

# **Climategate, Public Opinion, and the Loss of Trust**

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### **Abstract**

Nationally representative surveys conducted in 2008 and 2009 found significant declines in Americans' climate change beliefs, risk perceptions, and trust in scientists. Several potential explanations for the declines are explored, including the poor state of the economy, a new administration and Congress, diminishing media attention, and abnormal weather. The analysis also specifically examines the impact of Climategate – an international scandal resulting from the unauthorized release of emails between climate scientists in England and United States. The results demonstrate that Climategate had a significant effect on public beliefs in global warming and trust in scientists. The loss of trust in scientists, however, was primarily among individuals with a strongly individualistic worldview or politically conservative ideology. Nonetheless, Americans overall continue to trust scientists more than other sources of information about global warming.

## **Introduction**

In 2007 and 2008, climate change reached the top of the international agenda, with world leaders discussing the issue at international meetings. Former Vice-president Al Gore and the Intergovernmental Panel on Climate Change shared the 2007 Nobel Peace Prize for their efforts to alert the world to the threat. Media coverage and public concerns about global warming reached historic highs. Barack Obama, who had campaigned, in part, on the need to address climate change, won the U.S. presidential election along with a large majority of Democrats in both houses of the U.S. Congress. On June 26, 2009, the House of Representatives passed the first major piece of climate change legislation in American history. Meanwhile, the nations of the world were negotiating an internationally-binding treaty to be concluded in Copenhagen in December of 2009.

By the end of 2009, however, the situation had changed. The House climate bill stalled in the U.S. Senate. President Obama remained mired in a bruising fight over health care reform. Copenhagen failed to produce a new internationally binding treaty. Climate science itself was attacked on several fronts after a server at the Climate Research Unit at the University of East Anglia in the UK was breached and over a thousand emails and other documents were posted on the web, leading to an international scandal that the media dubbed “Climategate.” The Intergovernmental Panel on Climate Change was found to have made several mistakes in the 2007 4<sup>th</sup> Assessment Report, including an erroneous and improperly sourced claim that the glaciers of the Himalaya could melt completely away by 2035, while the IPCC director, Rajendra Pachauri, was accused of several conflicts of interest by the British newspaper the Daily Telegraph, allegations he vigorously denied. December 2009 brought record cold temperatures to the eastern half of the United States, along with record snowfalls in the south and mid-Atlantic states. Some climate skeptics, members of the media, and elected officials then asserted that these various events “proved” that climate change is not happening or is a hoax. The accumulation of these events created a “perfect storm” of bad news for the effort to address climate change.

From December 24, 2009 to January 4, 2010, we conducted a nationally representative survey of American adults ( $n = 1,001$ ) to assess shifts in public climate change beliefs, risk perceptions, policy preferences, and behaviors, and the impact of Climategate on public opinion. Baseline measures were taken from a nationally representative survey ( $n = 2,164$ ) conducted in October and November of 2008.

## **Results & Discussion**

### Overall Shift in Public Opinion

In both 2008 and 2010, two nationally representative samples of American adults were asked the following question:

“Recently, you may have noticed that global warming has been getting some attention in the news. Global warming refers to the idea that the world’s average temperature has been increasing over the past 150 years, may be increasing more in the future, and that

the world's climate may change as a result. What do you think? Do you think that global warming is happening?"

In 2008, 71 percent of Americans said "yes," global warming is happening. By 2010, however, this number had dropped significantly to 57 percent. Meanwhile the proportion that said "no," global warming is not happening doubled from 10 to 20 percent, while those who said "don't know" increased to 23 percent of the public ( $\chi^2 = 80.94, p < .001, n = 3,149$ ).<sup>\*</sup> Those respondents who said "yes" were then asked how sure they were that global warming is happening. By 2010, only 59 percent said they were "very" or "extremely sure" global warming is happening – a 13 point drop from 2008 ( $t = 5.54, p < .001, n = 2,104$ ). Respondents who said "no" global warming is not happening did not become significantly more certain of their views ( $t = .66, ns, n = 403$ ; see supporting information [SI] Fig. 1).

All respondents were then asked: "Assuming global warming is happening, do you think it is caused mostly by human activities, by natural changes in the environment, none of the above because global warming isn't happening, or other?" In 2008, more than half of Americans (57%) said human activities were causing global warming. By 2010, however, this had dropped 10 points to 47 percent. Meanwhile those attributing global warming to natural changes rose 3 points to 36 percent. Those who volunteered the answer "both human and natural changes" increased 1 point to 6 percent. Finally, the proportion of Americans who said "none of the above, because global warming isn't happening" rose 6 points to 9 percent ( $\chi^2 = 68.52, p < .001, n = 3,468$ ).

In line with the declines in public beliefs that global warming is happening and human caused, by January 2010 only 50 percent of Americans said they were "somewhat" or "very worried" about global warming; a 13-point drop from 63 percent in 2008 ( $t = 7.29, p < .001, n = 3,125$ ).

Importantly, the study also found a 9-point drop ( $t = 5.85, p < .001, n = 3,076$ ) since the fall of 2008 in public trust in scientists as a source of information about global warming (SI Fig. 2).<sup>†</sup> In January of 2010, 22 percent of the public "strongly trusted" and 52 percent "somewhat trusted" scientists, while 19 percent "somewhat distrusted" and 7 percent "strongly distrusted" them. Despite the decline, however, scientists (74%) remained much more trusted than weather reporters (56%), President Obama (51%), Al Gore (47%), religious leaders (45%) or the mainstream media (36%) as sources of information on global warming.

### Explanations

A number of different factors may have contributed to the observed decline in public beliefs, trust, and worry, among other measures:

*The economy.* In October of 2008, unemployment in the United States stood at 6.6 percent. By December of 2010, it had risen substantially to 10.0 percent (6). Public opinion polls have found

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<sup>\*</sup> Using differently worded measures, Pew (1) and Gallup (2, 3) also found declines since 2008.

<sup>†</sup> Polls taken two weeks apart by AP/Roper/Stanford (4) and ABC/Washington Post (5) used identical questions and found an 11 percent drop in "trust in the things scientists say about the environment."

that the economy has been the overwhelming number one priority of Americans since at least the fall of 2008 (7, 8). By contrast, the Pew Center for People & the Press found that by January 2010, only 28 percent of the public said addressing global warming should be a top priority, down 10 points from 2007 (8). Other issues, including protecting the environment, energy, illegal immigration, and crime had also dropped in priority. The drop in the priority of other issues is consistent with the psychological finding that individuals have a “finite pool of worry” (9, 10). As concerns about one risk increase (e.g., the economy), concerns about other risks tend to decrease. Thus, soaring public worries about jobs and the state of the economy may have contributed to the decline in public concerns about climate change and other issues.

*A new administration and Congress.* The George W. Bush administration was widely perceived as antagonistic to many environmental issues, including climate change. In 2001, President Bush renounced a campaign pledge to regulate carbon dioxide as a pollutant, withdrew the United States from the Kyoto Protocol negotiations, and proposed national energy legislation to increase drilling for oil and natural gas, increase mining for coal, and build more than a thousand new fossil fuel-burning power plants (11, 12). In the fall of 2008, however, the United States elected President Barack Obama, a Democrat who had campaigned, in part, upon a platform to improve environmental quality and address climate change. Democrats also established stronger control over the House of Representatives and achieved a filibuster-proof majority in the Senate for the first time since the 1970s. As Democrats took control, public optimism about the outlook for environmental quality increased. In 2008, only 26 percent of the public believed that environmental quality was getting better. By 2009 and 2010, surveys by Gallup found that this had increased 15 points to 41 percent. The surge was almost entirely driven by the changing views of Independents and Democrats. This increased optimism about improving environmental quality among these groups may have contributed to the decline in public worries about climate change (13), but do not explain the separate drop in public beliefs that global warming is happening.

*Media attention.* The media can play an important agenda-setting role (44), especially for issues like climate change, which are largely imperceptible to most Americans except through media accounts. Carbon dioxide and other greenhouse gases are invisible and the consequences are typically perceived as distant in time and space (11, 14). Most Americans only learn about the issue through media reporting and when the quantity and quality of media coverage changes, it likely influences public opinion. For example, in North America, newspaper coverage of global warming peaked in 2007 and steadily declined through 2008 and 2009, dropping to roughly 1/3<sup>rd</sup> of the peak before a sudden spike of news stories before and during COP15 in Copenhagen, followed by a subsequent drop back to the relatively low levels of 2009 (15). A separate analysis found that nightly news coverage of global warming on NBC, CBS, & ABC also peaked in early 2007, but by 2009, had dropped to approximately 1/5<sup>th</sup> of the peak, again with a sharp increase in the month surrounding Copenhagen (16). These patterns in the sheer quantity of media reporting strongly suggest that the media have not kept climate change readily present and available in the minds of much of the public. Moreover, climate change has never been a significant proportion of total news and is almost always dwarfed by other news stories, ranging from economic and political affairs, to celebrity scandals. For example the Pew Project for Excellence in Journalism found that in 2007 and 2008, the environment as a whole (not just climate change), accounted for only 1.7% of national news stories (17).

*Abnormal weather.* Across the United States, 2009 was 0.2°C (0.3°F) above the 20<sup>th</sup> century average. At a regional level, the Southwest to Louisiana and Florida had slightly above average temperatures, the Midwest experienced slightly below average temperatures, and the rest of the nation was near normal (18). Thus there was no national-scale, unidirectional cooling trend in 2009. One of the first surveys to identify a significant downward trend in public opinion occurred in the spring (2). Several other surveys documenting declines in public opinion were conducted in November, in the run-up to Copenhagen (e.g., 19, 4). Nationally, however, November 2009 was the 3<sup>rd</sup> warmest in U.S. history, with the national average temperature 2.2°C (4.0°F) warmer than the 20<sup>th</sup> century average (20).

Our survey, however, was conducted from December 24-January 7, 2010 – at the end of an unusually cold and wet December that brought record snowfalls to the Southeast and above normal precipitation to the East and Central regions of the country (21). It is possible that some Americans may have shifted their opinions based on their own direct experience of these events. It is also possible that some opinions changed not because of individual experience, but due to the influence of media reports – both of the event itself (e.g., “Snowmageddon”) and of climate change opponents who used record snowfalls as “proof” that climate change is not occurring. Nonetheless, significant declines in public belief that global warming is happening were identified months before the events of December 2009 (e.g., 1, 2), so these weather events alone are an inadequate explanation.

*Climategate.* On November 19<sup>th</sup> 2009, more than 1,000 confidential e-mails from the Climatic Research Unit (CRU) at the University of East Anglia were posted to the Internet. A few of these emails were subsequently cited by climate change critics as evidence that British and American scientists had changed their results to make global warming appear worse than it is, suppressed global warming research they disagreed with, and conspired to delete communications relevant to freedom of information requests. One series of e-mails in particular attracted widespread media interest. In conversations between Phil Jones, director of the CRU and Michal Mann, director of the Earth System Science Center at Pennsylvania State University, Jones described a ‘trick’ employed to allegedly ‘hide the decline’ in warming over the last half century as recorded by some tree ring records (22). Jones, Mann and other scientists argued that both statements had been taken out of context and misinterpreted. Meanwhile, the story moved from the blogosphere into mainstream newspapers and television news and opinion programs. Dubbed “Climategate” by the media, the scandal generated considerable press attention across the United States and around the world, with articles and editorials published in major newspapers and scientific journals, and stories broadcast on major television and radio networks.

The scandal also had significant ramifications for both the scientists involved and the wider scientific community. Phil Jones temporarily stepped down as director of the CRU, pending an independent investigation. Michael Mann was also subject to a university review, which, as of this article, exonerated him on 3 of 4 charges, with one still under investigation. Both men and other scientists received physical and death threats and in an interview Jones admitted that he had contemplated suicide ‘several times’ (23).

The consequences were also felt within the broader climate science community. The Intergovernmental Panel on Climate Change (IPCC), for example, faced allegations that these scientists had pressured the IPCC to suppress certain articles as part of the 4<sup>th</sup> assessment report, a claim the IPCC denied. Since the email scandal, however, several errors were identified in the 4<sup>th</sup> Assessment Report, leading the United Nations to order an independent review of the IPCC review process (24). The allegations also swirled through the Copenhagen Climate Summit and into the halls of the U.S. Congress, where Senator James Inhofe of Oklahoma (R) called for criminal investigations of 17 climate scientists by the U.S. Department of Justice (25).

To investigate the impact of Climategate on American public opinion, we included a set of questions on the survey we conducted from December 24 to January 3, nearly two months after the emails were first posted online and approximately one month after the story finally entered mainstream news publications and broadcasts. All respondents were asked the following question: “Have you heard anything in the news recently about controversial emails between climate scientists in England and the US? Some news organizations have called the release of these emails Climategate.” The survey found that 29 percent of Americans said they had heard of the story, while 56 percent said they had not and 16 percent said they didn’t know.

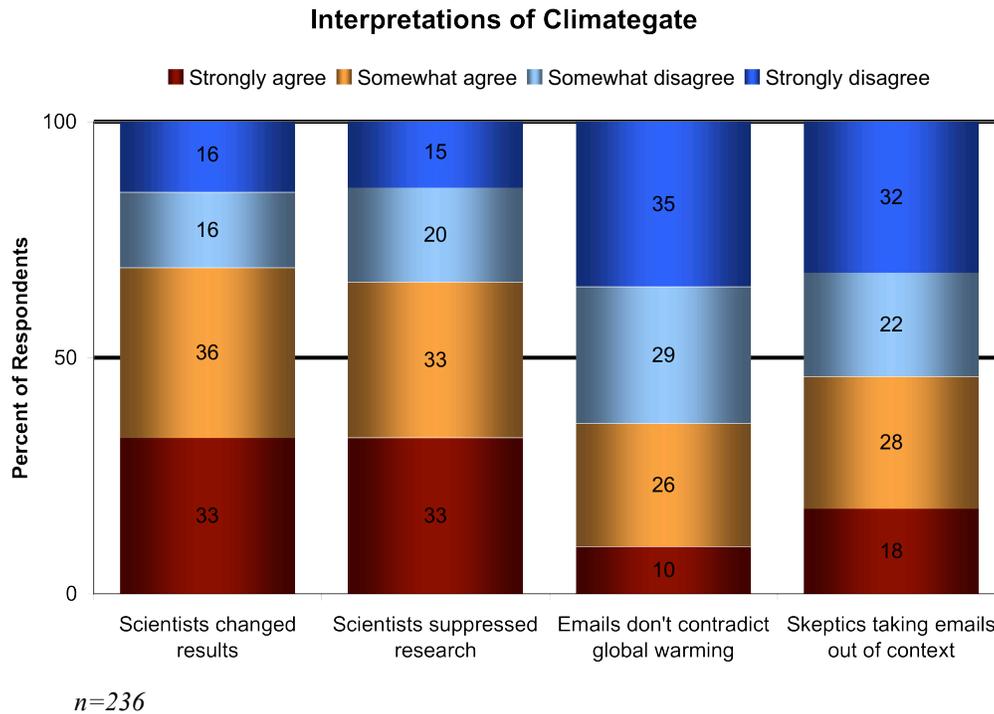
The 29 percent who had heard of the story were then asked how closely they had followed it. Of these respondents, 14 percent said they had followed it “very closely,” 30 percent said “somewhat closely,” 41 percent said “a little” and 16 percent said “not at all.” Subtracting those who said “not at all,” approximately 1 out of 4, or 58 million American adults had both heard of and followed the Climategate story.

Those respondents who had at least followed the story a little were then asked whether the news stories had made them more or less certain that global warming is happening or not. Forty-seven percent said the stories had made them somewhat (18%) or much more certain (29%) that global warming is *not* happening. Forty-one percent said the stories had no influence on their level of certainty and 11 percent said the story had actually made them somewhat (8%) or much more certain (3%) global warming is happening.

The respondents were then asked: “Have these stories about the controversial emails caused you to have more or less trust in climate scientists?” Over half (53%) said that the stories had caused them to have much less (29%) or somewhat less (24%) trust in scientists, while 43 percent said it had not affected their level of trust. Five percent said they had more trust in scientists as a result of the news stories (SI Fig. 3).

Finally, respondents were asked several questions to investigate the conclusions they had reached about the scandal itself and its wider meaning for the issue of global warming. Of those Americans paying attention to the story, 69 percent said that they somewhat (36%) or strongly agreed (33%) with the statement: “Scientists changed their results to make global warming appear worse than it is” (Fig. 1). Likewise, 66 percent somewhat (33%) or strongly agreed (33%) that: “Scientists conspired to suppress global warming research they disagreed with.”

**Figure 1: Public Interpretations of Climategate**



More broadly, 64 percent of Americans attentive to the story somewhat (29%) or strongly disagreed (35%) with the statement “Nothing in the emails contradicts the scientific conclusion that global warming is happening.” Finally, 54 percent somewhat (22%) or strongly disagreed (32%) that “Climate skeptics are intentionally taking the emails out of context in order to cast doubt on the reality of global warming.”

Extrapolated to the entire U.S. adult population, 25 percent of Americans were aware of and followed the news stories about Climategate. About 12 to 13 percent of all Americans said that the stories had led them to become more certain that global warming is not happening and to have less trust in scientists. Roughly 17 percent of all Americans said that the scientists involved in the scandal had either falsified their results or conspired to suppress contrary research. Likewise, 16 percent of all Americans believed the emails undermined the conclusion that global warming is happening. These findings all suggest that Climategate had a significant impact on overall public opinion, despite the fact that a large majority of Americans had not heard of it, at least as of early January 2010. The email story also appears to have influenced public opinions of both climate science and scientists.

But the American public is neither homogenous nor monolithic. Some Americans may have been more influenced by the story than others. To determine which Americans lost trust in climate scientists as a result of Climategate, we constructed several regression models to test the individual and combined influence of demographics (i.e., sex, age, education, income, and race), political orientation (conservative vs. liberal and political party), and underlying cultural

worldviews (egalitarianism and individualism) on public interpretations of and responses to the scandal (Table 1).

**Table 1: Change in Trust in Scientists, by Demographics, Political Orientation and Values.**  
 Have these stories about the controversial emails caused you to have more or less trust in climate scientists? (2= no decline in trust; 1=some decline in trust; 0=large decline in trust)

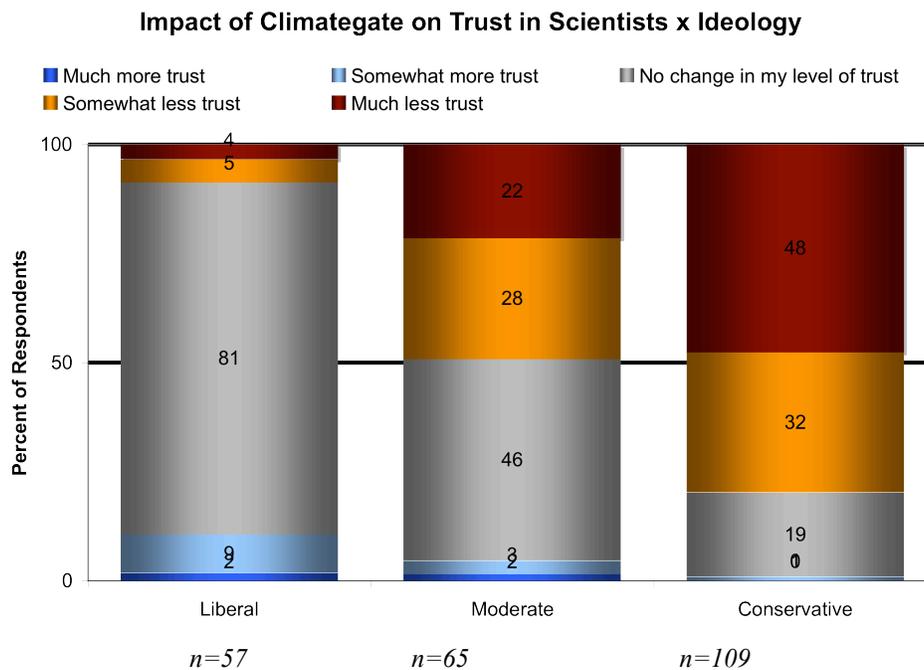
	<b>Model 1: Socio- Demographics</b>	<b>Model 2: Political Orientation</b>	<b>Model 3: Worldview</b>	<b>Model 4: Full Model</b>
Gender	-.059			-.128**
Age	.075			.144***
Education	.083			.041
Household income	-.094			.031
Race/ethnicity	-.127*			.031
Political ideology		-.409***		-.256***
Republican		-.267***		-.035
Ind., Other, or No party		-.323**		-.154**
Egalitarianism			.355***	.302***
Individualism			-.472***	-.385***
Adjusted R <sup>2</sup>	.011	.368	.471	.569
F	1.60	53.13***	123.19***	36.36***
N	278	268	274	268

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Note: Cell entries are standardized regression weights. Negative values indicate a loss of trust. For gender, female is coded as the higher value. For the race/ethnicity variables, non-Hispanic whites are compared to all other groups: Blacks, Hispanics, "Others," and mixed race respondents. For the dummy coding of political party, the excluded category was Democrat.

In Model 1: Socio-Demographics, whites were slightly more likely to have lost trust in climate scientists, due to Climategate ( $p < .05$ ;  $F = 1.60$ ;  $\text{Adj. } R^2 = 0.011$ ). In Model 2: Political Orientation, political ideology and political party were strong predictors of public loss of trust in climate scientists. Conservatives were the most likely to have lost trust (Fig. 2), while Republicans, Independents, Other Party members and individuals with no party affiliation lost significantly more trust in scientists than Democrats, the omitted dummy variable group (SI Fig. 2). Together, political ideology and party identification explained 37 percent of the variance in the loss of trust ( $F = 53.13$ ,  $p < .001$ ). In Model 3: Worldview, individualism was a strong predictor of the loss of trust, while egalitarianism was a strong predictor of those Americans who did not lose trust in scientists. Worldview explained 47 percent of the total variance ( $p < .001$ ;  $F = 123.19$ ;  $\text{Adj. } R^2 = 0.471$ ; also SI Fig. 3 and SI Tables 1 & 2). Finally, in Model 4, the demographic, political, and worldview variables were all included in a full model. Individualism was the single best predictor of public loss of trust, followed by conservative political ideology, while egalitarianism strongly predicted those Americans that reported no loss of trust. This overall model was able to explain 57 percent of the total variance in public loss of trust in scientists due to Climategate ( $F = 36.36$ ,  $p < .001$ ).

**Figure 2: Impact of Climategate on Trust in Scientists by Ideology**



$\chi^2 = 80.85$ ,  $p < .001$

## Discussion

These survey results strongly suggest that Climategate deepened and perhaps solidified the prior observed declines in public beliefs that global warming is happening, human caused, and of serious concern. They also help to explain the erosion of public trust in scientists as sources of information on global warming.

These results also provide evidence of the important roles that cultural worldviews, political ideology, and motivated reasoning play in mediating public interpretations of and responses to global warming. Prior research has found that the underlying cultural worldviews of egalitarianism and individualism are strongly correlated with climate change risk perceptions and policy preferences. Egalitarians are predisposed to perceive climate change as a serious risk and to support a variety of policies to address it. Individualists, however, are predisposed to perceive climate change as a nonexistent or low risk and to generally oppose climate specific policies, especially those that involve government action (12). These cultural orientations have also been found to predict public responses to a variety of other risks, including nuclear power, nanotechnology, vaccinations, and genetically modified organisms (e.g., 26-28).

Likewise, political ideology has long been recognized as a significant factor in public perceptions of climate change, with liberals and Democrats generally more concerned about climate change, and conservatives and Republicans less so (29); these differences have been increasing over time (30). Our results demonstrate that climate change continues to be a sharply partisan issue and that much of the decline in public trust in scientists has come from drops among political conservatives and Americans with a strongly individualistic worldview. Interestingly, however, a few liberals and egalitarians who followed the news story said they became more convinced that climate change is happening and more trusting of climate scientists as a result.

Both patterns are consistent with the concept of motivated reasoning. People are not dispassionate consumers of information. Instead, their motivational states—their values, wishes and preferences— influence what information they pay attention to, how they evaluate data, and the conclusions they draw (31-34). As a result, people are often inclined to accept data and interpretations that appear to validate their prior views. They may search for any evidence that their preferred conclusion is valid and stop once confirmation is found. By contrast, people tend to view with suspicion data that contradict their preferences and beliefs. They give greater scrutiny to and look for reasons to reject the validity of contradictory claims (35-37). Because most real world bodies of evidence—and certainly those related to climate change—have flaws, inconsistencies, and ambiguities, people motivated to accept or reject a claim can often find at least some grounds for doing so.

Motivated reasoning has been shown to play a significant role in the evaluation of scientific evidence (38), the formation and maintenance of political beliefs (39, 40), the communication of uncertain information (41), underestimation of risk (42), and censoring of data about potentially serious, but unchangeable conditions (31). Our finding that individualists and political conservatives were significantly more likely to lose trust in scientists, while some egalitarians and liberals were more likely to gain trust in scientists, suggest that Climategate was in some ways like a Rorschach test – a set of

ambiguous impressions, leading to widely divergent interpretations, and revealing as much about the interpreters as of the objective facts.

### Prognosis

These observed changes in public opinion should be viewed in context. Although there have been significant declines since 2008 in public beliefs that global warming is happening, human caused, and a serious threat, as of January 2010 a majority of Americans (57%) believed it is happening. A plurality (47%) believed that it is caused mostly by human activities, and half said they were worried about it (50%). Scientists remained by far the most trusted source of information on global warming (77%), despite the fact that a plurality of the public (40%) believed there is a lot of disagreement among scientists about whether or not global warming is happening (43). Moreover, the declines occurred amidst a serious national recession with high unemployment, an intensely partisan political environment, a significant drop in media attention, an unusually cold December, and a series of scandals and attacks on climate science and scientists. We also found that the loss of trust in scientists among those Americans who followed the Climategate scandal was primarily among Americans already predisposed, for ideological or cultural worldview reasons, to disbelieve climate science.

What happens to public opinion from here? Is this just a temporary drop that will soon rebound to prior levels, a new plateau, or the middle of a continuing trend of declining public belief in and concern for climate change? Public responses to climate change are influenced by multiple factors and it is impossible to predict what will happen as events unfold. However, it may be safe to assume that the economy will eventually improve, unemployment will decline, and Americans will again feel more secure addressing a problem still viewed by most as relatively distant. Certainly the memory of the unusual weather events of December will fade, perhaps to be replaced by the experience of record high temperatures or extreme weather events in the future. Media coverage, however, is likely to remain episodic and deeper structural changes in the media will have significant implications for climate change and scientific reporting in general, as news organizations downsize and cut science and environmental reporters. Continued efforts to pass federal climate legislation will probably amplify partisan and worldview divides, as core values are engaged in political debate.

As trusted information sources, scientists can play an important role in helping to improve public understanding of the causes, consequences, and potential solutions to climate change, and help lay the foundations for informed decision making for years to come. Scientists still have strong credibility with most of the public, although there does appear to be growing distrust of scientists by conservatives and individualists, at least regarding climate change. Finding ways to rebuild this trust should become an important priority for the scientific community, lest it risk a growing marginalization of science-based information in the policy-making process. At a minimum, the scientific community needs to engage in more effective dialogue with key stakeholders and the public and develop more effective communication skills. Serious concerns held by key stakeholders should be taken seriously and addressed directly.

Finally, the climate system itself will likely play an ever-greater role in shaping public risk perceptions, policy preferences and behaviors. As Americans begin to directly experience and

are taught to observe the impacts of climate change occurring locally, regionally, and nationally, these recent declines may eventually reverse. The key question is whether this “tipping point” in public engagement will come too late to avoid dangerous climate change (11).

## **Methods**

### *Survey Method.*

**2008.** From October 7 through November 12 of 2008, we conducted a nationally representative survey of American adults aged 18 or older using KnowledgePanel, an online panel operated by Knowledge Networks. Recruited nationally using random-digit dialing (RDD) telephone methodology, KnowledgePanel is representative of the U.S. population. The panel tracks closely the December 2007 Current Population Survey (published jointly by the U.S. Census Bureau and the Bureau of Labor Statistics) on age, race, Hispanic ethnicity, geographic region, employment status, and other demographic variables. Completed questionnaires were received from 2,164 respondents, a 54% within panel completion rate, with a margin of sampling error of plus or minus 2 percent, with 95 percent confidence.

**2010.** From December 24, 2009 to January 3, 2010, we conducted a fresh cross-sectional nationally representative survey of American adults, again with Knowledge Networks. Completed questionnaires were received from 1,001 American adults, aged 18 or older, a 53% within panel completion rate. The sample was weighted, as in 2008, to correspond with US Census Bureau parameters for the United States. The margin of sampling error was plus or minus 3 percent, with 95 percent confidence. See supporting information (SI) for more details about the survey method and specific question wording.

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## Supplemental Materials

**Supplemental Table 1: Egalitarianism**

	<b>Mean</b>	<b>Standard deviation</b>	<b>Alpha if item deleted</b>	<b>Alpha</b>
Egalitarianism index	10.04	3.07		0.78
The world would be a more peaceful place if its wealth were divided more equally among nations.	2.29	1.00	0.73	
In my ideal society, all basic needs (food, housing, health care, education) would be guaranteed by the government for everyone.	2.33	1.06	0.71	
I support government programs to get rid of poverty.	2.72	0.92	0.73	
Discrimination against minorities is still a very serious problem in our society.	2.70	0.96	0.74	

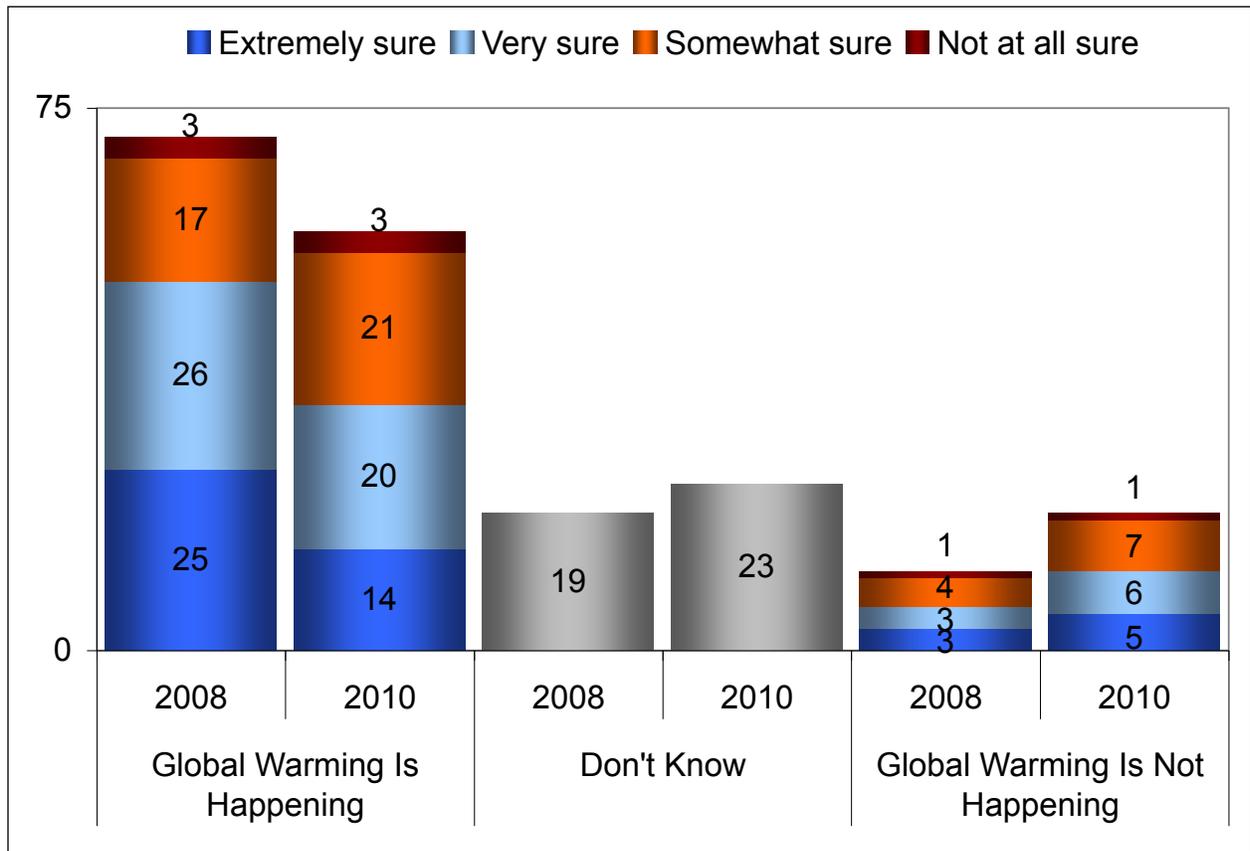
*n*=928. Scales range from 1 (strongly disagree) to 4 (strongly agree).

**Supplemental Table 2: Individualism**

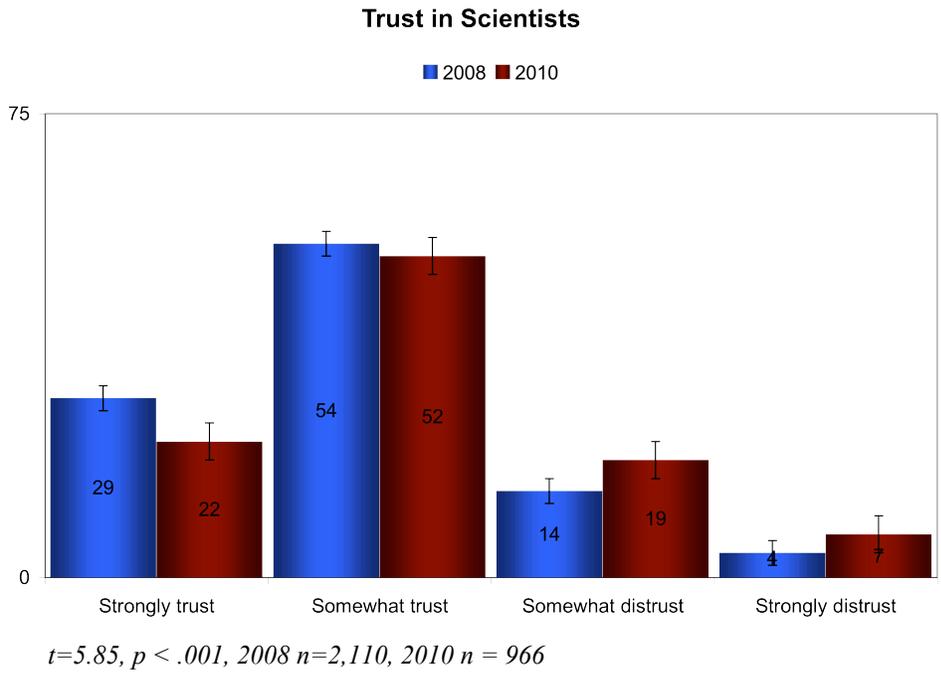
	<b>Mean</b>	<b>Standard deviation</b>	<b>Alpha if item deleted</b>	<b>Alpha</b>
Individualism Index	13.86	3.64		0.85
If the government spent less time trying to fix everyone's problems, we'd all be a lot better off.	2.87	0.93	0.82	
Our government tries to do too many things for too many people. We should just let people take care of themselves.	2.66	0.94	0.81	
The government interferes too much in our everyday lives.	2.89	0.91	0.82	
Government regulation of business usually does more harm than good.	2.77	0.86	0.82	
People should be allowed to make as much money as they can, even if it means some make millions while others live in poverty.	2.67	0.95	0.85	

*n*=934. Scales range from 1 (strongly disagree) to 4 (strongly agree).

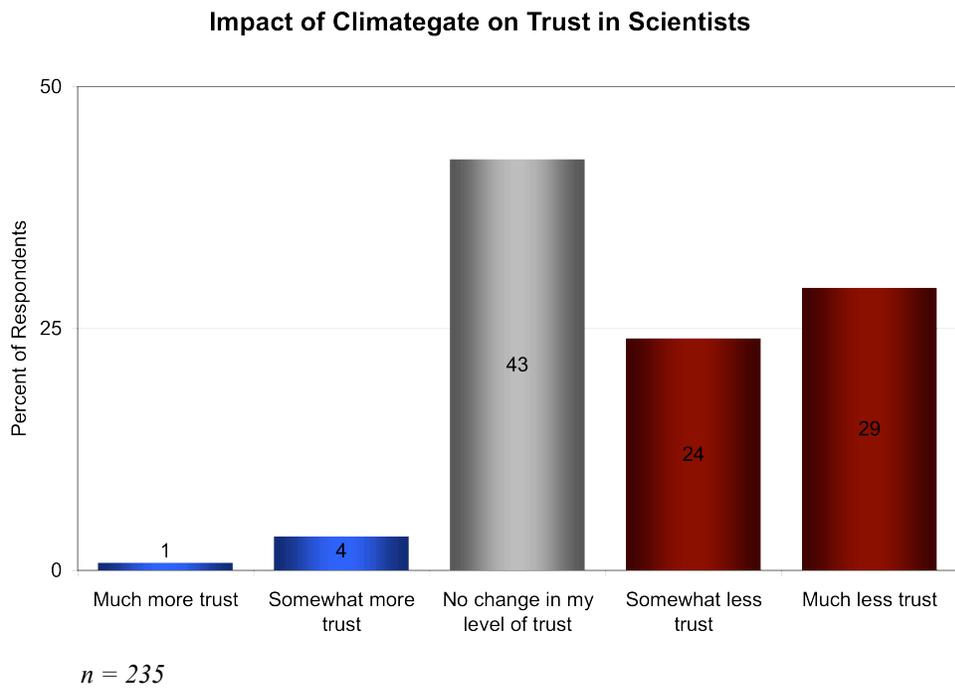
**Supplemental Figure 1: Certainty of Belief, 2008 to 2010**



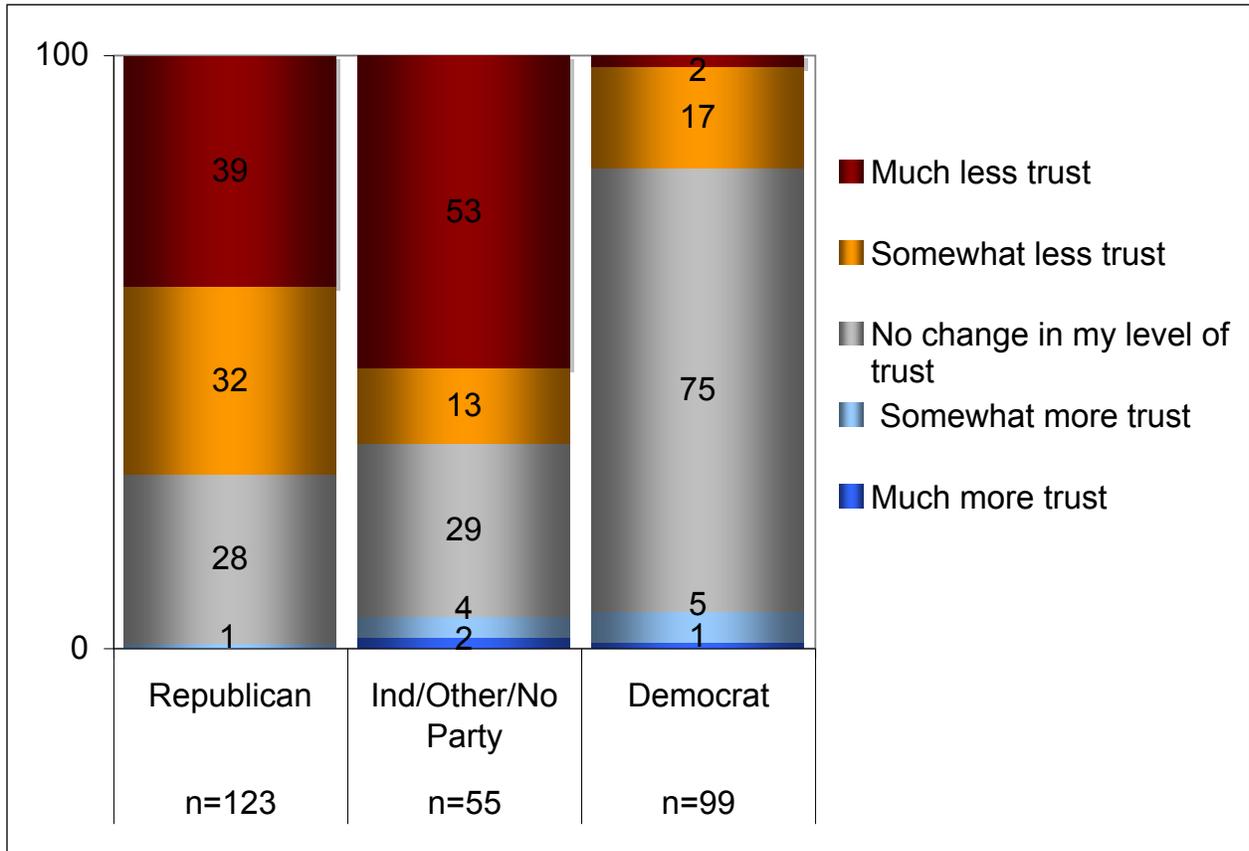
**Supplemental Figure 2: Trust in Scientists**



**Supplemental Figure 3: Impact of Climategate on Trust in Scientists**



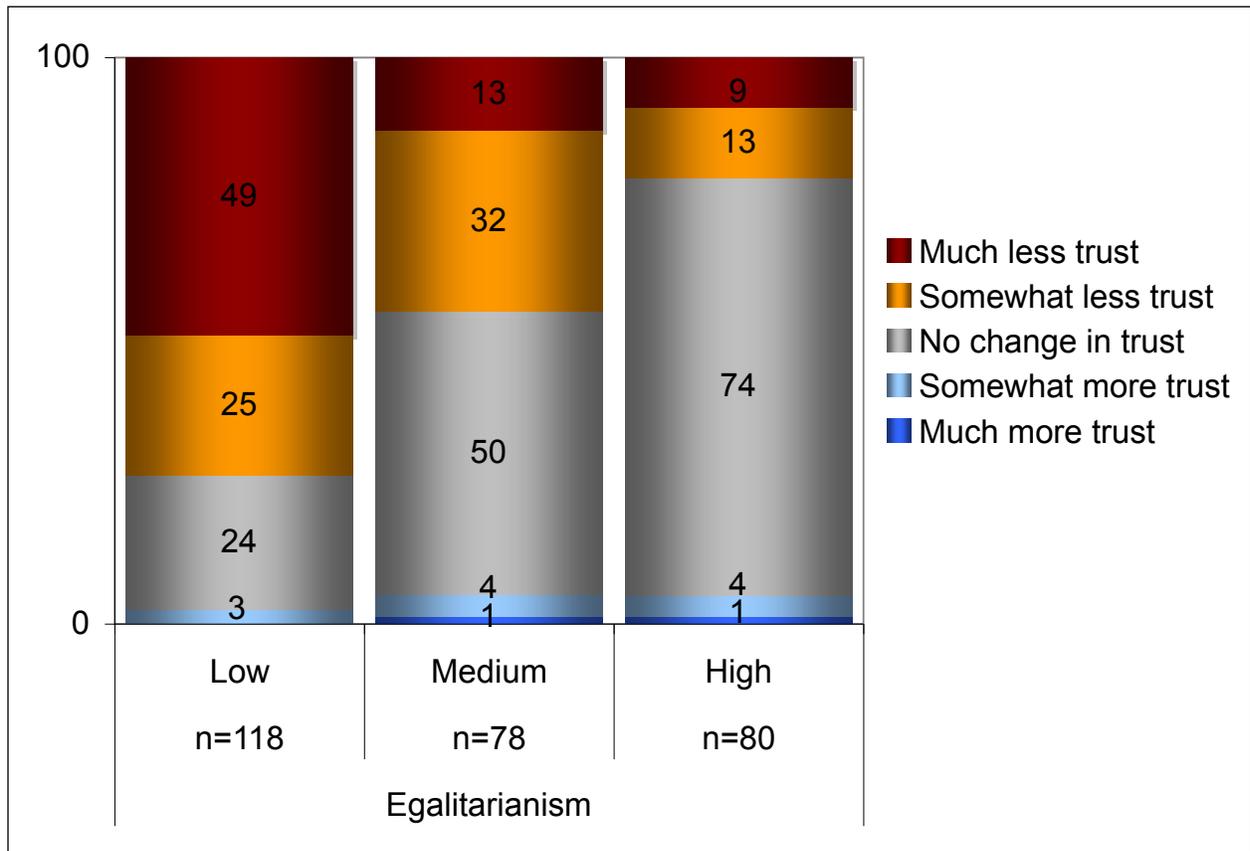
**Supplemental Figure 4: Change in Trust in Scientists, by Political Party Identification**



$\chi^2=83.98, p < .001$

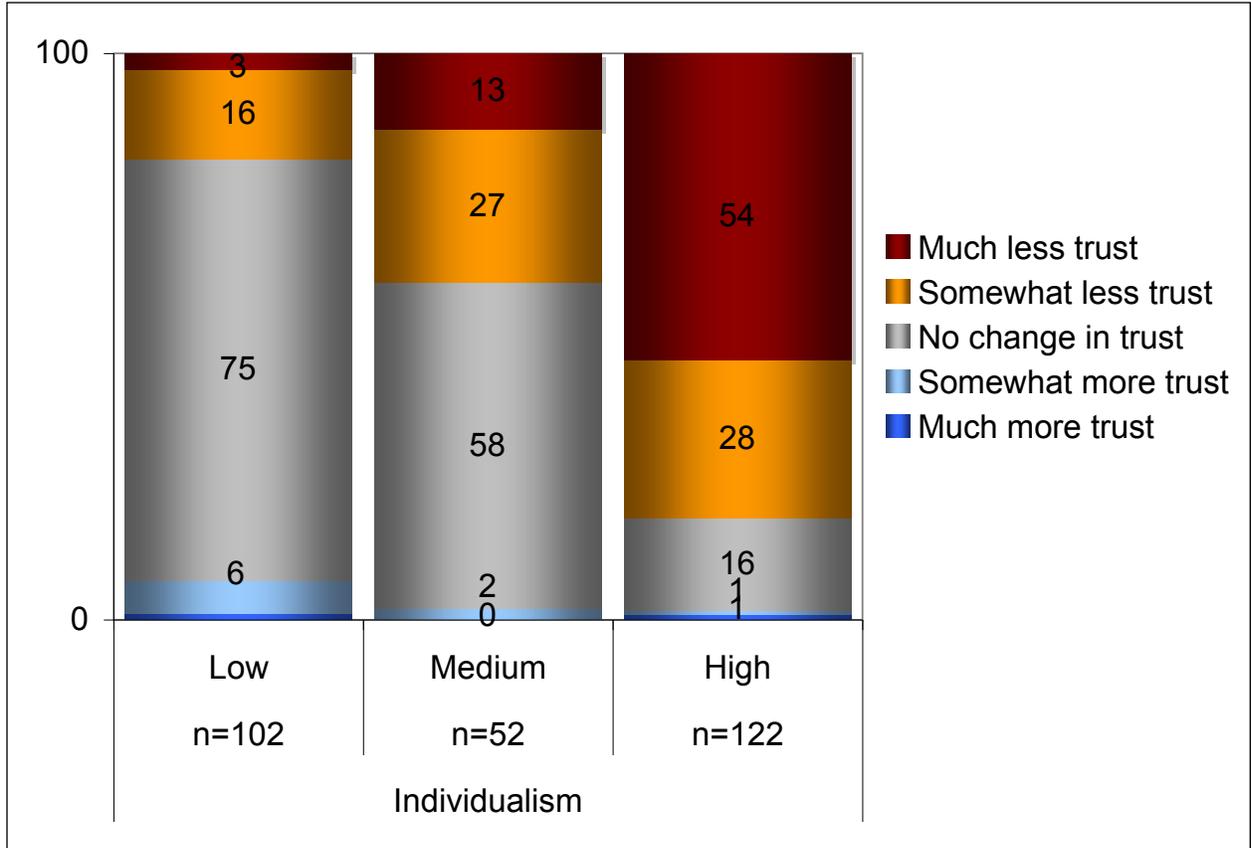
Note: “Ind/Other/No Party” includes (1) Independents and “Other Party” members who do not lean toward either the Republicans or Democrats; and (2) respondents who have no political party identification and are not interested in politics. The groups were collapsed due to the small numbers of respondents in the original groups.

**Supplemental Figure 5: Change in Trust in Scientists by Egalitarian Worldview**



$\chi^2=71.97, p < .001$

**Supplemental Figure 6: Change in Trust in Scientists by Individualistic Worldview**



$\chi^2=110.09, p < .001$

## Supplemental Methods

To reduce the effects of any non-response and non-coverage bias in the overall panel membership, a post-stratification adjustment was applied using demographic distributions from the most recent data from the Current Population Survey (CPS). Benchmark distributions for internet access among the U.S. population of adults are obtained from KnowledgePanel recruitment data since this measurement is not collected as part of the CPS. The post-stratification variables were: Gender (Male/Female); Age (18-29, 30-44, 45-59, and 60+); Race/Hispanic ethnicity (White/Non-Hispanic, Black/Non-Hispanic, Other/Non-Hispanic, 2+ Races/Non-Hispanic, Hispanic); Education (Less than High School, High School, Some College, Bachelor and beyond); Census Region (Northeast, Midwest, South, West); Metropolitan Area (Yes, No); Internet Access (Yes, No).

### *Measures.*

In both surveys, respondents were asked whether they believe global warming is occurring, what they believe is causing it; how worried they are about it; and how much they trust a variety of information sources on the issue. Complete wording of the first question and its response options was reported above.

*Causation* was assessed by asking: “Assuming global warming is happening, do you think it is... (1) Caused mostly by human activities; (2) Caused mostly by natural changes in the environment; (3) Other (Please specify); (4) None of the above because global warming isn’t happening.” The first and second response options were rotated to control for order effects, and the “other” text responses were content analyzed to create two additional categories: (5) Caused by both human activities and natural changes in the environment; and (6) Don’t know.

*Worry* was assessed by asking: “How worried are you about global warming?” (1) Not at all worried; (2) Not very worried; (3) Somewhat worried; (4) Very worried.

*Source trust* was assessed by asking: “How much do you trust or distrust the following as a source of information about global warming?” (1) Strongly distrust; (2) Somewhat distrust; (3) Somewhat trust; (4) Strongly trust. The 2008 survey included a randomized list of nine sources for respondents to rate; the 2010 survey included a partly overlapping list of eight. Those items common to both surveys were scientists, television weather reporters, religious leaders, the mainstream news media, Al Gore, and Barack Obama.

*Climategate awareness and impact* were assessed in the 2010 survey with a short series of questions: Respondents were first asked, “Have you heard anything in the news recently about controversial emails between climate scientists in England and the US? Some news organizations have called the release of these emails “Climategate.” (1) Yes; (2) No; (3) Don’t know.

Respondents who answered “yes” were then asked, “How closely have you followed the news stories about the controversial emails?” (1) Not at all; (2) A little; (3) Somewhat closely; (4) Very closely.

The impact of the stories on people who followed them was then assessed with several items: Respondents who answered “a little,” “somewhat closely,” or “very closely,” were asked:

1. “Would you say the news stories about the controversial emails made you:” (5) Much more certain that global warming IS happening; (4) Somewhat more certain that global warming IS happening; (3) They had no influence on my level of certainty; (2) Somewhat more certain that global warming IS NOT happening; (1) Much more certain that global warming IS NOT happening.

2. “Have these stories about the controversial emails caused you to have more or less trust in climate scientists?” (5) Much more trust; (4) Somewhat more trust; (3) No change in my level of trust; (2) Somewhat less trust; (1) Much less trust.” For regression analyses, this item was re-coded to create a three-point scale: Increased trust and no change in trust (responses 5 through 3) were collapsed into a single category to reduce the skew caused by the small numbers who said their trust had increased.

3. “How much do you agree or disagree with the following statements?” (4) Strongly agree; (3) Somewhat agree; (2) Somewhat disagree; (1) Strongly disagree. The order of these four items was randomized.

- Scientists changed their results to make global warming appear worse than it is.
- Scientists conspired to suppress global warming research they disagreed with.
- Nothing in the emails contradicts the scientific conclusion that global warming is happening.
- Climate skeptics are intentionally taking the emails out of context in order to cast doubt on the reality of global warming.”