

## Fewer Americans Doubt Global Warming is Occurring

a report from the National Surveys on Energy and Environment

### Introduction

Since its inception in 2008, the National Surveys on Energy and Environment (NSEE) has tracked whether Americans believe there is solid evidence that global warming is occurring. The Spring 2016 NSEE finds that Americans' views on climate change—and the confidence with which they hold those views—has set new benchmarks, and suggests that climate change continues to be a highly polarized issue, even as the number of those who doubt its existence is decreasing. These findings come as NASA and NOAA report that the first six months of 2016 are the hottest on record.<sup>1</sup>

### Key Findings:

1. Just 15% of Americans say there is no solid evidence that the Earth is warming, down from 24% a year ago, and the lowest in the NSEE's history.
2. More Americans (66%) now believe the Earth is warming than on any other spring survey, though this percentage fell slightly over the winter (from 70% in the Fall 2015 survey).
3. More Americans than ever (19%) say they are not sure whether climate change is occurring. This is particularly true among Republicans, more than a quarter (26%) of whom volunteer that they are unsure about whether global warming is happening.
4. Americans are increasingly confident in their opinions about climate change. A record 71% of those who believe climate change is occurring—and nearly half (46%) of all Americans—are “very confident” that there is evidence the Earth is warming.
5. Those who do not believe there is evidence of climate change are also increasingly confident in this view. Even so, because there are fewer Americans ascribing to the view that there is no evidence of global warming, the overall number of Americans who are very confident of this been shrinking from 11% a year ago to 8% today.

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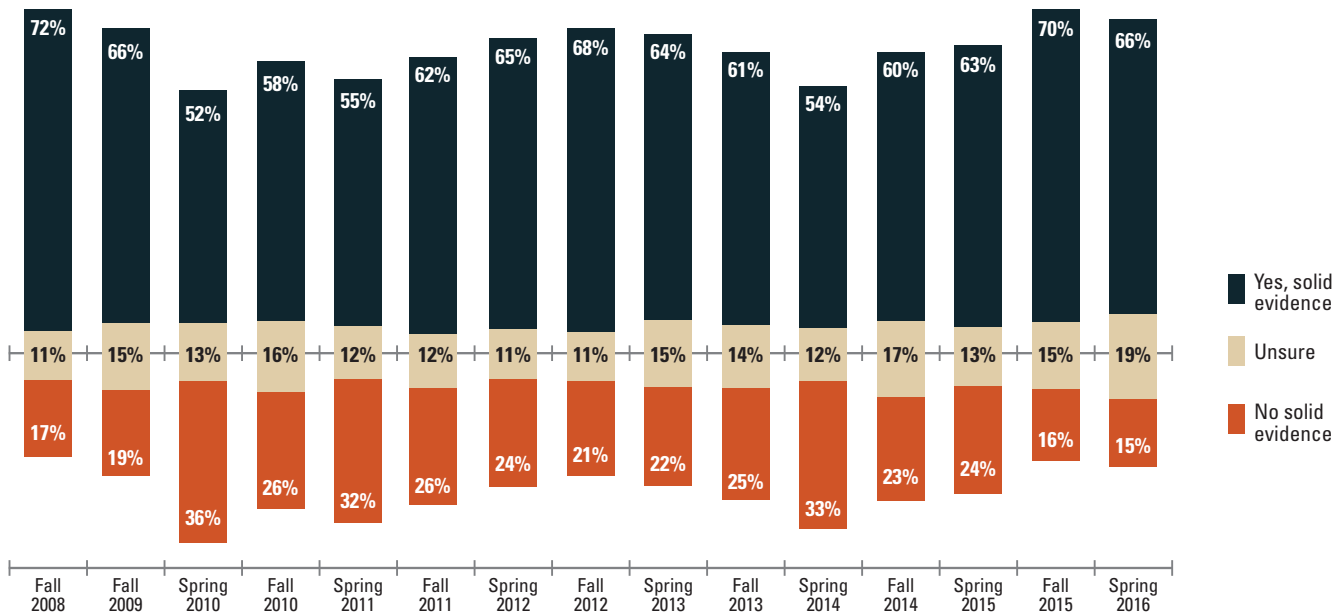
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## Doubt in Global Warming is Down, but Belief is Not Necessarily Up

The Spring 2016 National Surveys on Energy and Environment (NSEE) finds that just 15% of Americans believe there is not solid evidence that global warming is occurring. This is the lowest percentage of doubt in the existence of solid evidence of climate change in the nine-year history of the NSEE program, and is down sharply from near-record levels (33%) just two years ago in the Spring 2014 survey (see *Figure 1*).

**Figure 1**  
American views on the existence of evidence of global warming  
2008-2016

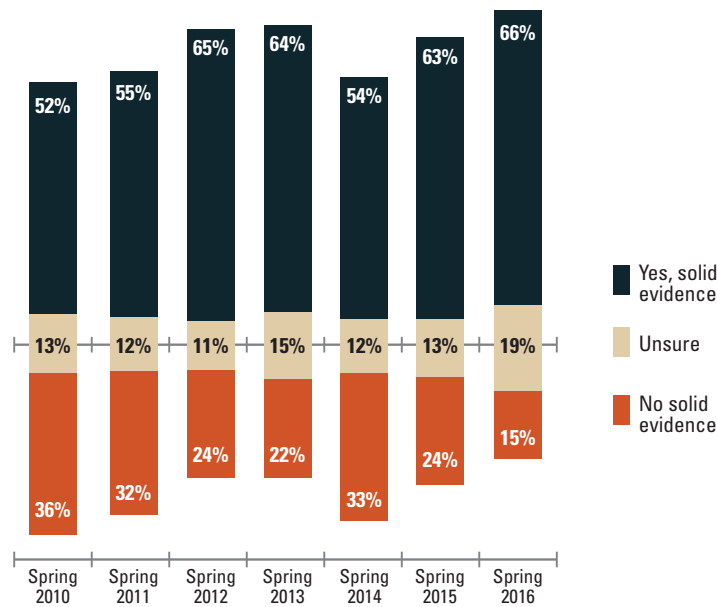


Question: "From what you've read and heard, is there solid evidence that the average temperature on Earth has been getting warmer over the past four decades?"



It is not yet clear, however, whether those Americans who previously did not recognize evidence of global warming now believe such evidence exists, or are instead now unsure whether evidence exists or not (in effect, “noncommittal” on the matter). On this most recent survey, 66% of Americans say there is evidence of global warming, down from 70% on the previous Fall 2015 survey. A decline in belief in climate change over the winter months is a common trend on the NSEE, with spring surveys typically showing lower belief than fall surveys.<sup>2</sup> And indeed, this spring’s 66% is the highest percentage of belief on a spring NSEE survey (see *Figure 2*). However, on this spring’s survey, a record-high 19% of Americans volunteered that they were “unsure” or “don’t know” whether or not there is solid evidence of warming. This is a statistically-significant departure from previous waves wherein the number who volunteered such an answer averaged 13%.

**Figure 2**  
**American views on the existence of evidence of global warming**  
**2010-2016, spring waves**



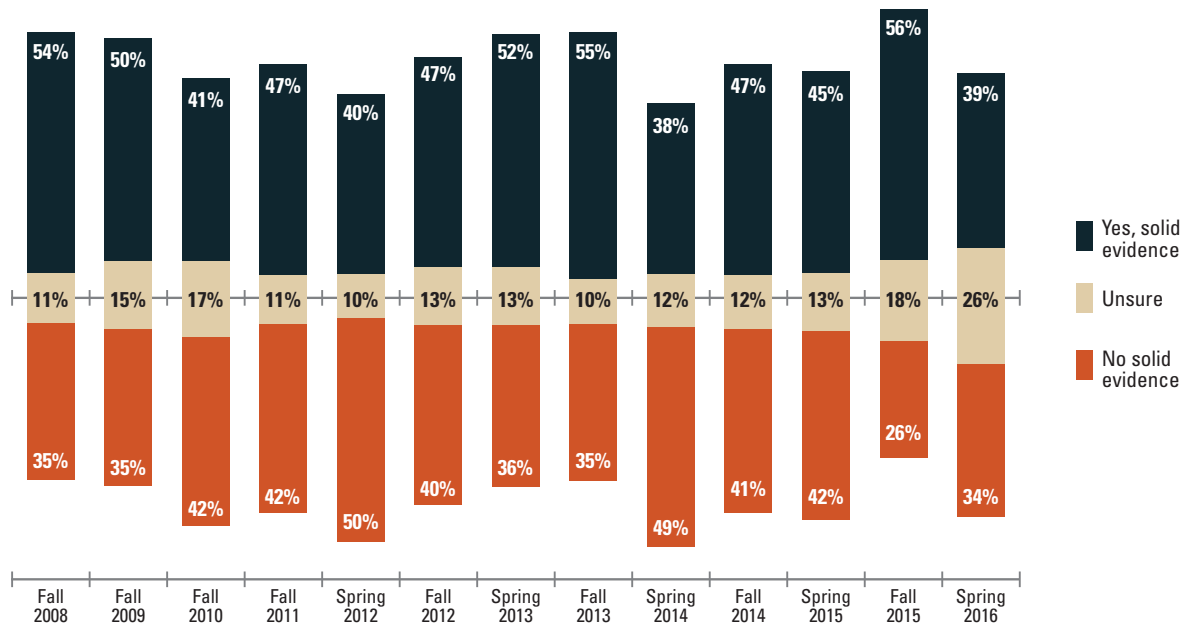
*Question: “From what you’ve read and heard, is there solid evidence that the average temperature on Earth has been getting warmer over the past four decades?”*

## Republicans are Increasingly Noncommittal on Question of Global Warming

On previous NSEE surveys, educational attainment has been the strongest predictor of a respondent volunteering that they were unsure of whether or not there is solid evidence of global warming. Indeed, the Spring 2016 survey also finds that those Americans with less education are more likely to say they are unsure whether global warming is occurring.<sup>3</sup> However, this spring there is also a notable increase in the number of Republicans who volunteered this response, with over a quarter (26%) saying they are unsure about there being evidence of global warming, compared to 13% who answered this way a year ago (see Figure 3). The growth of this group of Republicans who are unsure about climate change comes at the same time that fewer Republicans say they see solid evidence of climate change—down 17 points in six months—suggesting movement from belief there is evidence that global warming is happening to an uncommitted status.

This sudden change in opinions among Republicans is not unprecedented. Over the winter of 2014, the percentage of Republicans who believed there was evidence of global warming also dropped 17 points from 55% in the fall of 2013 to 38% in the spring of 2014. However, rather than seeing an increase in the number of Republicans who volunteered that they were unsure about there being evidence of global warming, this earlier decrease in Republican belief of evidence supporting climate change was accompanied by the NSEE’s most dramatic six-month rise in avowed doubt of such evidence: 14 points from 35% in the Fall 2013 survey to 49% in the Spring 2014 survey. In contrast, this past winter, the percentage of Republicans who say there is no evidence of global warming increased only eight points to 34%. Consequently, while the rise of Donald Trump as the Republican nominee for the 2016 Presidential Race—a self-professed “non-believer” of global warming<sup>4</sup>— may have had an impact on Republican attitudes about climate change, as of April 2016, it appears to have led to increased noncommittal standing among Republicans as opposed to a wholesale swing from believer to non-believer status.

**Figure 3**  
**Republican views on the existence of evidence of global warming**  
**2008-2016**



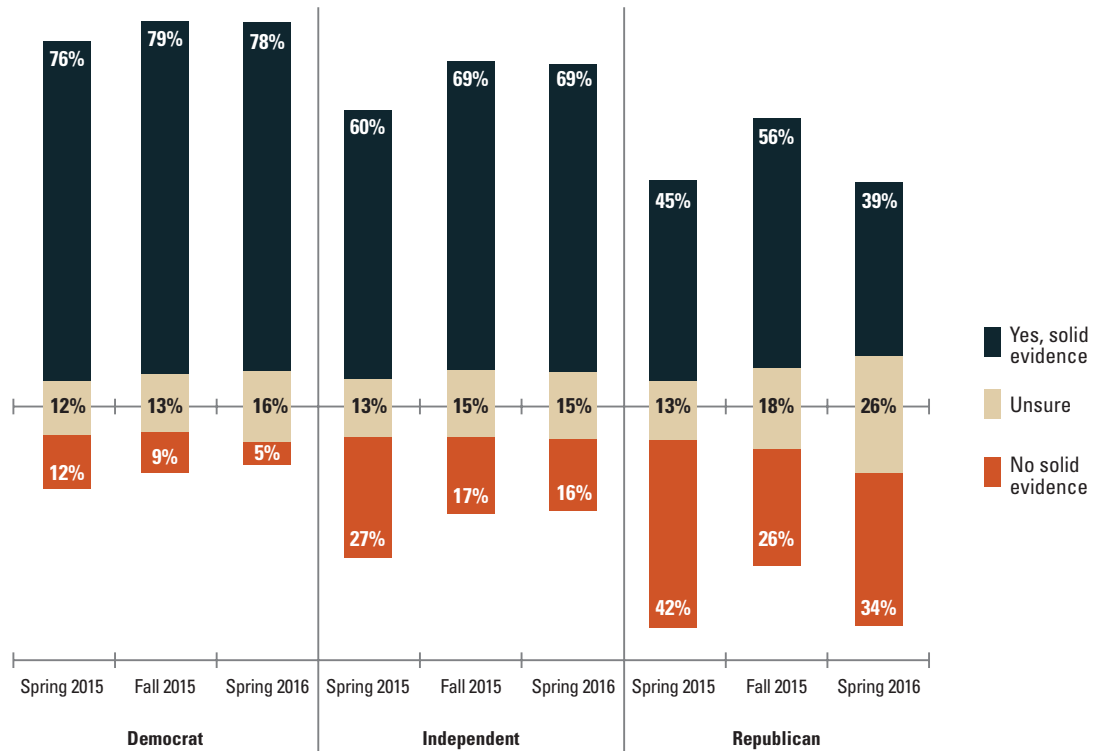
Question: “From what you’ve read and heard, is there solid evidence that the average temperature on Earth has been getting warmer over the past four decades?”

Note: Data from the Spring 2010 and Spring 2011 surveys is unavailable.



Meanwhile, the views of Democrats and Independents on climate change have remained relatively unchanged in the last year. A large majority of Democrats (78%) continue to believe there is solid evidence of warming, with some shifts (within the margin error) from those who doubt there is evidence of climate change to the “unsure” category (see *Figure 4*). There are slightly fewer self-identified Independents who say there is evidence of climate change compared to Democrats, but there has been little to no change in the last six months among those Independents who do not see evidence or are noncommittal on the issue.

**Figure 4**  
**American views on the existence of evidence of global warming**  
**2015-2016, by partisanship**

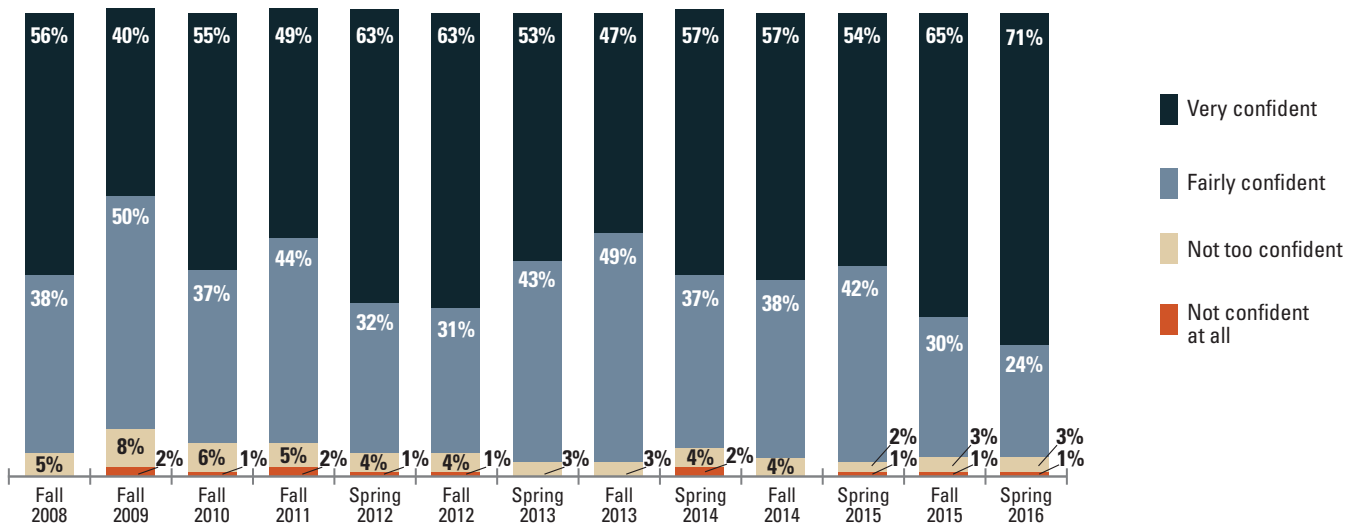


Question: “From what you’ve read and heard, is there solid evidence that the average temperature on Earth has been getting warmer over the past four decades?”

## Increasing Confidence among both Those Who Do and Do Not Believe Earth is Warming

While the number of Americans who are noncommittal about the issue of global warming is on the rise, those who do profess an opinion—in effect, those who say they do or do not think the Earth is warming—are becoming increasingly confident in their opinion. Among those Americans who say there is evidence of global warming, 71% are very confident in their opinion. This is the highest confidence among those who believe climate change is happening since the NSEE was founded, and is a 17-point increase over the last 12 months (see *Figure 5*). Even after accounting for Americans who do not believe global warming is occurring or are noncommittal on the issue, nearly half (46%) of Americans overall are very confident that there is solid evidence that the Earth is warming (see *Figure 7*).

**Figure 5**  
Levels of confidence about global warming’s existence, among Americans who think global warming is occurring



Question: “How confident are you that the average temperature on Earth is increasing?”

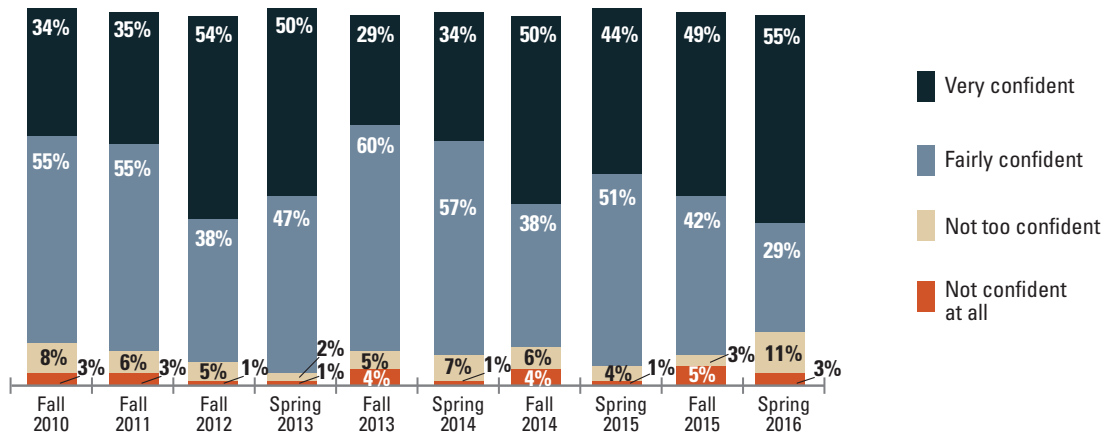
Are you very confident, fairly confident, not too confident or not confident at all that the average temperature on Earth is increasing?”

Note: Volunteered “not sure” responses not shown. Data from the Spring 2010 and Spring 2011 surveys is unavailable.

Confidence is also up among those Americans who say there is no solid evidence that the Earth is warming. This spring, 55% of this group say they are very confident that the average temperature on Earth is not increasing, creating a new NSEE high-water mark in this “very confident” category (see *Figure 6*). Even so, because there are fewer Americans ascribing to the view that there is no evidence of global warming, the overall number of Americans who are very confident of this is shrinking. This spring’s survey finds 8% of the total US population is very confident that there is no solid evidence that the Earth is warming (see *Figure 7*). A year ago, when overall doubt in the existence of climate change was higher but confidence was lower, 11% of the total US population fell into that very confidently doubtful category.

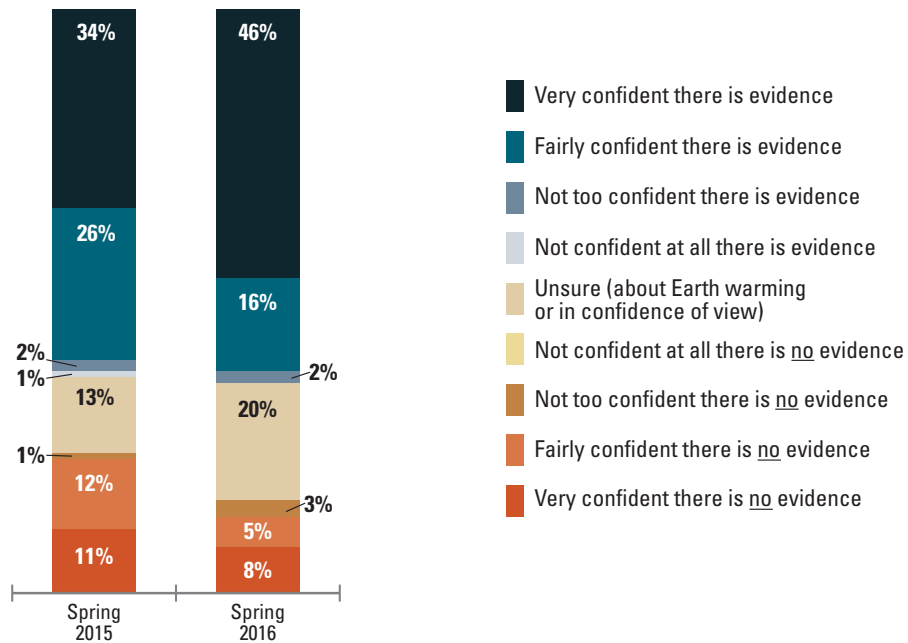


**Figure 6**  
Levels of confidence that global warming is not occurring, among Americans who think global warming is not occurring



Question: "How confident are you that the average temperature on Earth is not increasing?"  
 Are you very confident, fairly confident, not too confident or not confident at all that the average temperature on Earth is not increasing?"  
 Note: Volunteered "not sure" responses not shown. Question was not asked regularly until the fall of 2012.

**Figure 7**  
Confidence of views on the existence of climate change  
Spring 2015-2016 surveys



Question: "From what you've read and heard, is there solid evidence that the average temperature on Earth has been getting warmer over the past four decades?" and then "How confident are you that the average temperature on Earth is [is not] increasing? Are you very confident, fairly confident, not too confident or not confident at all that the average temperature on Earth is [is not] increasing?"

## Conclusion

The Spring 2016 NSEE finds a record-low number of Americans who believe there is not solid evidence that the Earth is warming. There is mixed evidence of whether Americans who previously had doubts about climate change are now asserting it is happening, or whether they are noncommittal about the issue. Republicans in particular, however, have increasingly volunteered that they are unsure whether or not evidence points to global warming. Meanwhile, those Americans who do profess an opinion on climate change are increasingly confident in that belief, with record-high numbers of Americans saying they are very confident in their view. This suggests that climate change continues to be a highly polarized issue in the United States, even as the number of those who doubt its existence is decreasing. Coming waves of the NSEE will track whether these trends continue.

## Methods

The Spring 2016 NSEE surveyed 768 adult (age 18 or older) residents of the United States between April 5 and April 26, 2016. Respondents were interviewed in English on both landlines (212) and cell phones (556) by the staff of the Muhlenberg College Institute of Public Opinion (MCIPO) in Allentown, Pennsylvania on the Institute's Computer Aided Telephone Interviewing (CATI) system. Both the landline and cell phone samples were provided by the Marketing Systems Group (MSG), Horsham, Pennsylvania. Both landline and cell phones were chosen randomly from sampling frames of United States landline and cell numbers provided by MSG.

With a randomly selected sample of 768 respondents the margin of error for the surveys is  $\pm 4\%$  at a 95% level of confidence. Margins of error for questions with smaller sample sizes will be larger. In addition to sampling error, one should consider that question wording and other fielding issues can introduce error or bias into survey results. The sample data has been weighted by age, race, educational attainment, income, and gender to reflect 2015 population parameters for these factors provided by the United States Census Bureau. The calculation of sampling error takes into account design effects due to the weighting identified above. In order to reach a representative sample of adult Americans both landlines and cell phones are called up to 10 times. The response rate for this survey as calculated using the American Association of Public Opinion Research (AAPOR) RR3 formula is 9%. Due to rounding, the totals provided in tables and figures may not equal 100.

The instrument was designed by Christopher Borick of Muhlenberg College, Barry Rabe of the University of Michigan, and Sarah Mills of the University of Michigan. For more detailed information on the methods employed please contact the MCIPO at 484-664-3444 or email Dr. Borick at cborick@muhlenberg.edu.

## Funding, Financial Disclosure, and Research Transparency

Funding for the NSEE surveys to-date has been provided by general revenues of the University of Michigan Center for Local, State, and Urban Policy, and the Muhlenberg College Institute of Public Opinion. The authors did not accept any stipend or supplemental income in the completion of the survey or the reports from this survey. The NSEE is committed to transparency in all facets of our work, including timely release and posting of data from each survey wave, including providing online access to NSEE [frequency tables](#), [survey instruments](#), and [datasets](#).





## Notes

1. NASA Goddard Space Flight Center. (2016). Record-Breaking Climate Trends Briefing – July 19, 2016. Retrieved from <http://svs.gsfc.nasa.gov/12305>; also, NOAA National Centers for Environmental Information. (2016). *State of the Climate: Global Analysis for June 2016*. Retrieved from <http://www.ncdc.noaa.gov/sotc/global/201606>
2. Borick, C., Mills, S. B., & Rabe, B. G. (2015). *Belief in global warming among Americans gradually increases following the winter of 2015* [A report of Issues in Energy and Environmental Policy]. Ann Arbor, MI: The Center for Local, State, and Urban Policy at the Gerald R. Ford School of Public Policy, University of Michigan. Retrieved from <http://closup.umich.edu/issues-in-energy-and-environmental-policy/24/belief-in-global-warming-among-americans-gradually-increases-following-the-winter-of-2015/>
3. Thirty-one percent of those with less than a high school education volunteer they are unsure or don't know whether or not there is solid evidence of global warming, compared to 17% of those with a college degree, and 8% of those with a graduate or professional degree.
4. Dennis, B. (2016, March 22). Trump: "I'm not a big believer in man-made climate change." . Retrieved from <https://www.washingtonpost.com/news/energy-environment/wp/2016/03/22/this-is-the-only-type-of-climate-change-donald-trump-believes-in/> Reports from Issues in Energy and Environmental Policy

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