The climatic changes that the Earth has experienced in the past several decades have led to an intense interest in their cause, with contentions by the IPCC (Intergovernmental Panel on Climate Change) that catastrophic global warming and sea level rise due to increased atmospheric CO2 will occur by the end of the century or before. However, many scientists point to data strongly suggesting that climate changes are a result of natural cycles, which have been occurring for thousands of years. Unfortunately, many non-scientist activists and the news media have entered the debate and the arguments have taken on political aspects with little or no scientific basis.

So what is the physical evidence for the cause of global warming and cooling? Proponents of CO2-caused warming contend that the coincidence of global warming since 1978 with rising CO2 means that CO2 is the cause of the warming. However, this is not proof of anything—just because two things happen coincidently doesn’t prove one is the cause of the other. After 1945, CO2 emissions soared for the next 30 years, but the climate cooled, rather than warmed, showing a total lack of correlation between CO2 and climate. Then, in 1977, temperatures switched abruptly from cool to warm and the climate began to warm with no change in the rate of increase of CO2.

Does CO2 have any effect on climate? Physicists have shown that CO2 is a greenhouse gas capable of warming the atmosphere. The question is how much warming is CO2 capable of causing? CO2 is a trace gas, making up only a tiny portion of the atmosphere—only 390 parts per million (or 0.039%), and accounts for only 3.6% of greenhouse gases. The total increase in atmospheric CO2 since 1945 has been only 0.009% above normal. How can such a small amount of CO2 control global climate change? The truth is, it can’t. Water vapor accounts for 95% of greenhouse gases and is thus the dominant factor in greenhouse warming. The theory put forth by CO2 advocates is that this miniscule increase in CO2 raises atmospheric temperature a tiny amount and that small warming increases the water vapor content of the atmosphere and since water vapor accounts for 95% of atmospheric warming, the air warms. Computer modelers then insert an arbitrary water vapor factor in their models to get the catastrophic warming that they predict. The problem with this approach is that no evidence exists for increased water vapor content in the atmosphere to produce the warming their models call for. In fact, water vapor records indicate just the opposite—water vapor has decreased since 1948.
Because of the absence of any physical evidence that CO₂ causes global warming, the only argument for CO₂ as the cause of warming rests entirely in computer modeling. Thus, the question becomes, how good are the computer models in predicting climate? We can test this by comparing global warming predicted by the IPCC models against actual climate change over the past 10 years. In 2000, the IPCC models predicted a warming of 1 °F by 2010, 2 °F by 2040, and 10 °F by 2100. The 1 °F warming predicted by IPCC by 2010 did not happen—there has been no global warming since 1998. In fact, temperatures have cooled slightly since then.

If CO₂ is incapable of explaining global warming, what natural possibilities exist? A vast amount of physical evidence of climate change over the past centuries and millennia has been gathered by scientists. Significant climate changes have clearly been going on for many thousands of years, long before the recent rise in atmospheric CO₂. In order to understand modern climate changes, we need to look at the past history of climate changes. The past is the key to the future—to know where we are headed in the future, we need to know where we have been in the past. This volume is intended to document past climate changes and present physical evidence for possible causes. It includes data related to the causes of global climate change by experts in meteorology, geology, atmospheric physics, solar physics, geophysics, climatology, and computer modeling.

Time and nature will be the final judge of the cause of global warming. The next decade should tell us the answer. If CO₂ is the cause of global warming and the computer models are correct, then warming of 2 °F since 2000 should occur by 2040. If the climate continues to cool, then the computer models must be considered invalid, and we must look to other causes. As we enter the solar minimum predicted by solar physicists and cooling deepens in the next decade, as it did in 1800 and 1650, than a strong case can be made for solar variation as the main cause of climate change.

The reader is invited to toss aside all of the political rhetoric that has been introduced into the global warming debate, focus on the scientific evidence presented in the papers in this volume, and make your own conclusions. Dogma is an impediment to the free exercise of thought—it paralyses the intelligent. Conclusions based upon preconceived ideas are valueless—it is only the open mind that really thinks.

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