

Article 7 – Evidence does not favor climate-change skeptics

Yet another scientific study was released this month indentifying man-made climate change as the cause of shrinking glaciers, melting permafrost, and warming lakes, rivers and oceans. In the journal *Nature* on May 15 Cynthia Rosenzweig of NASA's Goddard Institute for Space Science and scientists at 10 other Universities and research institutions concluded human-caused warming is resulting in a broad range of immediate impacts across the globe. And Dr Richard Zeebe from the University of Hawaii released results this month in the journal *Nature Geoscience* that confirmed that the Earth's ability to heal itself, the natural carbon cycle, operates 14,000 times too slowly to cope with manmade greenhouse gas (GHG) emissions.

In spite of conclusive scientific evidence there are still people who cling to the belief that global warming isn't really a problem, or isn't caused my human activities, or doesn't exist at all. The Australian Psychological Society explains the basis for this denial where people feel anxious, helpless and hopeless. They say people cope by minimizing or denying the problem. They specifically describe climate-change skeptics "minimizing the weight of scientific evidence/consensus" as a form of psychological denial.

Skeptics Have No Idea

Science, at its core, is about finding truth. The process used, called the scientific method, begins with a proposed idea about how the world works and then examines evidence to prove or disprove the idea. When the evidence contradicts the idea, we know the idea must be wrong and scientists look for other ideas to explain the world. When the evidence supports the idea, scientists refine and build on the idea to make it more specific.

The first clue that the climate-change skeptics have it wrong is they have no consistent theory to explain what is going on. Some deny the evidence of increasing global temperatures. Some say the Earth really is warming but it isn't caused by GHG. Others say GHG is causing the warming but that GHG isn't caused by human activity. Skeptics would need to present some consistent theory supported by evidence to challenge the established truth of climate change. Instead each climate-change skeptic seems to have their own explanation; and none of those ideas fit the evidence.

Often Repeated Myths

Some skeptics say the Earth really isn't getting any warmer. In fact, it is and the recorded measurements are unambiguous. Both NASA and the UK's Climatic Research Unit track global surface temperature and they both find significant warming over the last 150 years when records have been kept. Beyond recorded temperatures, the National Oceanographic and Atmospheric Association (NOAA) publishes global temperature data for the last 500 years from boreholes drilled in sedimentary rocks structures which show unambiguously increasing global temperatures. And ice core evidence allows global temperature reconstruction for the last half million years. All the evidence is conclusive;

current global temperatures are increasing beyond any natural variation, and the temperature increase is climbing much, much more rapidly than ever observed before.

Other climate-change skeptics who agree the Earth is warming say the warming is caused by the Sun itself getting hotter. In fact, in the last 30 years while the Earth has been warming the fastest, the World Radiation Center which tracks solar activity has found there has been no increase in irradiance from the Sun.

Still other climate-change skeptics focus on CO₂ and make a variety of arguments. Some say CO₂ cannot be the cause of climate change because the climate records show CO₂ increases *following not leading*, temperature changes. In fact, our understanding of the effect of CO₂ on the Earth's climate is based on the evidence that several times over the last half-million years, slight warming jumpstarted a natural process where CO₂ was released from oceans and *that released CO₂* caused a runaway effect leading to more and more warming.

Beyond the three preceding myths used to deny climate change, it would take dozens of articles to list and debunk the other hundreds of untrue arguments made by climate-change skeptics. Their argument that inter-planetary magnetic fields and galactic cosmic rays cause global warming was debunked by Drs Damon and Laut in 2004 in the journal *Transactions of the American Geophysical Union*. Skeptics' statements that satellite data shows the Earth is actually cooling was exposed as untrue by Drs Mears, Santer, and Sherwood in three articles in the journal *Science* in 2005. The argument refuting climate change because Antarctica is actually cooling was proven wrong by Drs Shindell and Schmidt in 2004 in the American Geophysical Union's Research Letters. The skeptics' suggestion that warming is due to urban heat islands was shown incorrect by Dr Parker in the journal *Nature* in 2004. Many of the arguments of climate-change skeptics are just flatly inconsistent with the basic laws of physics, chemistry, and geology, like those who argue warming is caused by a tiny sun floating in the center of a hollow Earth.

Finally, skeptics like to say the Earth has had lots of warm periods in the past or that climate is always changing. Both statements are true, but don't diminish the scientific truth that manmade GHGs are causing momentous changes in climate right now, and only immediate action can reduce the impact.

Science vs. Politics

Science is about finding truth. At this point in the 21st Century there is indisputable scientific proof that manmade GHG emissions are causing climate change, which will have serious effects on humankind.

But politics is about what we should do. There is plenty of room for debate about what political solutions will best solve our problem-debate about market solutions and legislative solutions and debate about conservation solutions and technology-based solutions.

Sidebar

Dr S. Fred Singer Chief Skeptic

Dr Singer is the leading climate-change skeptic. Until 2005 Singer's books and articles argued the Earth was not experiencing any temperature increases at all. More recently, in his book *Unstoppable Global Warming Every 1500 Years* he takes the position that while global warming exists, it is a result of increased solar activity, not human GHG emissions. The online journal *Real Climate* published an examination of his claims and found them contradicted by all available evidence. As founder and President of The Science & Environmental Policy Project, according to public record funded primarily by Exxon-Mobil and cigarette manufactures, Singer has also published articles arguing second-hand tobacco smoke is no health risk.

Singer attracts large audiences worldwide. 500 people, but only 18 scientists, showed up March 3rd at the Marriott Marquis Hotel in Times Square to attend a conference sponsored by the conservative Heartland Institute to hear Singer deny global warming. Gene Karpinski, president of the League of Conservation Voters, described the meeting this way to the Washington Post, "I'm sure that the flat Earth society had a few final meetings before they broke up."