space at the top of the tropical atmosphere increased by about 4 watts/m² between the 1980s and the 1990s, the opposite of the IPCC model predictions.

Source: Wielicki et al. 2002.

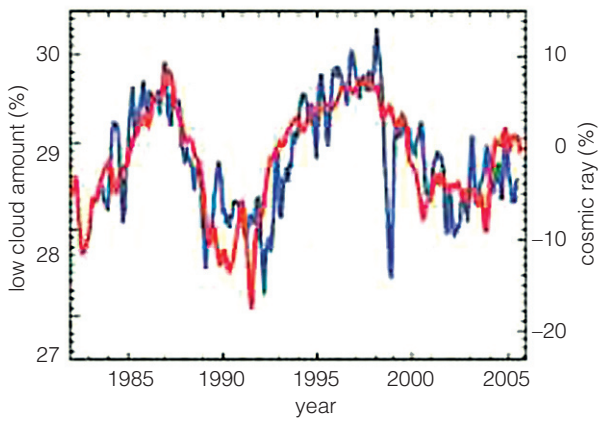


Figure 13
CORRESPONDENCE BETWEEN GLOBAL CLOUD COVER AND COSMIC RAY COUNTS AT HUANCAYO STATION, 1982-2005

There is a close correspondence between monthly variations of global low-cloud cover at <3.2 km altitude (blue), and cosmic-ray counts at the Huancayo station (red), 1982-2005. Decreasing cosmic-ray flux cause a decrease of low cloud cover, resulting in warming on Earth.

Source: Svensmark 2007.

firmed by a reanalysis of the balloon measurements of atmospheric humidity: In the upper troposphere the humidity decreased greatly in 1973-2006 (Paltridge et al. 2009), and in 1948-2008 it decreased from 48 percent to 37 percent (Gregory 2009). (See Figure 11.) This caused a negative climatic feedback, opposite to the assumptions of the GCMs and the IPCC, reflected in the long-wave radiation outgoing from the atmosphere into the cosmic space (Figure 12).

In discussing Figure 12, Lindzen stated:

> From 1985 until 1989 the (five) models and observations are more or less the same—they have, in fact, been tuned to be so. However, with the warming after 1989, the observations (of the thermal radiation emitted to space at the top of the tropical atmosphere) characteristically exceeded 7 times the model values. Recall that if the observations were only 2-3 times what the models produce, it would correspond to no feedback. What we see is much more than this—implying strong negative feedback.... Alarming climate predictions depend critically on the fact that models have large positive feedbacks. The crucial question is whether nature actually behaves this way? The answer, as we have seen, is unambiguously "no." (Lindzen 2009)

Table 2

ANNUAL FLUXES OF CO_2 INTO THE GLOBAL ATMOSPHERE (in gigatonnes of carbon = 10^{15} gC)

Natural	170.00
Man-made	
Fossil fuels, cement production, land use	6.73
Cars	0.57
Human respiration	0.65
Total	7.95

Man-made flux of CO_2 is equal to 4.7 percent of the natural sources, and contributes about 0.15 percent to the global greenhouse effect.

Source: Jaworowski 2007a.

If the models and the IPCC are unable to paint an accurate picture of the present modes of climate variability, how can they be a reliable basis for projecting into the future, and for taking responsible political decisions which may impact the 2100s and beyond?

To fit these data into a global carbon cycle, the IPCC assumed a speculative lifetime for man-made CO_2 in the atmosphere of 50 to 200 years, ignoring observational evidence from 37 studies (based on natural and nuclear bomb carbon-14, Suess effect, radon-222, solubility data and carbon-13/carbon-12 mass balance), documenting that the real lifetime is about 5 years.[9] With a CO_2 atmospheric lifetime of about 5 years, the maximum amount of man-made CO_2 remaining now in the atmosphere is only 4 percent, and not 36 percent (see review in Segalstad 1998).

Table 2 compares the annual fluxes into the atmosphere of man-made CO_2 with those from natural sources. As discussed above, the current 4.7 percent anthropogenic fraction of the total CO_2 flux contributes probably about 0.15 percent to the total

9. The CO_2 atmospheric lifetime of 5 years was determined in 1959 by Bert Bolin. Apparently he forgot it three decades later, as the first chairman of IPCC (1988-1998).

planetary greenhouse effect.

Ignoring Cosmic Rays

IPCC-AR4 limited the natural "radiation forcing"[10] to only 1 factor (solar irradiance), and based its estimates on 10 anthropogenic factors, listed in Table 1. The IPCC regards the anthropogenic CO_2 emission as the most important factor, and assumed it to be 13.8 times more powerful than the solar irradiance. This list propagates the idea that human-made emissions of CO_2, not nature, rule the climate. But the glaciological studies clearly demonstrated that it is climate that influences the atmospheric CO_2 level, and not *vice versa*. Over the past 800,000 years, increases of temperature always preceded increases in CO_2 concentration, and climatic cooling always preceded decreases of CO_2 (Caillon et al. 2003, Fischer et al. 1999, Idso 1988, Indermuhle et al. 1999, Monnin et al. 2001, Mudelsee 2001).

The CO_2 direct measurements in the 19th and 20th Century atmosphere also show that CO_2 changes lag behind the temperature. Multi-decadal heating of the oceanic CO_2 absorption area of the Northern Atlantic Ocean was followed by approximately five-year lags in increase of the atmospheric CO_2 concentrations, to about 400 ppm in the 1930s, and to about 360 ppm today (Beck 2008). This suggests that changes of temperature of the atmosphere are the causative factor for CO_2 changes, probably by influencing the rate of land erosion and the solubility of gas in oceanic waters (which is lower in warm water than in cold water).

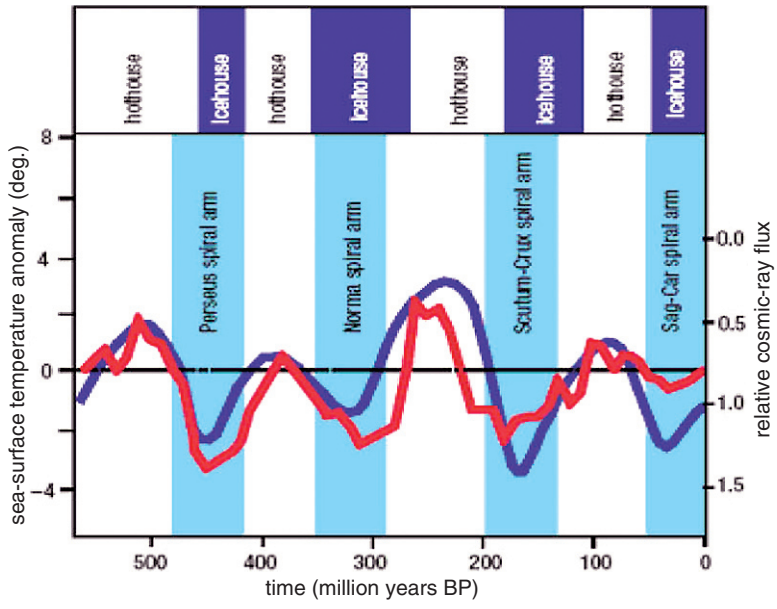


Figure 14
REVERSALS OF HOT HOUSE TO ICE HOUSE DURING THE PAST 542 MILLION YEARS

There have been four reversals from warm hot house to cold ice house conditions during the past 542 million years. The red curve represents tropical sea-surface temperatures (in ° kelvin and the blue curve represents the cosmic-ray flux. Both correspond with four encounters with the spiral arms of the Milky Way.

Sources: Svensmark 2007 and Shaviv and Veizer 2003.

In its almost monothematic concentration on greenhouse gases, especially on CO_2, the ICCP underestimated water vapor—the main greenhouse gas contributing about 95 percent to the global greenhouse effect (Ellingson et al. 1991, Lindzen 1991). About 95 percent of the total annual emission of CO_2 into the atmosphere is natural, coming from the land and sea, and only 5 percent comes from human sources. According to isotopic mass balance (carbon-13/carbon-12) calculations, the mass of all past fossil CO_2 remaining the atmosphere is around 4 percent, corresponding to an atmospheric concentration of 14 ppm (Segalstad 1996, Segalstad 1998, Segalstad and Jaworowski 1991), almost 10 times less than that assumed by the IPCC. Thus, the anthropogenic CO_2 contributes only a tiny fraction to the total greenhouse effect, probably less than 0.15 percent.

The IPCC ignores the dominant climatic effect of incoming cosmic rays governed by solar activity, well known for the past 17 years (Friis-Christensen and Lassen 1991). Recent studies demonstrate that the climate of the Earth is completely determined by the Sun, via insolation and the action of galactic cosmic rays, and that the so-called anthropogenic "CO_2 doubling" problem is practically absent (Rusov et al. 2008).

In opposition to the IPCC message, the natural forces that are driving the climate are 4 to 5 orders of magnitude greater than the corresponding anthropogenic impact, and humans may be responsible for less than 0.01°C of warming during the last century (Khilyuk and Chilingar 2006). The cosmoclimatologic studies demonstrate a powerful influence on climate of fluctuations of the muon fraction of cosmic rays, caused by short-term variations of the Sun's activity (Svensmark 2007, Svensmark and Calder 2008), shown in Figure 13, and in the geological time scale by the migration of the Solar System through the spiral arms of the Milky Way, with different concentrations of dust and activity of novas (Shaviv and Veizer 2003), as shown in Figure 14.

In the 20th Century, the reduction of cosmic rays was such that the maximal fluxes towards the end of the century were similar to the minima seen around 1900 (Figure 15). Decreasing cosmic-ray flux caused a decrease of low cloud cover (Figure 13) and resulted in warming the Earth.

Low-level clouds cover more than 25 percent of the Earth's surface and exert a strong cooling at the surface. The change in radiative forcing by a 3 percent change in low cloud cover over one solar cycle (Figure 13, blue line) will vary the input of heat to the Earth's surface by about 2 watts per square meter. This can be

10. Change in difference between the incoming radiation energy and the outgoing radiation energy.

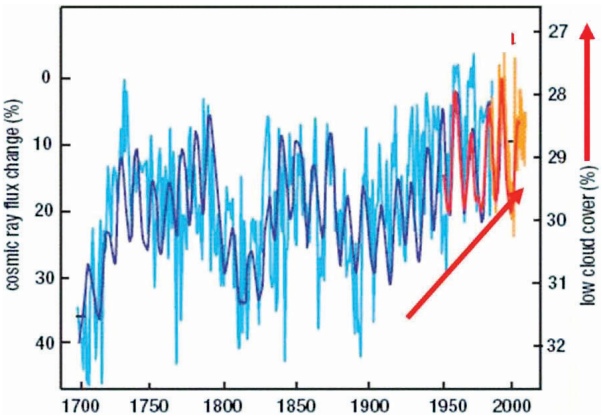


Figure 15
GALACTIC COSMIC RAY FLUX SINCE 1700

Galactic cosmic-ray flux estimated from two proxies (blue and light blue) since 1700 and also directly measured (red) from 1953-2004, along with low cloud cover (orange). Decreasing cosmic-ray flux caused a decrease in low cloud cover, thus warming the Earth. Note that both Y scales are inverted.

Source: Svensmark 2007.

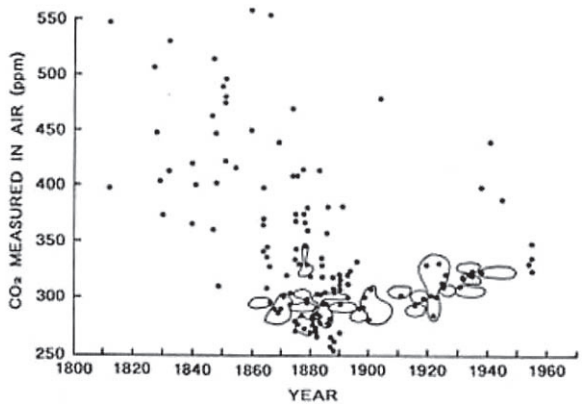


Figure 16
AVERAGE ATMOSPHERIC CO_2 CONCENTRATIONS MEASURED AND REJECTED BY CALLENDAR

Average atmospheric CO_2 concentrations measured in the 19th and 20th centuries. The values used by Callendar are circled; the remaining measurements were rejected.

Source: Redrawn after Fonselius et al. 1956.

compared with the 1.4 watts per square meter estimated by the IPCC for the greenhouse effect of all human-made CO_2 added to atmosphere since the Industrial Revolution (Svensmark 2007).

The low cloud formation which depends on fluctuations of cosmic rays, is ignored by the IPCC, but is a much more plausible cause of the Modern Warming Period than changes in CO_2 concentration. As always so in the past, so also today, changes in CO_2 lag behind temperature. Not a single publication on cosmoclimatologic effects was cited in the IPCC report. This disqualifies the IPCC as an impartial and a reliable source of information for policymakers and the scientific community.

Proxy Ice Data Instead of Atmospheric CO_2

The foundation of the hypothesis that the Modern Warm Period is induced by human beings is an assumption that the pre-industrial level of CO_2 was 280 ppm, i.e. about 100 ppm lower than it is now. British engineer G.S. Callendar may be truly regarded as the father of this hypothesis, and of this assumption (Callendar 1938, 1940, 1949, and 1958). This assumption was made possible by an arbitrary rejection of the more than 90,000 technically excellent, direct measurements of CO_2 in the atmosphere, carried out in America, Asia, and Europe, during the 149 years between 1812 and 1961. Some of these direct measurements were carried out by Nobel Prize winners. Specifically, Callendar rejected more than 69 percent from a smaller set of 19th Century CO_2 measurements

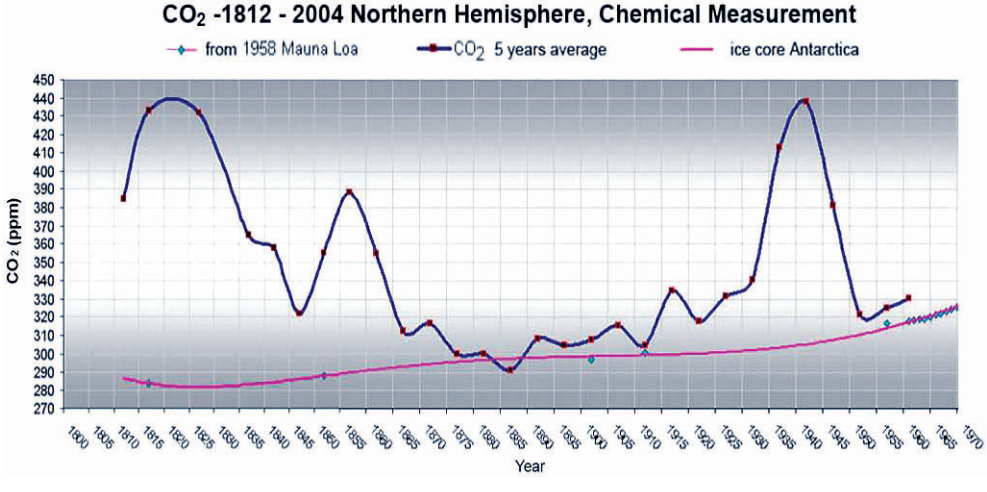


Figure 17
CHEMICAL MEASUREMENTS OF CO_2 IN NORTHERN HEMISPHERE, 1812-2004

Direct chemical measurements of CO_2 (blue line) and infrared measurements (Mauna Loa after 1958) CO_2 measurements in the 19th and 20th Century, compared with proxy ice core data (magenta line).

Source: Beck 2007.

ranging from 250 to 550 ppm (Figure 16).

Similarly, from a set of 26 19th Century CO_2 averages, ranging from 250 to 550 ppm, Callendar rejected 16 averages that were higher than 292 ppm, and only two that were lower. On the other hand, from the 20th Century set of measurements, Callendar rejected 3 averages that were lower than his global average of 317 ppm, and none that was higher. This shows a bias in the selection method. Without such a biased selection, the 19th Century CO_2 data averaged 335 ppm (Slocum 1955). Similarly biased selections were later applied in proxy ice core studies of greenhouse gases (Jaworowski 1994).

However, a recent meticulous study by Ernst-Georg Beck of more than 90,000 direct measurements of CO_2 in the atmosphere, from the period 1812 to 1961, demonstrated that the 5-year average CO_2 concentrations fluctuated widely, with a minimum of 290 ppm in 1885, peaking up to 440 ppm around 1820, to about 390 ppm around 1855, and then up to about 440 ppmv around 1940 (Beck 2007) (Figure 17). These CO_2 fluctuations are in agreement with temperature trends in five Antarctic regions, reconstructed from ice core stable isotope records between 1800 and 1999 (Schneider et al. 2006) (Figure 18), and also with the HadCRUT3 2006 data on global surface temperature (Beck 2008).

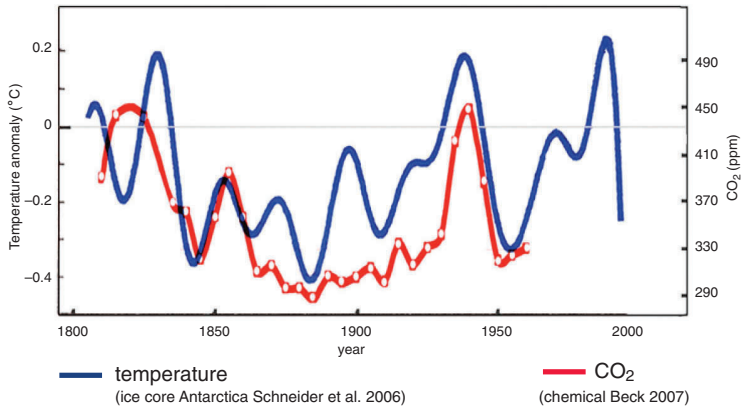


Figure 18
SURFACE TEMPERATURE IN ANTARCTICA AND CO_2
Surface temperature in Antarctica and CO_2 concentration in the 19th and 20th Century atmosphere of the Northern Hemisphere.
Source: Jaworowski, 2007b; temperature adapted from Schneider et al. 2006.

Rapid large spells of atmospheric CO_2 increases by up to 150 ppm, caused by upwelling of deep oceanic water, were postulated for the Benguela Current by Takahashi (1961).

Also the current measurements in the air over the land-fast Arctic sea ice in Franklin Bay, Canada, in March and April 2004 demonstrated that the CO_2 concentration fluctuations ranged there from 315.88 ppm to 724.87 ppm. This study suggests that sea ice does not prevent the exchange of gas between the atmosphere and the ocean, as has been assumed. On the contrary, the brine present in ice can be supersaturated with CO_2 with respect to air upon the freezing of seawater. Therefore, sea ice may play an important role in the global carbon cycle, a phenomenon neglected until now (Owens 2008).

The direct CO_2 measurements in the 19th Century and the first half of the 20th Century atmosphere completely disagree with the proxy CO_2 data from the ice cores collected in the Antarctic by Neftel et al. (1985) (Figures 17 and 18). The lack of reliability of these ice core data is discussed below.

The ice core proxy data for CO_2 also disagree with other proxy CO_2 determinations for the past 10,000 years, based on leaf stomata (Figure 19). The stomata estimates fluctuated up to 459 ppm (Kurschner et al. 1996, Royer et al. 2001, Wagner et al. 1999, Wagner et al. 2002), that is, similarly as the direct chemical CO_2 measurements in the 19th and 20th Century atmosphere.

The low, flat CO_2 ice-core concentrations, never reaching above 300 ppm during the past several hundred thousand years and six interglacials (Siegenthaler et al. 2005), even in periods when the global temperature was much warmer than now, suggest either that atmospheric CO_2 has no discernible influence on climate, or that the proxy ice core reconstructions of the chemical composition of the ancient atmosphere are false. Both

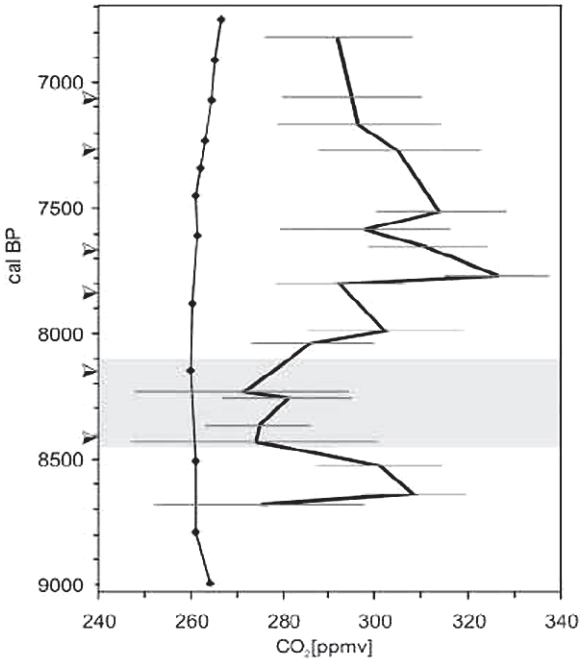


Figure 19
LEAF STOMATA PROXY DATA FOR CO_2 VS. ICE CORE DATA
Atmospheric concentrations of CO_2 between 6,800 and 8,700 years before the present, estimated from the stomata of fossil birch leaves from Denmark (right line), and from ice cores from Taylor Dome, Antarctica (left line).
Source: Wagner et al. 2002.

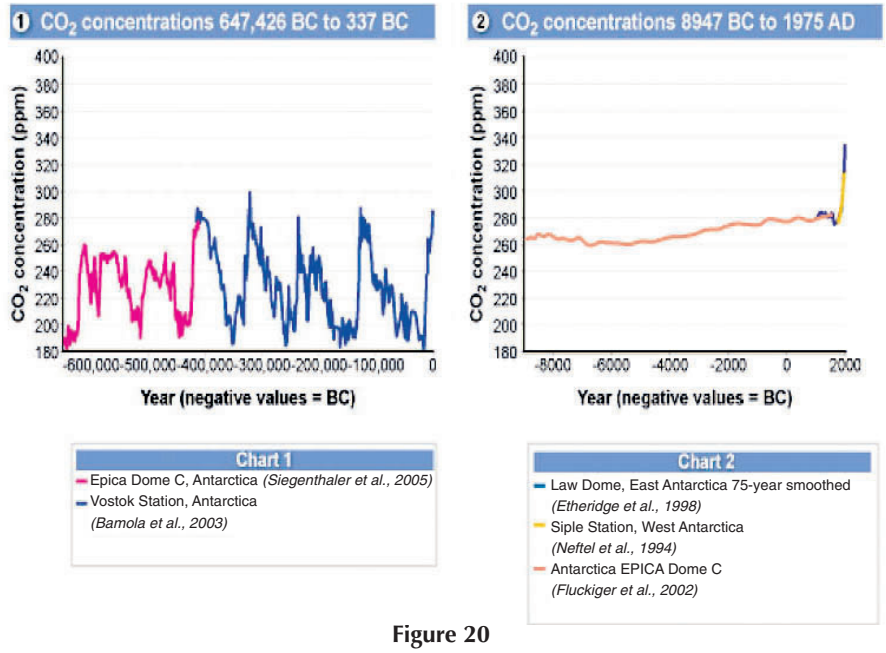


Figure 20
PROXY CO_2 ESTIMATES FROM ICE CORES

Proxy concentrations of CO_2 estimated from ice cores between 647,426 and 337 years before the present. In the graph at right, note a steep CO_2 increase in 1975, ascribed to an arbitrary change of the age of a gas sample, as discussed in the text.

Source: EPA 2007.

propositions are probably true.

The very long-term ice core data, combined with more recent 19th Century data, and with direct atmospheric measurements since 1958 (Figure 20), are widely used for propagating the idea of man-made global warming.

The Ice Core Foundation of Greenhouse Warming

The proxy estimates of past CO_2 atmospheric concentrations, based on analysis of air bubbles recovered from ice deposited in the 17th, 18th, and 19th centuries at the ice caps of Greenland and Antarctica, are regarded as the strongest proof that human beings increased the CO_2 content in the atmosphere, causing the Modern Warm Period. However, polar ice is an improper matrix for reconstruction of the chemical composition of the pre-industrial and ancient atmosphere. No efforts to improve the analytic excellence of CO_2 determinations can change this situation.

It is deeply improper that, before experimentally checking whether the ice is, or is not, a correct matrix for such a reconstruction, hundreds of glaciologists spent decades studying the CO_2 in ice, and helped to create the widely accepted false dogma on man-made global warming. Until now, such a scrutiny has not been conducted. A project for such an experimental study was dumped before its start in 1994, in Gro Harlem Brundtland's Norway, because it was defined as "immoral" (Chapter 7, Solomon 2008).

Ice and the ice cores do not fulfill the essential closed-system criteria, indispensable for a reliable estimate of the past CO_2 levels. One of them is a lack of liquid water in ice. This criterion is not met, as there is an ample evidence that even the coldest Antarctic ice contains liquid water, in which the solubility of CO_2 is about 73 times, and 26 times higher than that of nitrogen (N_2) and oxygen (O_2), respectively. This dramatically changes the chemical composition of the gas inclusions in polar ice, in comparison to atmospheric air.

More than 20 physical and chemical processes, mostly related to the presence of liquid water, contribute to the alteration of the original air in gas inclusions (see review in Jaworowski et al. 1992). One of these processes is formation of clathrates (gas hydrates), solid crystals formed at high pressure by the interaction of gas with water molecules. In the ice sheets, CO_2, O_2, and N_2 start to form clathrates at about 5 bars, 75 bars, and 100 bars, respectively. As a result of this process, CO_2 starts to leave air bubbles at a depth of about 200 meters, and the air bubbles themselves disappear completely at a depth below 1,000 meters, when oxygen and nitrogen also enter the clathrate form.

Drilling, which is an extremely brutal procedure, decompresses the ice cores, in which the solid clathrates decompose back into gas form, exploding in the process as if they were microscopic grenades. In the decompressed, bubble-free ice, the explosions form new gas cavities and mini-cracks. Decompression of air bubbles in the recovered ice cores, is rapid at the beginning but later proceeds slowly and incompletely. Even 15 years after the recovery of cores, the pressure in the air bubbles remained up to 9 bars, i.e. above the dissociation pressure of CO_2 clathrates, depending on temperature of storage, and on the original crystalline texture and fabrics of the enclosing ice and the history of ice deformation (Gow and Williamson 1975). That means that even in the old ice cores, not all CO_2 clathrates are decomposed, and remain imbedded in the ice crystals, outside the original air bubbles or secondary new gas cavities formed at an earlier stage of decompression by explosive decomposition of O_2 and N_2 clathrates. This contributes to depletion of CO_2 from gaseous inclusions.

The ice cores, however, are earlier exposed to a more coarse cracking by vibration in the drilling barrel, and by the sheeting phenomenon at the bottom of the borehole, induced by the pressure difference between the drilling fluid and the ice (Norwegian Rock Mechanics Group 2000, Johnson 1970). These cracks open the gate to extreme pollution of the inside of ice cores with heavy metals from the drilling fluid, and they also allow for the escape of gas from its inclusions.

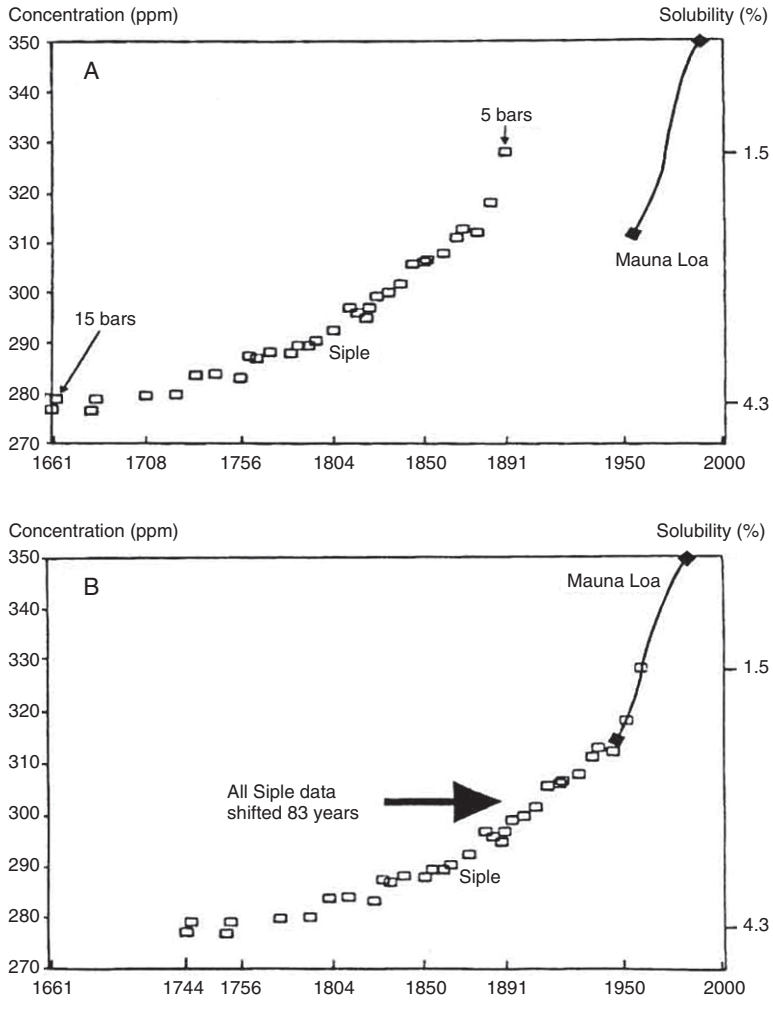


Figure 21
THE SIPLE CURVE: MOTHER OF ALL CO_2 'HOCKEY STICK' CURVES

The CO_2 concentration in air bubbles from pre-industrial ice at Siple Station, Antarctica (open squares), and in atmospheric air collected near the top of the Mauna Loa volcano in Hawaii (solid line). Mauna Loa is an active, CO_2-emitting volcano. The CO_2 collection site is at an altitude of 3,397 meters; that is, in the middle troposphere oceanic air, which is influenced by the local volcanic CO_2 emissions.

In A, the original Siple data are shown without arbitrarily assuming that the age of the air is 83 years younger than the age of the ice in which it is enclosed. In B, the same data are shown after an arbitrary changing of the age of air, as published by Neftel et al. 1985 and Friedli et al. 1986.

Source for A: Jaworowski 1994.

For example, in the very center of the classic Vostok core, from a depth of 1,850 meters, the concentration of lead was five times higher than in the contemporary snow at the surface; and in the center of the core, from a depth of 851 meters, the level of zinc was 400,000 times higher than in surface snow (Boutron et al. 1990, Boutron et al. 1987). It is astonishing that these ice cores were commonly used to estimate the natural environmental levels of heavy metals, and that they passed the reviewing process in such journals as *Nature, Science,* and a host of Earth sciences journals (Boutron et al. 1991, Boutron and Patterson 1986, Boutron et al. 1988, Dickson 1972, Hong et al. 1994a and 1994b).

The information about the enormous contamination of the innermost parts of ice cores demonstrated that these cores are not a closed system. It should preclude their use as a matrix for establishing the natural benchmarks of metals and gases in the global environment. The opposite, however, happened: Glaciers and ice cores are still incorrectly regarded as holy books preserving reliable information. They do not.

The glaciological CO_2 records are strongly influenced by natural processes in the ice sheets and man-made artifacts in the ice cores, which lead to the depletion of CO_2 by 30 percent to 50 percent, probably mostly in the upper layers of the ice sheets. These records are also beset with an arbitrary selection of data, experimentally unfounded assumptions of gas age, one-sided interpretations ascribing the observed trends to human factors, and the ignoring of other explanations. A classic example of such manipulations of ice core data is Figure 21, presenting the famous Siple curve, the mother of many other "CO_2 hockey stick curves."

The problem with the Siple data is that the CO_2 concentration found in this locality in pre-industrial ice, from a depth of 68 meters (i.e., above the depth of clathrate formation), was "too high" to fit the man-made warming hypothesis. In this ice, deposited in the year 1890, the CO_2 concentration was 328 ppmv, not about 290 ppmv, as needed by the hypothesis. The CO_2 atmospheric concentration of about 328 ppmv was measured at Mauna Loa, Hawaii, in 1973 (Boden et al. 1990), that is, 83 years after the ice was deposited at Siple. Instead of rejecting the assumption of a low pre-industrial concentration of CO_2 in the atmosphere, the glaciologists found a "solution."

An *ad hoc* speculative assumption, not supported by any factual evidence solved the problem: The average age of air was arbitrarily decreed to be exactly 83 years younger than the ice in which it was trapped (Jaworowski 1994a, Jaworowski et al. 1992). The corrected ice data were made to smoothly overlay the recent Mauna Loa record (Figure 21b), and then were reproduced in countless publications as a famous "Siple curve," and a proof of man-made global warming.

Eight years after the first publication of the Siple curve, and a year after its criticism (Jaworowski et al. 1992), glaciologists at-

tempted to experimentally prove the age assumption (Schwander et al. 1993), but they failed (Jaworowski 1994a). A similar manipulation of data was also applied to ice cores from other polar sites, to make the "CO_2 hockey stick curves" cover the past 1,000 and even the past 400,000 years (IPCC 2001, Wolff 2003). For some of these curves, a much longer air/ice age difference was arbitrarily assumed, without any experimental support, reaching up to 5,500 years! The apparent aim of these manipulations, and of ignoring other proxy CO_2 determinations and ignoring the approximately 90,000 direct CO_2 determinations in the pre-industrial and 20th Century atmosphere, was to induce in the public the false conviction that the 20th Century level of CO_2 was unprecedented in the past hundreds of thousands of years.

The CO_2 hockey stick curves were used as an "indicator of human influence on the atmosphere during the Industrial Era" (IPCC 2001, IPCC-AR4 2007). Also, in the report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research, these same curves were used as evidence of "human influences" and "human fingerprint" and to argue that the "observed [current] warming could not have been caused by natural forces alone" (CCSP-USP 2008). In fact, this is the only "proof" of the human causation of the Modern Warm Period presented in the Report. This proof is false.

Back to the Sun

Figure 21 demonstrates an unacceptable distortion of science. During the past 16 years, I have presented it in many publications, together with data demonstrating that polar ice does not fulfill the closed-system criteria that are essential for reconstruction of the chemical composition of the ancient atmosphere. This has had practically no effect on a worldwide acceptance of the false, ice-core based dogma on the human causation of the Modern Warm Period. This should not be astonishing in view of Principle 15 of the United Nations "Rio Declaration on Environment and Development" (U.N. 1992), virtually rejecting any scientific reality and stating that a "lack of full scientific certainty shall not be used for postponing" environmental decisions.

The recent climatic cooling might perhaps shake this foundation of environmentalism and open the ears of the public and decision-makers to what astronomers have said for years: Our Sun enters a long period of slumber, cooling the Earth and its fellow planets. We cannot enhance this cooling or stop it. But we can adjust, taking a less haughty approach to our robust biosphere.

Zbigniew Jaworowski is a multidisciplinary scientist who has published more than 300 scientific papers, four books, and scores of popular science articles, including many in 21st Century. *He been a member of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) since 1973, and served as its chairman from 1980-1982. He organized 10 expeditions to the polar and high-altitude temperate glaciers, to make the first measurements of the mass of stable heavy metals and the activity of natural radionuclides entering the global atmosphere from natural and man-made sources, and to determine their pre-industrial and contemporary annual flows. He has also been the principal investigator for several research projects of the IAEA and the U.S. Environmental Protection Agency.*

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