

# Falling Short

The Discrepancy Between Climate Science and the Media

a project of  
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# Preface

If an average North American was asked what sources he or she consulted for information on climate change, the answer would most likely be the popular media. The newspaper, the news, political magazines....they're always writing about global warming, and they seem to be pretty reliable. Besides, the scientific reports are hard to access and impossible to understand. In our society, almost everyone bases their knowledge of climate change from what they read in the newspaper or see on the news.

How accurate is the media, however? Climate change is such a political subject – does anything get lost in translation or twisted around due to bias? What sort of discrepancy is there between the scientific reports and the newspaper headlines? Does the media exaggerate the problem of climate change, or does it understate it?

In the pages to follow, we will examine some of the messages that the media relays regarding climate change. We will discover exactly how much scientific debate there is on the existence of human-caused climate change, and decide whether or not the media accurately portrays this debate. We will explore some of the discrepancies between scientists and the media, both obvious and subtle.

If there ever were a problem worth carefully exploring and analyzing, it would be climate change. Is the warming going to trigger the end of human civilization? Or is it the biggest hoax ever created? It is obvious that climate change, with such high stakes, is worth examining. It is also obvious that the public deserves an accurate picture of the current scientific knowledge regarding climate change.

When the majority of the public depends on newspapers and talk shows for climate change information, an enormous responsibility is thrown upon the media – to be accurate, objective, and accessible. Is it living up to this responsibility? Or is it falling short?

# Climate Change in the News



Many news stories portray climate change to be the end of the world as we know it.



Many others, however, portray the issue to be one of scientific debate, with two equal sides pitted against each other.



Still others claim that the world is cooling, not warming.



Before long, people are told again that climate change will cause devastating consequences across the globe.



The next day, however, they read that climate change is a liberal fraud to gain tax dollars and control.



Then they read that the evidence for climate change has been suppressed by the government, who are supposedly the ones trying to pull off this scam.

With all of these conflicting,  
confusing news stories,  
what are people supposed to believe?

It's Not Just Al Gore:  
Scientific Agreement on  
Climate Change





When they hear the words "climate change" or "global warming", the only thing many people think of is Al Gore and An Inconvenient Truth.

Many people are under the impression that there is a lot of scientific debate about whether or not climate change is caused by people.<sup>1</sup>





They may have heard that there are two sides to the story, that there is a lot of evidence for climate change being natural or even nonexistent.

The existence of climate change is quite a controversy in the general public, but is it really so controversial among scientists?

Let's examine the opinions of climatologists, who know more about climate change than any of us, and see just how much agreement there is on whether humans are causing the Earth to warm.



In early 2009, Peter Doran from the University of Illinois, along with his graduate student, Maggie Zimmerman, conducted a peer-reviewed poll of scientists regarding their opinion on climate change.



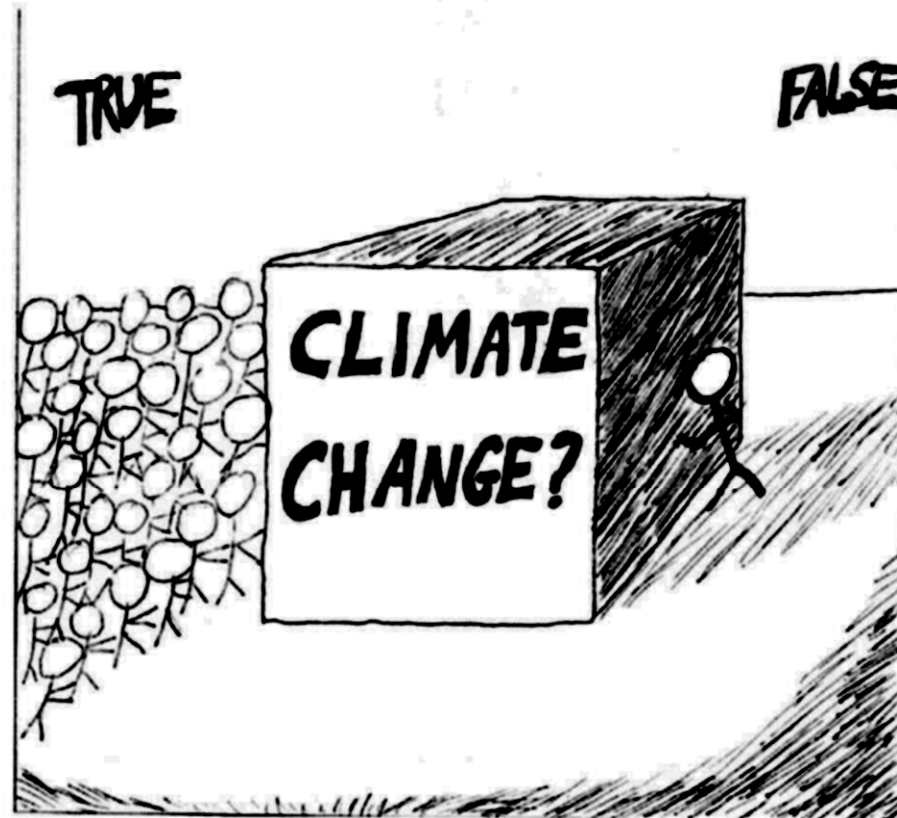
There were different levels of specialization in the study, the highest of which was "climatologists who are active publishers on climate change."<sup>2</sup> This means that the scientists were specifically trained in climatology, and were currently researching and studying the topic of climate change.

First, Doran and Zimmerman asked the scientists if the Earth was warming.

Of the publishing climatologists, **96.2%** said it was.<sup>3</sup>

Then the scientists were asked if the warming was caused by human activity.

This time, **97.4%** said it was.<sup>4</sup>



As you can see, there *are* two sides to the theory of global warming (Remember those three percent?), but they are not two equal sides.

Among those who understand the scientific basis of the theory, individuals who claim the warming is natural or nonexistent are the extreme minority.<sup>5</sup>



Several years earlier, a scientific historian named Naomi Oreskes conducted a similar study, which surveyed peer-reviewed scientific articles instead of the scientists themselves. Almost one thousand articles, published between 1993 and 2003, were examined.<sup>6</sup>

The authors found that **75%** of the articles either explicitly or implicitly stated that humans were the cause of the observed warming.<sup>7</sup>

The remaining **25%** did not mention the cause, as they dealt with subjects where the cause of recent climate change was irrelevant, such as changes in climate millions of years ago.<sup>8</sup>

**0%** of the articles argued that climate change was not caused by human activity.<sup>9</sup>

It is obvious that the small number of scientists who reject climate change have been unable to create a scientific argument that is strong enough to pass through the peer-review process.

However, the most credible sources available to us are professional scientific organizations. They often employ climatologists, and the larger organizations publish their own peer-reviewed journals. Examples of scientific organizations include NASA and the National Academy of Sciences.

Here is a list of scientific organizations that have issued statements saying that humans are causing the Earth to warm.<sup>10</sup>



Academia Brasileira de Ciências  
Académie des Sciences  
Accademia Nazionale dei Lincei  
Russian Academy of Sciences  
National Academy of Sciences  
Royal Society of Canada  
Deutsche Akademie der Naturforscher Leopoldina  
Science Council of Japan  
Academy of Science of South Africa  
Chinese Academy of Sciences  
Indian National Science Academy  
Academia Mexicana de Ciencias  
Royal Society  
Australian Academy of Sciences  
Royal Flemish Academy of Belgium for Sciences and the Arts  
Caribbean Academy of Sciences  
Indonesian Academy of Sciences  
Geological Society of America  
Royal Irish Academy  
Academy of Sciences Malaysia  
Academy Council of the Royal Society of New Zealand  
Royal Swedish Academy of Sciences  
Union of Concerned Scientists  
Woods Hole Research Center  
Intergovernmental Panel on Climate Change  
United Nations Framework Convention on Climate Change  
American Association for the Advancement of Science  
American Meteorological Society  
National Research Council  
Canadian Meteorological and Oceanographic Society  
Federal Climate Change Science Program  
National Oceanic and Atmospheric Administration

UN Project on Climate Variability and Predictability  
American Geophysical Union  
American Chemical Society  
Geological Society of London  
Institution of Engineers Australia  
American Association of State Climatologists  
US Geological Survey  
National Center for Atmospheric Research  
NASA  
World Meteorological Organization  
United Nations Environment Program  
Canadian Foundation for Climate and Atmospheric Sciences  
International Council on Science  
Environmental Protection Agency  
Australian Meteorological and Oceanographic Society  
American Institute of Physics  
Pew Center on Climate Change  
InterAcademy Council  
World Health Organization  
American Quaternary Association  
Network of African Science Academies  
European Science Foundation  
American Society for Microbiology  
American Public Health Association  
World Federation of Public Health Associations  
Institute of Biology (UK)  
Society of American Foresters  
The Wildlife Society  
European Federation of Geologists  
European Geosciences Union  
International Union of Geodesy and Geophysics  
American Physical Society

And, to be fair, here is a list of scientific organizations that have issued statements saying that humans are not causing the Earth to warm.



There are none.

As of 2007, no professional scientific organization in the world has publicly disputed the mainstream opinion that humans are causing climate change.



This doesn't mean that climate change is definitely happening. Nobody is infallible, and there's a chance that everyone could be totally wrong.

However, when there is this much agreement on a scientific issue, you can bet that there is some pretty good evidence for the theory.

So, as you can see, climate change isn't just Al Gore's problem. It's much, much more.



## Endnotes

- <sup>1</sup>Peter T Doran and Maggie Kendall Zimmerman, “Examining the Scientific Consensus on Climate Change,” EOS 20 Jan 2009: 22.
- <sup>2</sup>Doran and Zimmerman 22
- <sup>3</sup>Doran and Zimmerman 22
- <sup>4</sup>Doran and Zimmerman 22
- <sup>5</sup>Doran and Zimmerman 23
- <sup>6</sup>Naomi Oreskes, “Beyond the Ivory Tower: The Scientific Consensus on Climate Change,” Science 3 December 2004: 1686.
- <sup>7</sup>Oreskes 1686
- <sup>8</sup>Oreskes 1686
- <sup>9</sup>Oreskes 1686
- <sup>10</sup>Logical Science, “The Consensus on Global Warming: From Science to Industry and Religion,” Logical Science, 2006-2007, 30 May 2009 <<http://logicalscience.com/consensus/consensusD1.htm>>.
- <sup>11</sup>Operation Saturation, dir. Greg Craven, writ. Greg Craven, perf. Greg Craven, online, 2007.

So, on one hand, we have the media telling us that scientists are split over whether or not humans are causing climate change. We are told that it's a controversial topic, that a lot of scientists disagree with it, and that it may even be a fraud.

On the other hand, we have incredibly strong agreement in the scientific community. As it's almost impossible for a scientific idea to be unanimously accepted, we can conclude that the amount of agreement surrounding the idea of human-induced climate change couldn't get much stronger.

So what is the reason for this chasm between science and the media? What are some of the ways that the truth is distorted?

# Letter to Mr Stern

The following letter, as well as the characters, events and institutions depicted, is fictional.

However, the story is very similar to real events, such as Dr Carl Wunsch's reaction to his appearance in the film *The Great Global Warming Swindle*, as well as the misquoting of Dr Stephen Schneider in *The Detroit News*.



Dr. Peter Schubert, PhD

Canadian Institute for Ocean and Climate

June 9, 2009

Dear Mr Stern,

I am writing in response to your recent newspaper article, "Warming a shaky topic in science", featuring an interview with me. I feel that you grossly misrepresented my opinion, as well as the credibility of the entire scientific community, by taking my statements out of context and ridiculing the results.

For example, your assertion that "carbon dioxide only makes up 0.04% of the atmosphere" is correct, but extremely misleading to the public. Any chemistry student could tell you that it is the identity of a gas, not just its relative abundance, that determines its radiative effects - but how many of your readers are chemistry students? Most individuals would have fallen prey to your deceptive claim that such a small amount of pollution couldn't possibly have harmful effects. Moreover, you conveniently forgot to print my following statement that this amount of carbon dioxide is 30% more than has been present in the atmosphere in all of human existence.

Secondly, you quoted my statement that "the Earth is projected to warm a further 1 to 6°C" and then proceeded to ridicule the idea that such warming could be significant. You wrote that "the temperature in Canada can change by 6°C in a single day, with very few people noticing" and went on to say that "it is pointless to mitigate a threat that, at most, could make our weather a little more pleasant." Reading these words, it became clear to me that you do not understand the difference between weather and climate, and do not realize the significance of a change in the energy balance of the Earth. It does not take a lot of radiative forcing to cause a shift in climate - during the most recent ice age, the Earth was only about 5°C colder than it is today. A long-term increase in the average temperature of the whole planet is much more serious than a regional, day-to-day change in temperature.

Finally, you printed my acknowledgement that "it is impossible to achieve total certainty that climate change is occurring, as most of the warming is expected in the future." I feel that readers have a right to know that I concluded this statement with, "However, there is very strong agreement in the scientific community that climate change is a threat worth mitigating. The potential costs and consequences are so high that reducing our carbon emissions is vital to the protection of our civilization." Unfortunately, you failed to

print the second half of my statement. You cherry-picked my words in effort to make me appear unsure about the existence of climate change, when, in actuality, I am very sure indeed.

It appears that you decided to publish the parts of the interview which supported your own preconceived opinion, rather than those which reflected the message I intended to portray. The words of a scientist would make your opinions seem more credible, but those words were deliberately minced and distorted. Please, Mr Stern, do not stoop to such tactics. The public is confused enough about climate change without articles that spread scientific misconceptions.

I demand that you print a retraction of your article, which includes each of my deliberately omitted quotes, and explains why claims such as “such a small amount of carbon dioxide couldn’t change the temperature of the Earth” or “a few degrees of warming is nothing to worry about” are erroneous. This retraction will be subject to my approval before publication. I will consider seeking legal action, on basis of misrepresentation and irresponsible journalism, if you do not print such an article.

Sincerely,

Peter Schubert

The story of Dr Schubert and Mr Stern, as well as the real events which inspired it, is an obvious example of how the media misrepresents the words of scientists - not always, but more than one would hope - and come to a completely opposite conclusion regarding the existence of climate change.

How else does the media skew climate change information?  
What are the subtler, more common ways that the scientific opinion is misrepresented?

## Why You Can't Make Up Your Own Science

Why do so many people believe they're more qualified on the topic of climate change than the scientists themselves?

Take a look at any outlet where opinions can be expressed freely - such as letters to the editor, YouTube, or the blogosphere. Search for articles and comments dealing with climate change. It is abominably easy to find people who have little to no scientific training, especially in the area of climatology, but still believe, somehow, that their opinion of whether or not the climate is changing trumps the word of thousands of scientists who have dedicated their lives to understanding the science.

In simpler terms, these bloggers and letter-writers are saying, "It doesn't matter what the scientists say. I'm smarter than all of them put together."

Or do they believe it's a personal opinion - something akin to fashion or religion, where everyone's allowed to have their own beliefs, and nobody is justified to tell others what is right? The media certainly buys into this paradigm. Journalists often report on climate change similarly to global politics or government spending. They match up two conflicting articles on whether or not the globe is warming and place them side by side. Individual laypeople write letters to the editor, presenting their analysis on whether or not carbon dioxide is a greenhouse gas. Farmers are quoted saying that, since it's been a cold spring in their area, global warming cannot be happening.

However, climatology is not as simple as one might expect after watching *An Inconvenient Truth*. The folks at NASA didn't just match up two graphs that were both going up and automatically assume that one caused the other. Climatology is every bit as complicated, thorough, and dry as any other area of science. For example, the exact process of how a carbon dioxide molecule traps heat involves quantum chemistry taught at the second-year university level.

Without a formal education in the area of climatology, people can hold misconceptions that skew their interpretation of the data. If a group of people was told that parts of the Greenland and Antarctica ice sheets were thickening, chances are that they would think, "More ice = cooling, therefore global warming is false." However, the thickening ice sheets are *caused* by warming. Areas that

were previously so cold that the air could not hold enough moisture for significant precipitation have now warmed up enough to snow. The snow accumulates. The ice sheets thicken.

Science isn't easy stuff. It's not something a person could grasp in an afternoon. It requires years of careful study. Without sufficient education in climatology, the misconceptions people hold could easily lead them to the wrong conclusion.

For this reason, we should have some humility and realize that it might be wiser to trust the experts than to try to analyze the data ourselves. We shouldn't automatically assume that NASA, the IPCC, the 32 national academies of science that endorsed the IPCC, and every other scientific organization in the world are totally wrong just because someone in the newspaper said they were.

Chances are, there are satisfactory explanations for whatever objections we may hold to their analysis. Yes, they are making sure the warming is not caused by the Sun. Yes, they know that the climate has changed before. Yes, they are aware that carbon dioxide is plant food. These are smart people. We should accept that they just might know more than we do about climate change.

To conclude, there are many things in life, such as ideology, spirituality, and musical tastes, where all opinions are equal, and nobody is right or wrong.

Science isn't one of them.

## Artificial Balance: How Fairness Can Go Wrong

All issues have two (or more) sides. We can probably all agree on that. However, are they always two *equal* sides?

Journalists are trained to present both sides of an issue with equal weight. This balance works well for matters of politics. Got the Conservative's quote? Get the Liberal's. It works for matters of policy, such reporting the pros and cons of building a new bridge vs. not building a new bridge. Journalistic balance is appropriate for matters which concern personal opinion, matters where everyone's view is as credible as anyone else's, and matters where people don't need PhDs to understand the topic.

What about matters of science?

Remember high school science class? Did the teachers present both sides of absolutely every topic with equal weight? Did they say to the students, "This is the evidence for and against the existence of photosynthesis. You can form your own personal opinion"? Did they do the same with Newton's Laws, chemical reactions, or the idea of a heliocentric universe? Of course they didn't. It would just confuse the students further, and it was unnecessary as the ideas being taught were widely accepted in the scientific community.

How does this issue affect journalists? As author Ross Gelbspan said, "The professional canon of journalistic fairness requires reporters who write about a controversy to present points of view. When the issue is of a political or social nature, fairness – presenting the most compelling arguments of both sides with equal weight – is a fundamental check on biased reporting. But this canon causes problems when it is applied to the issue of science. It seems to demand that journalists present competing points of view on a scientific question as though they had equal weight, when actually they do not."

Journalists wouldn't present evidence for photosynthesis vs. evidence against photosynthesis with equal weight. So why should it be any different with climate change?

Ninety-seven percent of publishing climatologists agree that humans are causing the Earth to warm. Among professional scientific organizations, the numbers are even higher. As soon as you tune into the discussions of scientists, instead of only what you hear in the media, it's clear that climate change was accepted long ago. Right now, they're debating technicalities such as how soon the Arctic will be free of summer ice, how quickly feedback mechanisms will occur, and how much emission reduction is necessary.

However, the media hasn't caught onto this. The media likes a controversy, and they don't want to be accused of only presenting one side. So, they present the opinions of climate scientists as 50-50, instead of the 97-3 that Doran and Zimmerman determined. In a recent study of major newspapers, the majority of articles regarding climate change give roughly equal attention to the "two sides" of the climate change debate.

What kind of balance is this, when the fringe opinions are hugely over-represented, and the vast majority is hugely under-represented? Does that not cause more bias than we were trying to avoid?

# Conclusion

The media has an enormous responsibility. For most of us, our entire knowledge of world issues and current events is dependent upon the popular press. On the subject of climate change, a threat which could potentially destroy our way of life, the media is falling short.

In the scientific community, those who claim that climate change is natural or nonexistent are few and far between. Their scientific arguments have been unable to withstand the peer-review process. However, through news stories and editorials, this minority has been vastly over-represented. According to the media, the existence of climate change is an equally weighted debate which anyone is welcome to join.

Is this discrepancy due to the media's need for balance and fear of accusations if they don't present all sides of an argument equally? Are the journalists uninformed about climate change? Are they simply seeking to prove their own pre-conceived opinions?

Such a discrepancy is quite distressing, as the media can easily influence the opinions of its audience. If someone is repeatedly told that climate change is controversial among scientists, they will likely begin to believe it. When such a belief becomes widespread among the public, it can lead to a lack of action to mitigate climate change, as spending time and money on an uncertain threat seems pointless to some. A lack of action against climate change could lead to a worsening of the problem, which further threatens our civilization as well as our very survival as a species.

Remarkably, the media will play a part in whether or not humans fix the problem of climate change. Therefore, the public deserves journalism that will help to secure their future, not compromise it.



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