

A Proposed Bible-Science Perspective on Global Warming

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Abstract

Media coverage of global warming has been increasing for over twenty years. Major proponents include the United Nations, politicians, environmentalists, and celebrities. Oddly, the church has had little to say on the issue and has made scant use of Scripture to evaluate the alleged problem. This paper will identify the major goals of global warming advocates, propose a biblical (young-earth creationist) framework for evaluating the issue, and highlight basic scientific data related to the alleged claims. It will be shown that the Bible provides sufficient counsel to enable Christians to evaluate the claims of global warming and arrive at a confident position that is in accord with real science. The contention that man's activities are causing global warming, as described in the media and by its advocates, is a myth. There is no reason either biblically or scientifically to fear the exaggerated and misguided claims of catastrophe as a result of increasing levels of manmade carbon dioxide (CO₂).

Keywords: atmosphere, biblical perspective, carbon dioxide, climate change, earth's temperature increase, glacial melt, global warming, plants

Introduction

Al Gore contends that the greatest moral issue of our times is global warming. In addition, he and others characterize global warming, which he considers to be predominately caused by man, as a moral, ethical and spiritual challenge. These claims are in his slide show presentations, his book and his film, *An Inconvenient Truth* (Gore 2006, introduction). If he is right then Christians should examine this issue and take a strong biblical position. Moral, ethical and spiritual issues are the domain of the church. At the very least, global warming should be evaluated to see if indeed it is a moral issue. Few Christian groups have publicly taken a side regarding global warming. Two associations of well-known evangelicals, however, made statements on global warming during 2006. In mid-February, 2006, the Evangelical Climate Initiative (ECI) came out in support of legislation to control CO₂. They issued a four-page statement called *Climate Change: An Evangelical Call to Action* (Evangelical Climate Initiative, 2006). Later in 2006 the Interfaith Stewardship Alliance (ISA) issued a 22-page statement called *A Call to Truth, Prudence, and Protection of the Poor: An Evangelical Response to Global Warming* urging caution (Cornwall Alliance, 2006, website, formerly Interfaith Stewardship Alliance). Also in 2006, several members of ECI were featured in an hour-long television program describing growing support for the global warming agenda among evangelical Christians. When ECI leaders were asked what the Bible had to say on this issue, they merely referred to general “creation care” concepts such as: be a good steward and do not hurt the poor. A more detailed understanding of “creation

care” can be gained by reading the above cited reports. Claim #3 in the ECI paper is a good summary of the concepts. Both evangelical groups resorted to these concepts, yet they both also stated that they wanted to bring a decidedly Christian perspective to the debate on global warming. Are very general “creation care” concepts all the guidance the Scriptures provide? Are concern for the poor and a desire to wisely steward the earth exclusively Christian positions? Many non-Christians also share these concerns. This paper affirms these concerns while searching Scripture for additional counsel and a uniquely Christian perspective. It will be shown that the Bible provides a clear framework for evaluating the claims of humanly produced global warming and coming to a credible decision.

This paper is not intended to answer all the questions on global warming. The primary objective is to offer a biblical framework for evaluating the major claims of global warming advocates and demonstrate that this framework is consistent with basic science. Obviously, not even all creationists will agree with every assertion in this paper. Hopefully, however, interested creationists will be encouraged to expand the biblical and scientific framework for understanding this issue.

The spiritual implications of accepting evolution have been eloquently and comprehensively argued by many creationist organizations. Yet, for far too long the creation-evolution debate has been viewed by many, even in the church, as an abstract, academic topic with little relevance to real life. Man-made global warming is a direct product of evolutionary thinking, and the potential impacts are very applicable to real life.

Proposed secular solutions to the alleged claims of global warming will directly impact everyone who depends on fossil fuels for their current life style. The issue of global warming presents biblical creationists with an opportunity to demonstrate not only the efficacy of Scripture in addressing life's issues, but also to show how ignoring Scripture leads to unnecessary, expensive, and harmful actions. Global warming is an arena where the battle between biblical truth and evolutionary untruths is currently raging and it will affect everyone in very practical ways. Contrary to what advocates say, a consensus does not exist on global warming, the debate is not over, and a biblical (young-earth creationist) perspective has not yet been widely discussed.

God is the creator of the universe. In His Word, the Bible, God has addressed every area of life (family, state, church, science, man, sin, etc.). God's Word is truth. The revelation given to us in Scripture is sufficient to enable man to understand the world around him and make decisions that will honor God and benefit mankind. When faced with a challenge, a follower of Christ should first ask, "What has God said that will help me understand this issue and respond in a manner that honors Him?" This paper is an effort to answer that question regarding the alleged issue of global warming.

Definition of Terms

Before proceeding any further it will be helpful to present the following definitions. These definitions are simply stated in order to make them clear, easy to understand, and easy to apply.

Weather

Weather refers to atmospheric conditions at a particular time, for example: temperature, humidity, wind, barometric pressure, precipitation, and so forth.

Climate

Climate comprises the average weather conditions present in a particular location at a particular time of year. Climates are measured over several decades.

Climate change

Climate change, obviously, refers to long-term changes in average weather conditions.

Global warming

Global warming is an assertion that the entire earth's surface is warming.

Unfortunately, many individuals, and the popular media, often use the terms "climate change" and "global warming" interchangeably. As shown above, they are not synonymous terms. Both climate

change and global warming are commonly attributed to human activities like burning fossil fuels and harvesting forests.

Primary Issues

Media news on global warming tends to be confusing. Dissimilar terms are used interchangeably (global warming and climate change), the scientific issues are unfamiliar to the general public (chemical analysis of ice cores, reef bleaching, ocean current stagnation, etc.), and an unusual mix of scientific experts, politicians, and celebrities claim that devastating consequences will occur if we ignore their advice (massive floods, epidemics, drowning polar bears, etc.). A means must be found to cut through the confusion and emotional rhetoric in order to grasp the core issues and concepts. Identifying what global warming advocates want to control helps bring the issue into clearer focus. From this perspective, two issues are of primary concern to global warming advocates: CO₂ emissions and the harvesting of forests. They want to control both CO₂ emissions and the harvesting of trees. Global warming advocates are concerned that certain "greenhouse gases" (GHG), principally CO₂, are being generated by mankind in quantities sufficient to adversely affect the long-term climate of the earth. They claim that since the start of the industrial revolution, the burning of fossil fuels has unnaturally increased the atmospheric content of CO₂. This in turn is retarding the earth's emission of long-wave radiation and artificially increasing the earth's surface temperature. This is called the GHG effect. Many adverse and catastrophic conditions are alleged to arise from this temperature rise, namely: melting ice caps, rising sea level, expanding deserts, more storms, more severe storms, accelerating species extinction, growing threats from pestilence, and others. If these claims are true, we should certainly be concerned.

The proposed solutions for the alleged problem are to control CO₂ emissions, reduce the cutting and burning of forests, and plant more trees. The United Nation's Kyoto Protocol is ostensibly designed to reduce CO₂ emissions. Although the United States has not joined the agreement, some states have adopted legislation to reduce CO₂. California, for example, has committed to reduce greenhouse gas emissions to the 1990 level by 2020 (AB 32, Global Warming Solutions Act, 9-27-06). Some legislators are now wondering how this can be accomplished. Before our country commits to spending billions (probably trillions) of dollars on CO₂ reduction, we need to consider what light the Bible can shed on this issue.

Exactly why are global warming advocates so concerned about burning fossil fuels and the harvesting of forests? It must be kept in mind that global

warming advocates are predominantly evolutionists. Al Gore readily admits that he is an evolutionist (Gore 2006, p.160). Accordingly, they believe that there was a time in the distant past when earth's atmosphere contained a much higher percentage of CO₂ (over 21%) and no oxygen (O₂). They believe the earth's atmosphere developed O₂ only as a result of photosynthesis by plants or bacteria (Bergman and Renwick 2003, p.137). Advocates believe that forests, especially tropical rain forests, are the largest reservoir for storing carbon and generating oxygen on land. This helps explain their strong desire to protect rain forests. From an evolutionary perspective it is easy to see why preserving forests and reducing CO₂ is important, even if the projected catastrophes are unfounded or exaggerated.

Development of a Biblical Framework

Most Christians rightly believe the Bible to be their foundation for faith and practice. It determines what they believe and consequently how they behave. The Bible provides frank and absolutely reliable direction for every moral issue experienced by mankind. The biblical position on moral issues like abortion and homosexuality are clear to those who accept the inspiration of Scripture and who understand the straightforward implications of Scripture on these issues, but other issues require thoughtful study of Scripture. With respect to global warming, the Bible provides much more guidance than "creation care" concepts. The following is a proposed biblical framework for evaluating the claims of global warming.

Foundation for a biblical Interpretation

This paper accepts the verbal plenary inspiration of the Bible (all of the words in the original manuscripts are inspired), and follows a literary interpretation protocol. Passages dealing with the Creation, the Flood and the tower of Babel are treated as narrative in keeping with the historical-grammatical approach to Scripture. The Bible-science movement is keenly interested in determining the original intent of biblical passages. A joint study by the Creation Research Society and the Institute for Creation Research called *Radioisotopes and the Age of the Earth* (RATE) illustrates this point. The study team included a Hebrew scholar, Dr. Steven Boyd, whose task was to determine if the Genesis creation verses are narrative or poetry, a critical question. If the passages are poetry then they merely illustrate a spiritual truth, but if they are narrative then they describe real events and real people. Dr. Boyd determined that Genesis 1:1 to 2:3 is narrative with a 99.996% probability at a 99.5% confidence level (Vardiman et al. 2005, p.690).

Relevant biblical data

The Bible does not speak directly about what we call global warming. It does, however, provide a framework for evaluating the merits of global warming claims. To reiterate, the global warming discussion centers on CO₂ (the atmosphere) and trees (plants). The Bible, of course, addresses the atmosphere and plants. The biblical framework for evaluating global warming is primarily found in Genesis. The RATE study mentioned above established that Genesis 1:1 to 2:3 (the Creation account) was narrative. The study also determined that the Flood account (Genesis chapters 7 to 9) is also narrative (Vardiman et al. 2005, pp.661 and 667). This paper will also briefly reference the dispersion of the nations at the tower of Babel in the summary. Although the RATE study did not evaluate the Tower of Babel, I believe that if the creation and the Flood passages are narrative then the tower of Babel passage is narrative also. These passages describe real events and real people. The following sections briefly discuss passages related to the atmosphere and plants.

Creation of the atmosphere

In Genesis 1:1 we are told that "God created the heavens and the earth." Creation obviously includes the atmosphere. In fact, if the atmosphere was not created on Day One, it certainly was in place by Day Two when God "separated the waters which were below the expanse from the waters which were above the expanse" (Genesis 1:6–8). This "expanse" was the atmosphere in which the birds flew on Day Five. Regardless of the exact day, the central biblical point is that the atmosphere was created, it did not evolve. The atmosphere was intentionally designed and created by God to support life, including plants, animals, and mankind, which He subsequently created. Contrary to evolution theory, the atmosphere is not a constantly changing mixture of gases, which billions of years ago were poisonous to life but now has evolved to the point where it can support a precarious array of life. The original created atmosphere contained the right amount of CO₂ for the plants that would be created on day three and sufficient O₂ for the soon to be created animals and mankind. This is a far different atmospheric history than the evolution story. A created atmosphere has purpose, stability, and is more robust than a randomly evolved atmosphere.

Creation of plants

Aside from all the other reasons for which God may have created plants, the Bible specifically states that He made them for human and animal food, and this is largely being ignored by global warming advocates (Genesis 1:29–30). Since all animals and mankind were vegetarians originally, plants were created as

a reliable and sustainable source of food. As people began eating meat, they became even more dependent on vegetation as a source of food because the animals we eat all must consume multiple pounds of vegetation for each pound of meat produced. As an example, the grain conversion ratio for poultry is about four while beef is 15 (Bergman and Renwick 2003, p. 320). This means that on average a cow would need to consume 15 pounds of feed (vegetable matter) to generate one pound of meat. Consequently, as the human population grows, and as proportionately more people become meat eaters, substantially more land must be allocated for agriculture.

By the way, the areas most useful to man in producing edible plants and animals are not the forests, but the plains. The useful carrying capacity of grasslands far exceeds the useful carrying capacity of forests. Consider, for example, the millions of bison, antelope, elk and bear that once inhabited the western Great Plains. Today these plains are producing record amounts of grains such as corn and wheat, along with other edible crops. Most forests, including tropical rain forests, are climax communities. This means that new growth is nearly offset by decaying vegetation, yielding little if any net gain (Oberlander and Muller 1987, p. 240). While it is true that harvesting of forest products should be done in line with intelligent use of that ecosystem, unless forests are periodically harvested, allowing new growth and providing a useful product, they have little direct economic benefit for mankind. As the human population increases then it is reasonable to convert forests to the production of food and building material. From a creation perspective there is nothing sacred about preserving forests. They are to be efficiently and effectively managed for the benefit of mankind. Nonetheless, there is little justification for the wanton destruction of forests for short-term economic benefit. As stewards accountable to God we should manage all earth resources with a long-term, biblical, perspective.

It should also be noted that as plants began growing and covering the earth following Creation week, they were removing CO₂ from the environment. Land plants removed CO₂ from the atmosphere while marine plants removed CO₂ from the ocean. In addition, marine animals that developed carbonate shells also removed CO₂ from the ocean.

Dominion mandate

God purposely created mankind to rule over the earth, including both the plants and the animals. According to Genesis 1:26-29, man was told to: fill the earth, subdue the earth, and rule over all of the earthly creation. This mandate was repeated to Noah and his family after the flood (Genesis

9:1–3). Genesis 2:15–16 further indicates that man was initially also commanded to cultivate and keep the Garden of Eden. These commands indicate that man is God's appointed representative on the earth. Having been created in the image of God, man is uniquely separated from, and elevated above, the rest of creation. The earth was created for the benefit of man, but he is ultimately accountable to God in his exercise of this commission.

Genesis 2:11–12 identifies the location of gold, resin and onyx. According to Genesis chapter 4, later generations raised livestock, developed musical instruments and worked with bronze and iron. God never rebuked mankind for mining, farming, ranching, or cutting trees for building projects. All of these activities are part of man's God-given rule over the earth. Throughout Scripture, however, God has repeatedly rebuked man for disobedience to His moral commands. Eating the forbidden fruit resulted in God's curse on both man and creation. Man's wickedness in the days of Noah resulted in God destroying all air breathing creatures and men, except for the few saved on the ark. The Flood also entirely reworked the surface of the earth. Following the Flood, God confused man's languages because, among other things, mankind lingered in Mesopotamia rather than filling the earth as commanded. This resulted in various language groups slowly migrating around the earth. When Israel disobeyed God's moral commands he sent them into exile and allowed their land to grow over with thorns. Using earth resources for the benefit of mankind has never been a moral issue. Ignoring God and disobeying His commands is a moral issue.

Noah's Flood (Destruction of the earth)

The year-long Genesis Flood (Genesis 7:17–8:9) buried great volumes of plants and animals. During the Flood there were 40 days and nights of heavy rain, and the fountains of the deep were open for 150 days. These flows added significant volumes of water to the existing ocean. It is reasonable to assume that more water was added to the ocean from the fountains of the deep (150 days) than from rain (40 days). Water from the earth is warm. The average geothermal gradient is 1°F (0.6°C) for each 60ft (18.3m) of depth (Landes 1959, p. 169). The deeper this water originated, the warmer it would be. The Flood likely increased the temperature of the ocean. As we will see later, a warm sea following the Flood helps explain another important post-Flood phenomena, the ice age.

According to the Genesis account, the Flood waters increased for 150 days until all the high mountains everywhere on earth were covered to a depth of 15 cubits (about 22.5ft [6.9m]). The waters then receded for another 220 days as the present continents and mountains rose out of the ocean (Psalm 104:6–9).

During this time valleys and plains were eroded and the major drainage systems were established.

Noah, his family, and the animals stayed on the ark during the five months the waters were increasing, as well as the seven months while the waters were receding. God did not allow anyone to leave the ark until the earth had dried and a sufficient number of plants were growing to provide food for all life on the ark. It is important to recall that during the Flood all land plants were destroyed, yet there was sufficient oxygen in the atmosphere for all life on the ark to breathe. After the Flood plants again began growing and covering the earth, just as they did at Creation. At Creation and immediately after the Flood, plants were just beginning to cover the earth yet there was no shortage of oxygen in the atmosphere. God established enough oxygen in the original atmosphere to sustain life throughout the duration of the earth. This highlights the fact that plants are not necessary for generating oxygen. More will be said on this topic in the section on CO₂. Plants, however, are essential as food for man and animals. In addition, plants stabilize the soil, provide habitat for various animals, and are a source not only of medically useful drugs but also inspiration and beauty.

As plants again covered the earth, both on land and in the sea, they once more removed CO₂ from the environment. In a like manner, shelled animals in the sea removed CO₂. As an aside, during the Flood every man and animal on the ark would have been classified as an “endangered species” according to current definition. All animal life today is descended from one or a few pairs of animals that were carried on the ark. Plants were not endangered.

Plants buried in sedimentary rocks during the Flood now exist as fossil fuels (Groombridge and Jenkins 2002, p.10). Coal, oil, gas, tarsand, and oilshale are all partially decomposed plant material. When fossil fuels are used today in furnaces and engines we are burning plants that lived and grew prior to the Flood. The CO₂ released during burning was taken from the pre-Flood atmosphere and ocean. Even secular scientists acknowledge that fossil fuels are remains of past plants and burning them releases energy stored long ago (Nortchen 1968, p.71). The argument over burning fossil fuels versus ethanol can be reduced to a question of whether it is best to burn old plants or new plants. Burning old plants (fossil fuels) is much more efficient, and therefore “green.”

The massive fossil carbonate formations seen across the earth contain remains of pre-Flood shelled animals. Approximately 15–20% of the sedimentary rocks world-wide are carbonate (Ehlers and Blatt 1982, p.251). Considering the total volume of fossil

fuel captured in rocks, and the volume of carbonate rocks, it can be seen that a significant amount of CO₂ has been removed from the pre-Flood environment (atmosphere and ocean) and locked up in sedimentary formations. Another significant volume of CO₂ has been removed since the Flood and is tied up in plants and animals that have subsequently developed. As a result of burying a major proportion of earth’s plant and animal life, the Flood likely caused far greater changes to atmospheric gases than any current global warming scenario.

Following the Flood, God assured Noah that there would be no other worldwide water catastrophe as long as the earth remains (Genesis 8:22). According to this promise, “seedtime and harvest, and cold and heat, and summer and winter, and day and night shall not cease.” Along the same line, Peter mentions that in the last days people will say that “all continues just as it was from the beginning” (2 Peter 3:3–7). Christ also mentioned that in the days prior to His second coming all would continue routinely, “just like in the days of Noah” (Matthew 24:37–39). From these verses it appears that until the tribulation occurs no worldwide catastrophe will affect the earth. Global warming is described as a worldwide catastrophe by the radical environmentalists and the media. The tribulation of Revelation certainly contains events that sound like some of the dire predictions associated with global warming. Unlike global warming, the tribulation is initiated directly by God, as judgment on sinful mankind, and is a sudden, not a gradual change. People undergoing the tribulation realize that it is from God, as a result of their sinful behavior, but they intentionally refuse to repent. We should not confuse the claims of global warming with tribulation events.

God’s control of Creation

God is in absolute control of His creation. He is the Creator (Genesis 1 and 2). God destroyed His creation in the days of Noah with a worldwide flood (Genesis 7–9). God sets the boundary for the seas (Job 38: 8–11, Psalm 104:9, Jeremiah 5:22) and controls the weather: lightning (Job 28:26, 37:3), hail (Job 38:22, Psalm 147:17, Haggai 2:17), rain (Job 28:26, 37:6, Psalm 147:8), and snow (Job 37:6, 38:22, Psalm 147:16). Someday God will destroy this earth and establish a new heaven and a new earth (Revelation 21:1). Man is not in control of the weather and this present earth is temporary.

Summary of biblical framework

Keeping in mind that the Genesis accounts of creation and the Flood are narrative (they describe real historical events), the above discussed biblical framework can be summarized as follows:

Creation week

1. CO₂ and O₂ were created early in the Creation week. Neither of these gases evolved.
2. Plants were created primarily for food.
3. Man was given dominion over the earth.
4. The earth was created for man's use, enjoyment, and occupation as he honors God.
5. Man is neither an animal nor a random accident of evolution.

Between Creation and the Flood

1. Following creation, plants, both marine and land, reproduced around the world.
2. Animals with carbonate shells also multiplied world-wide.
3. The above growth removed CO₂ from the environment and replaced it with O₂.

The Flood

1. The Flood added large quantities of water (likely warm) to the ocean.
2. The Flood buried substantial volumes of plants.
3. Plants began growing during the last half of the Flood, as the waters receded.

Post Flood

1. Plants and animals, both marine and land, again begin multiplying world-wide.
2. Growing plants and shelled animals removed CO₂ from the environment and added O₂.
3. Under the influence of temperature, pressure, and an O₂ free environment, the buried plants become fossil fuels.

Note: God is in absolute control of the earth and all it contains, not man.

As you can see, the Bible has quite a bit to say regarding atmospheric gases and plants. This biblical framework relates directly to our understanding of global warming and climate change. The atmospheric gases were created, they did not evolve. We should not expect the types of atmospheric gases to have been substantially different at creation than now. It is unlikely that the creation atmosphere contained any gases not present in the current atmosphere. Oxygen has obviously been present since creation and likely has increased as CO₂ decreased. The contribution to atmospheric gases by volcanoes from creation to the present is unknown. What is known, of course, is that CO₂ stored in plants and shelled animals that existed prior to the Flood is now stored in sedimentary rocks worldwide. The pre-Flood plants currently exist as fossil fuels and the shelled animals are contained in carbonate deposits. We also know that currently living plants and shelled animals have taken additional CO₂ from the environment. Consequently, in view of the massive volume of fossil fuels and carbonate rocks, it

is highly probable that today's atmosphere contains measurably less CO₂ than the Creation atmosphere and a correspondingly higher O₂ concentration. Polar seas are quite cold today. In the years since the Flood, the warm worldwide ocean has gradually cooled at the poles. God created the earth for man's use. Man received a commission from God to manage the earth, including the plants and animals. This includes old plants and new plants. Man has the right to use earth resources for the benefit of mankind, but in a reasonable manner that honors God.

In Table 1 we compare creation and evolution on several issues relevant to our discussion.

Table 1. Issues relevant to earth's climate within the creation and evolution models.

Issue	Creation	Evolution
O ₂ in original atmosphere	<21%	0%
Source of current O ₂	Created	Product of photosynthesis
CO ₂ in original atmosphere	>0.03%	>21%
Source of plants	Created	Evolved
Value of plants	Food	Generate O ₂
Purpose of earth	Man's home	Purposeless
Source of man	Created	Evolved animal
Purpose of man	Steward	Purposeless
Man's relation to animals/plants	Ruler	Co-equal
Source of fossil fuels	Plants	Plants

Creation and evolution agree on only one point. Fossil fuels were once plants. The above framework provides significantly more depth than "creation care" concepts. The value of this framework will become clearer as we consider some basic science related to global warming.

Science Related to Global Warming

Let us now consider some basic science related to global warming issues. Four topics will be discussed: glaciers, CO₂, climate, and temperature. These topics have been chosen as they are crucial to the global warming argument. We will review these sections with a Bible-science perspective. Following this we will fit the scientific data into the biblical framework previously discussed in an effort to develop a comprehensive perspective on global warming.

Glaciers

As evidence that the earth is experiencing global warming, advocates point to melting glaciers around the world. Since this is the first and strongest argument offered by Al Gore, the United Nations, and other global warming advocates, it is appropriate to spend some time discussing glaciers. The glaciers remaining around the world are remnants of the once extensive ice age. Ice ages are poorly understood

(Oberlander and Muller 1987, p.479). Although numerous evolution-based theories have been advanced to explain how an ice age is initiated, none of them are satisfactory. The most popular theory at the moment is the astronomical theory. According to this theory, small changes in the earth's orbit, tilt and wobble combine approximately every 100,000 years to create a colder winter, especially at the poles (Dott and Batten 1988, p.596). Proponents of this theory believe that if winters are colder then glaciers will grow and advance. Such conditions, if they actually occurred, would not start an ice age, but merely a cold-age.

An ice age is characterized by thick, extensive, ice-sheet glaciers and advancing mountain glaciers. The indispensable ingredient for a glacier is lots of snow. Massive precipitation of snow requires massive evaporation of sea water. Massive evaporation only occurs from warm water. Water evaporation increases exponentially with temperature (Oard 1990, p.5) (see Fig.1). So, an ice age requires warm seas in close proximity to the poles. The only viable explanation for an ice age has been clearly and thoroughly explained by Oard (1990). Warm seas world-wide following the Flood would provide optimum conditions for initiating the ice age. It would have been like lake-effect storms greatly enhanced. Oard, a meteorologist, estimated that 500 to 700 years would have been required for the ice age to reach its maximum (1990, p.97). During this time, more snow would have been precipitated in the winter than would have melted in the summer. Consequently, the snow cover would have increased in thickness and lateral extent. As the polar seas cooled, less evaporation would have translated into less snow and eventually snowfall would equal melting, stabilizing the extent of glaciation. Further cooling of the seas would have resulted in more melting than

snow accumulation and the glaciers would have retreated. Naturally, the glacial advance and retreat would have been somewhat erratic as yearly storm events varied in intensity. Today, the polar areas are deserts due to the cold seas. The high ice plateau of Antarctica receives only about one inch (2.5cm) of precipitation each year. Even Gore acknowledged this fact (2006, p.176). Today's precipitation rate does not allow sufficient time to accumulate the nearly two-mile (3.2km) glacier thickness from a biblical time frame.

There is overwhelming evidence that glacial ice sheets once covered most of Canada, extending as far south as northern Washington, Illinois, Ohio, New York and New England. Glaciers also covered much of Siberia and northern Europe. The massive ice sheets covering these areas melted prior to historical times. In fact, the majority of the glacial ice melted in the distant past. As corroboration that huge volumes of glacial ice melted in the past, there is strong geologic evidence that ocean levels have risen several hundred feet (61+m) (Groombridge and Jenkins 2002, p.35). Obviously, all this melting occurred long before mankind began burning fossil fuels on a large scale. In other words, glacial melting has been going on for thousands of years and mankind was not the cause. Most of the melting, and subsequent sea level rise, occurred long before the recent increase in atmospheric CO₂.

Incidentally, sunken Mediterranean cities also provide historical evidence for rising sea levels. For example, ancient Alexandria disappeared from history about 1,600 years ago. It was subsequently discovered in 1999 by Franck Goddio directly offshore from present Alexandria in about 15 ft (4.6m) of water. The fortified island of ancient Tyre was destroyed by Alexander the Great in 322BC. The ruins of ancient

Tyre now lie offshore in about 20ft (6.1m) of water. Other Mediterranean cities could also be cited. From this evidence, it appears that over the last 2,000 years the Mediterranean Sea has risen about 1ft (0.3m) per 100 years. This average sea level rise is greater than estimates of the rise over the last 100 years (4–10 inches [10–25cm]). Apparently, sea level rise is diminishing with time. The level of the Mediterranean Sea rose because melting glaciers added water to the oceans.

In summary, Bible-science provides the only viable explanation for an ice age: warm polar seas following Noah's Flood. It also provides a reasonable explanation for the end of the ice age and the subsequently experienced large-scale glacial melt: cooling seas. Contrary to what global

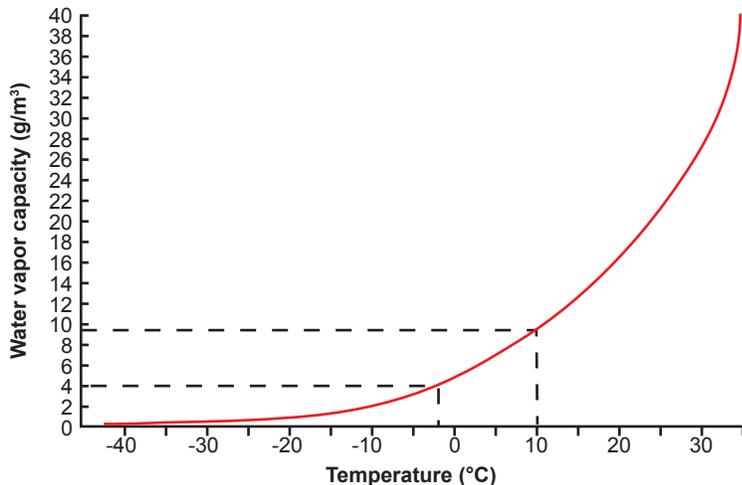


Fig. 1. Graph of water vapor capacity at saturation (11% relative humidity) versus temperature. Note the 60% drop in capacity as temperature cools from 10°C to -2°C.

warming advocates are saying, the glaciers melted because the seas cooled, not because they warmed. Since seas account for nearly 71% of earth's surface area, and contain 1,000 times more heat than the atmosphere, they are obviously a major variable in determining the earth's temperature and its various climates (Solomon et al. 2007, p.389). At first glance this may sound incredible, but it is in agreement with the biblical record and science. Biblically, there has only been one ice age and it was a direct and inevitable result of the Flood. Melting glaciers are nothing new. The impressive glacial melt experienced since the peak of the ice age was not due to increased CO₂, warming oceans, or anything man had done. Why should we now think that man is responsible for melting glaciers? Clearly, melting glaciers are not proof of global warming.

Carbon dioxide

Carbon dioxide is being described as a pollutant by global warming advocates. In 2007 the Supreme Court ruled that the U.S. Environmental Protection Agency (EPA) has the authority to regulate vehicular green house gases (Massachusetts versus EPA, Case #05-1120, decided 4-2-07 by a 5/4 margin). This was the conclusion of a suit filed by several states, including California, that were concerned that the federal government was not doing enough to avert a global warming disaster. After reviewing this issue, the EPA proposed regulating CO₂ as a pollutant under the Clean Air Act.

What exactly is an air pollutant? In the past, an air pollutant was defined as contamination of the air by noxious gases and minute particles of solid and liquid matter (particulates) in concentrations that endanger health. Does CO₂ fit the description of an air pollutant? The following discussion will demonstrate that CO₂ is not a pollutant.

At what concentration can CO₂ be considered a health hazard (the point where it would be an air pollutant)? This is a question of critical interest to

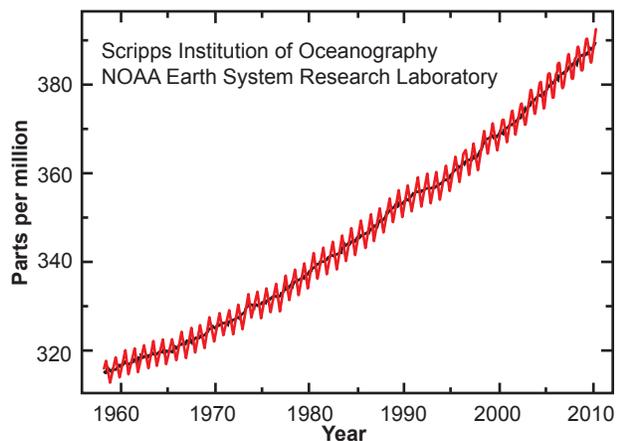


Fig. 2. History of measured atmospheric CO₂.

underground miners. Underground mines closely monitor the buildup of several gases which could prove hazardous to miners. Accordingly, mine safety thresholds have been established for numerous gases, including CO₂. The U.S. federal threshold level for CO₂ in underground mines is currently 5,000 ppm (30 CFR 75.321 [a]) (U.S. Dept. of Labor). During the 1940s and earlier, the threshold level was over 12,000 ppm (Peele 1941, sec.23, p.20). This is not a hazardous level. It is the concentration at which miners can be safely removed from the mine and the passageways ventilated. The level of CO₂ in our atmosphere could increase over 1,300% before reaching the current mine safety limit, and this level has been reduced to only 42% of the prior safe limit. Today's atmospheric concentration of CO₂ is clearly safe for humans, and will be for over a thousand years at today's rate of increase. It is doubtful, however, if fossil fuels will last for another thousand years.

Are there any benefits to CO₂? Carbon dioxide is naturally occurring and, rather than endangering life, it is necessary for life. Plants cannot live without CO₂ and man cannot live without plants. In addition to this indispensable benefit, there are other major benefits. Without an atmosphere containing GHGs the earth could not support life. Carbon dioxide is one of the atmospheric gases that help moderate earth's temperature. Furthermore, for over 100 years the agricultural industry has known that CO₂ is a plant fertilizer (Northen 1968, p.74). Some growers intentionally increase CO₂ up to ten times its normal concentration to encourage plant growth in greenhouses. This is termed "carbon dioxide enrichment." Elevated levels of CO₂ encourage faster growth, larger and more productive fruit bearing, and increased tolerance to both heat and cold. As a result of increasing levels of CO₂, plants can extend both their growing season and the extent of their habitat. Plants need CO₂ to exist. If CO₂ levels drop to about 220 ppm plants grow very slowly, and if the concentration falls to 150 ppm growth stops entirely. There is far greater danger in lowering the CO₂ level, than in increasing the level.

Agricultural schools, and farmers, around the world have noted increased crop yields and enhanced forest growth as CO₂ has increased in the atmosphere. One hundred years ago the atmosphere contained approximately 280 ppm CO₂. Today the concentration has increased to around 380 ppm (Solomon et al. 2007, p.137). See Fig. 2 for the concentration of atmospheric CO₂ as measured at the Mauna Loa Observatory, and Fig. 3 for a comparison of measured atmospheric CO₂ with the current safe limit for CO₂ in underground mines. Fig. 3 shows that CO₂ is far from being a pollutant that endangers the health of humans. This increased concentration is helping farmers world-wide

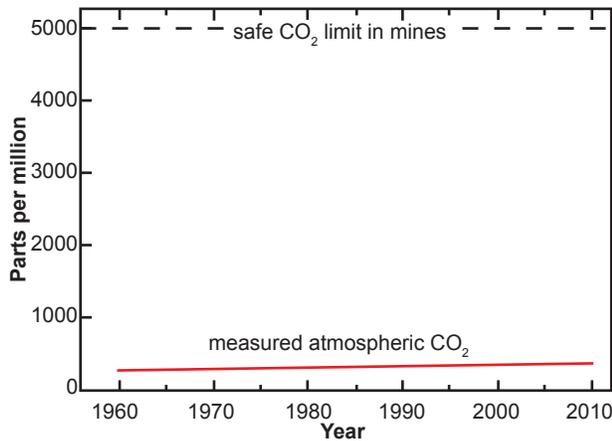


Fig. 3. Atmospheric CO₂ compared with the safe limit in underground mines.

to feed a hungry world. All plants respond favorably to more CO₂.

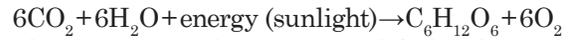
Is CO₂ only found in the atmosphere? The atmosphere is also in contact with the oceans. Gases are continually being exchanged between these two environments. At present the ocean contains at least 60 times more CO₂ than the air (Barry and Chorley 1987, p. 5). The ocean is a large buffer for atmospheric gases. As the ocean cools more CO₂ goes into solution and as the ocean warms it gives off CO₂. Since the post-flood ocean was much warmer than now, a large volume of atmospheric CO₂ has been absorbed by the ocean as it has cooled.

Is CO₂ the most important GHG? According to climatologists, water vapor and clouds account for about 60 to 95% of the GHG effect, while CO₂ has a much smaller effect. More importantly, many global heat budget parameters and the relationships between them are not adequately measured or understood (Kiehl and Trenbert 1997, pp.197–208; NOAA, website FAQs). Global climate models are too imprecise, and the key input data too limited, to justify initiating major changes in world economics. Climatologists who are pushing the global warming agenda are focusing on a minor GHG component and ignoring the major contributors to the GHG effect, water vapor and clouds.

What is the estimated contribution of CO₂ to global warming? Global warming is blamed on CO₂ increasing in the atmosphere. Is this reasonable? Over the past 100 years atmospheric CO₂ has increased 36% (from 280ppm to 380ppm). Over this same time interval global temperature is alleged to have increased 1°F (0.6°C). This is an increase of 0.2% (510R [283.3K] to 511R [283.9K] on an absolute scale). Even if all the increase in CO₂ is attributed to burning fossil fuels (which it is not) and the increase in temperature is due entirely to CO₂ (which is likewise not the case) the correlation between CO₂ and temperature is quite weak. At best, advocates are claiming that a 36%

increase in CO₂ is responsible for a 0.2% increase in temperature.

What is the relationship between CO₂ and plants? The photosynthesis/respiration equation is as follows:



This equation shows a simplified relationship between plants and the atmosphere. During daylight hours plant cells containing chlorophyll remove CO₂ and H₂O from the atmosphere, generate a simple sugar and give off O₂ (Northen 1968, p.68). As you can see, if the plant removes one molecule of CO₂ from the atmosphere it will replace it with one molecule of oxygen.

Although in daylight this equation runs in both directions, during the night this equation only runs in reverse. During respiration O₂ is combined with sugar to fuel the plant's metabolism and CO₂ and H₂O are emitted (Northen 1968, p.83). When a plant dies the equation runs in reverse (respiration) during the entire decay process until all the O₂ previously emitted is recaptured and all the CO₂ is returned to the atmosphere (Northen 1968, p.435). Over their life-cycle plants generate neither excess O₂ nor excess CO₂. This is a zero-sum game, but with a lag-time measured in years.

The implications of a plant's life-cycle are noteworthy. If over their life-cycle plants generate neither excess CO₂ nor excess O₂ then two conclusions follow: 1) plants did not generate the large volume of O₂ in our atmosphere, and 2) planting trees will not provide permanent carbon offsets. This, of course, agrees with Scripture. The atmosphere was created (it did not evolve) and plants were created as food (not a source of O₂).

What is the mix of gases in the atmosphere? Approximate concentrations are shown in Table 2.

Table 2. Composition of the atmosphere.

Gas	Symbol	%
Nitrogen	N ₂	78.07%
Oxygen	O ₂	20.94%
Argon	Ar	0.93%
Carbon dioxide	CO ₂	0.04%
Miscellaneous		0.02%

Currently there is about 550 times more O₂ than CO₂ in the atmosphere. One hundred years ago, when CO₂ was 280ppm, there was 750 times more O₂ than CO₂. Obviously, converting all the CO₂ into O₂ would have a minimal impact on total O₂ concentration, but would be devastating for plant life. As you will recall, according to evolution earth's atmosphere once contained no O₂. We are told that O₂ only exists in our atmosphere as a result of photosynthesis. As discussed

above, photosynthesis converts one molecule of CO₂ into one molecule of O₂. If evolution is correct then earth's atmosphere once contained over 21% CO₂.

Biblically, CO₂ is good. It is needed for life to exist. God created CO₂. It is a plant fertilizer, not a pollutant. The hazardous level for humans is far above concentrations attainable by burning all our fossil fuel reserves. In addition, the correlation between CO₂ and an alleged global temperature increase is weak at best and most likely spurious. Carbon dioxide is a minor GHG. It should also be remembered that the CO₂ released by burning fossil fuels was taken from the atmosphere that existed in the pre-Flood world. If the CO₂ wasn't a problem in the lush pre-Flood earth, it shouldn't be a problem now. Increasing levels of CO₂ are not proof of global warming.

Climate

Some global warming advocates claim that climates were relatively fixed over the last 10,000 years until man started burning fossil fuels and affecting the world's climate. Is this really true?

Climatologists realize that climates vary over time (Groombridge and Jenkins 2002, p.33). World climate maps are based on averages collected over a few decades in the mid-twentieth century (Bergman and Renwick 2003, p.85). Clearly, climates have steadily been changing with time, requiring plants and animals to adjust accordingly.

Think of all the climatic change initiated by the Flood. The initial uniformly-warm world ocean generated greatly enhanced evaporation and precipitation world-wide. The results of this precipitation were not only an ice age, but also lush rainforests.

As the ice age glaciers grew they encroached on vegetated land, forcing plants and animals to migrate. Interestingly, it appears that during the ice age there was a highly productive grassland community along the fringe of the warm Arctic Ocean (Oard 2004, pp.29–31). Ice sheets eventually covered a large percentage of the Northern Hemisphere; most of Canada and the northern states, much of Siberia and northern Europe, along with all the high mountain ranges world-wide. As these great ice sheets retreated, plant communities followed their migration. The plants were subsequently followed by animals.

The western U.S., between the Rocky Mountains and the Sierra Nevada, once contained numerous large lakes. Salt Lake is the remnant of one of these lakes. Archaeological finds indicate sizeable and diverse populations of people living in this region in the past. As the lakes evaporated, plant communities changed forcing men and animals to migrate elsewhere. In a like manner, North Africa was once much wetter,

supporting more cities and extensive agriculture. As the desert expanded the cities and agricultural lands were abandoned. Similar scenarios occurred on every continent following the ice age. Climate has been dynamic since the ice age requiring plants, animals, and man to adapt. From a biblical time frame (Ussher 2003), the flood occurred about 2349BC and the glaciers began retreating approximately 1850BC (earliest estimate of ice age peak according to Oard, and also the time of the patriarchs).

Many geologists believe that past ages were much warmer than historical times. Geological textbooks estimate some ages were as much as 25° F (13.9° C) warmer (Dott and Batten 1988, p.593). This is evident when viewing museum dioramas, park displays and National Geographic shows. Past ages are shown as tropical or subtropical. This is because most fossil plants are tropical or subtropical. It should also be noted that the divisions between the geologic periods were initially based on mass extinctions. Many evolutionist geologists still support this theory. Creationists realize that most of the sedimentary rocks, and their included fossils, were deposited during the Flood, not over millions of years. Consequently, there really was only one mass extinction, the Flood. The tropical and subtropical plants assigned to the evolutionary geological ages were all living at the time of the Flood.

We are told that global warming will increase both the frequency and severity of storms. Storms, however, are driven by the temperature difference between a warm equator and cold poles. This temperature difference sends cold fronts down from the north and warm fronts up from the south. Since northern and polar regions are the areas expected to warm the most from global warming, the temperature difference will decrease. Thus warming, if it actually occurred, would result in fewer and less severe storms.

Biblical history provides the only viable explanation for the ice-age (warm polar seas following the Flood), the melting of glaciers, and the development of deserts (cooling seas since the Flood). From a biblical perspective the past 4,350 years since the Flood have witnessed a vast change in climates around the world, none of which can be attributed to man-made causes. The mere presence of climate change is not evidence of man-made global warming. Climate change is normal, and was initiated by the Flood.

Temperature

We are warned by Al Gore, and on the news, that global surface temperatures have warmed 1° F (0.6° C) over the past 100 years, and that it is now warmer than it has ever been in the history of the earth. As a result of this "huge" temperature increase we must take immediate and extreme action to avert

sudden and imminent global disaster. As mentioned in the prior section, most geologists would dispute this claim. It is also stated that temperature records are being broken all over the world, thus verifying that we are on the brink of this global disaster. These are bold statements, but are they accurate? In addressing these claims we will consider the temperature history record in three parts: temperature data collection, data handling, and data interpretation. It will be shown that the margin of error in each of these areas significantly exceeds the global temperature increase reported for the past 100 years.

Collection methodology

The earth is huge. We simply do not have a sufficient number of collection points (weather stations) to accurately determine earth's average surface temperature. The problem is complicated by the seas. When approximately 71% of the earth is covered by ocean, but most of the weather stations are on land how can we truly know the temperature of the entire earth? The National Weather Service (N.W.S.) establishes standards for official weather stations (Leffler and Redmond 2004, p. 11). According to these standards, if a weather station is moved five miles (8km), or 100ft (30.5m) in elevation, then it must be designated as a new station. In other words, the N.W.S. believes that an accurate determination of temperature over a large area requires a temperature measuring station at least every five miles (8km). There are approximately 1,221 climate-monitoring stations overseen by the N.W.S. in the continental United States (Watts 2009, p.1). Following the N.W.S. five-mile guideline there should be at least 124,800 stations in the continental United States. The actual number of stations is less than 1% of the recommended number if an accurate average temperature for the U.S. is desired. In other words, 99% of the U.S. is unrepresented by temperature monitoring stations. The average spacing of weather stations over the entire globe is much sparser than even in the United States. How can these stations be representative of the entire globe?

A recent survey of 70% of the N.W.S. stations revealed that 89% did not even meet the N.W.S. siting requirements (Watts 2009, p. 1). Over half of these stations were expected to experience an error of over 2° F (1.1° C) just due to siting deficiencies (Watts 2009, p. 16). In view of a 2° F (1.1° C) temperature error due to siting, what is the significance of a 1° F (0.6° C) temperature change in 100 years? No significance.

In a typical U.S. city, temperature measurements can easily differ by more than 3° F (1.7° C) between various parts of town. Consequently, the official temperature reported may have a margin of error

of several degrees. If the temperature reported for a single town is not truly representative of that town, then how is the global average of such temperatures representative of the entire world? Large variations in temperature also exist in the countryside, depending on land cover, elevation, slope, and aspect.

It is well known that weather stations near large cities are impacted by what is called the heat island affect (Oberlander and Muller, 1987 p.71). Weather stations that once were in the country have been encroached by asphalt and concrete, thus raising the average temperature in the vicinity of the station. Cities become anomalously warm and are not representative of the larger surrounding area. Temperatures in cities can be 6–14° F (3.3–7.8° C) warmer than the surrounding countryside (Barry and Chorley 1987, pp.358–360).

Temperature proxies (tree-rings, glacial-ice cores, and ocean-sediment cores) are sometimes used in an attempt to reconstruct earth's temperature history far into the past. Proxies are extremely imprecise and obviously not representative of the entire earth. How can tree-ring thickness be accurately correlated to a specific temperature? Is the ring wider due to higher temperature, greater moisture, both of the above, or some other factors? Ice cores and ocean cores are even more difficult to interpret, especially since temperature is estimated from O₂ measurements and age is interpreted from an evolutionary time scale.

As an added point, in order to accurately measure the temperature history of the entire earth it would be necessary to measure temperatures simultaneously. A 24-hour day in New York is not the same time interval as a 24-hour day in Los Angeles or Honolulu. Unless simultaneous time intervals are captured, and averaged, the calculation introduces an additional error.

As you can see, temperature data collection is not very accurate, even in the United States. Weather stations in most of the world don't attain to the U.S. standards. A majority of the stations experience an error of at least 2° F (1.1° C). Can we believe a long-term warming trend of only 1° F (0.6° C) poses a significant risk?

Data handling

The global surface temperature history is basically a weighted average of numerous temperatures from weather stations around the world. Unfortunately, the number of weather stations is constantly changing. Between 1950 and 2000 the number of weather stations in the Global Historical Climatology Network has varied from over 15,000 to slightly over 5,000 at present, most of which are on land (McKittrick, 2003 p.6). How can a consistent and accurate global temperature be calculated when

the number and location of stations is changing drastically? This procedure places the significance of an alleged 1°F (0.6°C) temperature increase over 100 years into question. What is the impact of eliminating approximately two-thirds of the stations within a 50 year interval? Of course, when looking back 100 years it is impossible to maintain a constant number of weather stations and also pretend to be measuring global temperature. One hundred years ago there were far fewer stations (about 10% of current) and most of them were in the United States and Europe. The idea of a reliable 100-year history for the earth's temperature is an oxymoron. It fails by definition. Temperature wasn't even measured over much of the earth 100 years ago.

The average temperature used by climatologists in the 100-year history is merely the average of the high and low readings (maximum and minimum temperature) at each weather station for each day of the year (Bergman and Renwick 2003, p. 70). This procedure introduces a significant and unpredictable error for each station and is clearly not accurate if you want to capture the true temperature of the surface of the earth. This method would only be representative if temperature varied uniformly and symmetrically between the high and low temperature reading each day. This is an atypical event. The true average temperature can vary by several degrees from a simple average of the high and low temperatures, especially if partial cloudiness is experienced. If individual stations can experience a daily temperature error of several degrees why should we be alarmed by a 1°F (0.6°C) change in 100 years? The alleged temperature increase is well within the margin of error for each station's daily reading.

Even if highly accurate daily average temperatures were available from all of the stations, and the number of stations were constant, the global averaging technique would introduce an error which must be considered. How do you calculate an accurate, and representative, global average temperature from the approximately 5,000 stations? Do you calculate a simple mean, are the stations weighted by area, or is an isotherm map developed? If you weight by area how do you determine the area represented by each station? Do you consider topographic boundaries like mountains? What happens to the large areas unrepresented by stations? If you develop an isotherm map you must select from an assortment of methods for using the area of each isotherm to determine an average temperature. The average temperature calculated using these mathematically acceptable techniques can easily vary by more than 1°F (0.6°C) between themselves. The global averaging technique selected introduces a margin of error which must be considered, and reported.

Data handling techniques also introduce an error greater than the alleged temperature increase due to global warming. When considered in perspective, there is no cause for alarm over a stated 1°F (0.6°C) temperature increase.

Interpretation

A wide range of surface temperatures exist on the earth simultaneously. At the same time it may be -100°F (-73.3°C) in Antarctica and +130°F (54.4°C) in Death Valley. There will be places on the earth experiencing every temperature between these two extremes. A number of areas on earth will have temperatures between -9°F (-22.2°C) and +9°F (-12.8°C), single digits. According to the rule of significant digits, the end product of a calculation cannot have more significant digits than the component with the least number of significant digits. If we are measuring the earth's average surface temperature then the end product can have no more than one significant digit, in this case 1°F (0.6°C). We can only know the temperature of the entire earth within 1°F (0.6°C). Therefore, a 1°F (0.6°C) change in 100 years is within the margin of error of the calculation.

It is common in scientific disciplines to indicate a margin of error when reporting summary calculations. As we have seen, there are significant errors in both temperature collection and data handling procedures. These errors can range from a few degrees to as much as 14°F (7.8°C). In view of this, the margin of error for the global temperature history is well over 2°F (1.1°C). If a true margin of error is reported then a 1°F (0.6°C) temperature rise in 100 years fades into insignificance and the alarm over increasing temperatures evaporates.

In the western U.S., and many other parts of the world, reliable temperature records simply do not exist farther back than 100 years. If evolution is correct and the earth is 4.6 billion years old then we have no reliable temperature records for most of earth history. The last 100 years represents only 0.0000002% of earth's history. Even with a 6,000-year old earth (from the biblical account), the temperature record covers merely 1.7% of earth history. Is this a sufficient history to contend that earth's temperature is zooming out of control? Do we have a reliable temperature base from which to confidently predict the earth's future temperature and commit to spending trillions of taxpayer dollars?

Given that reliable temperature records are a relatively recent event, and climates are constantly changing, we should expect temperature extremes to be regularly broken. Broken temperature records do not prove either global warming or climate change. They merely indicate that we have a small sampling of

earth's temperature history. It is safe to say that even if we had accurate temperature records for the past 100 years it is impossible to know with confidence either the historical range of earth's surface temperature or if we have exceeded a safe level and are heading towards a disaster.

What really is the significance of average surface temperature? People, plants, and animals live in areas where the average surface temperature is very cold and also very hot. Even if the surface temperature was accurately known it would have little real significance for global warming since the atmospheric layer in which heat is constantly being transported around the earth is six to ten miles thick (troposphere). Isn't the temperature of the rest of the troposphere important?

Based on the above discussion, it can be concluded that global warming advocates are attributing an accuracy to earth's current temperature measurements that is not justified by the raw data. We have a short temperature history acquired from a small number of widely-spaced, constantly changing, poorly sited, land-based, inaccurately averaged, and unrepresentative weather stations. A 1° F (0.6°C) temperature increase in 100 years is well within the acceptable margin of error of the measurement system and certainly does not justify any alarm. In truth, we have no idea what the average surface temperature of the earth is. Because the temperature change is well within the margin of error the only conclusion we can make is that earth's average temperature is steady!

There is no reliable scientific data to prove a world-wide global warming problem today. The predictions of disaster are all based on a questionable temperature history and an even more suspect array of highly biased computer projections. As we all know, computer output is only as good as the input data and the calculation components. Both are highly suspect.

Finally, as mentioned in the climate section, reputable scientists recognize that much of earth's past was notably warmer than at present (Groombridge and Jenkins 2002, p.34). The earth is obviously not warmer than it has ever been, and the current surface global temperature measurement system is too imprecise to identify a reliable trend. Obviously, the reported surface temperature history does not prove global warming.

Scripture and Science Summary

Combining the previously discussed biblical framework with the basic scientific data just reviewed, allows construction of a brief, yet very useful, history for CO₂ and plants. This history will help put the global warming issue in proper perspective.

Creation:

- God created the atmosphere. The atmosphere contained adequate CO₂ and O₂ initially. It did not evolve.
- God created plants and animals. Plants and animals did not evolve, they were created, and the atmosphere contained all that they needed to live (CO₂ and O₂ in suitable concentrations).
- Plants were created as food for the animals and man. Plants were not needed to provide oxygen for life.
- Plants (both land and marine) and animals with carbonate shells removed CO₂ from their environment (atmosphere and ocean) as they reproduced and covered the earth.
- God created man and gave him dominion over the earth. Man was commanded to fill, subdue, and rule over the earth, plants, and animals.
- The earth was created for man's sustenance, use, and enjoyment.

Flood:

- God judged the world with a Flood. Large volumes of plants and shelled animals were buried in the year-long, global, Flood of Noah.
- During the Flood a significant volume of warm water was added to the original ocean. Most of the warm water flowed out of the earth from the fountains of the deep. The ocean was likely well mixed from the Flood which resulted in warm oceans surrounding the poles.

Post Flood:

- After the Flood, plants (land and marine) and shelled animals again began removing CO₂ from their environment as they once more inhabited the earth.
- The buried plants became fossil fuels (coal, oil, gas, tarsand, oilshale), and shelled marine animals became carbonate deposits.
- The warm ocean surrounding the poles triggered an ice age. Massive volumes of water were evaporated from the warm polar seas and precipitated as snow. This rapidly generated large sheet glaciers inland from the ocean. Land immediately adjacent to the ocean produced lush vegetation which supported large and diverse communities of animals (for example, woolly mammoth, horse, bison, musk ox, moose, antelope, bear, etc.).
- As the glaciers grew the ocean level dropped and numerous land connections were developed between the continents.
- About 100 years after the Flood, God stopped people from working on the Tower of Babel by creating different languages among the people.

Language groups congregated together and many began migrating around the earth. The migration was facilitated by warm seas which provided abundant freshwater and lush vegetation, as well as the land bridges created by falling sea level due to glaciation.

- With time the polar seas cooled, which decreased precipitation of both snow and rain. Eventually, the glaciers began to retreat as melting exceeded snowfall. As the glaciers melted, sea level rose and the land bridges were slowly covered. Inland lakes evaporated and deserts developed. Some deserts are still expanding.
- Plants and animals migrated to accommodate to the changing climates. In addition, the cooling ocean absorbed more CO₂ from the atmosphere. As the poles became much colder the once lush grasslands and thriving animal herds along their margin became extinct.
- Mankind converted wilderness land to agricultural use as their population increased.
- Sea level continued to rise as the glaciers continued to melt.
- Climates continued to change, setting new temperature records all around the earth.

Why there is no reason for alarm

- O₂ and CO₂ in the atmosphere were created, they did not evolve.
- Today's atmosphere likely contains significantly less CO₂ than before the Flood.
- CO₂ is necessary for life, and was created prior to plants and animals.
- CO₂ is not a pollutant.
- Increasing levels of CO₂ are beneficial for plants.
- Decreasing levels of CO₂ could be a serious problem.
- Burning fossil fuels simply returns CO₂ to the air, from which it originated, in the pre-Flood atmosphere. Increasing CO₂ in the atmosphere does not reverse a billion year old evolutionary trend and upset the delicate balance of nature.
- The present levels of oxygen in the air are adequate without any unusual efforts to plant trees or to further limit the forestry industry.
- Plants were created as food for humans and animals. They are not necessary for storing carbon or for generating O₂.
- Glaciers have been retreating for thousands of years since the Flood. Most of the glacial melt occurred before man began burning fossil fuels.
- Ice age glaciers melted due to cooling seas, not warming seas.
- Climates have been constantly changing since the Flood. Consider all the major climate changes since the Flood and initiated by the Flood.

- Plants, animals and mankind have been adapting to climate for thousands of years.
- Recent global temperature histories are insufficient for developing reliable conclusions about trends or impending catastrophes.
- Increasing the concentration of CO₂ in the atmosphere will continue to improve crop production around the world, benefitting mankind.
- Neither melting glaciers, increasing CO₂, changing climates, nor earth's surface temperature history are proof of global warming.
- God is in control of history and the earth's climates, not man.

Conclusion

The biblical history of the earth, contained in the first 11 chapters of the book of Genesis, provides a useful and sufficient framework for evaluating the current global warming issue. As we have seen, CO₂ is a natural atmospheric gas that is essential for man's existence. It is not a pollutant. The atmosphere is likely deficient in CO₂ compared with the original created atmosphere. Reducing CO₂ would definitely create problems, but increasing it will not. Burning fossil fuels merely returns CO₂ to its place of origin. Forests are to be used for man's benefit. They are not needed to produce O₂ and they have no intrinsic rights, but should be managed responsibly and effectively.

Basic science is consistent with the biblical history and argues strongly against the global warming hypothesis. Melting glaciers and changing climates are not an indication of man-made global warming. These natural phenomena have been operating for thousands of years. Temperature histories are imprecise and unreliable. Global warming is built on an evolutionary earth history and an evolutionary time scale. Anything built on a faulty foundation cannot stand. Global warming is an offshoot of evolutionary thinking and is needlessly creating mass hysteria. God is in control of the earth, not man.

It can be expected that several trends evident since the Flood, however, will continue: sea level will rise as polar glaciers continue to melt, and deserts will expand. These trends, as we have shown, have little to do with CO₂, they are a consequence of a God ordained event, the Flood. Governments with either ocean boundaries or deserts should consider how to efficiently and economically address these trends.

There is no viable justification either biblically or scientifically for limiting the generation of CO₂ or restricting logging of forests. In view of the great benefit of CO₂ it is absolutely unnecessary to consider spending billions of dollars to restrict something

that is extremely good for mankind and the earth. We cannot properly understand creation apart from God's Word. Viewing global warming within a Bible-science perspective brings much needed clarity to this issue. As stated in Psalm 119:105, "Your word is a lamp to my feet and a light to my path."

Those interested in reviewing scientific arguments not treated in this paper are referred to the skeptics reading list included at the end of this paper.

Postscript

Two questions remain to be answered: what must global warming advocates do to prove there is a real problem, and what should the church do regarding the global warming allegations? A proposed answer to each of these questions is outlined below.

What must global warming advocates prove?

- Global warming actually exists
- Global warming is causing climate change
- Global warming is caused mainly by CO₂
- Burning fossil fuels is the primary cause of CO₂ increasing
- Global warming will absolutely cause serious harm
- Proposed solutions are effective, fair and economic

What should the church do regarding global warming?

- Commit to viewing the world from God's perspective
- Understand and rely on Scripture as a foundation for life
- Use the Bible to understand the world and evaluate all problems
- Help inform other believers
- Promote the truth and oppose false beliefs with gentleness and respect

It is imperative that the church disciple believers so that they know God's Word, think biblically, act biblically (grow in sanctification as disciples), and share God's Word. Let's honor God by being influenced and led by His truth (the Bible), and not by man's error.

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Skeptics Reading List

Although most books published on global warming are written by advocates, a few have been published by skeptics. Listed below are several books written by evolutionists who question the scientific arguments used by advocates. The authors are not young-earth creationists but they offer critical scientific arguments.

- Bethell, T. 2005. *The politically incorrect guide to science*. Washington DC: Regnery Publishing.
- Dears, D. 2008. *Carbon folly: CO₂ emission sources and options*. Reston, Virginia: TSAgust.
- Hayden, H.C. 2008. *A primer on CO₂ and climate*, 2nd ed. Pueblo West, Colorado: Vales Lake Publishing.
- Horner, C.C. 2007. *The politically incorrect guide to global warming and environmentalism*. Washington DC: Regnery Publishing.
- Lawson, N. 2008. *An appeal to reason: A cool look at global warming*. New York, New York: Overlook Duckworth.
- Lomborg, B. 2001. *The skeptical environmentalist: Measuring the real state of the world*. New York, New York: Cambridge University Press.
- Lomborg, B. 2007. *Cool it: The skeptical environmentalist's guide to global warming*. New York, New York: Alfred A. Knopf.
- Michaels, P.J., and R.C. Balling Jr. 2000. *The satanic gases: Clearing the air about global warming*. Washington DC: Cato Institute.

- Michaels, P.J. 2004. *Meltdown: The predictable distortion of global warming by scientists, politicians, and the media*. Washington DC: Cato Institute.
- Michaels, P.J., and R.C. Balling Jr. 2009. *Climate of extremes: Global warming science they don't want you to know*. Washington DC: Cato Institute.
- Nordhaus, T., and M. Shellenberger. 2007. *Breakthrough: From the death of environmentalism to the politics of possibility*. New York, New York: Houghton Mifflin Company.
- Singer, S.F., and D.T. Avery. 2007. *Unstoppable global warming: Every 1,500 years*. Lanham, Maryland: Rowman & Littlefield Publishers.

Global Warming Skeptics Websites

www.answersingenesis.org/

Note: Answers in Genesis produced *Global warming: A scientific and biblical expose of climate change*. Available from <http://www.answersingenesis.org/publicstore/product/Global-Warming-A-Scientific-and-Biblical-Expose-of-Climature-Change-DVD,5733,229.aspx>

www.channel4.com/science/microsites/G/great_global_warming_swindle/

Note: BBC produced *The great global warming swindle*.

www.heartland.org

www.lomborg.com/

www.oism.org/pproject/

www.petitionproject.org/

www.sepp.org/

www.SurfaceStations.org