



Global Warming Myth Busters

Have you ever been in a situation where you were talking with friends or family, and the conversation turned to global warming? It's hard to be an expert. And sometimes it's hard to show even the slightest bit of concern, without being met with denial. It would be great if global warming wasn't true, but unfortunately the science says otherwise. Compiled below, and based on widely accepted and peer-reviewed scientific papers, are explanations for some of the most commonly heard myths used to try to debunk the reality of global warming.

- ***"The current warming cycle falls within historical changes, and the earth has been warming and cooling for millions of years."*** -- It is true that the earth goes through cycles of warm and cold periods due to the interaction of many factors, including especially small variations in the planet's tilt and rotation. A big difference now is that it is our own pollution causing the climate to change. This change is very rapid by historical standards, and it wouldn't be happening at this fast rate if the amount of carbon dioxide humans put in the atmosphere was less.
- ***"A temperature rise of a few degrees is inconsequential"*** -- Actually, an average rise of the earth's surface temperature of 1.3 degrees F in the last century caused average sea level to rise by 7 inches. Furthermore, ecosystems are already being damaged, such as the world-wide decline in coral reefs. Water that is too warm is a leading cause of this decline. Temperature increases are greatest at the earth's poles, with more severe consequences such as rapid ice melting. Rising temperatures are having an impact on wildlife. The U.S. Fish and Wildlife Service's proposal to list the polar bear as a threatened species is because its habitat is literally melting under its feet and reducing its food source. The U.S. Geological Survey predicts that if global warming pollution is not reduced, two-thirds of the world's polar bears will disappear by mid-century. Rising temperatures also have an impact on agriculture by exacerbating drought conditions.
- ***"Humans are only responsible for a small amount of the carbon dioxide that goes into the atmosphere each year, so the warming must be natural."*** -- In fact, human activity since the beginning of the industrial revolution has been the primary reason for the increase in carbon dioxide in the atmosphere. As fossil fuels (oil, coal, natural gas) trapped in the ground for millions of years started to be burned, carbon dioxide in the atmosphere increased from about 280 ppm to 380 ppm in just 200 years. Land use changes have contributed to increased carbon dioxide levels, and emissions of methane and nitrous oxides from mankind's activities have also contributed to global warming.
- ***"The warming we have seen is due mostly to the sun."*** -- For the last 30 years, while the earth's temperature has been rapidly rising, the sun has shown no trend of increased solar radiation. Furthermore, scientists have extensively studied the effects of solar activities on the earth's climate, and can not attribute current increases in the earth's temperature to solar activity.
- ***"Scientists only have 145 years of temperature data; this is not long enough to draw accurate conclusions."*** -- Historical climate data, including average temperatures, can be derived from sources other than just actual temperature recordings. Studies of the geological record, pollen deposits, oceanic deposits, sea levels and ice cores all reveal important information about climates of the past.

- ***"We cannot even accurately predict the weather a week from now, how can we believe we can predict what will happen 50 years from today?"*** -- "Weather" and "climate" are very different terms. A weather prediction is a short term outlook of an hour, a day or perhaps a week. Analysis of the climate, however, involves studying long-term trends over decades or even centuries. The long-term trends of increased temperatures are readily revealed not only in temperature data collected for well over a hundred years, but also in detailed studies of ice cores from Antarctica. Furthermore, sophisticated long-term climate models which accurately track climate changes of the past century can be used to project into the future. Projections for increases in extreme weather events have already been verified by an increasing prevalence of droughts and heavy precipitation events.
- ***"Ice is building up in central Antarctica, so global warming is not happening."*** -- Ice is building up in central Antarctica, but being lost on the edges and being lost very rapidly in Greenland. The loss of ice from Greenland has doubled in the past ten years, and the vast majority of glaciers around the world have been retreating over the past half century, meaning that they are melting much faster than previously. The rapid melting of sea ice in the Arctic has alarmed scientists. In 2007 a record low area of summer sea ice in the Arctic Ocean was observed. Just the 2007 decline in sea ice from average conditions represented an area of sea ice lost that is equivalent to the size of Alaska and Texas combined. While a few areas of the earth may actually become cooler as the climate changes, most areas are experiencing significant increases in temperature, with a world wide average increase of 1.3 degrees F.
- ***"In the 1970s scientists were predicting a coming ice age. Now they turn around and say the globe is warming."*** -- Unfortunately, this myth is largely a product of the misinterpretation of scientific findings. While a few scientists thought this might be happening, there wasn't the widespread scientific evidence and consensus among scientists that exists today about global warming.
- ***"During the 1940s and 1950s the earth's temperature went down, even while carbon dioxide rose. Therefore, carbon dioxide is not connected to global warming."*** -- The atmosphere is affected by many factors. We now understand that extensive air pollution (dust, smoke, chemicals) was masking the impact of increased greenhouse gases. Also, the rate of increasing carbon dioxide was much less then. Although the earth's atmosphere may seem virtually limitless to us, a view from outer space reveals that our atmosphere is really very thin. Carl Sagan, a renowned professor and astronomer said, "If you covered an orange with a coat of varnish, the thickness of that varnish would be proportionate to the thickness of the Earth's atmosphere." Carbon dioxide in the atmosphere absorbs some of the heat radiated from the earth's surface. As carbon dioxide levels increase, more heat is trapped in our atmosphere, causing global warming.
- ***"The U.S. is actually a net sink (or absorber) of carbon dioxide."*** -- Improved agricultural practices have reduced carbon dioxide emissions from the soil. And habitat restoration of degraded lands absorbs carbon dioxide. But far exceeding those improvements is the extensive burning of fossil fuels. In fact, the U.S. produces nearly 25% of the world's carbon dioxide emissions today, yet has less than 5% of the world's population.
- ***"The "hockey stick" graph showing increases in carbon dioxide has been proven to be flawed."*** -- Scientists have used thousands of independent pieces of evidence gathered over decades to determine that global warming is primarily a result of human activities. The so-called "hockey stick" has been extensively scrutinized, with an independent assessment by the National Academy of Sciences supporting its conclusions.