

Joan Shorenstein Center
on the Press, Politics and Public Policy
Discussion Paper Series

#D-72, February 2012

**Stories of Climate Change:
Competing Narratives, the Media, and
U.S. Public Opinion 2001-2010**

by Frederick W. Mayer
Shorenstein Fellow, Fall 2011
Sanford School of Public Policy, Duke University

Joan Shorenstein Center
PRESS • POLITICS



• PUBLIC POLICY •

Harvard University
John F. Kennedy School of Government

A decade that began with optimism for those advocating action to combat climate change ended in 2010 with dashed hopes. Momentum slowly grew in the first half of the decade. By 2007 there was a strong consensus among scientists that the problem was real and its consequences potentially devastating, and there was broad public support for action in the US and across the globe. With the election in 2008 of Barack Obama and of Democratic majorities in both houses of Congress, environmental advocates were confident that some form of environmental legislation would be enacted and, even more ambitiously, that the US could bring the world together on a binding global agreement. But at decade's end, less than two years later, after the disappointment of Copenhagen and the quiet death of "cap and trade" legislation, limits on greenhouse gas emissions seemed more remote than they had at its beginning. *

What happened? Many things, of course, but of perhaps paramount significance was a shift in public attitudes. Public belief in global warming[†] had ebbed and flowed somewhat over the years, but the general trend had been towards an increasing level of belief and sense of urgency, so that by mid 2006, 77 percent of Americans answered "yes" to the question "Is there solid evidence that the average temperature on Earth has been getting warmer?"¹ The same percentage agreed again in early 2007, just as the UN Intergovernmental Panel on Climate Change (IPCC) released its most strongly worded report yet and the mainstream press, at least, declared the science to be settled. But then public attitudes started to erode.

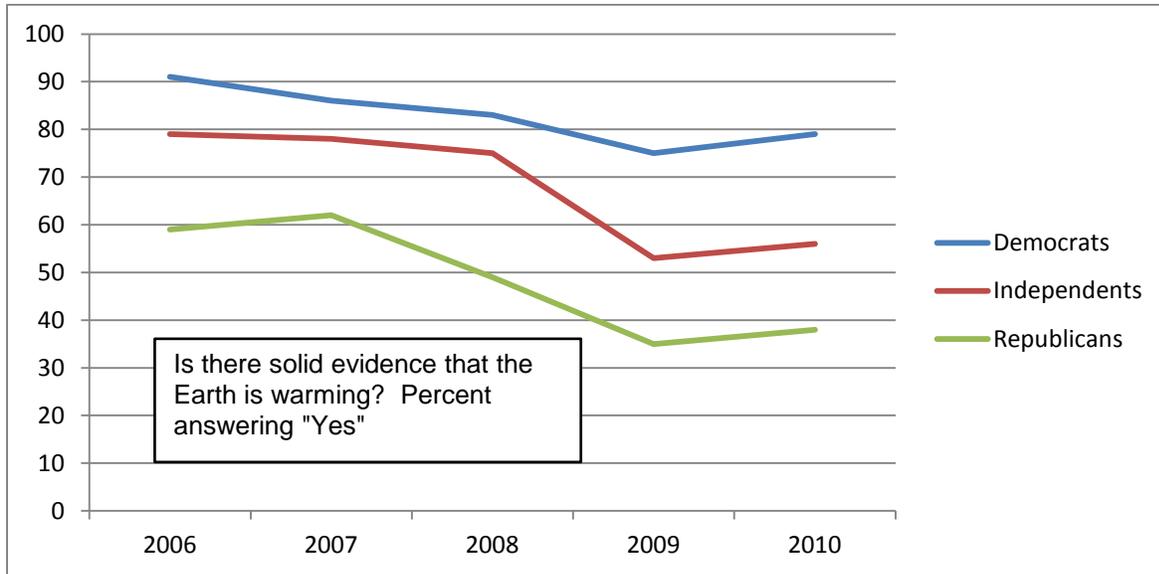
The aggregate trend was not dramatic at first. In April 2008, 71 percent of Americans still believed there was "solid evidence," a decline of only 6 percent.² But, as Figure 1 shows, underlying that relatively subtle decline was a sharp shift in belief among self-identified Republicans, a widening partisan gap that would prove to be a harbinger of what was to come. Republicans had always been more skeptical than Democrats about climate change, of course, but still in 2007, 62 percent of Republicans had agreed that there was "solid evidence" compared to 86 percent of Democrats and 78 percent of Independents. But in 2008, while the Democratic and Independent percentages held nearly steady, the Republican percentage plummeted to 49 percent. The next year the plunge continued and the partisan divide grew again. By October 2009, two months before the Copenhagen summit, barely a third of Republicans, 35 percent, agreed that the Earth was getting warmer (and only 18 percent believed that there was warming "mostly because of human activity"). To compound the

* This paper would not have been possible without the able research assistance of Michael McMahon, a graduate student at the Harvard Kennedy School.

[†] Most polls have historically used the term "global warming." This paper will generally use "climate change" to refer to the problem likely caused by greenhouse gas emissions, except for those instances in which the other formulation was used in discourse.

political problem, the percentage of Independents who now agreed that the earth was warming dropped from 75 in 2008 to 53 percent in 2009.

Figure 1



Source: Pew Research Center

In a political system that requires some level of bipartisanship to enact legislation, the collapse in Republican belief in the existence of global warming was politically devastating. And without the ability to make commitments to curbing its own emissions, the United States could hardly provide real leadership at the global level, which greatly diminished the chances for success in Copenhagen.

Such a sudden and significant shift in basic attitudes about a long-standing public issue is remarkable. And what is particularly curious is that the drop in public beliefs ran directly counter to the mounting scientific evidence. How then, can we explain this puzzle?

One explanation is that the decline in public opinion was driven by the economic recession that began at the end of 2007. When times are hard, the prospect of taking costly action now to address a future problem will inevitably be less appealing, and it may be easier to justify reticence to act if one doesn't believe action is necessary. Almost certainly the economy played a hand. But, as I will discuss in the last section of the paper, there are several reasons to dismiss the claim that it was *only* economic factors that drove the change in public attitudes. First, it is hard to explain why a recession would have such a dramatically partisan impact on attitudes. Second, other countries were hit with the same recession, but didn't see the same degree of impact on public opinion. Third, there are other anomalies in the shift of public attitudes, most

notably concerning beliefs about scientists, that are hard to explain with an economic deterministic model.

The alternative is to posit that people's views changed in response to changes in the information they received. That beliefs and attitudes about climate change would be affected by changes in what people heard and read about it should not be surprising. It is the nature of the phenomenon that few people have any basis for directly observing it, and that, therefore, whatever the vast majority believe must be mediated to some extent by information they receive. There are, of course, many potential sources of information about climate change, ranging from high school textbooks to Internet websites. But the mass media, and particularly television news and commentary where most Americans still get their news, remains an important source. And if there were a significant change in the content of media coverage, such a change might well account for the change in attitudes.

The underlying premise of this paper is that narratives matter. Not that there aren't "real" interests at work, but politics is also a battle of narratives, counter-narratives, and counter-counter-narratives. We know that the story is in some ways the most popular form of human communication, and that stories—narratives with a plot (a beginning, a middle, and an end), a cast of characters (heroes and villains and victims), and a point—have the power to shape beliefs, evoke emotions, and appeal to values. Of particular interest are the stories that the media tells and transmits. Whatever else they are, the media are in the storytelling (and selling) business. Sometimes, journalists and commentators are the direct providers, sometimes they are brokers between those who peddle a tale and those they hope will hear it, but always the currency is the story.

Surprisingly, those interested in characterizing media coverage of an issue, and certainly those whose ultimate interest is in demonstrating some media impact, rarely consider the particular form of the narrative. More commonly, news "stories" are reduced to being positive, negative, or neutral with respect to some issue or public figure. This has largely been the case with studies to date of media coverage of climate change.

In this paper, I make the *story* the unit of analysis, and explore the form and frequency of key narratives of climate change, over time, and by media outlet. My purpose is to provide a much richer depiction of the content of media reaching different audiences at different points in time. The content analysis takes two forms, the first a quantitative frequency analysis of six common narratives for each year of the decade, the second a close read of news stories in two pivotal periods in which there was the greatest concentration of news coverage. Together, they provide a picture of a highly differentiated narrative landscape and demonstrate just how radically

different a worldview one might form if one's only source of information were one or another of these outlets. I then argue the case for narrative impact on attitudes about climate change.

Six Narratives: The Stories of Climate Change

A first step in analyzing the narratives of climate change is to determine what types of stories were told. Stories, particularly those shared tales that constitute popular culture, tend to fall into one or another basic archetype based on their basic plot form and stereotypical characters. Based on extensive reading of media coverage, as well as conversations with journalists and observers of the media, I identified six basic story prototypes that seemed to capture the vast majority of climate change narratives. These stories have distinct plots and casts of characters, and convey very different meanings and implications for action.

"The Climate Tragedy"

The story that made an issue of climate change is a variant of the environmental tragedy that has been the staple of the environmental movement since its beginning. The plot moves downward: Once upon a time, all was well, humans and nature were in balance, but our addiction to fossil fuels has put us on the road to disaster. The villains in this tale may simply be "us," whose profligate lifestyle is spewing carbon into the atmosphere, or more sinisterly, vested interests who exploit our habit. The victims can be the environment (or parts of it, such as polar bears or glaciers), or humans who do now or will in the future face harm. The heroes, to the extent there are any, may be scientists who are teaching us about our peril, activists fighting to change things, or those who make "green" choices in their personal lives.‡ But the point of the climate tragedy narrative is clear: we must act to save the planet.

"He Said, She Said"

A second story is about a contest between scientists: some say that humans are altering the climate, some say we aren't, at this point it's just too early to say who's right. The plot here is more subtle than the climate narrative. At one level it's a story that could turn either way, that might devolve into the Climate Tragedy or could turn out to be much ado about nothing. At another level, though, it is a cautionary tale in which those who counsel waiting are the heroes and those clamoring for action the villains.

‡ In the developing world, the climate tragedy narrative often casts the developed world (or "the North") as the villain and the people of the South as the victims, a narrative that resonates with powerful narratives of colonial exploitation.

“Don’t Kill the Goose”

A closely related tale concedes that climate change is happening (although it may or may not be caused by humans) but sees it as much less of a threat than the actions urged by environmentalists to combat it. This story is a variant of the anti-regulatory story that lies at the heart of contemporary American conservatism. The plot moves downward: Once upon a time, American free enterprise made us strong and prosperous, but now regulation is shackling our economy. The villains in this tale are big government (and liberals), the victims are American producers and consumers, and the heroes those who fight against regulation. The point is clear: the clamor over climate change is just an excuse to regulate.

“Hoax”

The strongest narrative against climate change goes well beyond a dispute between two camps of well-meaning scientists. In the Hoax narrative, science and scientists are part of a conspiracy to perpetuate a fraud. This form of this plot is tragic, too, and follows to a great extent the same arc as Don’t Kill the Goose, but in this story scientists are the villains (along with, perhaps, the UN, Al Gore, and the liberal media who promote them), and those who expose them are the heroes. This story connects with a more general narrative, a betrayal narrative of America by liberal elites. Not all variants of this tale have quite as sharp a point, but their meaning is nonetheless clear: the science is corrupt and should be ignored.

“The Denialist Conspiracy”

On the other side of the issue is another conspiracy narrative, a story about the “denialists” who are spinning the Hoax yarn. It, too, resonates with a more general narrative: here the tale of the corrupting power of corporate money. In this story, a shadowy network of oil-funded front groups and the politicians they control (the villains) mislead the gullible and the religious to subvert progress on climate change. Those who expose the conspiracy are the heroes. The moral of the story: opponents of acting on climate change are either corrupt or deluded.

“The Policy Game”

Finally, some news accounts are about the fate of policy, in which the story is about the contest itself and not the consequence, as is common with “horse-race” journalism in political campaigns. As with the He Said, She Said story, here the plot line is more ambiguous. Not only is the outcome uncertain, but what might be triumph for some would be tragedy for others. More subtly, these stories often have a downward arc with a dark meaning, in that they chronicle the futility of policy processes.

This typology of narratives is neither mutually exclusive nor collectively exhaustive. Other stories that bear on climate change, notably straightforward accounts of the weather—it's hotter (or colder) than normal—and stories about energy saving or other green initiatives may not fit these categories. But the list does capture most climate change stories.

It is worth noting that the typology cannot distinguish Climate Tragedy narratives that are sober assessments from more hyperbolic accounts, or Denialist Conspiracy accounts that are well-documented from those that are overhyped. Moreover, categorizing stories in this way does not imply that all story types are equally valid. The preponderance of the evidence suggests that some version of Climate Tragedy is closer to the truth than Hoax. But the purpose of this paper is not to make a normative argument; it is rather to document what stories Americans heard and to consider their likely impact.

Frequency of Key Climate Narratives in Television News, 2001-2010

Using this typology, it is possible to explore the frequency with which each of these narratives was told by different media outlets at different points in time. The analysis relies on searches of the Lexis-Nexis database of news transcripts of ABC, CNN, MSNBC and Fox News telecasts (and not website posts) for the period from 2001-2010. It focuses on television news because in this time period television remained the source of more news than print or the Internet. The analysis tracks coverage only one of the three traditional broadcast networks, ABC News, because there is so little variation among them. Although NBC News offered somewhat more coverage of climate change, and CBS News somewhat less, the pattern of their coverage was remarkably similar.

To identify instances of our six narrative types, we used search strings composed of combinations of terms associated with each. These search strings (listed in Appendix I) are the product of a process of trial and error in which we identified a sample of stories that fit our definitions of each narrative type, identified terms that seemed both common in and unique to those stories, and then ran a number of searches to see what formulation of the string generated stories with the closest fit to our sample.

An advantage of this approach relative to human coding is its efficiency: the entire universe of stories can be interrogated in seconds. Also, the approach eliminates one form of subjective bias that commonly creeps into efforts to code stories, since the search string, once established, is objective with respect to source.

This keyword search strategy, however, inevitably identifies some stories as, for example, Hoax narratives when they really aren't (false positives) and fails to identify some stories that should count as Hoax (false negatives). This "noise" in the data is not particularly problematic if the

errors are uncorrelated with media outlet, if for example, the probability of falsely identifying a story as Hoax is the same for all networks, but could be more problematic if, for example, a story identified as Hoax on one network is more likely to actually be a hoax narrative than if it were so identified on another. To account for this potential problem, I therefore analyzed the extent and direction of these distortions. My conclusion was that although there are certainly distortions, the findings with respect to the pattern of coverage are for the most part robust enough to overcome them, and, in several instances are such that the true differences in coverage are likely even greater than the apparent differences generated by the search strings. A story identified as Hoax on Fox, for example, is more likely to actually be a hoax story than a story identified as Hoax on any of the other networks, with the implication being that Fox's bias towards that narrative is even greater than the finding below.

It is important to recognize that a particular news report about climate change may be identified as containing more than one narrative, as when, for example, a program on CNN has a segment giving voice first to the Hoax narrative and then to the Denialist Conspiracy narrative. And, of course, the search strings will miss some stories about climate change. For both reasons, therefore, the sum of the hits generated by these search strings cannot be interpreted as a count of the total number of news stories about climate change.

ABC News

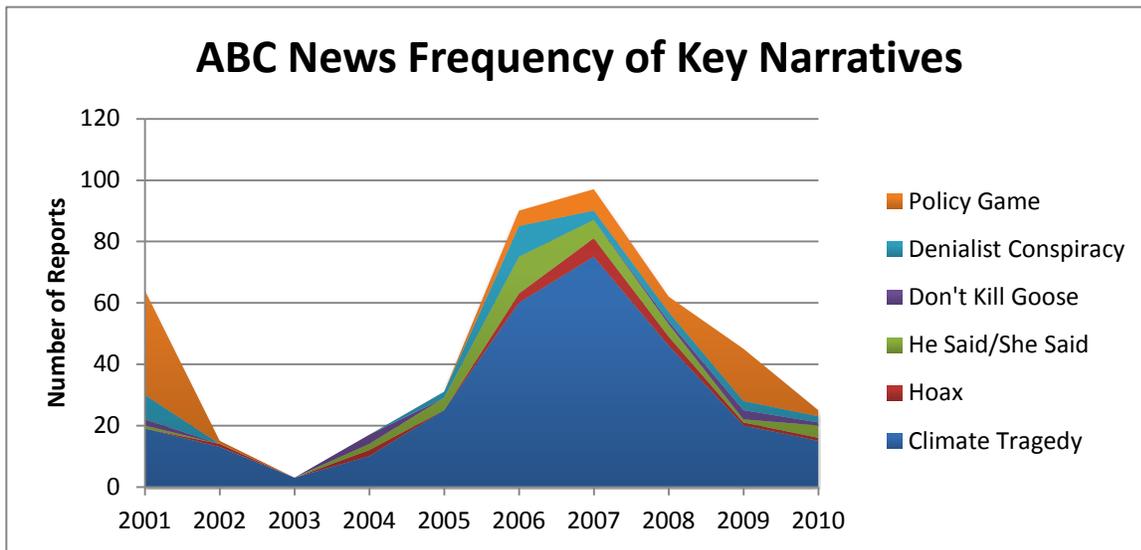
As Figure 2 shows, the Climate Tragedy narrative was far more frequent during the decade on ABC than any other narrative, far greater than He Said/She Said, Don't Kill the Goose, and Hoax combined. Climate Change constituted 63.7 percent of the total, with Policy Game a distant second with 15.8 percent. He Said/She Said constituted only 7.6 percent of the six narrative lines, and Hoax and Don't Kill the Goose only 3.8 and 2.2 percent respectively. This finding is largely consistent with the conclusion that the "balance as bias" phenomenon was not important in the mainstream press, particularly after 2006.³

A second observation is that the frequency of coverage varied tremendously over the decade, as we will see for all the networks. After 2001, the first year of George Bush's administration, coverage dropped precipitously in 2002 and 2003, then rose again in 2004 and 2005, before jumping up in 2006 and peaking in 2007. Thereafter, coverage trended steadily downward, dropping each of the next three years. It is worth highlighting two points about the overall levels that are distinctive to ABC. One is that none of the cable networks had such a big jump in 2006, a year in which the documentary *An Inconvenient Truth* became a box office hit and Al Gore reemerged on the American political scene. The second is that ABC's coverage dropped in 2009 to a level less than half of two years previous. This was a year that climate legislation was being fought over in the US Congress, and more significantly for media coverage, that

culminated in the climate summit in Copenhagen and a scandal that became known as “Climategate,” events that led to a spike in coverage by other outlets.

The mix of narratives told by ABC was relatively stable throughout the decade. In 2006, there was a slight increase in the proportion of both Denialist Conspiracy stories (mostly around testimony that the Bush administration had sought to edit congressional testimony of government experts) and in He Said, She Said stories, but both of these stories dropped off in the peak year of 2007, a year dominated by Climate Tragedy narratives. In 2009, though, not only were significantly fewer total stories delivered, but the percentage of Climate Tragedy narratives dropped to its lowest point since the first year of the decade. As ABC’s coverage shifted towards the Policy Game (notably during the Copenhagen summit), stories about the likely consequences of climate change (the Climate Tragedy narrative) dropped to little more than a quarter of what they were in 2007. The next year, the number of such stories dropped again, and when cap and trade legislation died in the US Senate, ABC paid almost no attention.[§]

Figure 2



FOX News

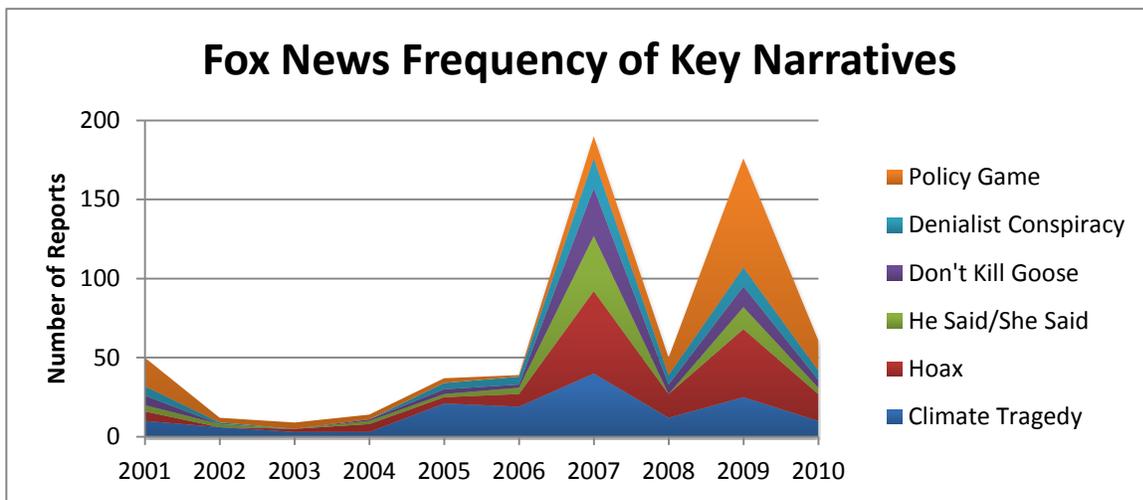
The pattern of Fox News coverage of climate change was strikingly different from that of ABC, as can be seen in Figure 3. Whereas on ABC the Climate Tragedy narrative was dominant

[§] It is perhaps worth noting that the drop-off in Climate Tragedy stories told by CBS News was even more dramatic, from 89 in 2007 to 5 in 2009.

during the decade, on Fox there were actually slightly more Hoax stories told than Climate Tragedy stories, 23.8 as compared to 23.4 percent. And the combination of Hoax, He Said/She Said, and Don't Kill the Goose, only 13.7 percent of ABC's stories, were a remarkable 44.7 percent of all stories on Fox. Fox also had a higher percentage of Policy Game stories than did ABC, much of which was around its coverage of the prospects for the Copenhagen Climate Summit in 2009.

Although there are similarities, the overall ebb and flow of coverage on Fox also differed in two important ways from that of ABC. First, whereas on ABC the total number of stories in 2006 was nearly three times that of the year before, on Fox the total number barely budged. Fox's coverage remained at a relatively low level as it largely ignored the buzz created by the release of *An Inconvenient Truth* and criticisms leveled at the Bush administration's alleged muzzling of government climate scientists, which received considerable play at ABC. Second, and even more dramatically, in 2009, when ABC's coverage dropped from the year before, Fox's number tripled from 2008 to 2009 to nearly the same level as the peak of 2007. The biggest spike was in late November and early December, when the Copenhagen Summit and "Climategate" received intensive coverage.

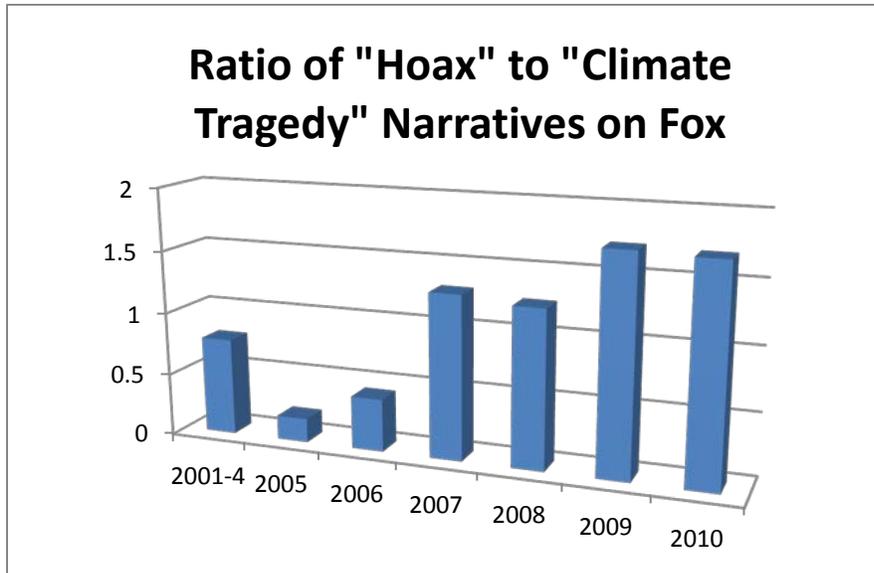
Figure 3



But perhaps the most important finding with regard to Fox's coverage has to do with the changing mix of narrative lines over the decade. Fox's coverage of climate change had been more negative than that of ABC's from the beginning. But the differences were not extraordinarily stark in 2005 and 2006. Up to that point, stories qualifying as Climate Tragedy significantly outnumbered Hoax narratives. Indeed there were 50 percent *more* Climate Tragedy

stories than Hoax, He Said/She Said, and Don't Kill the Goose stories combined. But in 2007, Fox's coverage took a dramatically negative turn, as the Hoax narrative came to dominate its coverage. In 2007, Fox ran more than five times as many Hoax stories than the year before, and the proportion of Hoax narratives to Climate Tragedy narratives tripled, from .42 to 1.3. And in 2009 the ration jumped again to 1.7. Figure 4 shows just how sharp a break there was in the mix of these two narrative lines in Fox's coverage.

Figure 4



Note: Because of overall small numbers of both story lines in the first four years of the decade, I average years 2001-4.

MSNBC News

The conventional view is that MSNBC provides a counterbalance to Fox, equally hyperbolic but from the left rather than the right. The narrative frequency analysis tells a more nuanced story.

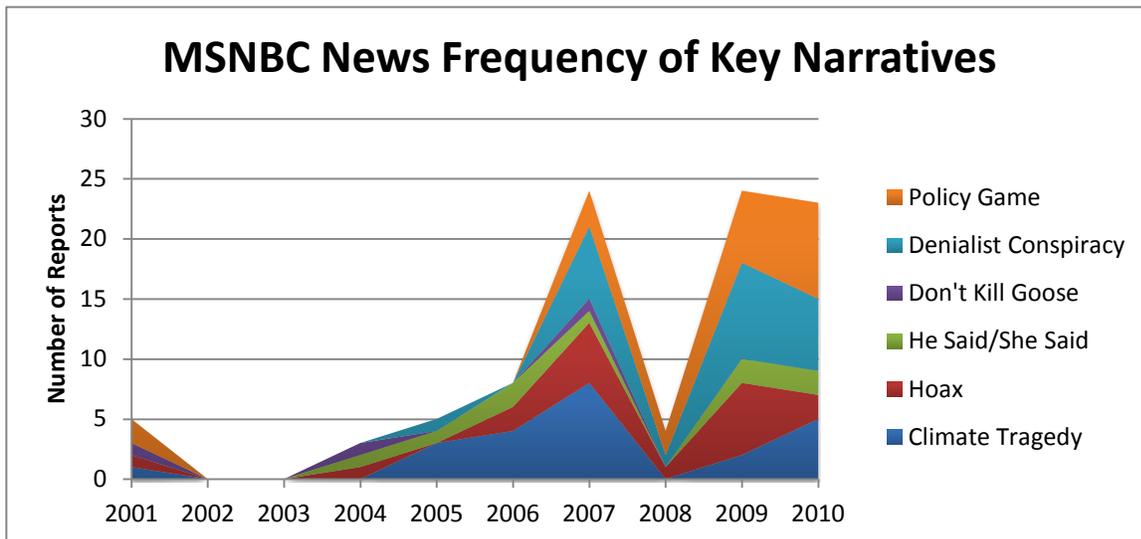
As Figure 5 shows, with regard to the mix of narrative lines, the proportion of narratives that met the Climate Tragedy definition, 24 percent, is very low, almost identical to that of Fox and much, much lower than that of ABC. It seems that, like Fox, MSNBC looked for conflict rather than news stories about the likely impact of climate change. MSNBC's percentage of Hoax narratives, 18.75 percent, was also closer to Fox's percentage than to ABC's. Such a high percentage of Hoax stories seems counterintuitive, but MSNBC actually gave considerable voice to the Hoax narrative so as to set up its distinctive emphasis on the Denialist Conspiracy narrative, which accounted for 22.9 percent of the story lines, far more than any other network.

It is also worth noting that the proportion of stories classified as Policy Game narratives was almost identical to that of Fox (and CNN), and somewhat higher than ABC.

MSNBC provided much less overall coverage of climate change than any of the other other networks. By our count, the number of stories about climate change on MSNBC was a tenth that of CNN, and a seventh that of Fox. (Such comparisons between cable and network coverage are not really meaningful given the much more limited news window on networks such as ABC, but MSNBC's numbers are also dwarfed by ABC's.) With that caveat, the rise and fall of MSNBC's overall coverage is much closer to Fox than to ABC: low levels through 2006, a sharp spike in 2007, a drop in 2008, and then another sharp rise in 2009. The one point of difference (indeed from all the other networks) is that MSNBC's coverage in 2010 did not drop off as dramatically.

Finally, with regard to the changing mix of narrative lines, the most distinctive pattern is the dramatic introduction of the Denialist Conspiracy narrative in 2007 and its considerable prominence in MSNBC's 2009 and 2010 coverage. In this regard, at least, MSNBC was the opposite of Fox. But, like Fox, the network's ratio of Hoax to Climate Tragedy narratives increased over time. Indeed, in 2009, MSNBC's ratio was 3 to 1, substantially *higher* than that over at Fox, a fact largely attributable to the extremely low provision of Climate Tragedy narratives on MSNBC.**

Figure 5



** This should be interpreted with caution, however, as the absolute numbers are extremely small.

CNN

The great gulf between cable and the traditional networks in coverage of climate change is perhaps most clearly illustrated by CNN's coverage, which looks much more like Fox and MSNBC than ABC, as Figure 6 shows.

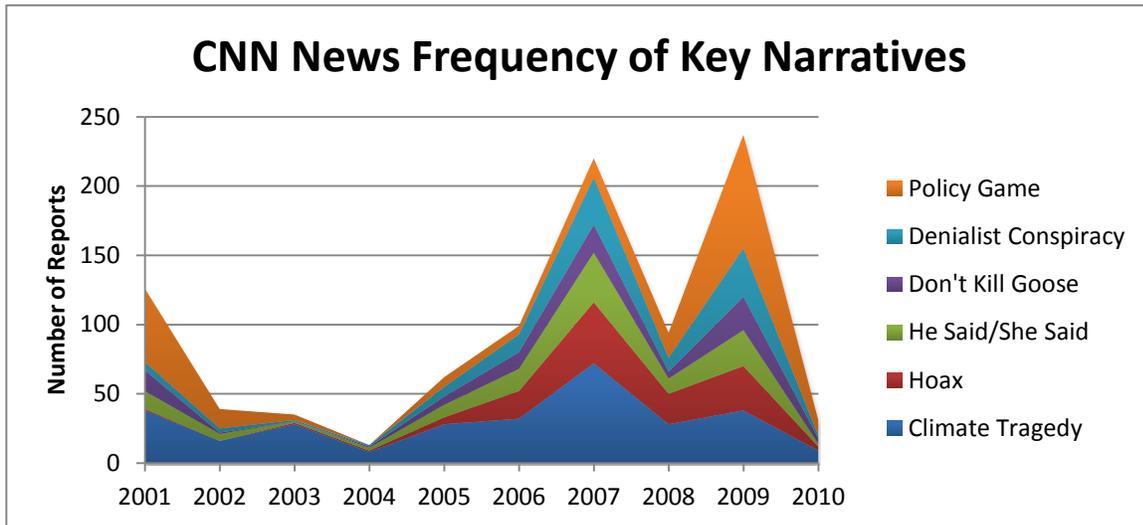
The mix of narrative lines in CNN's coverage was the most balanced of the networks (or most schizophrenic depending on one's perspective.) Over the decade, Climate Tragedy narratives accounted for 31 percent of CNN's total, a larger portion than either of the other cable networks, but about half of ABC's proportion. CNN gave considerably less play to the Hoax Narrative (13.5 percent) than did Fox (23.8 percent) and even somewhat less than MSNBC (18.7 percent). Hoax, He Said/She Said, and Don't Kill the Goose narratives together accounted for 35 percent of CNN's mix of stories, a percentage between that of Fox and MSNBC's, although closer to MSNBCs. CNN's predilection for the Denialist Conspiracy tale also lay between its two cable rivals, although its proportion, 12 percent, was closer to Fox's nine percent than to MSNBCs 19 percent.

The ebb and flow of the total volume of stories on CNN was more similar to Fox and MSNBC than to ABC, although it also differed from the other cable networks in important respects. After providing relatively low levels of coverage for most of the first half of the decade, in 2006 CNN ramped up its coverage by 50 percent, which was much less than the jump at ABC, but also much greater than Fox, whose coverage remained flat. But unlike ABC, whose increase was largely due to offering more Climate Tragedy narratives, i.e. coverage of the consequences of climate change, CNN's increase was almost entirely due to an increase in other narratives. Of these, the most striking is CNN's introduction of the Hoax narrative, which to that point had been almost completely absent from its coverage. In 2006, Hoax stories on CNN quadrupled, accounting for fully 20 percent of the stories. Indeed, both in numbers and in proportion, in 2006 CNN gave substantially more airtime to Hoax than did Fox.

Like all the networks, CNN covered climate change extensively in 2007. The mix of story lines, however, changed little from the previous year. In many regards, CNN's coverage that year looks much like Fox's, with only somewhat less emphasis on Hoax (Fox, as previously discussed, went "all in" on this story line in 2007) and somewhat more on Denialist Conspiracy. It is useful to recognize that this coverage was mostly not He Said/She Said stories whose point is that the science is in dispute (although there was certainly some of that), but a war of narratives with more dramatic bite. As I will discuss below, to a great extent this reflects the presence of Glenn Beck on CNN, whose show gave voice to a completely different interpretation of climate change than the commentators at other hours of CNN's news day.

Coverage on CNN dropped off in the relatively quiet year of 2008, as it did on all the networks, but then took off again in 2009, even eclipsing its 2007 total. What is striking about the 2009 pattern, however, is that the proportion of Climate Tragedy stories dropped significantly, from 29 percent to 16 percent, replaced by Policy Game stories about prospects for the Copenhagen Summit, which jumped from 19 to 35 percent of the total. Taken as a whole, CNN's coverage that year was a breathless compendium of competing narratives—Hoax, He Said/She Said and Don't Kill the Goose on one side, the Denialist Conspiracy on the other, and a healthy dose of policy making as spectator sport—with only occasional moments to report the problem for which all this fuss was about. And then, in 2010, the drama of Copenhagen behind it, CNN virtually stopped covering climate change, as the total volume of all story lines combined plummeted by 87 percent.

Figure 6



Discussion

Comparing the narrative frequency patterns of the four networks suggests several important findings about the overall pattern of narrative content reaching different segments of the American population.

For most of the period from 2001 through the end of 2006, for most consumers of television news, the dominant story was Climate Tragedy. ABC's coverage was almost exclusively some variant of a story of environmental peril, as likely was that of the other broadcast networks. At Fox, although the mix of narrative lines included a variety of negative stories, both the overall volume and percentage devoted to Hoax was still quite muted. It is true that in 2006 CNN's

ramped up coverage included a substantial proportion of conflicting narratives, including He Said/She Said, Don't Kill the Goose, and even Hoax, but overall the coverage appeared quite favorable to belief in climate change.

In 2007, Fox's coverage changed dramatically, jumping in volume and shifting to a much higher proportion of Hoax. CNN appears to have responded by giving more voice to the full range of critical narrative lines. These developments meant that for the first time a substantial portion of news consumers were receiving a steady dose of a dramatically different story of climate change.

All four of our networks reduced their total volume of climate change coverage in 2008, a year with few policy developments in climate change, a national election, and an increasingly severe economic recession. But there were significant differences in how the networks responded in 2009, when climate change legislation passed in the US House and the nations of the world convened for a Climate Summit in Copenhagen. CNN coverage jumped dramatically, to the highest total volume, with a substantial portion devoted to covering the Policy Game (most of which came late in the year at the time of the Copenhagen Summit), and larger proportions devoted to Hoax, Don't Kill the Goose, and, on the other side, to the Denialist Conspiracy. But the big news of 2009 was the dog that didn't bark. Whereas the cable networks told substantially more stories in 2009 than the year before, ABC's numbers continued to drop, and its provision of the Climate Tragedy story plummeted. Because more of its more limited coverage was devoted to Policy Game stories, the number of Climate Tragedy stories in 2009 was roughly a quarter of what had been two years before.

Finally, it is striking how dramatic the drop was for all networks in 2010, the year after the muddled and unsatisfactory Copenhagen summit. With the exception of MSNBC, whose absolute numbers remained very low, climate change nearly fell of the radar screen.

Digging Deeper: Media Coverage at Two Critical Moments

In order to interpret the patterns of coverage produced by the narrative frequency analysis, I looked more closely at the content of coverage during two periods in which there was the greatest attention to climate change. The first of these periods is February 2007, the month that *An Inconvenient Truth* won two Oscars, Al Gore was nominated for the Nobel Peace Prize, and the IPCC released its Fourth Assessment Report with the strongest wording yet about climate change. February 2007 also more or less marked the high point of public attitudes on climate change. The second critical period is November and December 2009, when leaked the "Climategate" scandal concerning leaked email exchanges among climate scientists and the Copenhagen Climate Summit of world leaders created the decade's most intense spike in news coverage.

Al Gore and the IPCC: February 2007

On the morning of February 1, ABC's *Good Morning America* announced that Al Gore and the IPCC had been jointly nominated for the Nobel Peace Prize. The next day, when the IPCC released its long-awaited report on the state of climate science, ABC's story line was unmistakable: this was a tragedy in the making.

"It's really kind of frightening stuff inside here. The stuff that science fiction books and movies are made of: melting ice, heat waves and even stronger storms. Well, global warming is with us, and it's gonna be with us for centuries according to this report. Inside this report, the one everyone has been waiting for, 600 authors of this report, 600 reviews then of the report, and then 300 delegates from 113 countries went over it. It is the definitive report on global warming and it's frightening."⁴

And the scientists were heroes: "The 2nd of February 2007 in Paris will perhaps, one day, be remembered as the day where the question mark was removed behind the debate about whether climate change had anything to do with human activity on this planet.... This is really a unique example of science in the service of society."⁵

That evening, ABC's Bill Blakemore added to the drama.

"No longer any question that the Earth is warming. The warming is due to greenhouse gasses and that those gasses are produced by us. The prediction? Increased drought in southern regions of the world, more intense downpours further north. And the world will see fiercer heat waves and more powerful storms. One of the most ominous discoveries? The warming has now reached down more than a mile deep into the oceans, warming currents that have, for millions of years, acted as a cooling system for the planet."⁶

ABC's coverage was typical of the mainstream press's handling of the IPCC report. CBS's Mark Phillips broke the news with nearly identical language:

"the science of global warming has become clear, and its conclusions unavoidable. The best climate scientists on the planet now say it is, quote, 'unequivocal that the earth is getting warmer, and that greenhouse gases, produced in increasing quantities since the beginning of the Industrial Revolution, are very much to blame.'"⁷

Print readers had to wait until the morning of February 3 for the *New York Times* front-page headline: "Science Panel Says Global Warming is 'Unequivocal'."

“In a grim and powerful assessment of the future of the planet, the leading international network of climate scientists has concluded for the first time that global warming is "unequivocal" and that human activity is the main driver, "very likely" causing most of the rise in temperatures since 1950.

They said the world was in for centuries of climbing temperatures, rising seas and shifting weather patterns—unavoidable results of the buildup of heat-trapping gases in the atmosphere.”⁸

The Washington Post's headline was equally powerful: “Humans Faulted For Global Warming; International Panel Of Climate Scientists Sounds Dire Alarm.”⁹

But at Fox and elsewhere in the conservative media, a different story was told, a story in which the scientists and Al Gore were far from heroes. Fox’s coverage of the release of the IPCC report began with straightforward reporting by Bret Baier on the 6:00 news program.

“A panel of international scientists predicted today that global warming will continue for centuries no matter how much people control pollution, in a bleak report that suggested that humans are at least partly responsible for killer heat waves, devastating droughts and stronger storms.”¹⁰

The report included statements from the UN’s Yvo De Boer, a Bush Administration spokesman, and, remarkably, Democratic Senators John Kerry and Barbara Boxer, all supportive of the IPCC report. It was to be the last such report on Fox.

A brief commentary at the end of the hour foreshadowed the coverage to come.

“Some scientists say the summary of the U.N. climate change report, we told you about earlier, distorts the actual scientific findings, because of a political agenda. Cybercast News Service cites MIT professor Richard Lindzen, who worked on the last U.N. climate report, is saying the summary is primarily the work of political appointees, not scientists.

Harvard University physicist Lubos Motl says that if an error is found in the summary, the technical report will be "adjusted" for consistency, a practice he calls "scientific misconduct."

And Scientist Christopher Landsea, of the National Hurricane Center, says he resigned from the U.N. panel because its statements to the media were "far outside current scientific understandings.”¹¹

Fox ignored the topic for two days. When its coverage resumed, though, the central theme was clear: the science and the scientists were illegitimate. On February 5, John Gibson interviewed conservative commentator Mark Steyn.

“Well I think this isn't science any more, I think this has become effectively a kind of religion of the left. Because basically it's beyond science. ... And you know the religious right gets mocked when it says America is going to pieces because of lap dancing and gay marriage and what not. Well this so-called religious left if you like, why is it any less ridiculous when they say America is going to pieces because we're driving Chevy Suburbans and eating cheese burgers. There's simply no evidence for that.”¹²

On the 7th, Fox put on the full press. At 6:00 John Gibson interviewed Chris Horner, the ubiquitous spokesman for the Competitive Enterprise Institute, a conservative non-profit. Horner turned the attack on Al Gore, “this is Gore being Gore, a member of the intolerant left manifesting as you'll read in my book the very clear philosophy of the global warming alarmist movement.”¹³

At 8:00, Bill O'Reilly, with the largest audience on cable, gave the floor to Patrick Michaels, a Virginia professor, who claimed that “the IPCC report is overhyped: Look, this new U.N. report comes out, and it says human beings are warming -- warming the surface temperature. To me that's like a breathless announcement that there's gambling in Las Vegas.”¹⁴

And then at 9:30, Hannity and Colmes devoted a half hour to the topic. The introduction set the tone: “in spite of the recent cold weather across the nation, hysteria over global warming is not letting up. Al Gore continuing to push the environmental agenda.” What followed was the usual pattern of the conservative Hannity playing Harlem Globetrotters to the hapless liberal Colmes's Washington Generals.¹⁵

For the rest of the month, Fox would tell a consistently negative narrative about climate change and the science behind it. Although at times Fox aired “he said, she said” reports with one scientist disputing another, more often some version of the hoax narrative dominated.

CNN's coverage that month was more favorable to the environmental narrative of climate change than was Fox's, but what is perhaps most striking is the extent to which CNN also gave voice to the hoax narrative of the opponents. On February 1, CNN geared up its coverage with a report entitled “Melting Point.” The segment began by conveying the message of the IPCC report.

“This morning in Paris the world's leading scientists are poised to release a smoking gun report on climate change. The U.N. report due out tomorrow will make a crystal clear link between the burning of fossil fuels and rising temperatures all around the world.”

But then it immediately revealed the pattern of its coverage to come.

“When the gavel changed hands in the Senate committee that oversees the environment, the political wind shifted in an instant. The outgoing chairman, Republican James Inhofe of Oklahoma. He has called global warning a hoax.”¹⁶

This was not cool “he said, she said” conflict among scientists, it was a war of mutually contradictory dramatic narratives between science and its critics.

On February 2nd, the day the IPCC released its report, CNN gave nearly wall-to-wall treatment of the story, far more than any other network. In the 5:00 hour, Wolf Blitzer gave the straight report of the IPCC's findings.

There's a new grim report out today from the Inter-Governmental Panel On Climate Change. It says there's a "very high confidence" humans caused warming. That warming is "unequivocal" And that global warming is very likely caused by greenhouse gases.

It also says there is an increase in intense tropical cyclone activity. That hurricanes are likely to become even more intense. And cites an increase in what scientists calling "heavy precipitation events" and the reports cites widespread melting of snow and ice. Droughts are likely to increase in this, the 21st century. And it says heat waves are to become even more frequent.’¹⁷

At 6:00 Lou Dobbs followed the same line, adding that “It's -- it's going to be fascinating to see what policy adjustments are made as we go forward, with now a clear consensus on global warming.”¹⁸

But then, at 7:00, CNN viewers got a very different story. Glenn Beck, then a fixture at CNN, opened with:

“Today, U.N.'s Intergovernmental Panel on Climate Change came out with their new report that many will point to as the definitive smoking gun that man is responsible for global warming, despite some details that shows man's impact on the climate is on the decline. Hmm. That seems like an inconvenient truth.

You're not going to hear that on very many places. Well, you're going to hear it from my next guest a lot. Republican senator from Oklahoma, James Inhofe.

Senator, the report, fact or fiction?¹⁹

Not a tough question for the senator. Inhofe used it not only to attack the report but also its authors.

Oh, it's all fiction.... But I want to make sure that your viewers out there are aware that it's the United Nations that started this whole mess and almost every bad thing that gets started by the United Nations. They're the ones ten years ago who brought this thing in, and now that the scientists are leaving their side and saying, "No, it's not man-made gases that are causing this," they're starting to panic."²⁰

CNN's coverage continued in this vein for a couple days and then dropped off.

Curiously, over at MSNBC the IPCC report was less a hook for telling the environmental story than an opportunity to bash the right. Keith Oberman's teaser began, "Global warming, it's real, and at best made much worse by man. That's the scientific final score." But after this quick summary of the climate tragedy narrative, he immediately turned to a version of the denialist conspiracy. "So that might explain why ExxonMobil was reportedly willing to pay, through intermediaries, 10 grand to any scientist who undermined the report."²¹

For the rest of the month, what coverage MSNBC did give to climate change, which was considerably more limited than any of the other networks, would be dominated by outraged accounts of the denialists, coverage that ironically gave proportionally much more airtime to their hoax narratives than did ABC or the rest of the mainstream press.

As the Academy Awards ceremony approached, Fox increasingly cast Al Gore as the central villain. On February 14, Sean Hannity began promoting an upcoming report. "Our global warming guru alarmist, Al Gore, well, we've got evidence, let's just say, of a bit of hypocrisy in his life as relates to the issue of global warming."²² The "special report" aired on February 18.

This is Al Gore as he portrays himself in his Oscar-nominated film "An Inconvenient Truth." The former vice president traveled around the world lecturing about the dangers of climate change and the catastrophic threat that global warming poses to the world. ...

The vanquished vice president has led the charge towards carbon neutrality and has brought some of his Hollywood friends along with him. But there's more to

the story. Something that Al Gore doesn't advertise. When it comes to carbon emissions, Al Gore and his liberal friends, well, they have a dirty little secret.²³

The story, according to Hannity, was that Gore and other "environmental elites" were hypocrites, in public lecturing about consuming too much energy while in private travelling on private planes to promote fighting climate change.

[F]lying in a private jet does more than four times the carbon emission damage to the environment than flying a regular commercial jet. So if you were worried about your quote-unquote "carbon footprint" on the environment, and if you are concerned about carbon neutrality, the last thing that you should be doing is flying on private jets. Sit in coach, you might save a polar bear....

The same crowd that once landed the nickname "limousine liberals," well, should be considered "Gulfstream liberals." They are those who lecture us about the dangers posed by climate change and then fly awfully close to the sun in their beautiful luxurious private jets.²⁴

When a few days later, *An Inconvenient Truth* won the Academy Award, Hannity and Colmes returned to the hypocrisy theme, and used it not only to mock Gore but also the Hollywood elites who loved him.

But, first, our top story tonight is the fallout from last night's environmentalist infomercial that they called the Oscars. Al Gore's hysterical documentary, "An Inconvenient Truth," won the Oscar for best documentary, although the vanquished vice president did not take the opportunity to announce another run for the presidency. But Hollywood did take the opportunity to preach about global warming with every breath that they could muster.²⁵

On the show to defend Gore was the actress Daryl Hannah, billed as an "environmental activist," who found herself forced to respond to Hannity's framing:

Al Gore, for example, we did expose on "Hannity's America" about the fact that Al Gore travels around the world in private jets. We now know that the Tennessee Center for Policy Research, they did an investigation about one of Gore's many homes, in this case, his 20-room, eight-bathroom mansion in Nashville. And what they discovered was, in 2006, Gore devoured nearly 20 times the national average in electricity. Does that make Al Gore an environmental hypocrite?²⁶

Hannah was predictably ineffective. And the conservative firebrand Ann Coulter did not mince words when she jumped in: "I mean, of all the psychotic, insane things liberals -- the political religion of liberalism has foisted on us, there is none more preposterous than the anti-human global warming."²⁷

Over at CNN, the Academy Awards received mixed treatment. Leading up to the ceremony, the prospect of a victory was reported with eager anticipation on "The Situation Room." Gushed William Schneider, "No one can talk these days in Washington about global warming without mentioning Al Gore, *An Inconvenient Truth*."²⁸ The documentary's Oscar that Sunday, treated as "Gore's victory," received positive coverage on CNN all day Monday, providing its lineup of commentators an opportunity to speculate about whether or not he would run for president. But it was Glenn Beck who had the last word.

"If the Academy Awards made you want to puke your guts out, try Glenn Beck's Oscar Nausea Tonic, now available in new mango flavor.... Here's the point tonight. Al has conquered Hollywood, but he's building an army of crappy actors, doped up starlets and former Deaniacs, I believe, to help him take the White House maybe next year or in 12 -- 2012."²⁹

For ABC the possibility of a Gore Oscar gave an opening to revisit the message of *An Inconvenient Truth*³⁰ and provided a hook for a substantive story on the connection between climate change and a severe drought in Australia.³¹ Gore's victory that Sunday was reported briefly, but turned quickly to "will he or won't he" speculation about Gore's presidential ambitions.³² *The New York Times* gave it a few sentences in an "Arts and Leisure" section article on the Academy Award winners while running a piece by Andrew Revkin about a study of polar changes in the first section.³³

So February ended, the issue largely reduced to positive speculation about Gore's chances of making a political comeback on the one side, and a scathing denunciation of his hypocrisy on the other.

That October, when Gore won the Nobel Prize, media coverage of climate change would flare up again, following the pattern established earlier in the year. For the broadcast networks, Gore's victory was a triumph. On *ABC's This Morning*, Kate Snow reported,

"For Al Gore, winning the Nobel Peace Prize is a personal milestone, a vindication of a sort. Seven years ago, it seemed like Gore was destined to be remembered as one of history's biggest losers. ... But now a new entry for the history books."³⁴

For the *The New York Times*, "The prize is a vindication for Mr. Gore, whose cautionary film about the consequences of climate change, *An Inconvenient Truth*, won the 2007 Academy Award for best documentary, even as conservatives in the United States denounced it as alarmist and exaggerated."³⁵ And for the *Washington Post*, the story was that Gore "wrapped up a remarkable year of honors yesterday by sharing the 2007 Nobel Peace Prize with a U.N. scientific panel," which "was a measure of vindication for his passionate commitment to the issue of climate change in the face of occasional ridicule and pointed political criticism dating back two decades."³⁶

But at Fox and other conservative media outlets, Gore's Nobel provoked conservative commentators to new rhetorical extremes. On Fox News Sunday, for example, Bill Kristol sarcastically declared that "It's deeply moving. You know, I just -- Friday I just felt a warm glow thinking that this man got the Nobel peace prize for bloviating about global warming." Charles Krauthammer was less subtle: "Look. Let's remember what the prize is about. Al Gore now joins the ranks of Yasser Arafat, the father of modern terrorism."³⁷ A *Washington Times* editorial sneered,

"What does the global warming movement's crusader-in-chief, Mr. Gore, he of the 20-room, eight-bathroom estate in Nashville, the one with the \$30,000 annual utility bill, who jets around the planet in private airplanes scolding others for overconsumption, have to do with international peace? ...

As Damian Thompson wrote in the *Daily Telegraph* last week, "The former U.S. Vice-President has already taken over from Michael Moore as the most sanctimonious lardbutt Yank on the planet. Can you imagine what he'll be like now that the Norwegian Nobel committee has given him the prize?"³⁸

And a clenched teeth *Wall Street Journal* editorial listed a long list of people who deserved to win, conspicuously leaving Gore out. The paroxysm of disdain for Gore, now firmly established by the conservative press as the face of climate change activism, prompted liberal columnist Paul Krugman to identify a "Gore Derangement Syndrome."³⁹

At CNN, though, Gore's Nobel Prize was treated as a triumph, with coverage all day long that included clips of the announcement, *An Inconvenient Truth*, and of Gore's comments to the press. Even Glenn Beck kept his powder dry. Typical of the tone of the coverage, Jonathan Mann reported,

Al Gore could have been remembered by history for the prize he didn't get -- the 2000 presidential election that was decided by a handful of votes, hanging chads, and the U.S. Supreme Court.

Instead, he transformed himself, from former vice president and former candidate, into global campaigner, and his campaign to alert the world to the dangers of climate change has now received the ultimate accolade, in a joint prize with the United Nations Intergovernmental Panel on Climate Change.⁴⁰

The next day, the warm glow continued, with stories wondering whether Gore might run for president and the airing of an extended interview with the former Vice President.

On the 15th, as CNN continued to promote its upcoming “Planet in Peril,” Anderson Cooper aired a story about how rainforest destruction was fueling climate change, a rare substantive piece on the science of climate change. Curiously, though, before “Planet in Peril,” CNN ran another special with a more ambiguous title, “Keeping Them Honest: The Truth About Global Warming,” an hour-long program that led with attacks on Gore from Charles Krauthammer – “The Nobel Peace Prize is about politics. It's the Kentucky Derby of the world left, and it gives it to people whose politics are either anti-American or anti-Bush. And that's why he won it.” – a sarcastic Glenn Beck, “Any movie with charts and graphs this big, I mean, they have got to be right.” –and news that “A British judge ruled “An Inconvenient Truth,” the Oscar-winning film of Gore's global warming lecture, contains nine errors that need to be pointed out to students as the movie is played in British schools.”⁴¹

Finally, on November 24th, CNN broadcast “Planet in Peril,” a highly-produced documentary on the possible effects of climate change. “This is a planet under assault. This is a planet in peril,” began Anderson Cooper, who then led an extended tour of warning signs from around the planet.⁴² The special was such an unalloyed climate tragedy narrative that over at Fox Hannity complained the next evening that it was propaganda.

“Climategate” and Copenhagen: November-December 2009

After the flurry of climate change news in 2007, 2008 was considerably quieter, as was most of 2009. Even passage of a climate bill in the US House in the summer of 2009 received little attention. But as the December climate summit in Copenhagen approached, the media’s gaze returned to the issue, or at least that of the cable news shows did.

In mid-November, 2009, less than three weeks before the summit, someone posted a cache of email exchanges among climate scientists taken from servers at the University of East Anglia, a major center of the climate research that went into the IPCC assessments. To critics of climate science, the emails showed scientists hiding results and manipulating findings in order to make their case. Bloggers quickly picked up on the posting. On November 20, the widely read conservative e-journal *The Drudge Report* posted a link to one of them. The next

day, both *The New York Times* and *The Washington Post* confirmed that the emails appeared authentic.⁴³

Two days later, Glenn Beck, now a commentator on Fox, picked up on the story. From that point on, "Climategate" would be the defining issue of Fox's coverage. On the 24th, Stuart Varney questioned James Inhofe. "Do you believe that the climate scientists are trying to conceal evidence that works against global warming?" Inhofe replied, "I think they have been cooking science for a long time, Stuart."⁴⁴

In the week before the climate summit, a parade of Fox commentators turned to the story in earnest, pounding the theme multiple times day after day. On Tuesday, December 1, Glenn Beck interviewed James Delingpole, one of the bloggers who broke the story. Said Delingpole, "what this scandal shows is that the science underpinning all of this is a crock. It's a shambles. It's dishonest."⁴⁵

On Wednesday, Bret Baier focused on the email issue again, and although he did give some airtime to defenders of the scientists, he gave the last word to Representative James Sensenbrenner:

"These e-mails show a pattern of suppression, manipulation and secrecy that was inspired by etiology, condescension and profit. They read more like scientific fascism and scientific process."⁴⁶

On Thursday, Andrew Napolitano interviewed Steve Milloy, "founder and publisher of JunkScience.com, and author of -- look at that title -- 'Green Hell.'" Said Milloy,

[w]ell, these e-mails promote us from skeptics to the vindicated. ...These people have lied about the temperature increases. Temperatures are actually on the decline. They have tried to silence their critics. They have destroyed data. ...We need to get to the bottom of this. I think these e-mails are really, just as you said, the tip of the iceberg. If we were to get all their e-mails, we would see how they constructed global warming alarmism out of whole cloth.⁴⁷

And on Friday, Sean Hannity brought the focus back to his favorite villain.

So, it's safe to say that Climategate has revealed that global warming and that movement is run by hacks and frauds and given that Al Gore personifies the movement maybe that it shouldn't come as any surprise.⁴⁸

So Fox's coverage went the week before the Copenhagen Summit, a relentless assault on the integrity of the science and those urging action in response to it. Others on the right joined in. A

Washington Times editorial entitled "Hiding Evidence of Global Cooling; Junk Science Exposed Among Climate-Change Believers," hoped that "these revelations of fudged science should have a cooling effect on global-warming hysteria and the panicked policies that are being pushed forward to address the unproven theory."⁴⁹

In contrast to its starring role on Fox, Climategate initially received no attention on the networks, but the issue could not completely be ignored. On November 29, ABC's *This Morning* host George Stephanopoulos put a question to conservative commentator George Will:

George, there's been a partisanizing (sic) of this issue and then you throw in one more complication we've had over the last week, this Climate Research Institute at the East Anglia University, someone hacked into their e-mail account and showed a bunch of e-mails between scientists which opponents of climate change legislation has said proves that they are rigging the science and trying to hide information that runs counter to their theories.

Will: Well what it - it raises the question of we're being asked to wager trillions of dollars and substantially curtailed freedom on climate models that are imperfect and unproven. And the consensus far from being as solid as they say it is, and the debate as over as they say it is, the e-mails indicate people are very nervous about suppressing criticism, gaming the peer review process for scholarly works and all the rest. One of the e-mails said it is a travesty, his word - it is a travesty that we cannot explain the fact that global warming has stopped. Well, they shouldn't be embarrassed about that. It's a complicated business and that's why we shouldn't wager these trillions.⁵⁰

Even more striking is just how little total coverage ABC provided of the substance of climate change in the lead-up to Copenhagen. From November 15 to December 6, the only stories other than the Stephanopoulos-Will exchange were a profile of a "Person of the Week" who photographed environmental changes possibly linked to climate change on November 20,⁵¹ a story about sinking lands in Louisiana possibly at risk from climate change on December 6,⁵² and two short alerts the same day framing the upcoming summit, notably with reference to the email scandal issue.

"Tomorrow is the start of a huge global summit on what some people believe is the most important problem in the world, climate change. However, as this summit begins, climate change skeptics have been handed some real ammunition, a scandal over leaked emails from key scientists."⁵³

That was it. A regular viewer of ABC in the weeks leading up to Copenhagen would have had no more information about the underlying climate problem that might require international agreement than would a regular viewer of Fox.

It is not worth dwelling on MSNBC's coverage in the weeks leading up to the summit. Rachel Maddow had interviewed Al Gore on November 4, which gave her "a chance to sit down with the Nobel Peace Prize winner and former vice president of the United States to ask him about his efforts," as well as the attempts by people like Senator Inhofe to thwart them.⁵⁴ But between that interview and the summit's opening, MSNBC's entire coverage consisted of Keith Oberman's very brief singling out of Glenn Beck for runner up for his "Worst Person in the World" award for "cherry picking details" from the "hacked e-mails" on November 30,⁵⁵ and a more lengthy attack on Inhofe by Rachel Maddow on December 3,⁵⁶ hardly a counterweight to Fox's partisan assault or a supplement to ABC's thin gruel.

In stark contrast to ABC's and MSNBC's cursory coverage, CNN made climate change a major priority. Initially, the focus was on telling the science narrative of impending tragedy. On November 12, Larry King interviewed Al Gore (a program that was rebroadcast three nights later).

"We are so honored to welcome back Al Gore to the show, the former vice president of the United States and the Nobel Peace Prize laureate and the best-selling author -- all in one person. His new book is "Our Choice." There you see it. It's a plan to solve the climate crisis. And it is brilliantly put together."⁵⁷

As was King's style, he allowed Gore full opportunity to tell his version of the climate change tragedy. On the 18th, the network aired a report on "Women 'bearing brunt' of climate change," which investigated the negative impact of global warming on communities in the Bolivian Andes⁵⁸ and on the morning of the 23rd, a report that "[a] possible rise in sea levels by 0.5 meters by 2050 could put at risk more than \$28 trillion worth of assets in the world's largest coastal cities, according to a report compiled for the insurance industry."⁵⁹

But then CNN's coverage turned, beginning with its first report on the leaked e-mails on the 25th. Reported Tom Foreman on CNN Tonight, "some leaked e-mails are inflaming the old fight over the basic science of climate change. A hacker in England got hold of e-mails between leading scientists which skeptics say show a clear effort to raise fears about global warming and hide evidence against it. Republican lawmakers want a congressional investigation." The report included a statement by Jim Inhofe. "I'm pleased by the vast and growing number of scientists, politicians, reporters all over the world who are publicly rejecting climate alarmism -- alarmism. This is those who want to scare people into some kind of action." In response, CNN reported, "the White House energy czar points to the 2,500

climate scientists all around the world who agree the climate is warming and that these e-mails aren't changing that.”⁶⁰

From this point on, this dueling formula would shape virtually every story CNN ran in the lead-up to Copenhagen, largely driving out any climate tragedy narratives it might otherwise have aired. On the 27th, the framing was “Conspiracy or taken out of context? That's what many are wondering after hackers made public some sensitive e-mails. They say the e-mails show how scientists cooked the books to make their case for climate change.”⁶¹

Even ardent backers of action on climate change were forced to respond to the hoax framing. On December 3, CNN's Campbell Brown gave considerable play to the charges before bringing in journalist Tom Friedman to refute them.

Is global warming just a big scientific conspiracy? Some climate change disbelievers think that they have got the proof in form of hacked e-mails. But, tonight, Tom Friedman says the controversy is all a smokescreen distracting us from the facts.⁶²

The next day, Wolf Blitzer followed the same script, reporting on “the scandal over global warming heating up as the House held hearings on the issue and the head of the U.N.'s climate science body told BBC Radio he wants an investigation.”⁶³ And on the eve of the summit, CNN gave lengthy coverage to climate change in the 7:00 news window, a report on the “Climate of Controversy.” Reported Don Lemon,

“It is an issue that's bringing more than 100 world leaders and 15,000 people to Denmark for a two-week summit starting tomorrow. It's global warming. There's wide agreement in many quarters on this issue, but it remains fiercely controversial in others. Why does it matter? Well, for starters, scientists say a warmer earth has dangerous consequences -- storms, droughts and rising sea levels. ...But critics say that's foolish. Global warming is being exaggerated for political purposes.”⁶⁴

Copenhagen Summit: December 7-20

Television coverage of the opening day of the summit held true to form.

CNN opened its coverage with a reporter “live at the University of East Anglia in Norwich, England. Behind me is the climatic research unit. It is the center of a huge controversy of a research into global warming.”⁶⁵ Throughout the day, virtually every story would link the opening of the summit to the email controversy. Even an announcement by the EPA that it intended to regulate greenhouse gasses as a pollutant could not escape the frame. As Wolf Blitzer put it in the late afternoon *Situation Room*, “The Obama administration takes a major

step toward new climate change regulation. This hour, a clear warning about the perils of greenhouse gases at a time when the science of global warming is under fire.⁶⁶

Then at 8:00, CNN aired a "Special Investigation" hosted by Campbell Brown provocatively entitled "Global Warming: Trick or Truth?" a report that would define its coverage for the next several days. Brown's lead-in breathlessly promised "Stolen e-mails, conspiracy theories -- what's the bottom line on global warming? ... We'll take you inside the university where the scandal started and to Copenhagen where world leaders are about to make major decisions about how we live our lives."⁶⁷ And the show delivered, giving airtime to skeptics "Stephen McIntyre, who was slammed in a number of those e-mails for questioning global warming" and "Chris Horner, author of "Red Hot Lies -- How global warming alarmists use threats, fraud, and deception to keep you misinformed," both of whom predictably pressed charges, while Princeton professor Michael Oppenheimer sought to reassure viewers that the science was sound.

In contrast to CNN's back and forth between charges of hoax and defenses of science, the story on ABC's evening news cast Copenhagen as an effort to avert impending tragedy. "Facing a clock same say has ticked down to zero, today, 192 nations came together to take on a potential global catastrophe," began Bob Woodruff. He then cut to tape of the Danish chair of the conference welcoming the delegates, "This is our chance. If we miss this one, it could take years before we get a new and better one."⁶⁸

Over at Fox, predictably, the first day of the climate summit and EPA's announcement regarding regulation of greenhouse gasses, provided grist for all its commentators to tell quite a different story. Eric Bolling slammed the EPA's decision on greenhouse gasses in the 4:00 hour.

"Ready for it? Wait for it. Carbon dioxide, you know, the stuff and I breathe out every day, is dangerous. The EPA, the Environment Protection Agency, declaring it formally so just today. And if my next guest is right, this sets up a government power grab like taxpayers have never seen before."⁶⁹

At 5:00 Glenn Beck ran with hypocrisy.

[T]oday, the two-week international climate change summit in Copenhagen opened with a goal of curbing the amount of carbon dioxide that the biggest nations in the world produce. It hasn't really seemed to bother any of these E-mail climate scientists that the summit is going to produce itself. Some 40,000 tons of carbon is a result of this little get together.⁷⁰

At 6:00 the story from Copenhagen was EPA's ruling and its timing, with Senator Inhofe commenting that:

The administration's so-called endangerment finding will lead to a wave of new regulations, new bureaucracy that will wreak havoc on the American economy, destroying millions of jobs.⁷¹

And Charles Krauthammer equating the ruling with socialism:

[E]nvironmental (sic) is a new socialism. It is a way for the feds, for the best and brightest in the federal government to regulate all aspects of life. It used to be in the name of socialism, which was social equality. Now it's in the name of the planet.⁷²

And at 8:00 Brit Hume voiced the "Don't Kill the Goose" view.

I think what's dubious here is whether man-made emissions are the principle cause ... and that we should make these tremendous adjustments in the way we live to try to halt that process. I think that's a very risky proposition.⁷³

The Copenhagen Summit would run for two weeks, ending when President Obama arrived on the 17th, plunged into the negotiations and brokered a limited agreement the next day. As the talks proceeded, Fox continued in much the same vein.

On the 9th, O'Reilly gave prominent play to an OpEd by Sarah Palin (remarkably, published in *The Washington Post*, a fact that drew sharp criticism from the environmental community) and Hannity ranted about Al Gore and the hypocrisy of the delegates in Copenhagen.

"What a bunch of hypocrites. By the way, they start out this conference there's going to be hundreds of millions of refugees, help save the world, the world is depending on us. But don't they really -- is this not the world's socialists and globalists meeting here really to get money from richer countries to redistribute it to the poorer countries?"⁷⁴

On the 10th Glenn Beck and conservative television reporter John Stossel engaged in an extended mockery of a video dramatically depicting future impacts of climate change that had been shown to delegates at the Copenhagen summit.⁷⁵

On the 11th, Laura Ingraham complained that

"[l]eft wingers and global warming fanatics, not only attack Palin personally for her op-ed, but they trashed *The Washington Post* for publishing her. Since when is it anti-science to ask questions? The people most guilty of willful ignorance in

this debate are those who ignore evidence of a blatant scientific cover-up, as they shout down anyone who disagrees.”⁷⁶

On the 12th, Jon Scott asked Jim Pinkerton to assess the media’s coverage of the global summit. Pinkerton responded,

“I think the coverage has been astonishingly biased in favor of global warming, Al Gore and so on, and then the propagandistic elements there, NBC News having a whole segment on flooding in Bangladesh, the "Washington Post" -- and attributing that to global warming.”⁷⁷

Pinkerton’s assessment went unchallenged.

As Obama prepared to head to Copenhagen, O’Reilly could barely conceal his glee in focusing on the “chaos in Copenhagen,” referring to street demonstrations there. O’Reilly asked his guest, Marc Hill, a professor at Columbia, how he assessed the conference so far.

“It’s a complete disaster. There’s tear gas. There’s people being beaten down on the street. And more importantly, nothing substantive policy wise is moving.”⁷⁸

On the 17th Sean Hannity gloated that

Just a short time ago, President Obama departed the White House en route for the U.N. climate change conference in Copenhagen. But any hope that his presence there will help secure a win for global warming alarmists seems to have vanished.⁷⁹

On the 18th, when Obama announced agreement in Copenhagen, O’Reilly asked his colleague Juan Williams for a summary. Opined Williams,

President Obama stands up. He makes a wonderful speech. He talks about we can’t let the divisions of the past continue to polarize us, to prevent us from reaching some sort of settlement. They go back to the table. And what he leaves with is zilch. I mean, literally, the Grinch stole the climate change control deal.⁸⁰

Over at MSNBC, surprisingly, after having largely ignored the summit to that point, the commentators decided to strike back a bit. On the 8th, Keith Oberman gave all three of his “worst persons” awards to the critics of climate science and Rachel Maddow took on Jim Inhofe. On the 9th, Oberman was back at it, going after an ABC report that took a John Stewart quote out of context to make it look as if he had trashed Al Gore. On the 10th, Lawrence O’Donnell attacked Sarah Palin’s OpEd. And on Friday the 11th, Chris Matthews sought to debunk those crying hoax.

Evidence of global warming includes that this has been the hottest decade on record, that ocean temperatures are the highest on record, and that Arctic sea ice is shrinking. Yet, on the eve of the United Nations climate change conference over in Copenhagen, some leaked e-mails have given deniers fresh ammunition to argue that global warming is a hoax.⁸¹

When President Obama went to Copenhagen, Matthews treated him as the hero who rescued the talks. On *Hardball* on the 18th, he said:

“When President Obama arrived in Copenhagen earlier today, climate talks were unraveling. Now Obama and world leaders have a plan at least to move forward. And China, which had been stalling on the issue of verification by outside inspectors, has apparently given in.”⁸²

Rachel Maddow, though, turned from Obama’s triumph to Inhofe’s failure. “This was a very, very, very, very bad week for Republican Senator James Inhofe of Oklahoma,” she began. It seemed that the Senator had gone to Copenhagen to undermine the negotiations, but when he got there no one paid any attention to him. And Obama’s story ended on a down note. Far from a hero bringing home a global agreement, in the words of Maddow’s guest Andrea Mitchell,

[Obama] came out with something. Better than nothing, but clearly a very disappointed Barack Obama coming back, because, Rachel, it’s not binding. They didn’t get the goals. There is no transparency. There’s no commitment that they will do anything except announce what they have achieved.⁸³

Notwithstanding MSNBC’s brief flurry of interest in the subject, its treatment of climate change was a highly limited combination of Denialist Conspiracy and Policy Game stories.

In contrast CNN gave the summit extensive coverage for its whole duration. For four consecutive evenings, Campbell Brown ran with a variant of her “Trick of Truth” report. As before these were amalgams of narratives: skeptics yelling “hoax,” advocates denouncing the “denialists,” debates over the science, and speculation about whether Obama would prevail at the summit.

“[W]hile the world leaders are trying to figure out a plan to fight global warming, critics here at home telling President Obama to do nothing when he goes to Copenhagen next week, billions of dollars at stake, not to mention clean water, clean air, clean food. So, who has it right? We are going to hear from scientists, skeptics, lawmakers, and try to get to the bottom of it.”⁸⁴

On the morning of the 9th, CNN interviewed Al Gore, who dismissed the significance of the leaked emails. “Does the noise machine of the climate deniers blow them out of proportion and fool some people into thinking they have substance? Well, that's another -- that's another matter.”⁸⁵ The interview also gave him a chance to warn again of the impending tragedy if the world did not act, one of the few moments in CNN’s extensive coverage in which the climate tragedy narrative found voice.

More typical throughout, was Wolf Blitzer’s classic “He Said, She Said” formulation early that evening.

“So is global warming fact or fiction? Let's get to a debate. John Christy is professor of atmospheric science at the University of Alabama Huntsville and Gavin Schmidt is a climate scientist at the NASA Goddard Institute for Space Studies.”⁸⁶

And during Wednesday night’s version of “Trick or Truth,” clips from the Gore interview were primarily used to set up a debate between skeptic Bjorn Lomborg and climate scientist Alan Robock.⁸⁷

Always, CNN reached for conflict. On the morning of the 10th, CNN ran a story about special interests on both sides of the debate. The next morning it featured an account of divisions among evangelicals. “For decades, many Christians have cast doubt on the science behind global warming, but that is beginning to change.”⁸⁸ And on it went, with programs pitting opposing scientists against each other Friday morning, legislators on Saturday, and commentators on Sunday.

As Obama’s trip to Copenhagen approached, CNN coverage turned to a policy game narrative about the fate of the summit and the prospects that Obama could salvage it. On the 17th, the story was that

“The clock is ticking down in Copenhagen, with some suggesting that the legacy of the two week long climate talks will be characterized by two words -- chaos and failure. Things pretty much ground to a standstill yesterday -- thousands of protesters clashing with police outside the meetings. Inside, negotiators expressed frustration that they will likely leave there empty-handed. At best, they will have a weak political document of some kind that won't do anything about combating global warming.”⁸⁹

On the 18th, when news came that some kind of agreement had been reached, it was hardly treated as an unalloyed triumph for Obama.

“And the key, now that the president is on his way home, is how he is going to sell this, not just to the American people, but people who care about the climate all around the world wondering whether or not this is a good deal. And I can tell you, some environmental groups are already saying that it is hollow.”⁹⁰

Only then, with the summit over, did CNN return to the climate tragedy story. That Sunday, December 20, it ran an updated version of its “Planet in Peril” investigation into the likely consequences of climate change and the urgency of taking action, the first significant climate tragedy story it had broadcast since November.

What then of ABC’s coverage of the summit? In contrast to CNN and Fox, what is striking is how few stories it ran, and in contrast to its pattern of coverage in previous years, how few of those stories were about the substance of the problem. The first week, its only coverage after opening day was a report with a framing that could have been on Fox, “Just as the world seems finally poised to do something about global warming, an inconvenient scandal,” David Wright reported. “Skeptics of climate change suddenly have plenty of new fodder.” After short clips from the fiercest critics of climate science—Glenn Beck, Jim Sensenbrenner and James Inhofe—Wright summarized. “As the controversy heats up, the consensus about making the tough choices to curb carbon emissions threatens to crumble.”⁹¹

The following Monday, on the 14th, Charles Gibson reported that “[t]he UN climate summit that’s going on in Copenhagen got back on track with some global warming today,” a story that used Al Gore’s arrival at the summit to pivot to a short substantive report on melting glaciers in Bolivia and Africa.⁹² The next night it broadcast a story about the consequences of climate change for tree kangaroos and other wildlife in Papua New Guinea.⁹³ But that was it for climate tragedy stories. On the 17th, ABC turned to the policy game. On the evening news, Gibson reported that “President Obama is going to Copenhagen tonight. It was supposed to be for the grand finale of the international global warming conference. However, there may not be anything to celebrate.”⁹⁴ On the 18th, ABC’s initial impulse was to treat Obama’s intervention in Copenhagen as the success the White House claimed it was. Charles Gibson reported that “There was high drama in Copenhagen today, where at the 11th hour an agreement on global warming was hammered out by President Obama and other world leaders.” The report then turned to Obama speaking:

Today we’ve made a meaningful and unprecedented breakthrough here in Copenhagen. For the first time in history, all major economies have come together to accept their responsibility to take action to confront the threat of climate change.

But the story ended with something less than triumph. “The final agreement falls far below expectations of a wide ranging deal with enforceable targets,” Jim Sciutto reported.⁹⁵ The next morning, after leading with Obama’s announcement and a quote from UN secretary general Ban-Ki-Moon characterizing the agreement as an “essential beginning,” Bill Weir summarized the story’s ending.

Well, depending on who you ask, the last-minute accord hammered out overnight at the climate conference in Copenhagen was either an unprecedented step forward or an embarrassing bust. At best the deal to curb greenhouse gas emissions is a modest victory for President Obama.⁹⁶

The last word from ABC was a rambling roundtable discussion that Sunday on ABC’s *This Week* program. All agreed that the summit was a disappointment. Said Sam Donaldson,

“They have noted that agreement. And noting that agreement is like the cowboy of the southwest who notes the rattlesnake before shooting it. Noting the agreement doesn't mean anything. All you can say is there was a little baby step. Maybe it'll lead to something, but that's - the spinning of that as a success for this administration is really difficult.”⁹⁷

Summary: What America Heard When It Counted

Close content analysis of the stories of climate that reached the public in the two most attended moments of the decade strongly reinforces the preliminary conclusions of the narrative frequency analysis.

Television news coverage of climate change in February 2007 differed sharply across the networks. ABC, representative of the traditional broadcast networks, primarily provided a variant of the climate tragedy narrative. The IPCC’s report was treated as accepted fact, the scientists and Al Gore as heroes for alerting humanity to our peril. CNN’s coverage was more mixed, in part because of Glenn Beck’s presence on the network at that time, in part because it began to respond to the increasingly strong narrative coming from Fox, but the weight of its coverage leaned towards the climate tragedy narrative even when it gave voice to skeptics.

But at Fox, the IPCC report and the ascendancy of Al Gore seemed to touch a nerve. Perhaps because there was such uniformity of message from the science community, the commentators at Fox began to tell a much sharper narrative than before, a story in which the UN scientists and Al Gore were the villains seeking to perpetrate a hoax. Stories of Gore’s hypocrisy—his use of private planes and the size of house as evidence that he didn’t practice what he preached—were

particularly prominent. And, when, in October, Gore received the Nobel Prize, a story of “vindication” for the mainstream press, Fox’s commentators could scarcely contain their scorn.

The pattern of coverage in late 2009 leading up to and during the Climate Summit in Copenhagen bore similarities to 2007, but it is the differences that are most striking. Fox News gave even more weight to variants on the “Hoax” narrative. Handed the “smoking gun” of the leaked emails, Fox ran nearly full-time with “Climategate,” the “gate” suffix beginning the media’s favorite moniker for major conspiracies and cover-ups. Even the opening of the summit was mostly a hook for wall-to-wall hoax narrative. Gore remained a favorite villain, of course, but now the UN, its scientists and the organizers of the summit, now became the greater target.

MSNBC gave a modest push back in the form of more a sharply developed Denialist Conspiracy narrative than it had provided in 2007, but its coverage (and its audience) remained extremely limited.

CNN, on the other hand, gave extensive coverage the issue, by far the most of any network. What is surprising, however, is the extent to which CNN abandoned the climate tragedy story in favor of the old “He said/She said” debate between scientists, as well as the new fight between those attacking climate science and those defending it. The “Trick or Truth” formula that framed much of its coverage meant much more time for the Hoax narrative than in 2007. CNN did follow the progress of the negotiations in more detail than any of the other networks, but what got squeezed out was the story of climate change itself, the story of the problem that might justify a global summit aimed at reaching binding emissions limits. Remarkably, only the day *after* the anti-climax that ended the summit did CNN finally run a full-throated impending climate tragedy and a call to action.

And on this point, remarkably, ABC did no better. It is true that ABC did not give much play to “Climategate,” but it also failed to tell the climate tragedy story that had once been its staple. Whereas in 2007 ABC had treated the release of the IPCC report and Gore’s triumphs as hooks for stories on the problem of climate change, when the global effort to address the problem was coming to a head in Copenhagen, it simply dropped the ball. In the weeks leading up to the summit, it ran almost nothing of substance on the problem, and during the summit itself, its limited coverage consisted largely of speculation about the likelihood that the meeting would end in agreement.

To the extent that ABC’s coverage was typical of the other broadcast networks, its silence and CNN’s inability to resist the temptation of controversy left a vacuum that Fox and other voices on the right were more than happy to fill. The implication, arguably, was that as Obama headed to Copenhagen that December, he left behind an American public that was not hearing a story about why it should hope for the success of the summit, and getting quite a dose of a story

intended to discredit the whole effort. Indeed, for a substantial portion of the public, those for whom Fox was their source of news, it was the only story.

Narrative Impact: What Difference Did the Stories Make?

The remaining question is whether the narratives of climate change were responsible for any part of the shifts in US public opinion from 2007 to 2009. Certainly, the shifts in public opinion coincided with the changes in media coverage documented above. But that fact alone hardly seals the case. For one thing, it is logically possible that causality runs the other direction, that changes in public attitudes led to changes in climate coverage. But perhaps more problematic for the media effects argument is the coincidence of the recession of 2007 with the changes in belief.

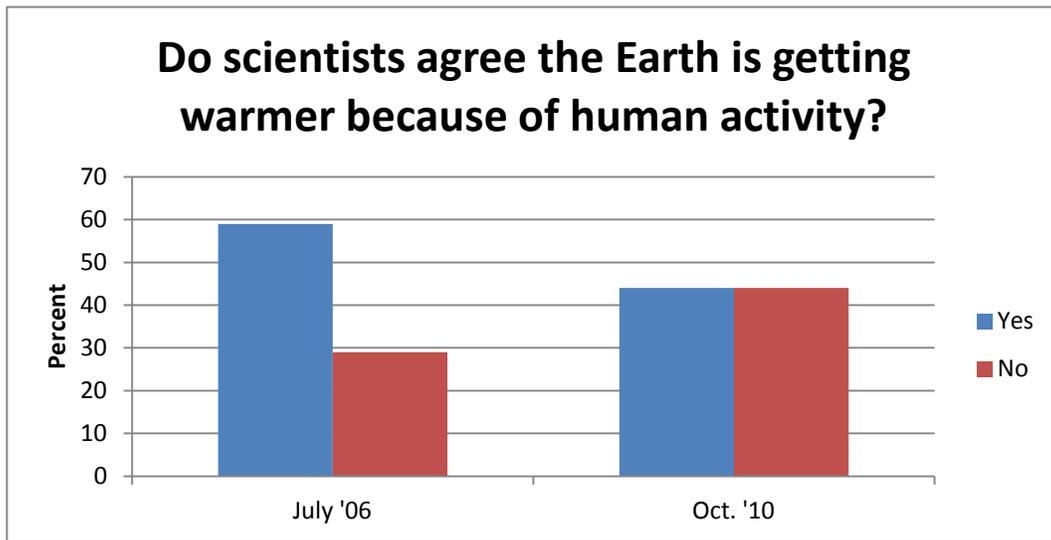
The United States went into recession in late 2007, which coincided with the drop in public beliefs in global warming from 79 percent (in January 2007) to 71 percent (in April 2008). The recession deepened just as opinion dropped even more steeply, to 57 percent in October 2009.^{††} It is therefore quite plausible that economic hard times made the prospect of taking action on climate change less palatable, and that to the desire not to act made not believing a way to avoid cognitive dissonance.

There are several reasons to suggest, however, that economic factors, alone, cannot account for all of the observed change in public opinion. First, it is difficult to ascribe the growing partisan divide to the economic downturn. There is no particular reason to believe that Republicans were more adversely affected by the recession than Democrats. It is possible that those with conservative worldviews respond differently to economic downturns, perhaps seeing them as caused by excessive government regulation, thus making the prospect of climate change regulation more salient and onerous, which in turn triggered adjustments in beliefs, but to make such an argument requires accepting that ideology matters in addition to economics.

Second, there appears to be no similar collapse of public views about climate change in other countries that faced a similar economic downturn. In northern Europe, for example, attitudes about climate change remained relatively stable during the same time period. What differs across the Atlantic, though, is the media environment. Although there are skeptics in Europe as well as the United States, and the East Anglia emails were covered extensively in the European press, there was nothing comparable to Fox's steady drumbeat of hoax narratives reaching the European public.

^{††} Percent answering "yes" to the question: "Is there solid evidence the earth is warming?" Pew Research Center, "Little Change in Opinion About Global Warming," October 27, 2010, available at www.peoplepress.org.

Third, changes in attitudes about the scientists themselves are strongly suggestive of a direct impact of stories that attacked their credibility. Remarkably, during a time in which the consensus in the scientific community about the reality of anthropogenic climate change grew stronger, the percentage answering “yes” to the question: “Do scientists agree the Earth is getting warmer because of human activity?” dropped from 59 percent in 2006 to 44 percent in 2010. See Figure 6. Although it is possible that beliefs about scientists also changed because of the economic downturn, a media effects explanation is equally plausible and more parsimonious.



Source: Pew Research Center.

Conclusions

Humans make sense of the world, form beliefs about issues, and establish orientations towards them through the stories we hear and subscribe to. This is well understood by those in the business of political persuasion. It matters, therefore, what stories reach us on an issue such as climate change, a phenomenon virtually none of us has any way of apprehending directly and must, therefore, construct.

Our receptivity to narratives depends greatly on both our trust in the messenger and on the extent to which a story confirms our existing biases. Certainly, we have ways of resisting stories we don't want to hear. But narratives are seductive to the unwary, and it matters what stories are told.

By tracking the story of climate change told by different media outlets, in broad brush over the whole decade and in finer detail at two key moments, this paper paints a dramatic picture of the

ways in which different media outlets covered climate change, and of a significant portion of the narrative landscape the public encountered.

Fox's coverage, particularly from 2007 on, was a remarkably consistent offering of attacks on the credibility of climate science and its advocates, most notably Al Gore. With very few exceptions, Fox never told the story of environmental peril, what I have called the environmental tragedy, or even engaged seriously with it. A Fox viewer whose entire understanding of climate change came from its broadcasts could certainly be excused for believing that the whole thing was a hoax, concocted by those whose intent was to empower government and limit personal freedom.

MSNBC's coverage wasn't much better in telling the climate change story. Rather than cover the substance, it preferred to use climate change as a pretext for vilifying the right through a story about a nefarious conspiracy of venal or duped denialists. Whether or not there was some truth to this parable, it was pretty thin gruel served up largely for the already converted. An MSNBC viewer whose whole understanding of climate change came from its broadcasts (a pretty small number to be sure) could be excused for not knowing very much at all about it.

CNN's coverage was by most measures the most extensive and diverse in its offerings, for which it should receive some credit. But perhaps because of the competitive pressures it faced, particularly from mid decade on, its overall tendency was towards finding maximum conflict. From the days when Lou Dobbs would tell a breathless climate tragedy story one hour to be followed by Glenn Beck's equally strident hoax narrative the next, to its addiction to "trick or truth?" and "fact or fiction?" debates during the Copenhagen summit, CNN was happy to give voice to both sides. It is hard to know what a viewer whose only source of information was CNN might believe beyond simple confusion.

ABC's coverage provided the highest proportion of climate tragedy narratives, a mixture of relatively sober accounts based on science with more hyperbolic narratives of impending doom, sometimes starring Al Gore as the prophet. But a funny thing happened on the road to Copenhagen. For whatever reason—because advocates, including president Obama, failed to provide it with narratives to tell, or because it felt that Gore and his climate tragedy narrative was old news—ABC just stopped telling the story. A viewer whose entire understanding of the issue was based on watching ABC might well still believe in climate change, but be excused, by decade's end, for having lost interest in it.

Public understanding of climate change and its possible consequences, as well as the tradeoffs associated with actions to address it, are crucial if we are to have sensible public policy. It is far from obvious exactly what policy we should pursue. But a public that is misinformed about basic science cannot be a good thing. How much responsibility we should assign to the media

for public misinformation remains unclear. Certainly, there are many other factors that influence beliefs and attitudes. But this paper provides strong support for the proposition that media matters, and in particular that changes in the pattern of narratives of climate change reaching the public can explain some portion of the changes in public opinion.

It would be wrong to conclude that narratives themselves are the problem, to decry all stories in the hope that scientific facts might speak for themselves. To make such an argument is to misunderstand how, as human beings, we inevitably rely on narrative to connect the dots and to make the pattern mean something. The challenge, therefore, is to find ways to tell the story that are true to the facts, and to enlist the media in that effort.

APPENDIX I: Keyword Search Methodology

The narrative frequency counts in this paper represent the result of searches of the Lexis-Nexis database for the period from January 1, 2001 to December 31, 2010. For each narrative line, we tested a variety of keyword search strings to find a formula that most consistently identified stories that fit each narrative. These strings are listed below, with discussion of rationale for each. Note that CNN returns exclude CNN.com postings.

Climate Tragedy

Search string: (((global warming OR climate change) w/35(Katrina OR drought OR tornado! OR hurricane OR flood! OR glaci! OR iceberg OR polar bear OR extinct! OR coral reef OR Kilimanjaro OR ice OR arctic OR heat wave OR heatwave OR extreme weather OR severe weather OR forest fire OR ((temperature) w/15(rise OR rose OR rising OR increas! OR hot! OR highest OR higher OR warmest OR warmer OR record)) OR ((sea OR ocean) w/2(level OR temperature OR degree OR rise OR increase)) OR ((water) w/2(supply OR drinking OR security OR rise OR rising)))) AND NOT ((global warming OR climate change) w/35(hoax OR alarmist OR alarmism OR exaggera! OR east anglia OR deception OR fraud OR propaganda OR unconvincing OR hysteria OR fabricat! OR suppress! OR fudg! OR schem! OR ((fear OR scare) w/5(instill OR tactic)))) AND ((#STX000796#) OR (#STX000310#)) AND Date(geq(01/1/2001) AND leq(12/31/2010))

Rationale: We sought to include as many stories as possible whose focus was on the negative consequences of climate change, while excluding those stories whose point was to deny them.

Hoax

Search String: (((global warming OR climate change) w/35(hoax OR alarmist OR alarmism OR exaggera! OR east anglia OR manipulat! OR deception OR fraud OR propaganda OR unconvincing OR panic! OR hysteria OR lie OR liar OR((fear OR scare) w/5(instill OR tactic)))) OR ((climate gate OR climategate) w/35(expose! OR conspiracy OR scandal OR lie! OR liar OR dishonest! OR suppress! OR fudg! OR schem! OR trick))) AND NOT ((climate gate OR climategate) w/5(alleged OR allegedly OR so-called OR so called))) AND ((#STX000796#) OR (#STX000310#)) AND Date(geq(01/1/2001) AND leq(12/31/2010))

Rationale: We sought to identify as many stories as possible that used “hoax,” “fraud,” or a variety of other synonyms to describe climate change, while excluding those stories that sought to debunk the “denialists.”

He Said, She Said

Search string: (((climate OR global warming OR emission) w/35(scien! w/5(argument OR argue OR fight OR debate OR battle OR disagr! OR question OR settled OR uncertain!))) OR ((ordinary OR usual OR typical OR normal OR natural OR regular) w/5(pattern OR cycle OR fluctuat!))) AND ((#STX000796#) OR (#STX000310#)) AND Date(geq(01/1/2001) AND leq(12/31/2010))

Rationale: We sought to identify stories whose focus was the dispute among scientists about whether climate change is happening or, if so, whether it is normal, while avoiding terms that would generate stories that fit the hoax narrative or definitively debunked it.

Don't Kill the Goose

Search string: (((climate change OR global warming) w/35(costly OR (cost w/5(high)) OR (economy w/5(harm OR hurt OR negative! OR affect OR effect OR impact)) OR (job w/5(loss OR lose OR losing OR lost OR harm OR hurt OR negative! OR affect OR effect OR impact)))) OR ((global warming OR climate change) w/35(exaggera! OR unconvincing OR unconvinced OR hysteria))) AND ((#STX000796#) OR (#STX000310#)) AND Date(geq(01/1/2001) AND leq(12/31/2010))

Rationale: We sought to identify stories whose focus was on the cost of acting in response to climate change rather than on whether or not climate change is happening. Note that the term “regulation” is not included as it did not reliably generate stories whose point was to warn against regulation, and because other terms picked up the vast majority of stories that did.

Denialist Conspiracy:

Search string: (((((climate change OR global warming) w/35(fundamentalist OR fundamentalism OR evangelic! OR deny OR denying OR denier! OR denial OR denialist! OR oil compan! OR big oil OR big business OR oil industry OR corporate OR greed! OR exxon OR fossil fuel company OR fossil fuel industr! OR right wing! OR ((right OR conservati! OR fanatic! OR extremis!) w/2(christian! OR religio!)))) OR ((oil OR fossil fuel OR coal) w/35(lobbyist OR lobby)) OR (Charles Koch OR David Koch OR koch brothers) OR (Heartland Institute)) AND NOT ((denying OR deny OR denier! OR denial OR denialist! OR global warming OR climate change) w/35(holocaust OR leftist OR left wing OR liberal OR propaganda))) AND ((#STX000796#) OR (#STX000310#)) AND Date(geq(01/1/2001) AND leq(12/31/2010))

Rationale: We sought to identify stories whose point was to discredit those behind the effort to undermine climate science, typically either religious or business interests, while avoiding terms such as “conservative” or “skeptic” that also identified more favorable narratives. We also

sought to avoid stories that linked to Holocaust denial, as the connection was generally used to attack those who used the term “denial” in conjunction with climate change.

Policy Game:

((((climate OR global warming OR energy) w/2((SINGULAR (NOCAPS(bill))) OR legislation OR resolution OR law OR statute OR proposal OR treaty OR reform)) OR (cap w/2 (trade)) OR ((Copenhagen) w/35(ratify OR victory OR failure OR fail OR success OR succeed OR successful! OR defeat OR vote OR achieve! OR accomplish! OR dashed)) OR (((Copenhagen)) w/15((win OR loss) NOT w/2(job)))) AND ((#STX000796#) OR (#STX000310#)) AND Date(geq(01/1/2001) AND leq(12/31/2010))

Rationale: We sought to identify stories whose focus was on the prospects for either domestic climate change legislation or international agreement, while avoiding stories that mentioned a policy dimension but whose point was to critique advocates for one side or the other.

Endnotes

¹ Pew Research Center, "Little Change in Opinions about Global Warming," October 27, 2010, available on-line at www.peoplepress.org.

² *Ibid.*

³ See Maxwell Boykoff, "Flogging a Dead Norm," *Area*, Vol. 39 No. 2, 2007; Eric Pooley, "How Much Would You Pay to Save the Planet? The American Press and the Economics of Climate Change," Joan Shorenstein Center on the Press, Politics and Public Policy Discussion Paper Series #D-49, January 2009; Matthew C. Nisbet, "Climateshift: Clear Vision for the Next Decade of Public Debate," Summer 2011, available at <http://climateshiftproject.org/report/climate-shift-clear-vision-for-the-next-decade-of-public-debate/#introduction-and-overview>.

⁴ ABC News, *Good Morning America*, February 1, 2007.

⁵ *Ibid.*

⁶ ABC News, *World News with Charles Gibson*, February 2, 2007.

⁷ CBS News, *The Early Show*, "Climate experts meet in Paris to release report on global warming" February 2, 2007.

⁸ Elisabeth Rosenthal and Andrew C. Revkin, "Science Panel Says Global Warming is 'Unequivocal'", *The New York Times*, February 3, 2007.

⁹ Juliet Eilperin, "Humans Faulted For Global Warming; International Panel Of Climate Scientists Sounds Dire Alarm," *The Washington Post*, February 3, 2007.

¹⁰ Fox News, *Brit Hume*, February 2, 2007.

¹¹ *Ibid.*

¹² Fox News, *The Big Story with John Gibson*, February 5, 2007.

¹³ Fox News, *The Big Story with John Gibson*, February 7, 2007

¹⁴ Fox News, *The O'Reilly Factor*, February 7, 2007.

¹⁵ Fox News, *Hannity and Colmes*, February 7, 2007.

¹⁶ CNN, *American Morning*, February 1, 2007.

¹⁷ CNN, *The Situation Room*, February 1, 2007.

¹⁸ CNN, *Lou Dobbs Tonight*, February 1, 2007

¹⁹ CNN, *Glenn Beck*, February 1, 2007.

²⁰ *Ibid.*

²¹ MSNBC, *Countdown with Keith Oberman*, February 2, 2007.

- ²² Fox News, *Hannity and Colmes*, February 14, 2007.
- ²³ Fox News, *Hannity's America*, February 18, 2007.
- ²⁴ *Ibid.*
- ²⁵ Fox News, *Hannity and Colmes*, February 26, 2007.
- ²⁶ *Ibid.*
- ²⁷ *Ibid.*
- ²⁸ CNN, *Newsroom*, February 24, 2007.
- ²⁹ CNN, *Glenn Beck*, February 26, 2007.
- ³⁰ ABC News, *Good Morning America*, February 25, 2007.
- ³¹ ABC News, *World News Saturday*, February 24, 2007.
- ³² ABC News, *World News with Charles Gibson*, February 26, 2007.
- ³³ Andrew C. Revkin, "2-Year International Study of Polar Changes Set to Begin," *The New York Times*, February 26, 2007.
- ³⁴ ABC, *Good Morning America*, October 12, 2007.
- ³⁵ Walter Gibbs, and Sarah Lyall, "Gore Shares Peace Prize For Climate Change Work," *The New York Times*, October 13, 2007.
- ³⁶ Dan Balz and Juliet Eilperin, "Gore and U.N. Panel Share Peace Prize; Nobel Committee Honors Work on Climate Change," *The Washington Post*, October 13, 2007.
- ³⁷ Fox News, *Fox News Sunday*, October 14, 2007.
- ³⁸ *The Washington Times*, "The Goracle," (editorial), October 15, 2007.
- ³⁹ Paul Krugman, "Gore Derangement Syndrome," *The New York Times*, October 15, 2007.
- ⁴⁰ CNN, *Newsroom*, October 12, 2007.
- ⁴¹ CNN, "Keeping Them Honest: The Truth About Global Warming," October 19, 2007.
- ⁴² CNN, "Planet in Peril," October 24, 2007.
- ⁴³ Andrew Revkin, "Hacked E-Mail Is New Fodder For Climate Change Dispute," *The New York Times*, November 21, 2009; Juliet Eilperin, "Hackers steal electronic data from top climate research center; Scientists' e-mails deriding skeptics of warming become public," *The Washington Post*, November 21, 2009.
- ⁴⁴ Fox News, *Your World with Neil Cavuto*, November 24, 2009.
- ⁴⁵ Fox News, *Beck*, December 1, 2009.
- ⁴⁶ Fox News, *Beck*, December 2, 2009.
- ⁴⁷ Fox News, *Beck*, December 3, 2009.

- ⁴⁸ Fox News, *Hannity's America*, December 4, 2009.
- ⁴⁹ *The Washington Times*, "Hiding evidence of global cooling; Junk science exposed among climate-change believers" (editorial), November 24, 2009.
- ⁵⁰ ABC News, *This Morning*, November 29, 2009.
- ⁵¹ ABC News, *World News with Charles Gibson*, November 20.
- ⁵² ABC News, *World News Sunday*, December 6, 2009.
- ⁵³ *Ibid.*
- ⁵⁴ MSNBC, *The Rachel Maddow Show*, November 4, 2009.
- ⁵⁵ MSNBC, *Countdown with Keith Oberman*, November 30, 2009.
- ⁵⁶ MSNBC, *The Rachel Maddow Show*, December 3, 2009.
- ⁵⁷ CNN, *Larry King Live*, November 15, 2009.
- ⁵⁸ Simon Hooper, "Women 'bearing brunt' of climate change," CNN, November 18, 2009.
- ⁵⁹ Peter Wilkinson, "Sea level rise could cost port cities \$28 trillion," CNN, November 23, 2009.
- ⁶⁰ CNN, *CNN Tonight*, November 25, 2009.
- ⁶¹ CNN, *CNN Newsroom*, November 27, 2009.
- ⁶² CNN, *Campbell Brown*, December 3, 2009.
- ⁶³ CNN, *The Situation Room*, December 4, 2009.
- ⁶⁴ CNN, *CNN Newsroom*, December 6, 2009.
- ⁶⁵ CNN, *American Morning*, December 7, 2009.
- ⁶⁶ CNN, *The Situation Room*, December 7, 2009.
- ⁶⁷ CNN, *Campbell Brown*, December 7, 2009.
- ⁶⁸ ABC News, *World News with Charles Gibson*, December 7, 2009.
- ⁶⁹ Fox News, *Your World with Neil Cavuto*, December 7, 2009.
- ⁷⁰ Fox News, *Beck*, December 7, 2009.
- ⁷¹ Fox News, *Special Report with Bret Baier*, December 7, 2009.
- ⁷² *Ibid.*
- ⁷³ Fox News, *The O'Reilly Factor*, December 7, 2009.
- ⁷⁴ Fox News, *The O'Reilly Factor*, December 9, 2009.
- ⁷⁵ Fox News, *Beck*, December 10, 2009.
- ⁷⁶ Fox News, *The O'Reilly Factor*, December 11, 2009.
- ⁷⁷ Fox News, *Fox News Watch*, December 12, 2009.

- ⁷⁸ Fox News, *The O'Reilly Factor*, December 16, 2009.
- ⁷⁹ Fox News, *Hannity*, December 17, 2009.
- ⁸⁰ Fox News, *The O'Reilly Factor*, December 18, 2009.
- ⁸¹ MSNBC, *Hardball*, December 11, 2009.
- ⁸² MSNBC, *Hardball*, December 18, 2009.
- ⁸³ MSNBC, *The Rachel Maddow Show*, December 18, 2009.
- ⁸⁴ CNN, *Campbell Brown*, December 8, 2009.
- ⁸⁵ CNN, *American Morning*, December 9, 2009.
- ⁸⁶ CNN, *The Situation Room*, December 9, 2009.
- ⁸⁷ CNN, *Campbell Brown*, December 9, 2009.
- ⁸⁸ CNN, *American Morning*, December 11, 2009.
- ⁸⁹ CNN, *The Situation Room*, December 17, 2009.
- ⁹⁰ CNN, *The Situation Room*, December 18, 2009.
- ⁹¹ ABC News, *World News with Charles Gibson*, December 9, 2009.
- ⁹² ABC News, *World News with Charles Gibson*, December 14, 2009.
- ⁹³ ABC News, *World News with Charles Gibson*, December 15, 2009.
- ⁹⁴ ABC News, *World News with Charles Gibson*, December 17, 2009.
- ⁹⁵ ABC News, *World News with Charles Gibson*, December 18, 2009.
- ⁹⁶ ABC News, *Good Morning America*, December 19, 2009.
- ⁹⁷ ABC News, *This Week*, December 20, 2009.