

Human-Caused Global Warming Slight So Far

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Abstract

Reasons why Christians should be cautious about the controversial topic of global warming are listed. Examples of exaggeration by doomsayers are numerous and a few are presented. Based on what is known about global warming, the presumed global temperature increase and the amount of carbon dioxide increase since 1959, a case is presented that global warming is not so dire. Manmade versus natural climatic warming is discussed. Evidence that the climate models are too sensitive to a doubling of carbon dioxide is given. The question of whether global warming will have a net harm is briefly touched upon. The conclusion is that more unbiased research is needed.

Keywords

human-caused, global warming, exaggeration, doomsayers, temperature, carbon dioxide, natural, climactic, atmosphere, media, misinformation, hysteria, environmentalists, greenhouse gases, fluctuations, hurricanes

Introduction

We are constantly bombarded with bad news about global warming. Hurricanes are increasing in frequency and intensity, the Greenland and Antarctic Ice Sheets are melting and raising the sea level, the Arctic Sea ice cap is melting, droughts are imminent, people are dying of the heat and so on.¹ Global warming will even cause larger and more toxic poison ivy.² It is all because man is polluting the atmosphere with carbon dioxide from the burning of fossil fuels and the destruction of tropical forests. We must act now, advocates claim, or we will become engulfed in a runaway heat blast. This is the doomsayers' position.

Other voices allege that global warming will halt the ocean heat circulation in the Atlantic and plunge the earth into the next ice age, which is due soon. Already, the North Atlantic poleward heat transport has supposedly decreased 30%!³

There are also a number of scientists who believe global warming, so far, has been slight. They believe that doomsayers have not proven their case for the expected huge temperature increase for a doubling of carbon dioxide, and that increased carbon dioxide may have a net beneficial effect. In fact, 20,000 scientists, of whom about 2,700 of them are physicists, geophysicists, climatologists, meteorologists, oceanographers, or environmental scientists, who are in a position to understand the global warming issues, have signed the following statement:

There is no convincing scientific evidence that human release of carbon dioxide, methane, or other greenhouse gasses is causing or will, in the foreseeable future, cause catastrophic heating of the earth's atmosphere and disruption of the earth's climate. Moreover, there is substantial scientific evidence that increases in atmospheric carbon dioxide produce many beneficial effects upon the natural plant and animal environments of the earth.⁴

I also advocate this position and further reasoned research, providing a forum for the views of both advocates and dissenters of extreme human-caused global warming.⁵

Because of all the bad news and variable positions on the issue, it is no wonder that confusion seems to be rampant. Polls indicate that most people have become convinced that global warming is a serious problem. This is likely due to media bombardment. The only question remaining for most people is what to do about it. Should we aggressively fight global warming, should we fight it piecemeal with gradual measures, or do we have time for more research?

Reasons for Caution

How should the Christian evaluate this issue? We should first understand some of the assumptions and goals of not only those advocating we act now, but also the whole environmentalist movement. Second, we need to check the data—what we know for sure. Third, we will then be in a better position to evaluate any proposed courses of action to mitigate global warming.

Just like the creation/evolution issue, we need to separate raw data from interpretations. My theme verse in creation research is 1 Thessalonians 5:21: "But examine everything carefully; hold fast to that which is good" (NASB). We are to hold fast to the Bible as God's word and instruction book to us and to Jesus as our Lord,

Savior, and Creator. We should evaluate everything, and not at the superficial level. I examine the data, the assumptions and the interpretations before I delve into biblical solutions to earth science problems.

Christians especially need to be cautious when it comes to the issue of global warming and other environmental issues. One of the reasons is that these issues have been hijacked by individuals who desire to change our way of life, and in particular, the Christian worldview that has guided the western hemisphere. Veith concluded: “A big part of the problem is that the current environmental movement has been hijacked by the far left.”⁶ There are also pantheists involved. These groups have agendas for social engineering. Second, some environmentalists are promulgating misinformation, as will be documented below. It is important that we examine what is known for sure before we speculate on future climate scenarios. Third, those who believe we must act now dominate public discussion and are served by a biased media. Fourth, computer simulations of climate are not always accurate predictors of the future and, with a doubling of carbon dioxide, exaggerate the amount of global warming. But too many people take these simulations as authoritative. Fifth, doomsayers use ad hominem arguments against those who disagree with them—a sign of a weak case and a refusal to enter into reasonable dialog.

Just recently, eighty-six prominent Christian leaders jumped on the doomsayer bandwagon with the Evangelical Climate Initiative (ECI).⁷ Based on a report in *World* magazine, it looks like many of these evangelicals have not examined the subject in depth and were influenced by the barrage of propaganda.⁸ The Evangelical Interfaith Stewardship Alliance has recently taken the ECI to task for poor analysis of the situation, and the likelihood that the poor would be harmed by draconian government regulations that attempt to curb carbon dioxide emissions. For example, government actions that curb greenhouse gases likely would cause the price of energy to jump astronomically. The poor could not afford energy that is required for development.

Examples of Hysteria

Examples of misinformation and hysteria are not hard to find. One of the most recent examples of hysteria was a special report on global warming published in the April 3, 2006, issue of *Time* magazine.⁹ The article flatly states without any qualifications, “The climate is crashing, and global warming is to blame.”¹⁰ Humans are blamed for global warming, and the potentially harmful effects are emphasized.¹¹ The article claims that serious debate has quietly ended (although this is untrue) and lists many devastating weather, climate and environmental occurrences. Serious debate has only ended because radical environmentalists now dominate the discussion and malign those who disagree. This is not unlike the creation/evolution debate.

There are many other examples of wrong information, half-truths and hysteria. In the January 22, 1996, issue of *Time* magazine, the front cover exclaimed, “The hot zone—blizzards, floods & hurricanes: blame global warming.”¹² Believe it or not, even blizzards such as the powerful East Coast northeaster of January 1996 have been blamed on global warming by some advocates. It seems like some believe all bad weather is caused by global warming. One of the problems in countering such misinformation is that people have short memories or do not read weather history.

Probably the most outrageous example of false information is a video produced in 1990 that claimed world temperatures would rise 55°F (30°C) by the year 2050!¹³

There is even a dramatic movie promoting an ice age rapidly caused by global warming.¹⁴ Although the movie was admitted to be a Hollywood exaggeration, many scientists see such an ice age, caused by global warming, developing more slowly, perhaps over the course of several decades. This belief has been reinforced by what are believed to be indications of abrupt climate change shown by ice cores from the Greenland Ice Sheet.¹⁵ In the introduction to a special issue of the *Journal of Geophysical Research* on ice cores, Hammer and others stated:

These millennial-scale events represent quite large climate deviations: probably 20°C in central Greenland . . .

The events often begin or end rapidly: changes equal to most of the glacial-interglacial differences commonly occur over decades, and some indicators, more sensitive to shifts in the pattern of atmospheric circulation, change in as little as 1–3 years.¹⁶

Such temperature changes in Greenland are related to the atmospheric circulation and would affect much of the Northern Hemisphere. Such rapid changes are indeed scary, but their deductions are based on their wrong interpretations of ice cores as a result of their assumption that the ice sheets are millions of years old.¹⁷

Al Gore wrote a book on global warming in which he seemed to believe every dire prediction of the radical environmentalists.¹⁸ Recently, he has produced a video documentary with an accompanying book, called *An Inconvenient Truth*. The video contains the same old misinformation. M. Bergin stated:

But Mr. Gore’s radical political agenda and tendency for half-truth have undergone no such makeover . . . Mr. Gore employs stage tricks, straw men, and well-rehearsed rhetoric to contend that opposition views on climate change are rooted in callous profiteering.¹⁹

Mr. Gore’s hysterical and ad hominem attacks are typical of doomsayers. It is common for these advocates to

claim that those who disagree with them are working for the oil companies. But we should look at the agendas of the radical environmentalists, and the great economic benefit for them to keep the pot stirred.

The Data

We should look at the observational data before we hypothesize about future climate scenarios. The probable average degree of surface warming in the Northern Hemisphere since 1880 has been only 1.2°F (0.7°C).²⁰ Fig. 1 shows this warming. However, this number has resulted from the analysis of complex data. Over the years, measurement techniques of land and ship temperatures have changed. For terrestrial stations, the instrument shelters have changed locations, the type of thermometer has changed, the time of observation has changed and the microclimate around the shelter has changed. Man-made effects that are unrelated to increased greenhouse gases also can affect temperature readings over the years. The most notorious problem is the urban heat island effect, where the concrete of expanding cities heats up the air. Those who have analyzed the temperature record claim to have dealt with this problem, but some skeptics question whether researchers have excised all the urban heat island effect.²¹

So, it seems likely that global warming has occurred based on the temperature measurements, retreating glaciers and other effects. However, doomsayers like to claim that skeptics do not believe in any global warming. This is untrue, since practically all skeptics agree that some global warming is occurring. This is not the issue. Patrick Michaels and Robert Balling, climatologists and critics of global warming hype, admit:

In the broadest perspective, global warming is a very real thing, undeniable from surface temperature readings taken over much of the planet in the last 100 years.²²

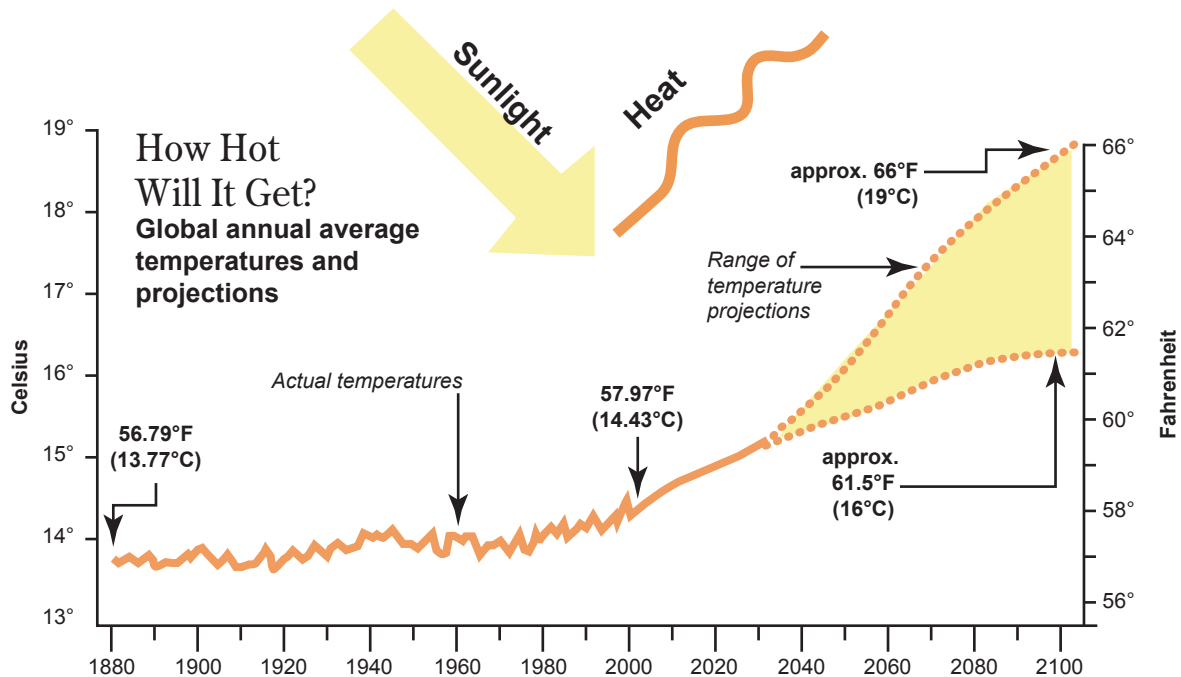


Figure 1. Global annual average temperatures and some of the model projections.²³

But there are also climatic effects other than carbon dioxide that have changed the temperature trends over the years. John Christy and Roy Spencer give an example of increased irrigation in the San Joaquin Valley causing warmer nighttime and cooler daytime temperatures, especially in summer.²⁴ Christy and Spencer conclude: “And I [Christy] always say that improvements still have to be made on a lot of our surface temperature data sets and that is what I spend a lot of my time doing.”²⁵

Christy and Spencer of the University of Alabama pioneered the use of satellites to measure the temperature of the troposphere. Their data had shown only a slight rise in temperature since 1979, compared to a substantial rise from the surface data during that period. Taking away the strong 1998 El Niño year, there was no significant change at all. However, scientists have recently found errors in the satellite data, although their analysis was in error itself.²⁶ Christy and Spencer went back and corrected their satellite data, and now it agrees within the lower end of the error bars of the surface data. Christy and Spencer sum up their satellite data: “So it is correct scientifically to say there is no significant discrepancy in the global temperatures between the surface and the satellite.”²⁷

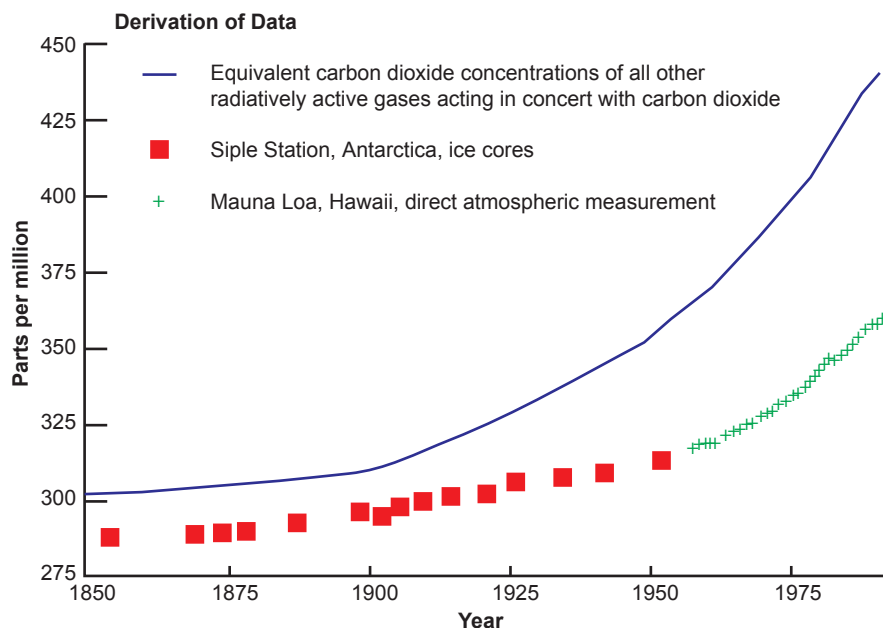


Figure 2. Atmospheric CO₂ concentrations in parts per million by volume, ppm, from Siple Station, Antarctica, ice cores (squares) and Mauna Loa, Hawaii (crosses). Solid line is carbon dioxide equivalency units for all greenhouse gases.²⁸

stabilizes our climate.³⁰ If it gets too hot, evaporation will increase and clouds will cool the climate by reflecting sunlight from the tops of the white clouds. It also works the other way; cooler temperatures result in less cloudiness and more absorption of solar radiation at the surface.

That is the data, and both advocates and skeptics of runaway greenhouse warming start with this same data. The problem is over the interpretation of the data, just like in the creation/evolution controversy. There are three main interpretive problems: (1) how much of the warming is caused by man adding carbon dioxide to the atmosphere and how much is from natural fluctuations, (2) how much temperature increase is expected from increased carbon dioxide and (3) will the harm from rising temperatures outweigh the benefit from warmer temperatures? I will analyze each of these interpretive aspects below. A related question is what can we do to minimize temperature change and how can we measure progress?

Natural versus Man-Made Global Warming?

There are indeed natural climatic fluctuations that cause warmer temperatures. A certain percentage of recent global warming is due to long-term natural fluctuations, including effects of the sun.³¹ Volcanoes can also cause short-term cooling,^{32, 33} but a lack of volcanism can result in warmer temperatures. From about 1400 to 1880, the Little Ice Age occurred,³⁴ in which practically all the glaciers in the world advanced, whereas now they are receding (Figure 3). At times people could ice skate on the Thames River in London, whereas that is unthinkable today. The Little Ice Age was likely caused by the combination of slightly less energy from the sun and more volcanism, both of which allow the surface of the earth to cool. There were periods during the Little Ice Age in which the sun exhibited few sunspots. Few sunspots cause a cooler solar temperature and less solar radiation because the stronger compensating effect of solar faculae is also reduced. Before the Little Ice Age, there was the Medieval Warm Period. So natural fluctuations in the past have been significant.³⁵

Scientists are uncertain how much global warming is caused by these natural fluctuations. Roy Spencer stated:

We need to find out how much of the warming we are seeing could be due to mankind, because I still maintain we have no idea how much you can attribute to mankind.



Figure 3. Athabasca Glacier, Canadian Rockies, was near the sign in 1890 and has since melted back to its current location due to global warming.

Another key observation is that carbon dioxide has been increasing in the atmosphere since measurements were initiated in the late 1950s (Figure 2).²⁹ The level of carbon dioxide has likely been increasing since about 1850 due to the industrial revolution and the destruction of tropical rainforests. Other greenhouse gases have also been increasing. It is well known that carbon dioxide will enhance the greenhouse effect. But, it is also well known that carbon dioxide is a minor greenhouse gas and that water vapor is the primary greenhouse gas by far. Carbon dioxide provides less than 5% of the greenhouse warmth that makes our planet livable. It is the water vapor that actually

Jim Hansen had his smoking gun and said that he could prove that it's all man-made.³⁶

Jim Hansen is a leading doomsayer, and these advocates tend to believe that all the global warming is caused by man. So the belief in how much warming is natural depends upon one's bias. Right now it is too soon to know the proportion. Beisner and others stated:

The mechanisms driving natural climate variations are too poorly understood to be included accurately in computer climate models. Hence, the models risk overstating human influences.³⁷

Further evidence that natural fluctuations are significant is that during the early and mid-1970s, a cooling trend increased the amount of sea ice. This happened at a time when the buildup of carbon dioxide should have caused global warming. It initiated the idea that the ice age was around the corner, since according to the Milankovitch mechanism, the next ice age is due soon. Several books with this theme were published. One of them was *The Cooling: Has the Next Ice Age Already Begun? Can we Survive it?*³⁸ Climatologist Stephen Schneider published *The Genesis Strategy: Climate and Global Survival*, in which he asked: "Would a new cycle of droughts related to a global cooling trend portend chronic famine and world chaos?"³⁹ Yes, global cooling would initiate droughts. It is interesting that after the cooling trend petered out and global warming continued, Schneider dusted off the drought scare, but this time for global warming:

What is more, several climate models predict that summer precipitation will actually decline in Midcontinental areas, including the central plains of the U.S. ... A decline in agricultural productivity in the Middle West and Great Plains, for example, could be disastrous for farmers and the U.S. economy.⁴⁰

A significant proportion of the global warming has been an increase in nighttime and winter temperatures, which do not impact man and the environment as much as an increase during the day or summer. Although it was previously believed that the Arctic was not warming, it certainly seems to be warming today.⁴¹ However, the South Pole seems to be cooling.⁴²

So, for the time being and until more certain information is available, I will assume that half of the 1.2°F (0.7°C) rise is caused by natural long-term climatic cycles and the other half is due to man-made global warming. This means that the man-made temperature rise since the late 1880s is likely only about 0.6°F (0.3°C) or less.

How Much Warming after Carbon Dioxide Doubles?

Climate specialists run computer simulations in order to determine the temperature sensitivity to increasing carbon dioxide. In the model, they double the amount of CO₂, leaving all other variables the same between computer runs, and see how much the temperature rises. There have been many climate models developed with many types of simulations with a wide variety of temperature responses. For a doubling of carbon dioxide, the simulations predict a temperature rise ranging from 3 to 11°F (1.5 to 6°C).⁴³ Figure 1 shows some of these temperature projections to the year 2100. Unfortunately, many environmentalists, politicians, and media celebrities take such imperfect climate simulations literally, which is problematic. No wonder we have a greenhouse scare.

But, let us look more closely at the data. The amount of CO₂ added to the atmosphere since 1880 is about 30%. Other greenhouse gases, such as methane, also have increased. In order to compare these other gases to CO₂, researchers put them into CO₂ equivalency units, which adds another 30% (see solid curve in Figure 2). So, essentially CO₂ has increased 60%. This 60% rise in CO₂ and its equivalency units has resulted in approximately a 0.6°F (0.3°C) rise in temperature. At this rate, a doubling of CO₂ will produce only a 1°F temperature rise. The climate simulations are, therefore, much too sensitive to the effects of CO₂. The super-sensitivity of the climate simulations could be due to the problems in estimating global variables in the models. Clouds, precipitation and radiation are notoriously difficult to parameterize in the models.⁴⁴ Ocean processes and snow and ice reflectivities⁴⁵ are also not handled well by the models.

Doomsayers counter that the increase in pollution, mainly sulfur dioxide, causes a cooling effect, masking the effect of the warming.^{46, 47} Although there is probably some truth in this secondary hypothesis, Christy and Spencer maintain that it is speculation.⁴⁸

Will there be a Net Harm to Man and the Environment?

Those who believe we must act now naturally emphasize the negative effects of global warming. But what about positive benefits? Will the positive benefits outweigh the negative benefits?

More people would be expected to die of the heat from global warming, advocates of a hot earth are quick to point out. But fewer people should die of the cold. Since nearly ten times the number of deaths result from severe cold than from severe heat,⁴⁹ global warming should save more lives. Furthermore, affordable energy, which gives off carbon dioxide, is needed to protect from extreme heat as well as extreme cold. More warmth will also result in an increased growing season and more area for agriculture.

Increased drought, of course, would be quite harmful to man. However, Christy and Spencer show that there has been no long-term increase in drought or wetness, although there is significant variability from year to year.⁵⁰ Some scientists claimed that droughts would increase in the future with further global warming, but this is speculative. Increasing temperature results in increasing water vapor in the air and increasing precipitation. Global precipitation increased 1% per decade during the twentieth century.⁵¹ Thus, global warming means a wetter planet causing more plant growth, which should be a boon to agriculture. Besides, more plants will soak up some of the extra carbon dioxide, producing more growth and requiring less water.

More frequent and intense hurricanes obviously would be a great detriment to man and the environment. Warmer atmospheric temperatures result in warmer ocean temperatures, which fuel hurricanes. So, some increase in hurricanes should be expected, but the question is how much of an increase. Much discussion has ensued lately because of the four strong hurricanes that slammed into the southeast United States in 2005. Some researchers have made extraordinary claims on future hurricane deaths and damage.⁵² The significant intensification of hurricanes and their frequency is controversial.^{53, 54} Christy and Spencer show a graph of hurricane strikes in the United States since 1850, not including 2005, that shows no significant trend.⁵⁵ The increase in deaths and damage is mainly because more people have built near the coast.

There is also no trend or maybe a downward trend in the frequency of strong tornadoes in Oklahoma.⁵⁶ The number of weak tornadoes has increased, but this is likely due to increased detection and reporting.

Then there are the negative effects if draconian government action is taken to curb the increase in carbon dioxide. Christy and Spencer say that the change in temperature from reduced carbon dioxide emissions likely would be unmeasurable,⁵⁷ while the cost to fight global warming would be well in excess of a trillion dollars per year.⁵⁸ The economic hardship, especially on the poor, would be substantially greater than any purported slowing of global warming.⁵⁹

In regard to a rise in sea level, the magnitude of which is under dispute, people can slowly move inland or build more and higher dikes, since the climate change would be slow.⁶⁰ One interesting beneficial aspect to global warming would be increased shipping in the Arctic Ocean.⁶¹

So the jury is out on whether global warming will have a net harmful effect on man and the environment. What is needed is more objective research on the level of harm.

A new study of northward oceanic heat transport in the North Atlantic claims that the transport has already decreased 30%, based on 47 years of measurements.⁶² Computer climate simulations had suggested that such a decrease would require a global temperature increase of 7 to 11°F (4–6°C) after nearly a century.⁶³ Some scientists are afraid of an abrupt climate change coming soon, and believe we need to act now. However, the reduced heat flow has caused no climatic effect in Europe. Moreover, Carl Wunsch of MIT believes the climatic significance of the heat transport is greatly overblown, emphasizing that it is difficult to stop the northward heat transport.⁶⁴ Wunsch further writes that there are many unknowns associated with ocean and atmospheric climatic interactions, and that climate simulations have many difficulties. Besides, the average wind drives the ocean currents and is the most important factor responsible for the northward heat transport. The addition of fresh water on the ocean surface will not slow the heat flow, as has been assumed in climate simulations.

More Research Needed

Clearly, more careful research is needed.⁶⁵ All positions should have a say on the issue. Unfortunately, many qualified critics are demonized by the media and proponents of runaway global warming. Critics are commonly accused of believing in a flat earth.⁶⁶ Furthermore, we need to compare the potential benefits with the potential harms of global warming. Those evangelicals who signed the ECI need to study both sides of the issue (1 Thessalonians 5:21) instead of jumping on the doomsayer bandwagon. And if the evidence shows that global warming should be reduced, we should find and invest in new, cost-effective technologies that do so.⁶⁷

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