

**Why has “global warming” become such a passionate subject?  
– Let’s not lose our cool –**

Syun Akasofu  
International Arctic Research Center  
University of Alaska Fairbanks

The new IPCC Report (2007) states, on page 10, “Most observed increase in globally averaged temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations.” Their great effort in making progress in climate change science is certainly commended.

The media in the world is paying great attention mostly to the term “very likely,” meaning the confidence level of more than 90%. However, I, as a scientist, am more concerned about the term “most,” because the IPCC Report does not demonstrate the basis for the term “most.”

There seems to be a roughly linear increase of the temperature from about 1800, or even much earlier, to the present. This trend should be subtracted from the temperature data during the last 100 years. Thus, there is a possibility that only a fraction of the present warming trend may be attributed to the greenhouse effect resulting from human activities. One possible cause of the linear increase may be that the Earth is still recovering from the Little Ice Age.

*Thus, natural causes cannot be ignored in the present warming trend, in addition to the greenhouse effect.* This short article is my criticism on the report from the point of an arctic researcher. The Arctic is the place where climate change is most prominently in progress, compared with the rest of the world.

Before critically examining the new IPCC Report, it is of interest to review why global warming has become such a passionate subject. In order to find the reasons for the present rampant reaction to global warming, it is necessary to think back to the Cold War period. At that time in history, both the United States and the Soviet Union had a large arsenal of atomic bombs, which could have eliminated all living creatures on Earth many times over. Therefore, scientists and the general public alike urged both governments to abolish their nuclear armaments, signing statements urging this action. There was broad *consensus*, both amongst the public and in the scientific community, on this issue.

The fear of nuclear war subsided as the Soviet Union began to collapse. It so happened that just before the collapse of the USSR, some groups of US scientists, using supercomputers, were studying future trends in the earth’s climate. They announced in 1988 that increasing levels of CO<sub>2</sub>, if unchecked, would cause substantial warming of the earth’s temperature, resulting in various disasters. It is easy to understand why some advocative scientists, who were searching for new, significant themes, took up the grand subject of global warming as their new area of focus. This theme was successfully

presented to the United Nations and an organization called the International Panel on Climate Change (IPCC) was established in 1988. Suddenly, the quiet scientific backwater of “climate research” was in the world spotlight. Perhaps, the initial motivation should not necessarily be faulted.

At the same time, many environmental protection organizations and advocacy groups were anxious; it was proving difficult to attract the attention of the general public. In addition, some government officials were also searching for new, globally significant problems to tackle, avoiding more urgent problems of African poverty and other critical problems. It is not too great a leap to infer that at least some of these groups seized the opportunity to make global warming their main theme in the hopes of attracting public interest.

Meanwhile, the IPCC mobilized a large number of climatologists and meteorologists and published several impressive, voluminous publications, one after the other. In one of them, “Climate Change 2001,” for example, a figure that became known as “the hockey stick,” was used prominently in the “Summary for Policy Makers,” in which the temperature shows a dramatic increase during the most recent 100 years, after a slow decrease in temperature over the first 900 years. The nickname “hockey stick” was coined because the temperature-time curve had this sudden, upward kink near the end, like a hockey stick. (Since then, this particular figure has been discredited; the new IPCC Report (2007) does not include the figure.)

With voluminous publications participated by hundreds of scientists, it is therefore understandable that policy makers would trust the “summary,” providing them the confidence to base major policy-making decisions on the “summary,” as indicated by the “hockey stick” figure.

Indeed, many policy makers, environmental protection groups, the press, and even some scientists took the IPCC reports to mean that all the participating scientists had come to a shared broad *consensus* that global warming is a very serious issue facing mankind. It is important to recognize that this consensus is of quite a different nature from the one reached on nuclear disarmament. A large number of atomic bombs did, in fact, exist; there was no uncertainty, compared with global warming, which requires much more efforts to understand for the causes.

The reason for emphasizing this point is that whenever someone says there is some uncertainty in projections of future temperature increase, someone else will assert that the danger of global warming has been accurately predicted to be 3°C, as shown in the IPCC Reports, and *agreed upon* by hundreds of top researchers. Do all the participating scientists agree on the term “most?” If they do, what are their scientific bases?

A supercomputer, as complex and powerful as it may be, is a far cry from the complexity of our real earth! It is simply a very poor virtual earth. Actually, the modelers themselves should know best the limitations of their results as they continue to improve their models, and perhaps modelers should, at times, be a little more cautious about their findings. In

any case, modeling is nothing more than an *academic exercise*, at least at this stage. There is a considerable difference among results obtained by different researchers. To give just one example, the predicted year when Arctic Ocean sea ice would disappear entirely in the summer months spans a range from 2040 to at least 2300. This shows the uncertainty in modeling studies. Since sea ice plays the role of the lid in warming water in a pan, it plays a significant role in climate change and future prediction.

To exacerbate this situation, the media, by and large, tend to report worst-case scenarios and disasters, for example using only the 2040 story. It is understandable that disaster stories draw more readers than stories about the benefits of global warming. Unfortunately, most reporters have little or no background in understanding debates on the simulation results. For these reasons, the initial effort of IPCC has gotten out of control.

It is also a serious problem that global warming can so easily be blamed for everything bad that happens, such as floods (which often result instead from massive deforestation or from loss of wetlands) or extinction of some species (which may result from over-harvesting, loss of habitat, invasion of exotics, pollution problems), etc. In the meantime, those who are really responsible for these calamities can easily hide under the umbrella of global warming.

Most reporters, who come to Alaska to try to find the greenhouse disasters, have little knowledge of the Arctic. They take photographs of large blocks of ice falling from glaciers at their termini and report that global warming is in progress before their very eyes. However, glaciers are not static piles of ice, but instead are constantly flowing rivers of ice. It is normal for tidewater glaciers to calve large blocks of ice from the face as they reach the sea, and they will do so regardless of how warm or cold it is. Most glaciers in the world have been receding since 1800 or earlier, well before 1940, when CO<sub>2</sub> began to increase significantly. Why do major media of the world flock all the way to Alaska, if global warming is a global phenomenon? So far, what they would find is broken houses in Shishmaref, a little island in the Bering Sea coast, because of coastal erosion that is difficult to relate to a direct result of global warming. Some of the current global warming stories, including “The Day after Tomorrow,” are based on science fiction, not science.

Some of the weak points in the present IPCC Report are:

- There has recently been so much attention focused on the CO<sub>2</sub> effect, the Little Ice age has been forgotten. The recovery rate from the Little Ice Age may be as much as 0.5°C/100 years, comparable to the present warming trend of 0.6°C/100 years. The warming caused by the linear change must be carefully evaluated and subtracted in determining the greenhouse effect.
- There was no critical analysis of the mid-century change; the temperature rose between 1910 and 1940, similar in magnitude and rate to the present rise after 1975. Further, the temperature *decreased* from 1940 to 1975, in spite of the fact

- that the release of CO<sub>2</sub> *increased* rapidly. At that time, we had similar debates about imminent “global cooling” (the coming of a new ice age) in the 1970s.
- It is crucial to investigate any difference between the 1910-40 increase and the increase after 1975, since the former is likely to be due to natural causes, rather than the greenhouse effect.
  - The most prominent warming (twice the global average) took place in the Arctic, particularly in the continental arctic, during the last half of the 20th century, as stated in the IPCC Report, but it disappeared during the last decade or so. Further, the IPCC models cannot reproduce the prominent continental warming, in spite of the fact that the measured amount of CO<sub>2</sub> was considered. This particular warming is likely to be part of *multi-decadal oscillations*, a natural cause.
  - It is also important to know that the temperature has been increasing *almost linearly* from about 1750, or earlier, to the present, in addition to *multi-decadal oscillations, such as the familiar El Niño*. These are natural changes.
  - Both changes are significant. Until they can be quantitatively more carefully examined and subtracted from the present trend, it is not possible to determine the manmade greenhouse effect. Therefore, there is no firm basis to claim “most” in the IPCC Report.
  - The IPCC should have paid more attention to climate change in the Arctic.
  - The mid-century (1940-1975) alarm of a coming Ice Age teaches a very important lesson to all of us, including climate researchers. It is not possible to forecast climate change (warming or cooling) in the year 2100 based on a few decades of data alone.
  - Further, it is very confusing that some members of the media and some scientific experts blame “global warming” for every “anomalous” weather change, including big snowfalls, droughts, floods, ice storms, and hurricanes. This only confuses the issue.

At the International Arctic Research Center, which was established under the auspices of the “US-Japan Common Agenda” in 1999, our researchers are working on the arctic climate change issues mentioned in the above, in particular, in distinguishing natural changes and the manmade greenhouse effects in the Arctic. The term “most” is very inaccurate.

*We must restore respectability – by that I mean scientific rigor - to the basic science of climatology.* We must also stop “tabloid” publications in science. Only then, can we make real progress in projecting future temperature change. Although I have been “designated” by the news media as “Alaska’s best known climate change skeptic,” I am a critic, not a skeptic. Science without criticism could go astray.

In the meantime, environmental protection advocates might consider a return to their original important themes of protecting the environment from destruction, pollution, over-harvesting, massive deforestation, and habitat destruction. All these processes of environmental degradation are taking place right now before our very eyes, and they are not all related to global warming.

People who are concerned about protecting the earth might also turn their attention to this question - Why has so little *concrete* effort been made to reduce the release of CO<sub>2</sub>, compared to such a great outcry and hysteria about global warming?