Misleading Information on Global Warming

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The radio show, aired as a Halloween special on October 30, 1938, based on H.G. Wells' *The War of the Worlds*, in which Orson Welles implied that "...the Martians are coming..." caused panic. So long as news is based on accurate and correct information, it is at least useful, even if it is bad news. However, news that contains incorrect or inaccurate scientific information is much worse than no news. In particular, when people cannot distinguish between science and science fiction, people become panicky, even hysterical. The present popular information about global warming has many aspects of science fiction.

Many TV programs begin their global warming coverage by showing large blocks of ice falling from the termini of glaciers. It is very dramatic. However, glaciers are rivers of ice, and the ice has to move, like water in rivers. Those scenes have nothing to do with global warming and the greenhouse effect. The use of glacier scenarios makes the programs as science fiction. The glaciers of the world are certainly receding, but their recession began before 1800 AD, and CO_2 began to increase rapidly only after 1945. Sea ice in the Arctic Ocean began to shrink also about 1800 AD. Both phenomena are not something that began only after 1945 and both long-term retreats cannot be correlated with, much less blamed on, an increase in CO_2 emissions.

It has been repeatedly reported by news media, alarmists, and global warming advocates that the greenhouse effect will cause sea levels to rise by several to tens of meters, flooding many areas in the world, and also that many islands in the South Pacific will be underwater. However, the most accurate, observed information known to global warming researchers is that the rate of sea level rise is 1.7 mm per year (or 1.7 cm after 10 years and 17 cm after 100 years). Furthermore, the rate has actually decreased during the last few decades, in spite of the fact that the amount of CO_2 is rapidly increasing. Thus, the earlier reports were a great exaggeration.

Many anomalous weather phenomena, such as the Katrina hurricane in the U.S., floods in Bangladesh, the most recent floods in Texas and England, the 2003 heat wave in Europe, and even the large snow fall in the U.S. last winter, have been all been reported to be the greenhouse effect caused by carbon dioxide (CO_2), and all without even the standard scientific proof. There is no accepted scientific proof that the frequency of the occurrence of these phenomena follows the observed increase of CO_2 in the atmosphere. None of these phenomena is the direct consequence of the greenhouse effect, but such stories are enough to cause fear among people, as they experience them personally. If the dust-bowl conditions of the 1930s were to occur today, the greenhouse effect would certainly be

blamed for it. *The Grapes of Wrath,* by J.E. Steinbeck, describes the great migration of farmers in the U.S. during this period.

It has also often been reported that houses in the Arctic are collapsing because permafrost is thawing as a result of the greenhouse effect. Actually, the collapsing houses are built directly on permafrost (namely, ice) and are heated. Although it is a manmade effect, it is not caused by the greenhouse effect. This is another example of turning global warming issues into science fiction TV programs.

What is true is that the amount of damage caused by these severe weather systems is sharply increasing, because more and more people are forced to, or choose to, live in storm-prone areas. It should be noted that much of the environmental destruction actually caused by the over-harvesting of forests and fish, pollution, extinction of some species, and so forth are also wrongly attributed to the greenhouse effect. Scares of spreading a disease like malaria, because of the greenhouse effect, have no foundation.

When such stories are mentioned, the greenhouse advocates respond by saying, "But, 2500 world climate experts from 130 countries have agreed that the present global warming is caused by the greenhouse effect," implying that those, who have doubts about the direct connection between the warming and the greenhouse effect, are skeptics or heretics, or even worse, enemies of mankind. Such a tactic is to maintain and enhance their alarming activities based on the above misinformation.

Certainly, global warming is in progress. However, in spite of their claim, not even the International Panel of Climate Change (IPCC) presents definite scientific proof that "most" of the present warming is caused by the greenhouse effect, as stated in their summary report. It is simply an *assumption*. Since the physics of the greenhouse effect of CO_2 is well known, and since they thought that no other forcing function is likely to be the cause, the IPCC *hypothesized* that the warming from about 1900 was caused by it. They assembled a large number of scientists, mostly meteorologists and physicists (not necessarily climatologists who are really needed in climate research) and tried to prove their hypothesis based on supercomputer models. They have continued to do so, in spite of new evidence from some ice core data, which shows that the temperature rises tend to precede CO_2 rises by about 1000 years, suggesting that the hypothesized relationship between the temperature and CO_2 is reversed, namely that some of the past temperature rises may be the cause of CO_2 rises. It is very unfortunate that the hypothesis has somehow become 'fact.'

The earth was warmer than at the present time around 1000 AD; this period is called the medieval warm period. It was the period when some Scandinavians and Icelanders migrated to Greenland. There were also many warmer or cooler periods than the present during the last 10,000 years. Ice core data from the Greenland ice sheet and other data show many warming and cooling events, even during the last 10,000 years. However, polar bears, which need not live only on ice, survived them all.

Unfortunately, we have no clear understanding of the causes of these warming and cooling periods. After the warm period around 1000 AD, the earth became cooler from 1400 to 1800 AD by perhaps as much as 1.0 - 1.5°C. This period is called the Little Ice Age (LIA), when at times the River Thames in England was frozen. George Washington and his troops crossed icy rivers or harbors. Sea ice along the Northwest Passage caused the most tragic expedition in the Arctic, i.e., John Franklin's sailors, all 130 of them, perished there, although the Passage is now sailable without the assistance of an icebreaker. The rebounding rate from the LIA may be as much as 0.5° C per 100 years. This rate is not far from the present warming rate of 0.6°C/100 years. Therefore, the greenhouse effect (also called the "anthropogenic" effect) during the last century may be only 0.1°C/100 years, not 0.6°C/100 years. Thus, the inferred temperature rise by the IPCC may be considerably over-estimated.

It is necessary to mention here another kind of "misleading" piece of information. It has been widely reported that sea ice in the Arctic Ocean would disappear in the summer of 2040. It is a computer simulation result of one scientist based on a particular theory. There are a number of other results that indicate that sea ice will remain until 2100 or after 2300. However, news media report sensationally only the 2040 case, so that the public is informed only one side of the story. In a sense, such reporting is "misleading."

Another "misinformation" is that many young scientists report their results based on satellite data that only became available in the 1970's. However accurate their results are, their results are a sort of snapshot of climate change. However, some of them use the term "unprecedented" change, but it is not accurate in terms of climatology. Further, it is unfortunate that many young researchers tend to concentrate only on satellite data, say sea ice, which can be obtained by the click on a computer screen. To assemble comparable climate data, even as recent as 1960, requires perhaps 1000 times more effort, but the data thus collected may not be as high-quality as the corresponding satellite data. Thus, only a very few researchers deal with data before the satellite days.

It is important to realize that climatology has an aspect of archeology, since thermometer records became available in the 1700's. Like archeology, by whatever means are available, we have to learn how the Earth has experienced climate change after its birth. Massive digital data handling is not the only climate research. It is necessary to examine every possible sign, indication, and proxy data.

There is no doubt that global warming is in progress at the present time, but much of it is likely to be a combination of the rebounding effect from the Little Ice Age and multi-decadal oscillation, which, at present, is positive. *Recovering from a cool period is, of course, warming—but there is no reason to panic from alarmists' misinformation*. It is likely that the two together are causing high temperatures near the end of the last century. Unfortunately, it is not possible to stop natural changes. We have to deal with them with a cool-headed approach. We have to adapt to them. Somehow, we have forgotten to include natural changes as we emphasize environmental changes.

Scientists have no clear knowledge of the cause of the Little Ice Age and of the rebounding from it, or of the Big Ice Age, or of a warm period when the Arctic Ocean had no ice, or of the medieval warming period. In fact, IPCC scientists do not know the causes of the rapid increase of temperature from 1910 to 1945, which was similar in magnitude and rate to the increase after 1975 (the main concern of IPCC), In fact, according to the latest NASA announcement, the 1930s were warmer than the last few decades in the U.S. Then, from 1945 to 1975, the temperature *decreased*, in spite of the fact that CO_2 *increased* rapidly at that time. Therefore, without understanding such a recent change, it is very premature for the IPCC to jump to the conclusion that CO_2 is the main cause of the last thirty years of warming (since 1975). It is worthwhile to recall that some scientists warned the public by stating that a new Ice Age was near during the temperature decrease from 1945 to 1975. Using rhetoric similar to what we hear now (changing from "hot" to "cold").

Although we appreciate that the public is greatly interested in this particular scientific field, it is unfortunate that their awareness is based on the above and many other pieces of misinformation. In any case, we now have almost hopeless confusion, which is out of control. Sadly, even the Royal Society of London, which is supposed to be the coolest head in the scientific world, is curiously very hot on this issue and has no intention of rectifying such confusion.

Nevertheless, many people, including scientists in general, believe that the IPCC proved the greenhouse effect with models run on supercomputers. First of all, it is very important to understand that a supercomputer can do only what scientists instruct it to do with only very limited knowledge. A supercomputer cannot adopt processes that scientists do not know or understand, including natural changes of unknown causes, such as the rebounding from the Little Ice Age and multi-decadal changes. Therefore, a supercomputer is powerless for unknown causes. In reality, a supercomputer is not a crystal ball. Like most people, even many scientists, who are not specialists in climatology, are not aware of this weakness and simply trusted the IPCC Report, since it is well established that CO_2 contributes to the greenhouse effect. The predicted warming in 2100 is not reliable, because supercomputers are *instructed* that the warming of 0.6°C during the last 100 years was caused by the greenhouse effect without considering natural causes. Secondly, scientists input the observed or expected amount of CO_2 into a supercomputer in terms of a number (instead of actual CO_2) by assuming that it is the earth. However, a supercomputer, no matter how powerful it is, cannot represent accurately such a gigantic system like the earth. Even the distribution of clouds, which play a major role in the greenhouse effect, is not necessarily easy to reproduce. The crucial question is how much increase of temperature would result by the given amount of CO_2 in the complex Earth system during the last century.

If the rebounding from the Little Ice Age continues, the present warming trend is likely to continue, even if we completely stopped the release of CO_2 today. However, since the earth has experienced many warmer (and also cooler) periods during the last 10,000 years, there is no particular reason to become panicky. We have to deal with and adapt to natural changes with a cool-headed approach.

Another factor to consider is the fact that we live in a much more comfortable and controlled environment in the U.S. than people did in the 1930s, when it was hotter than the present (a recent NASA announcement), without much air conditioning, and with only an "ice box" for refrigeration. This means that we are becoming more vulnerable to climate change.

It is curious that little has been done so far to reduce the release of CO_2, in spite of such a great outcry about it all over the world. Is this a rhetorical exercise by alarmists, news reporters, advocates, and officials for their own existence? The global warming crisis is a luxurious crisis, compared with the crisis associated with environmental destruction and the nuclear war crisis. This may be the reason why there are so many international global warming conferences that are attended by policymakers. Needless to say, energy conservation is important and is a much more accurate justification than reducing the release of CO_2 for our future.

It is unfortunate that the integrity of science will be badly damaged by alarming the public without solid scientific foundation. Although it is often reported that there is "consensus" among scientists on the greenhouse effect, this situation has no comparison to the consensus among many scientists at the time of the nuclear crisis in the 1970s and the 1980s, when scientists alarmed the world. The difference between them could be compared to a dinosaur (which was proven to exist) and a dragon (which is an imaginary creature).

Integrity and trust in science is at stake when confusion is caused in the minds of the public. Scientists are responsible for clarifying and rectifying the confusion. We have to at least bring back the integrity of climatology as a respectable basic science from its present confused state, separating it from politics or "political science." Only then, can we make real progress in inferring the temperature change to be expected in the future. At the same time, environmental advocacy/protection groups should return to their original theme of protecting the environment from destruction, pollution, over-harvesting, illegal hunting, massive deforestation, and so forth, all of which are taking place right now before our very eyes, and are not at all related to global warming.

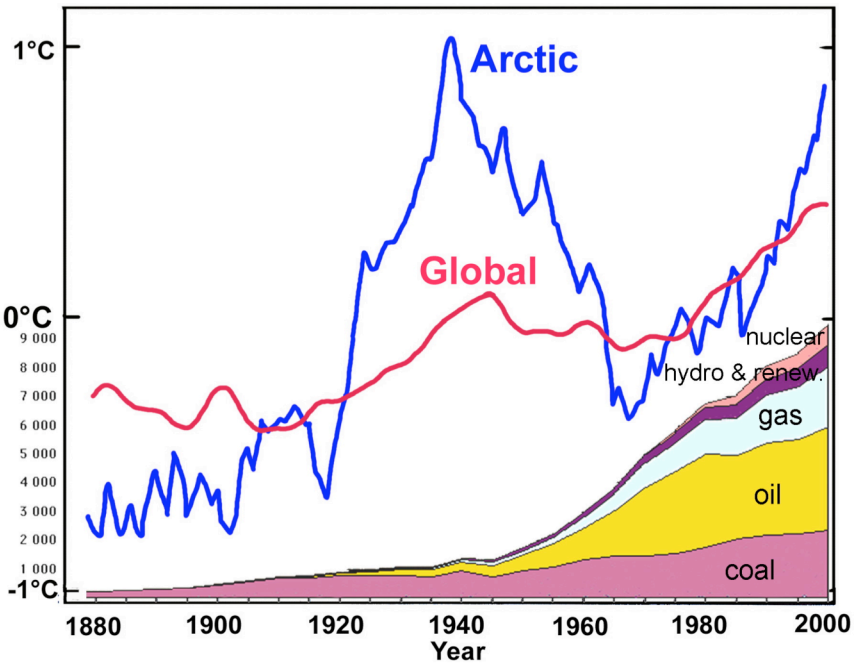

Figure: This figure shows *changes* of the global average temperature during the last 100 years or so according to the IPCC (the baseline of the changes for both curves is the average value for the period shown). It also shows the temperature changes in the Arctic (both positive and negative), which are much larger than those of the global average. This phenomenon is called the "polar amplification," indicating that global climate change is most prominently in progress in the Arctic. That is to say, climate change is most clearly observed in the Arctic. One can see that both curves show a slow linear increase, which is superposed by larger, oscillatory changes. The former may be due to the rebounding effect from the Little Ice Age. The latter is called the multi-decadal oscillation (positive during the last few decades); many natural systems tend to have a quasi-oscillatory change like El Niño. As explained in the text, the two together are likely to be the main cause of high temperatures in the last few decades.

The figure also indicates the consumed energy sources of coal, oil, natural gas, and nuclear energy during the same period. It can be seen that the temperature increased from 1910 to 1945 and then *decreased* from 1945 to 1975; the latter period coincided with the period of a rapid *increase* of fossil energy consumption. The cause of this temperature increase and decrease is not well known. Some scientists (and news media) declared, at the time of the decrease from 1945 to 1975, that a new Ice Age was coming and that we should urgently prepare for it with rhetoric that sounds very similar to that used for the present global warming. The temperature began to increase again from about 1975. One can see at least that the relationship between temperature changes and the amount of CO_2 released into the air is not simple at all.