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Abstract

The conservative “echo chamber” is a crucial element of the climate change denial machine. Although social scientists have begun to examine the role of conservative media in the denial campaign, this article reports the first examination of conservative newspaper columnists. Syndicated columnists are very influential because they reach a large audience. We analyze 203 opinion editorials (“op-eds”) written by 80 different columnists published from 2007 to 2010, a period that saw a number of crucial events and policy proposals regarding climate change. We focus on the key topics the columnists address and the skeptical arguments they employ. The overall results reveal a highly dismissive view of climate change and critical stance toward climate science among these influential conservative pundits. They play a crucial role in amplifying the denial machine’s messages to a broad segment of the American public.

Keywords

climate change, denial machine, conservative columnists, skeptical arguments

The United States has been an outlier in climate change policy making for the past two decades, offering little leadership and often undermining efforts to develop carbon emission reduction policies in the international arena (e.g., not ratifying the Kyoto

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Protocol), while also failing to implement domestic policies. Although many factors have contributed to the failure to enact strong international and national climate change policies, ranging from diverging interests between developed and developing nations (Roberts & Parks, 2007) to the weakness of Democratic leadership in recent years (Pooley, 2010), a powerful and sustained effort to deny the reality and significance of human-induced climate change has been a key factor.¹

For more than two decades a concerted campaign by a wide but interrelated range of actors—described as the “denial machine” (Begley, 2007)—has worked to block climate change policy making, particularly when major policy action appears imminent (Gelbspan, 2004; McCright & Dunlap, 2003; Pooley, 2010). A crucial strategy in this effort has been to challenge the evidence supporting global warming by attacking climate science, and increasingly scientists, in an attempt to spread doubt and uncertainty about the reality of anthropogenic climate change and thus question the need for ameliorative policy making (Ceccarelli, 2011; McCright & Dunlap, 2010; Oreskes & Conway, 2010; Powell, 2011).²

The denial machine involves a complex and evolving set of actors (see Dunlap & McCright, 2011). Although the fossil fuels industry was its driving force early on (Beder, 1999; Gelbspan, 1997), the denial machine appears increasingly to be rooted in the U.S. conservative movement,³ receiving heavy funding from conservative foundations (Grandia, 2009; Mashey, 2010) and leadership from conservative think tanks (Hoggan, 2009; McCright & Dunlap, 2000, 2010; Oreskes & Conway, 2010). Segments of corporate America, including associations such as the U.S. Chamber of Commerce as well as companies such as Exxon Mobil, continue to provide funding for other actors, ranging from the conservative think tanks to various front groups and sporadic Astroturf campaigns (Dunlap & McCright, 2010, 2011). A small number of contrarian scientists, most with ties to conservative think tanks and sometimes directly to the fossil fuels industry, are another key element of the denial machine as they lend an aura of scientific credibility to efforts to debunk climate science (McCright, 2007; Oreskes & Conway, 2010). Similarly, conservative politicians, and nowadays virtually the entire Republican Party, have become a vital force denying global warming (Davenport, 2011; McCright & Dunlap, 2010; Mooney, 2005).

A final element of the denial machine is the “conservative echo chamber,” which in the case of climate change consists not only of major conservative TV, radio, and newspaper media (Brock, 2004; Jamieson & Cappella, 2008) but also a bevy of bloggers—including several self-styled “citizen scientists”—and their dedicated followers who work together to promote one another, contrarian scientists, and all other components of the denial machine in a mutual effort to undermine the reality and threat of global warming (Dunlap & McCright, 2011). The purpose of this article is to report a study of how one key element of this echo chamber, conservative newspaper columnists, contributes to climate change denial via their influential pulpit—specifically, how they dismiss climate change and denigrate climate science. We do this via an analysis of conservative columnists’ writings from 2007 through 2010.

The Denial Machine and Its Echo Chamber

There is a growing body of literature on the long-term organized effort to deny the reality and significance of global warming, in both the United States and other nations, including work by investigative journalists (e.g., Gelbspan, 1997, 2004; Hoggan, 2009; Powell, 2011), activist organizations (e.g., Greenpeace, 2010a, 2010b; Union of Concerned Scientists, 2007), and academics, primarily but not exclusively social scientists (e.g., Dunlap & McCright, 2010, 2011; Oreskes & Conway, 2010; Washington & Cook, 2011). This work has provided important insights into the crucial, complementary, and mutually reinforcing roles of the fossil fuels industry (Beder, 1999; Gelbspan, 1997, 2004; Union of Concerned Scientists, 2007), other sectors of corporate America (Greenpeace, 2010b), conservative think tanks (McCright & Dunlap, 2000, 2003), contrarian scientists (Lahsen, 2008; McCright, 2007; Oreskes & Conway, 2010), and conservative politicians (Davenport, 2011; McCright & Dunlap, 2010; Mooney, 2005) in the effort to promote denial of the significance and reality of climate change—especially via the strategy of questioning the scientific evidence for global warming (McCright & Dunlap, 2010; Oreskes & Conway, 2010; Powell, 2011).

The role of the conservative echo chamber in promoting climate change denial is also beginning to receive attention. The bulk of existing analyses of the media's treatment of climate change has traced the evolution of media attention and documented the degree to which the U.S. media have—in part because of pressure from various elements of the denial machine—given disproportionate attention to contrarian scientists and other “skeptical” voices and thereby created the impression that the scientific evidence for global warming is highly “uncertain” (Antilla, 2005; Boykoff, 2011; Boykoff & Boykoff, 2004).⁴ However, a recent body of work has focused specifically on the efforts of key elements of the conservative echo chamber to promote skepticism and denial.

Jamieson and Cappella (2008) regard Fox News, the *Wall Street Journal* (*WSJ*), and Rush Limbaugh as the “conservative media establishment,” and clearly Fox, leading conservative newspapers such as the *WSJ*, the *New York Post*, and the *Washington Times*, and right-wing talk radio provide powerful fora for the promotion of climate change denial. Recent studies have documented the dismissive view of climate change predominating on Fox News (Feldman, Maibach, Roser-Renouf, & Leiserowitz, 2012), in the *WSJ* (Akerlof, Rowan, Fitzgerald, & Cedeno, 2012; Painter, 2011), and throughout Rupert Murdoch's News Corporation media empire in general (McKnight, 2010), as well as the fact that among the American public viewing Fox News is negatively related to belief in and concern about global warming (Feldman et al., 2012). Similarly, Rush Limbaugh, the dominant voice in talk radio, is well known for dismissing climate change (Wolcott, 2007), and Akerlof et al. (2012) find his show to be a significant source of negative commentary on the specific issue of climate models.

Turning to bloggers, activists, and self-proclaimed citizen scientists, recent studies have pointed to the vital role that skeptical bloggers played in generating “Climategate” after the release of climate scientists’ emails from the Climate Research Unit at the University of East Anglia (Holliman, 2011), how skeptical and pro-climate science blogs wage battle against each other on the web (Knight & Greenberg, 2011), and the use of editorials and letters to the editor by a range of climate change skeptics and deniers (including lay people) to cast doubt on climate change in general and climate science in particular (Hoffman, 2011; Young, 2011).⁵

There is one key component of the conservative echo chamber that, to our knowledge, has yet to be addressed, and that is syndicated conservative newspaper columnists. Evidence suggests that conservative columnists are disproportionately represented in U.S. newspapers, and they clearly constitute a major voice in the conservative movement (Media Matters in America, 2007). Thus, examining how these commentators treat climate change and climate science is important and will fill an important niche in the growing body of knowledge about the climate change denial machine. In what follows we endeavor to fill this niche.

The Study

To investigate the treatment of climate change and climate science by conservative columnists, we conducted a content analysis of nationally syndicated opinion editorials (op-eds) by these columnists published over the four-year period of January 2007 to December 2010. This is a particularly interesting period, spanning the final two years of the George W. Bush administration (which had been highly dismissive of climate change; McCright & Dunlap, 2010) and the first two years of President Barack Obama’s administration (and a Democratically controlled Congress).

It was also a period that saw a number of crucial events concerning climate change, including Al Gore’s movie *An Inconvenient Truth* receiving the 2007 Academy Award (“Oscar”) for best documentary film; Gore and the Intergovernmental Panel on Climate Change (IPCC) winning the 2007 Nobel Peace Prize; a major carbon emissions reduction bill (Warner–Lieberman) proposed in 2007 but defeated in the U.S. Senate in June 2008 and another bill (Waxman–Markey) passing the U.S. House of Representatives in June 2009 and then dying in the Senate; the November 2009 “Climategate” controversy and subsequent publicity given relatively minor errors in the 2007 report of IPCC; the 15th United Nations Climate Change Conference (COP 15) in Copenhagen in December 2009; and a heightened level of organized denial stimulated by the prospect that the Obama administration and a Democratic Congress would enact national legislation and sign international agreements designed to cut carbon emissions (for coverage of these events, see Pooley, 2010; Powell, 2011). The result is that there were a number of spikes as well as some troughs in both newspaper and television coverage of climate change in the United States over this period (Boykoff, 2011), making it an excellent time span for our study.

Data Source

Our data source was www.townhall.com, a self-proclaimed conservative website that posts op-eds from approximately 850 syndicated U.S. columnists as of January 2012.⁶ The columnists write not specifically for [townhall.com](http://www.townhall.com) but for the newspapers in which they are syndicated and then use the website as an additional means of exposure. The website was established in 1995 as the first conservative web community and as a “place to activate conservative political participation”. Since [townhall.com](http://www.townhall.com) posts only columns written by conservatives, we are confident that all of its featured columnists share a conservative philosophy.

A detailed empirical study of the representation of conservatives among syndicated op-ed columnists in the United States conducted in 2007 provides an opportunity for checking the degree to which [townhall.com](http://www.townhall.com) serves as a valid site for locating conservative columns on an issue like climate change (Media Matters in America, 2007). The evidence suggests that it is. First, the report identified the top 100 syndicated columnists in the United States in terms of reach, based on the number of papers in which their columns appear and the circulations of those papers. Of the 42 conservative columnists in the top 100 (which also includes 39 “progressive” and 19 “centrist” commentators), 33 are featured at [townhall.com](http://www.townhall.com). Second, of the 80 columnists who had at least one op-ed on climate change posted at [townhall.com](http://www.townhall.com) from 2007 to 2010, 17 are among the top 100 columnists (and thus among the top 42 conservatives) in reach. Third, 5 of the 6 columnists who wrote the most pieces on climate change during this period (seven or more editorials) appear on the top 100 list. Thus, it seems apparent that on one hand a large majority of syndicated conservative columnists post their op-eds at [townhall.com](http://www.townhall.com), and on the other hand our study includes a number of the most visible conservative columnists in the nation. Although there is no feasible way of locating the total population of conservative columns focusing on climate change in *all* U.S. papers over the 4 years, we are confident that we have covered a large majority of those written by syndicated columnists via our reliance on [townhall.com](http://www.townhall.com) and that all of the columnists are indeed conservative.

We searched the [townhall.com](http://www.townhall.com) website on six separate dates: November 2007, July 2008, January 2009, January 2010, July 2010, and January 2011. Each time the search was for op-eds written from January 1, 2007 onward (through December 31, 2010), using the terms *global warming*, *climate change*, *anthropogenic global warming*, and *anthropogenic climate change*. We located 203 columns published between January 1, 2007 and December 31, 2010 (see the full list in the appendix). A total of 80 conservative columnists wrote one or more of these op-eds, and Table 1 lists the 40 who wrote two or more during this period. The list includes 14 who appear on Media Matter’s top 100 syndicated columnist list, and 5 of the 6 columnists who wrote most frequently about climate change (seven or more op-eds) are on the top 100 list—led by George Will’s number one ranking. Clearly climate change attracted a good deal of interest from several of our nation’s leading conservative columnists during the 4 years of our study.

Table 1. Conservative Columnists Who Published Two or More Op-Eds on Climate Change Between 2007 and 2010.

Columnist	Op-Eds	Columnist	Op-Eds
Paul Driessen	12	Mona Charen (46)	3
Debra J. Saunders (43)	11	Ann Coulter (95)	3
Walter E. Williams (37)	10	Larry Elder	3
Jonah Goldberg (19)	8	Rich Lowry (41)	3
George Will (1)	8	William Rusher (69)	3
Thomas Sowell (17)	7	Willie Soon	3
Michael Barone	6	John Stossel (84)	3
David Limbaugh	6	Bruce Bialosky	2
Bill Steigerwald	6	Ken Blackwell	2
Harry Jackson, Jr.	5	Amanda Carpenter	2
Brent Bozell III	4	Ed Feulner	2
Pat Buchanan (67)	4	Suzanne Fields (68)	2
Doug Giles	4	Michael Gerson	2
David Harsanyi	4	Paul Greenberg (45)	2
John Hawkins	4	Austin Hill	2
Phyllis Schlafly	4	Bill Murchison	2
Cal Thomas (6)	4	Michael Reagan	2
Rich Tucker	4	Ben Shapiro	2
Tony Blankley	3	David Strom	2
Tom Borelli	3	Emmett Tyrrell	2

Columnists with numbers after their names appear in the top 100 syndicated columnist identified by Media Matters in America (2007), and the numbers indicate their national rankings.

Method

Our basic goal is to discover the key topics regarding climate change that attract the interest of conservative columnists, as well as the arguments they use to deny the reality of climate change and challenge climate science, in their op-eds from 2007 through 2010. Thus, we focus on the *manifest* content of the columns.

Key Topics

Our first aim is to examine the key topics discussed in the columns. We separated the topics into two broad categories: *nonpolicy issues* and *policy-relevant issues* (both domestic and international) related to climate change. Our choice of topics was determined by following major issues and events regarding climate change over the 4-year period. The keywords searched to find nonpolicy columns were *Al Gore* (the public figure most associated with global warming), *Oscars/Academy Awards* (because of Gore’s 2007 Oscar for *An Inconvenient Truth*), *Nobel Peace Prize* (because of the

2007 Nobel nomination and win for Al Gore and the IPCC), *IPCC/Intergovernmental Panel on Climate Change* (for its continuing prominence in collecting and disseminating knowledge about global warming), and *Climategate* (because of the attention received by the email release).

We also examined the degree to which six key policy-relevant issues were discussed by the columnists. The six keywords searched were *Copenhagen* (location of the COP 15 conference), *Cap-and-Trade* (a domestic policy option aimed at reducing carbon emissions), *Kyoto* (the 1997 international agreement), *Warner–Lieberman* (the 2007 Senate bill also known as the Climate Security Act), *Carbon Tax* (another domestic policy option aimed at reducing carbon emissions), and *Waxman–Markey* (the 2009 House bill also known as the American Clean Energy and Security Act).

It is not surprising that individual columns sometimes touch on more than one of these topics and are coded as such. Our search allows us to examine the frequency with which these key topics were discussed by conservative columnists throughout the 4 years and in the process obtain a good sense of what attracted their attention over this period.

Skeptical Arguments Used

Those who challenge the reality and significance of climate change employ a vast array of arguments, ranging from those proposed in the scientific literature that fail to stand up to scrutiny to false claims issued by think tank representatives and self-styled citizen scientists. Unlike the scientific literature, where debunked claims and findings can no longer be employed, in the “denialosphere” arguments never disappear—they are continually recycled (Powell, 2011; Washington & Cook, 2011). The result is an enormous number of arguments. Fortunately, a popular website, *skepticalscience.com*, does an excellent job of collecting, organizing, and rebutting arguments used by climate change skeptics and deniers (for a sample of some major arguments and their weaknesses, see Washington & Cook, 2011, chap. 3).

The list is constantly growing, but we used the version published on January 1, 2011, which included 103 arguments against human-induced climate change, as it was most appropriate for analyzing the arguments used during the period covered by our study. The list of 103 skeptic arguments formed our coding scheme for classifying the arguments or “claims” offered by the conservative columnists.⁷ We first analyzed all 203 op-eds and coded each one in terms of the skeptical argument (or arguments) they employed.

Conservative columnists often use multiple claims when arguing against the legitimacy of global warming, and thus many columns include multiple arguments. If the same argument was employed more than once within an individual op-ed, however, it was counted only once. The 103 skeptical arguments were categorized on *skepticalscience.com* into four main groups: “it’s not happening,” “it’s not us,” “it’s not bad,” and “it’s too hard.”⁸

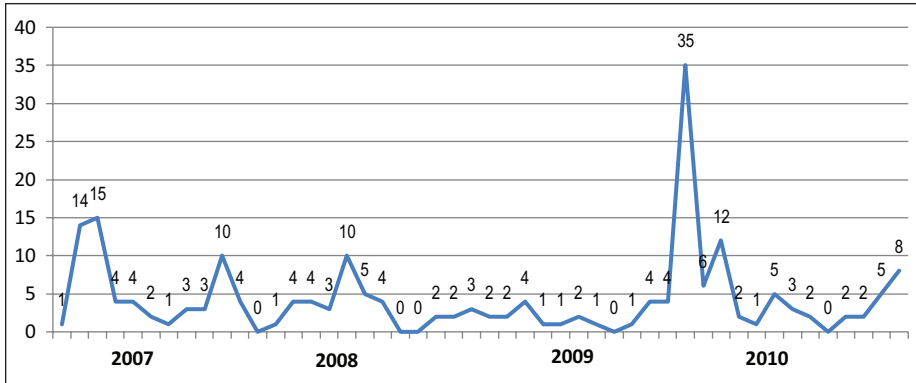


Figure 1. Number of columns by month, January 2007 to December 2010.

Results

One striking aspect of the 203 columns produced by the 80 different conservative columnists should be noted at the outset—all of them were critical of climate change and/or science. Indeed, a quick scan of the titles shown in the appendix gives a good sense of the highly skeptical and dismissive stances toward global warming conveyed by the op-eds. This overwhelming pattern of skepticism and denial of climate change illustrates the near-hegemonic status of this orientation among conservatives (Dunlap & McCright, 2011; Oreskes & Conway, 2010).

Column Frequency

Despite variation across the 4 years, climate change nonetheless received a fair amount of attention in conservative op-eds throughout the 4-year period: 59 columns appeared in 2007, 38 in 2008, 57 in 2009, and 48 in 2010. When examining the monthly publication rate shown in Figure 1, however, it is apparent that the columnists' attention spiked in accordance with important events.

The first peak in the number of columns related to climate change and global warming occurred during February and March 2007 (with 14 and 15 op-eds, respectively). Two events occurring in this period raised the salience of global warming and likely enhanced the credibility of climate science: First, Al Gore won an Oscar at the 2007 Academy Awards and, second, Gore and the IPCC were nominated for the Nobel Peace Prize. Both events allowed columnists to link skeptical arguments with a preexisting conservative bias against Al Gore (Brock, 2004). A second, and somewhat smaller peak occurred in November 2007, with 10 op-eds. This was when Gore and the IPCC won the Nobel Peace Prize and, from the perspective of the columnists, were granted undeserved legitimacy.

In February 2008, another moderate peak of 10 conservative op-eds on climate change appeared. This corresponded with the Heartland Institute's 2008 International

Conference on Climate Change, held in New York City, the first such gathering of leading contrarians and skeptics organized by this conservative think tank. The event provided conservative columnists with an opportunity to report skeptical arguments presented at the conference. Many of these skeptical arguments focused on potential economic risks associated with domestic policies aimed at reducing carbon emissions. Notably, the columnists generally portrayed the contrarian scientists and other conference presenters as having more legitimacy than mainstream climate scientists.

Following the Heartland conference there was a notable decline in conservative op-eds focusing on climate change. The relative lack of attention (but never total neglect) seems to have stemmed from two factors. First, there were no major events related to climate change (the 2009 Heartland conference garnered limited attention) for over a year and a half, and, second, the 2008 Republican and Democratic primaries and the presidential election became a primary focus for the columnists. Thus, global warming declined in salience.

It is interesting that few conservative op-eds on climate change were published immediately following the election of Barack Obama. Not until December 2009 did another, and clearly the largest (with 35 op-eds), spike occur. This one reflected the columnists' eagerness to publicize the "Climategate scandal" (which broke in the blogosphere the last 2 weeks of November and then worked its way into major media outlets), and their op-eds clearly used it in an effort to delegitimize the science supporting climate change. The timing was intentionally fortuitous, as planned by whoever released the emails, as it provided the columnists with a powerful weapon to use for arguing against strengthening the Kyoto Protocol—the goal of COP 15 that ran from the December 7 through December 18, 2009. The conference, and especially President Obama's participation, became the focal point of several additional op-eds.

The last notable spike in op-eds (12) occurred in February 2010, corresponding with Heartland's 2010 International Conference on Climate Change. This gathering of leading skeptics, coming on the heels of Climategate and Copenhagen, provided the conservative columnists with additional arguments and rhetoric for attacking climate change and science, and they made good use of the ammunition in their op-eds.

The 4-month period running from November 2009 through February 2010 was one in which climate change denial was in "overdrive," and one result was a noticeable downturn in the American public's belief in climate change and trust in climate scientists—although it was largely confined to conservatives and Republicans (Leiserowitz, Maibach, Roser-Renouf, Smith, & Dawson, 2013; also see McCright & Dunlap, 2011).

Key Topics

As we examined the articles for major topics discussed over the 4 years, one prominent result stood out more than any other: the propensity for conservative columnists to connect Al Gore with their skeptical arguments. As Table 2 shows, the columnists discussed Al Gore almost twice as frequently as they discussed any other topic over the 4 years of analysis, with 93 op-eds mentioning him. The columnists relied on the

Table 2. Topics and Policies Discussed by Year.

	2007	2008	2009	2010	Total
Topics discussed					
Al Gore	41	16	19	17	93
Intergovernmental Panel on Climate Change	14	4	15	17	50
Oscars	12	0	2	1	15
Nobel	11	3	4	5	23
Climategate	0	0	16	10	36
Policies discussed					
Copenhagen	0	0	29	9	38
Kyoto	16	7	12	3	38
Cap and trade	1	10	16	10	37
Warner–Lieberman	0	7	0	0	7
Carbon tax	1	0	4	3	8
Waxman–Markey	0	0	2	0	2

Individual columns can discuss more than one topic and/or policy.

preexisting negative bias toward Al Gore, generated by conservative media (Brock, 2004), as a vehicle for their skeptical arguments. The columnists could easily discredit Gore—and by implication climate change and science, but without having to discuss the IPCC—by calling attention to irrelevant issues such as his weight or his personal electricity use, or implying that continued presidential aspirations were his motivation for making *An Inconvenient Truth*.

The IPCC was discussed in 50 op-eds, primarily when opportunities arose for columnists to discredit it as a valid source of climate science. For example, the IPCC was commonly discussed by columnists in 2007 when they associated it with what they saw as liberal and politically corrupt awards: the Academy Award for *An Inconvenient Truth* (15 mentions) and the Nobel Peace Prize (23 mentions). In 2009 and 2010, their op-eds referred to the IPCC primarily when discussing Climategate, a perfect vehicle for discrediting the IPCC’s portrayal of climate science (for more accurate assessments of the leaked emails, see Pearce, 2010; Powell, 2011, chap. 14). Climategate received a large amount of coverage, being mentioned in 36 columns. For an event that occurred in late 2009, it was still the third most discussed issue over the 4-year period. The Oscar and Nobel Peace Prize, for the most part, were discussed mainly around the periods in which they were awarded.

Policies Discussed

The two international policy issues, Kyoto and Copenhagen, were discussed more frequently than domestic policy issues. The goal of COP 15 in Copenhagen in December 2009 was to come up with a global climate agreement that would commit

nations to carbon emission reduction goals from 2012, when the first commitment period of the Kyoto Protocol was to expire. Both Kyoto and Copenhagen were heavily discussed in the op-eds, each being mentioned in 38 of them. It is noteworthy that Copenhagen received as much attention in 13 months (December 2009 and all of 2010) as the Kyoto Protocol did over the entire 48-month span. Both of these international issues elicited a similar sentiment from the conservative columnists—they viewed the possibility of the United States participating in international treaties as an infringement on national sovereignty and even a sign of weakness, and a major mistake when some other countries would not be held to the same standards in terms of curbing carbon emissions.

Domestic policy issues did not spark as many columns overall as did the two international issues, except that discussions of “cap and trade” were popular (mentioned in 37 op-eds). The columnists were very critical of cap-and-trade proposals (typically termed “cap and tax” by Republicans), despite their reflecting a market-based approach used with success to ameliorate acid rain. Discussions of a “carbon tax” were less frequent (eight op-eds), perhaps because policy makers saw it as an unrealistic option and Democratic leaders did not push it. The two central legislative measures introduced during the time of our study, the Warner–Lieberman bill in the Senate and the Waxman–Markey bill in the House, both entailed a cap-and-trade approach but did not attract too much attention from the columnists (seven and two op-eds, respectively). Perhaps this stemmed from the columnists assuming readers would not be that familiar with specific pieces of legislation, or simply because talking about cap and trade more generally allowed them ample freedom to discuss potential worst-case scenarios if such legislation were enacted by Congress and, often, to portray climate policies in general as a liberal plot to extend governmental control over Americans.

Skeptical Arguments Employed

The last component of our analysis is an examination of the specific skeptical arguments presented by the columnists over the 4 years. As noted above, the initial list of 103 skeptical arguments was collapsed into the four major categories employed by *skepticalscience.com*. Table 3 presents the results of our analysis and shows the relative popularity of the various arguments overall as well as for each of the 4 years.

The first category is the “it’s not happening” arguments, or those that basically deny that global warming is occurring. Over the 4 years of columns analyzed, we observed these types of arguments to be the most popular. Almost two thirds of the articles (129 out of 203) made the argument that there is no consensus among climate scientists about the existence of anthropogenic climate change, a key theme in efforts to promote doubt and uncertainty about global warming. Events such as Heartland’s skeptical conferences increased the frequency with which this argument was made. The other most commonly used argument in this category was that we are actually experiencing a global cooling period, with 80 mentions. Such arguments are often presented along with discussions of recent weather patterns (e.g., colder winters means no global warming). Two other popular ones were that ice (in the polar regions) is not melting,

Table 3. Skeptical Arguments by Category and Year.

	2007	2008	2009	2010	Total
It's not happening					
Temperature record is unreliable	4	1	4	4	13
It's cooling	17	9	31	23	80
Ice isn't melting	16	6	11	12	45
Climategate/CRU email suggests conspiracy	0	0	27	13	40
Sea level rise is exaggerated	6	0	2	4	12
There is no consensus	45	17	28	39	129
Springs aren't advancing	0	0	0	0	0
Melting ice isn't warming the Arctic	0	0	1	0	1
It's not us					
There's no empirical evidence	0	1	0	1	2
Increasing CO ₂ has little to no effect	3	0	4	4	11
Climate's changed before	5	4	10	13	32
There's no correlation between CO ₂ and temperature	5	1	6	2	14
It's the sun	18	5	10	0	33
Other planets are warming	3	0	0	0	3
CO ₂ is not the only driver of climate	7	4	8	1	21
It's the ocean	0	2	3	3	8
Humans are too insignificant to affect global climate	5	0	1	0	6
Models are unreliable	3	2	8	2	15
Extreme weather isn't caused by global warming	10	8	5	7	30
Mt. Kilimanjaro's ice loss is due to land use	0	0	0	0	0
It's not bad					
Climate sensitivity is low	13	4	9	5	31
Animals and plants can adapt	4	3	4	4	15
Greenland ice sheet won't collapse	1	0	0	0	1
CO ₂ is not a pollutant	1	0	0	3	4
Sea level rise predictions are exaggerated	4	1	1	1	7
Greenland has only lost a tiny fraction of its ice mass	1	0	0	0	1
It's only a few degrees	0	0	0	0	0
It's too hard					
CO ₂ limits will harm the economy	3	9	5	23	40
CO ₂ limits will hurt the poor	2	3	2	4	11
CO ₂ limits will make little difference	0	1	1	0	2
Renewables can't provide baseload power	0	0	0	4	4
It's not urgent	0	0	0	1	1

Individual op-eds can present more than one argument.

and—it is not surprisingly—that Climategate demonstrated that climate scientists had been misleading us about global warming.

The second category is the “it’s not us” arguments. These acknowledge the existence of global warming but deny that humans are a major contributor. The most popular arguments used by the columnists offer alternative explanations for global warming, including that climate changes are caused by the sun (33 mentions), that the climate has changed before and thus we’re in a natural cycle (32 mentions), and that extreme weather events such as hurricanes are not increasing (as some scientists have suggested) as a result of global warming. These and related arguments deflect the conversation away from examining scientific evidence regarding global warming and instead discuss the causes of current warming. Making such arguments also delegitimizes the notion that carbon reduction measures could in fact help prevent increased global warming.

The op-eds that incorporate the third category of skeptical arguments, “it’s not bad,” accept that climate change is happening and do not necessarily question that humans are contributing to it. Rather, they focus on the environmental consequences of climate change. The most commonly used argument is that climate sensitivity is low (31 mentions), which suggests that models forecasting negative consequences from global warming are overstating the potential impacts. The other common argument used in this category is that plants and animals can adapt to global warming and climate change impacts on the natural environment (15 mentions). Some columnists referenced a purported stabilized polar bear population as evidence that animals could adapt to future changes.

The op-eds using the final category of skeptical arguments, “it’s too hard,” focus on the proposed solutions to these impacts. These columns emphasize reasons why we should avoid legislative action, and negative economic consequences is the most commonly used argument (40 mentions). It is interesting that a small but fairly consistent number of columns argue that trying to control carbon emissions will hurt the poor (11), allegedly by hampering economic development in the less developed nations.

It is readily apparent that the most widely used arguments in the op-eds are those from the first and second categories, as the conservative columnists are most likely to deny the reality of global warming (a total of 320 mentions of such arguments occur in the 203 columns) or at least deny that humans are a primary cause of global warming (a total of 175 mentions). Because of the preponderance of these two types of arguments in the op-eds, it is not surprising that the columnists are less likely to argue that warming won’t have harmful impacts (59 total mentions) or even point to the difficulty of ameliorating global warming (58 total mentions). If global warming is not happening and/or humans are not the cause, clearly there is not much reason to worry about its impacts or solution.

Summary and Conclusion

Our analyses of the op-eds on climate change written by syndicated conservative columnists reveal important aspects of their role in the denial machine. First, their

op-eds are often published in reaction to public events that appear either to legitimate or denigrate climate science. The months with the greatest numbers of columns over the 4 years were those when events either lent credibility to the climate science community (e.g., accolades won by Al Gore and the IPCC and President Obama's attendance in Copenhagen) or provoked criticism of it (e.g., Heartland conferences and Climategate). The conservative columnists used either type of event as an opportunity to challenge the legitimacy of climate science.

Also, the columnists focused on Al Gore more than any other topic over the 4 years. Gore is a ready-made scapegoat they repeatedly attacked, often in a caricatured fashion; indeed, their op-eds were more likely to link global warming with Al Gore than with the IPCC. This suggests that Al Gore is viewed as easier to discredit than is the IPCC. Climategate also resonated strongly with the columnists, and they frequently used it in efforts to cast doubt on climate science. The columnists were also more likely to discuss and criticize international policy proposals than domestic ones, despite their obvious aversion of both, as the idea that the United States would commit to treaties that might impinge on Americans was loathsome to them. Even considering such a possibility was, in their eyes, a sign of national weakness.

Last, we analyzed the skeptical arguments utilized by the columnists. Their most common arguments were those that either denied the existence of global warming or denied human responsibility for it. The favorite was that there is no consensus among climate scientists regarding anthropogenic climate change, a constant refrain from the small number of contrarian scientists and skeptical bloggers and an obvious attempt to delegitimize climate science. Finally, those columnists who did not challenge the reality of anthropogenic global warming tended to argue that its impacts would not be harmful but that both international and domestic efforts to ameliorate it would clearly be damaging. These have long been favored claims used by the denial community (McCright & Dunlap, 2000).

It is apparent that conservative columnists are a key component of the climate change denial machine, as they strongly reinforce and amplify the voices of the rest of the denier choir. Indeed, their vast reach enables them to spread skepticism across a wider audience than even Fox News or right-wing talk radio, which tend to appeal heavily to conservative audiences. For example, George Will reaches a larger audience than any other syndicated columnist, an estimated 42% of newspaper readers in 2007, whereas Cal Thomas reached an estimated 27% that year (Media Matters in America, 2007, p. 7). In addition, as Will and Thomas demonstrate, many of the columnists are also regular fixtures on TV and radio, allowing them to amplify their messages even more.

Their role as political commentators—entailing insularity from effective fact checking (illustrated by some notoriously fallacious op-eds on global warming by George Will; Powell, 2011, pp. 73-78) and rebuttals—allows the columnists to employ arguments against global warming that have long been debunked in the scientific literature and to repeat allegations against climate scientists that have no basis, and to do so with virtual impunity. They thereby fill an important niche in the denial machine, echoing and strongly amplifying the climate change skepticism and denial promoted by the other key actors.

Appendix

List of 203 Op-Ed Columns

Date	Author	Title
1/30/2007	Saunders, Debra J.	See No Dissent, Call It Science
2/2/2007	Prelutsky, Burt	Global Warming and Other Urban Legends
2/6/2007	Murchison, Bill	Warm or Not, It's a Climate of Undercooked Legislation
2/6/2007	Driessen, Paul	Global Warming Ethics, Pork and Profits
2/6/2007	Saunders, Debra J.	Hot House Science
2/8/2007	Elder, Larry	Global Warming Turns People Gay
2/9/2007	Lowry, Rich	The Church of Climate Panic
2/10/2007	Giles, Doug	Anna Nicole Smith's Death Blamed on Global Warming
2/13/2007	Sowell, Thomas	Global Hot Air
2/14/2007	Sowell, Thomas	Global Hot Air: Part II
2/15/2007	Sowell, Thomas	Global Hot Air: Part III
2/21/2007	Bozell III, Brent	Al Gore's Recycled Doom
2/22/2007	Fields, Suzanne	The Inconvenient Truth
2/22/2007	Rusher, William	The Global-Warming Hysterics Strike Again
2/28/2007	Coulter, Ann	Let Them Eat Tofu!
3/1/2007	Reagan, Michael	An Inconvenient Fraud
3/1/2007	May, Cliff	Hollywood Shuffle
3/6/2007	Harris, Phil	Global Warming: Caused by Pepsi, Coke, and Al Gore?
3/6/2007	Limbaugh, David	Don't Knuckle Under to the Enviro-Luddites
3/7/2007	Blankley, Tony	Al Gore's Remission of Sin
3/15/2007	Elder, Larry	If They're Wrong About Gore-bal Warming, So What?
3/15/2007	Sowell, Thomas	Global Warming Swindle
3/19/2007	Fund, John	Whose Ox Is Gored?
3/20/2007	Hawkins, John	10 Questions for Al Gore and the Global Warming Crowd
3/21/2007	Coulter, Ann	The Coming Ass Age
3/23/2007	Goldberg, Jonah	Turning Up the Heat on Gore
3/25/2007	Jacob, Paul	Winning the War on Warming?
3/26/2007	Barone, Michael	Gore's Faith Is Bad Science
3/28/2007	Williams, Walter E.	Global Warming Heresy
3/29/2007	Mackenzie, Ross	Some Inconvenient Realities About Warming
4/2/2007	Jackson Jr., Harry R.	Global Warming on the Hot Seat
4/12/2007	Chapman, Steve	Mistakes to Avoid in the Global Warming Fight
4/12/2007	Will, George	The Media and Global Warming
4/16/2007	Galen, Rich	Global Warming Turns People Gay
5/4/2007	Limbaugh, David	Leftist Thought Control
5/16/2007	Williams, Walter E.	Things to Think About
5/23/2007	Lowry, Rich	The Cost-Free Global Catastrophe
5/30/2007	Shapiro, Ben	What I'm Doing to Stop Global Warming
6/25/2007	Saunders, Debra J.	Hoey Denier Deniers
6/27/2007	Bartlett, Bruce	Climate History

(continued)

Appendix (continued)

Date	Author	Title
7/9/2007	Carpenter, Amanda	The Gospel of Gore
8/6/2007	Steigerwald, Bill	The Sun, Stupid
8/14/2007	McCaslin, John	Global Warming in the '20s
8/16/2007	Fumento, Michael	Global Warming and James Hansen's Hacks
9/8/2007	Driessen, Paul	Global Warming Insanity?
9/14/2007	Saunders, Debra J.	Wouldn't It Be Nice?
9/26/2007	Williams, Walter E.	Global Warming Hysteria
10/8/2007	Jackson Jr., Harry R.	Global Warming: Scientists, Cynics, and Conservatives
10/12/2007	Charen, Mona	Of Polar Bears and Consensus
10/14/2007	Hill, Austin	Al Gore: Leading Us to Peace? Really?
10/15/2007	Jackson Jr., Harry R.	"Gored" by the Nobel Prize
10/16/2007	Thomas, Cal	Global Warming: The Conservatives' Opportunity
10/17/2007	Blankley, Tony	Gore Wins, Facts Lose
10/17/2007	Bozell III, Brent	Al Gore's Nobel Propaganda Prize
10/23/2007	Buchanan, Patrick J.	Apocalypse Now?
10/24/2007	Stossel, John	The Global-Warming Debate Isn't Over Until It's Over
10/25/2007	Rusher, William	Poor Al Gore
11/1/2007	Carpenter, Amanda	Global Warming Committee Examines Forest Fires
11/2/2007	Greenberg, Paul	Shocking: Scientists Commit Heresy
11/10/2007	Borelli, Tom	Wake Up Wal-Mart: Global Warming Regulation Is Bad for Business
1/21/2008	James, Kevin	Global Warming: The All-Purpose Farce to Control Your Life
2/10/2008	Driessen, Paul	Humpty Dumpty Policies
2/12/2008	Sowell, Thomas	The Media and Politics
2/28/2008	Gainor, Dan	A Change in the Climate Discussion
2/28/2008	Sowell, Thomas	Cold Water on "Global Warming"
3/1/2008	Nichols, Nick	A Total Crock of Doo-Doo!
3/4/2008	Steigerwald, Bill	Cool News About Global Warming
3/6/2008	Rusher, William	Global Warming Doubters Strike Back
3/13/2008	Steigerwald, Bill	Elizabeth Kolbert's Alarming Global Warming Sermon
4/16/2008	Blankley, Tony	Bush Raises Temp on Global Warming
4/19/2008	Driessen, Paul	Global Warming Tax Hikes Headed Your Way
4/24/2008	Menefee, Amy	Voters Don't Care About Global Warming, But They Should
5/7/2008	Williams, Walter E.	Environmentalists' Wild Predictions
5/13/2008	Limbaugh, David	John McCain and the Global Warming Train
5/15/2008	Hagelin, Rebecca	Climate Control: A Costly Proposal
5/15/2008	Thomas, Cal	McCain Joins Global Warming Cult
5/16/2008	Tucker, Rich	Global Warming: Playing it Cool
5/18/2008	Bluey, Robert	McCain's Global Warming Plan Threatens Economy
5/21/2008	Stossel, John	McCain Finds His Crisis in Global Warming
5/21/2008	Goldberg, Jonah	The Church of Green
5/22/2008	Will, George	The United States' New Pre-Emptive War

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Appendix (continued)

Date	Author	Title
5/31/2008	Krauthammer, Charles	Environmentalists Pick Up Where Communists Left Off
6/4/2008	Bozell III, Brent	Hurricane Lieberman-Warner
6/13/2008	Weyrich, Paul	Global Warming Legislative Possibilities
6/19/2008	Lowry, Rich	The Global Warming Bubble
6/20/2008	Gallagher, Mike	Global Warming Hypocrites
6/26/2008	Tyrrell, Emmett	Tracing the Roots of Environmentalism
7/23/2008	Strom, David	Do Conservatives Hate Their Children?
7/26/2008	Barone, Michael	A Step Back From Enviro Lunacy
7/29/2008	Feulner, Ed	Kyoto Treaty: Pointless Promises
7/30/2008	Strom, David	Revealed: Conservatives Have Escape Plan for When They Destroy the Earth
10/11/2008	Driessen, Paul	Following Europe's Lead on Climate Change
10/18/2008	Borelli, Tom	ConocoPhillips' Push for Global Warming Regulations Could Lead to the Next Government Takeover
11/29/2008	Borelli, Tom	Obama's Grand Experiment: Global Warming Cap-and-Trade Policy
11/29/2008	Giles, Doug	The Global Warming Goons Want Your Little Ones
12/1/2008	Saunders, Debra	When the Warmest in History Isn't
12/17/2008	Bialosky, Bruce	What Has Al Gore Wrought?
12/24/2008	Williams, Walter E.	Global Warming Rope-A-Dope
1/28/2009	Sullum, Jacob	Obama's Green Snake Oil
1/30/2009	Tucker, Rich	Hot Air and Hypocrisy
2/9/2009	Steigerwald, Bill	A Nation Immune to Global Warming Hysteria
2/27/2009	Will, George	The Times Blows Smoke on Global Warming
3/9/2009	Steigerwald, Bill	George F.Will: Cool on Warming, Hot on Baseball
3/21/2009	Giles, Doug	Welcome to Green Hell, Where You're All a Bunch of Slaves
3/24/2009	Schlafly, Phyllis	Global Warming is Running Out of Hot Air
3/27/2009	Lambro, Donald	Choking on Hypocritical "Green" Legislation
4/20/2009	Steigerwald, Bill	Talking Climate Change With Anthony Watts
5/11/2009	Barone, Michael	On Guns and Climate, the Elites Are Out of Touch
6/10/2009	Goldberg, Jonah	Plan to Combat Global Warming? Pie in the Sky
6/30/2009	Limbaugh, David	The Censorious Left's Global Warming Denier Deniers
7/1/2009	Gerson, Michael	Cap-and-Traitors
9/2/2009	Goldberg, Jonah	Global Warming and the Sun
10/1/2009	Will, George	On Climate, Bad News Will Resume
10/13/2009	Saunders, Debra J.	What Happened to Global Warming?
10/16/2009	Buchanan, Patrick J.	The Second Battle of Copenhagen
10/23/2009	Fields, Suzanne	An Inconvenient Rebuttal
11/8/2009	Will, George	No Climate for a Change Treaty
11/25/2009	Turek, Frank	Science Doesn't Say Anything—Scientists Do
11/26/2009	Tyrrell, Emmett	The Global Warmists' Deceit
11/30/2009	Barone, Michael	Global Warming Consensus: Garbage In, Garbage Out
12/1/2009	Feulner, Ed	Climate Agenda: High Price, Low Return

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Appendix (continued)

Date	Author	Title
12/1/2009	Saunders, Debra J.	The Inquisition of Global Warming
12/1/2009	Turney, Meredith	America's Unnecessary Sacrifice for the Planet
12/2/2009	Coulter, Ann	Do Smoking Guns Cause Global Warming, Too?
12/2/2009	Harsanyi, David	A Reason to Be Skeptical
12/3/2009	Elder, Larry	ClimateGate: NPR Sees Silver Lining
12/3/2009	Goldberg, Jonah	Groupthink and the Global Warming Industry
12/4/2009	Goldberg, Jonah	Assessing Pre-Blame for Climate-Change Summit
12/4/2009	Harsanyi, David	We-Don't-Want-to-Talk-About-It-Gate
12/4/2009	Limbaugh, David	Gibbs: Don't Confuse Copenhagen-Bound Obama with Global Warming Facts
12/5/2009	Giles, Doug	It's Got to Suck to Be a Climavangelist
12/6/2009	Connor, Ken	Global Warming in the Hot Seat
12/6/2009	Will, George	Earth's Next Last Chance
12/8/2009	Hawkins, John	Four Colossal Holes in the Theory of Man-Made Global Warming
12/8/2009	Limbaugh, David	Defenseless Enviro-Thugs Go on Offense
12/8/2009	Murchison, Bill	A Bad Year for the Experts
12/8/2009	Norris, Chuck	Chestnuts Roasting on a Copenhagen Fire
12/9/2009	Bozell III, Brent	Climate Skeptics Need Mental Help?
12/9/2009	Morris and McGann	U.S. Halfway to Kyoto Goals ... With No Government Regulation
12/9/2009	Williams, Walter E.	We've Been Had
12/11/2009	Gerson, Michael	The Scientific War on Science
12/11/2009	Glick, Caroline	Narcissists and Madmen
12/11/2009	Goldberg, Jonah	Global Warming as a Political Tool
12/11/2009	Tucker, Rich	A Warning on Warming
12/14/2009	Bialosky, Bruce	Global Warming: They Will Never Be Convinced
12/14/2009	Jackson, Jr., Harry	Climate Change: The Bell Tolls for Thee
12/15/2009	Hawkins, John	10 Global Warming Doomsday Predictions
12/17/2009	Harsanyi, David	Hide the Decline ... and More
12/17/2009	Reagan, Michael	The Haze of Copenhagen
12/18/2009	Buchanan, Patrick J.	Shakedown in Copenhagen
12/18/2009	Chavez, Linda	Climate Hubris
12/21/2009	Barone, Michael	When Liberal Dreams Collide With Public Opinion
12/22/2009	Sowell, Thomas	The "Science" Mantra
12/28/2009	Greenberg, Paul	Oh, Yes, Copenhagen
12/31/2009	Will, George	Out of Catastrophe, Renewal
1/6/2010	Shapiro, Ben	For Obama, Global Warming Trumps National Security
1/8/2010	Charen, Mona	It's Freezing: Must Be Global Warming
1/13/2010	Williams, Walter E.	Global Warming Is a Religion
1/14/2010	Thomas, Cal	A Failing Doctrine
1/30/2010	Sanders, Jon	Twelve Simple Ways to Fight This Climate Change
1/31/2010	Saunders, Debra J.	So Much Wasted Green for Climate Change Talks
2/2/2010	Schlafly, Phyllis	Global Warming Is Frozen Over
2/3/2010	Williams, Walter E.	Global Warming Update

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Appendix (continued)

Date	Author	Title
2/4/2010	Barone, Michael	How Climate-Change Fanatics Corrupted Science
2/6/2010	Driessen, Paul	Disclosing the Real Risks on Climate Change
2/9/2010	Charen, Mona	Frontier Suburbanite
2/16/2010	Hawkins, John	Five Wacky Ways Libs Want to Fight Non-Existent Global Warming
2/17/2010	Harsanyi, David	Who Doesn't Trust Science Now?
2/18/2010	Saunders, Debra J.	The Winter of Global Warming
2/19/2010	Tucker, Rich	A Global Warming Snow Job
2/21/2010	Will, George	Blinded by Science
2/24/2010	Blackwell, Ken	Climate Change Debate Over? It's Just Begun!
2/24/2010	Williams, Walter E.	Global Warming Update
3/2/2010	Buchanan, Patrick J.	Hoax of the Century
3/17/2010	Williams, Walter E.	The Warmers Strike Back
4/15/2010	Cushman, Jackie	Who Cares About Global Warming?
5/1/2010	Driessen, Paul	(Desperately) Looking for Arctic Warming
5/3/2010	Blackwell, Ken	Is the Climate Bill Frozen?
5/15/2010	Driessen, Paul	A Few Questions for Climate Alarmists
5/22/2010	Driessen, Paul	Is Global Warming Really Cause for Alarm?
5/26/2010	Stossel, John	Going "Green"
6/3/2010	Thomas, Cal	Sinking "Climate Change"
6/6/2010	Michaels, Patrick	More Political Climate Science
6/20/2010	Jackson Jr., Harry R.	Capitalizing on the Latest Crisis
7/6/2010	Prager, Dennis	Name One Difference Between World Opinion and Left-Wing Opinion
7/17/2010	Driessen, Paul	It's Really About Controlling Our Lives
9/13/2010	Landrith, George	Green Protectionism's Recycled Playbook
9/21/2010	Driessen, Paul	Unsustainable Cow Manure
10/7/2010	Saunders, Debra J.	Behind the Meltdown of the Climate-Change Bill
10/8/2010	Goldberg, Jonah	Green Fervor, Red Blood
11/4/2010	Kibbe, Matt	Obama's "Green" Energy Plan Infringes on Liberty
11/4/2010	Soon, Willie and David Legates	Disputing the Skeptical Environmentalist
11/19/2010	Labohm, Hans	Climate Change No Longer Scary in Europe
11/26/2010	Driessen, Paul	Lomborg's Partly Right Problem and Wrong Solution
11/30/2010	Saunders, Debra J.	You Can Stop Paying for Al Gore's Mistake
12/2/2010	Soon, Willie	False Prophecies Beget Faulty Policies
12/13/2010	DuHamel, Jonathon	Climate Change and Biodiversity
12/14/2010	Schlafly, Phyllis	Time to Freeze Global Warming
12/18/2010	Weissenberger, Redmond	Failure Equals Success in Looking Glass World of Cancun
12/19/2010	Soon, Willie	Hype Versus Reality on Indian Climate Change
12/21/2010	Schlafly, Phyllis	Let There Be Light
12/26/2010	Flanakin, Duggan	The Cancun Climate Con
12/26/2010	Hill, Austin	What If the Energy Isn't "Green"?

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Notes

1. We recognize that a broader array of factors, particularly those operating at the individual and cultural levels, also contribute to the failure of the United States and other nations to develop effective carbon emission reduction programs (see, e.g., Hamilton, 2010; Norgaard, 2011), but our focus is on the *organized* campaign to deny the seriousness of global warming—a very critical factor in our opinion.
2. We use *climate change* and *global warming* interchangeably and in both cases mean anthropogenic or human-induced climate change and warming.
3. Although this article focuses on the United States, it should be noted that the growing international presence of the denial machine seems heavily based on the conservative movement—particularly conservative think tanks (often with obvious links to their counterparts in the United States)—especially in the United Kingdom, Canada, and Australia. See, for example, Hoggan (2009), McKewon (2012), and Washington and Cook (2011).
4. Both Powell (2011, pp. 1-5) and Washington and Cook (2011, chap. 1) provide convincing arguments that *denial* and *deniers* are more appropriate labels than are *skepticism* and *skeptics*, and we agree that the former terms are often more accurate and appropriate. However, we use *skeptics* when it seems suitable for describing how various actors label themselves and are labeled by others.
5. See Powell (2011, chap. 14) and Pearce (2010) for informative analyses of Climategate.
6. Columnists are continuously being added to the website, and there are no data indicating how many columnists were featured at the exact times of the column searches.
7. The list was accessed January 1, 2011, and thus is smaller than the current (and ever-expanding) list available at <http://skepticalscience.com>. The major categories of arguments used in this study are shown in Table 3, and the full list of 103 is available from the authors.
8. This scheme combines (and thereby extends) two prior tripartite categorizations of skeptical or denial arguments or claims. In their study of skeptical claims promoted by conservative think tanks up through 1997, McCright and Dunlap (2000) documented three primary arguments: The evidence for global warming is wrong or at least weak, global warming would have largely beneficial impacts, and policies to deal with it would do more harm than good (the first, third, and fourth of the above categories). Rahmstorf (2004) more recently pointed to “trend” (it’s not warming), “attribution” (humans are not the primary cause of warming), and “impact” (warming won’t be harmful) skepticism—or the first, second, and third of the above categories.

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