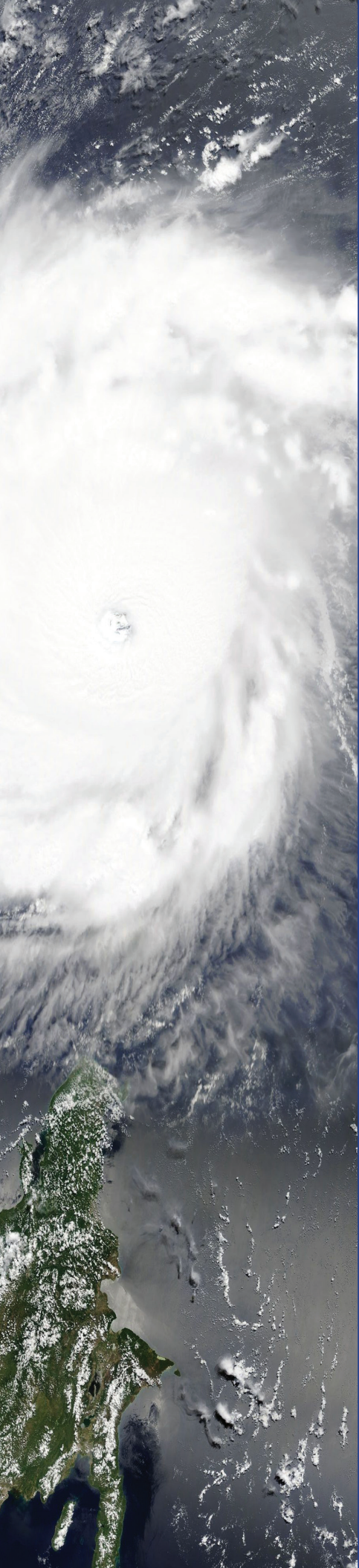


**Carbon
Omission:
How the U.S.
Media Failed
to Connect
Extreme
Weather
to Climate
Change in
2018**



PUBLICCITIZEN



Acknowledgments

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About Public Citizen

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Introduction

The year 2018 saw an extraordinary number of significant developments on climate change. An abridged list includes Hurricanes Michael and Florence, rapidly thawing Arctic ice, an unprecedented wildfire season, numerous record-breaking high temperatures and devastating heat waves, and continuing efforts by the Donald Trump administration to promote the burning of fossil fuels and reverse policies that combat global warming. Additionally, multiple dire, authoritative reports were released, including Volume II of the Fourth National Climate Assessment and the Intergovernmental Panel on Climate Change (IPCC) special report on the impact of warming of 1.5°C.¹

Surveys consistently show that the vast majority of Americans would welcome more climate reporting. Seven in ten (69 percent) say they are “interested” in climate change; the same percentage are at least “somewhat worried” about it; and 72 percent say the issue is “somewhat,” “very,” or “extremely” important to them personally.² Despite these high levels of interest and concern, only 56 percent of Americans say they hear about climate change in the media at least once a month.³

This report examines media coverage of topics relevant to climate change that garnered significant attention in 2018—extreme weather events—and assesses the extent to which media outlets explicitly connected them to climate change.

On the whole, the proportion of pieces that mentioned climate change was disappointingly low. There was no climate-related form of extreme weather that the media connected to climate change in more than 35 percent of pieces. That high-water mark comes from articles discussing record drought.⁴ Extreme heat fared similarly, with 34 percent of pieces mentioning climate change. For hurricanes, the rate was just 7 percent.

We also considered the critical question whether news outlets mentioned solutions or mitigation when discussing climate change. Coverage fell far short on this score, with just 13 percent of pieces on climate also mentioning solutions. Newspapers and television networks performed significantly worse than that average number for all media, with rates of 8 percent and 5 percent, respectively.

One bright spot in this analysis is that the media did better in 2018 than 2017 on nearly all topics—and often significantly better. (At the same time, we must take care not to over-interpret a one-year change as a durable trend.) There were many other highlights of climate-reporting as well—numerous excellent pieces by individual reporters, a few publications that stand out as producing a

¹ U.S. Global Change Research Program, Fourth National Climate Assessment, *Our changing climate*, Nov. 2018, <https://nca2018.globalchange.gov/>; Intergovernmental Panel on Climate Change, *Global warming of 1.5°C*, Oct. 2018, <https://www.ipcc.ch/sr15/>.

² Anthony Leiserowitz, et al., *Climate change in the American mind: December 2018*, Jan. 22, 2019, <https://pubc.it/2WrhNTn>.

³ *Id.*

⁴ Throughout, this report, we write loosely of pieces “discussing” the terms for which we searched, as we counted an article if it merely turned up in the results of a search for a term regardless of the character or extent of the relevant discussion. We also use “article” loosely, as many of the pieces discussed are opinion columns, editorials, or transcripts of television broadcasts.

high volume and high-quality work and, perhaps most notably, the launch of the [Invading Sea](#) project, a collaborative effort by the *Miami Herald*, *The Palm Beach Post*, the *Sun-Sentinel*, and WLRN Public Media to spur action on the threat of sea-level rise in Florida.

For producers, editors, or reporters who want to know whether or how to discuss climate change in the context of extreme weather, there are excellent guides. Major examples are [Climate Central](#), in particular its [Climate Matters](#) program, and [Climate Nexus](#), including its [Climate Signals](#) project. Public Citizen has relied on these organizations in drafting memoranda offering suggestions to reporters at the onset of extreme-weather seasons.⁵ It is also worth noting that the science of ascertaining the degree to which climate change contributed to a given weather event, known as “attribution science,” is improving rapidly. In the case of Hurricane Florence last year, researchers were able to show before the storm even made landfall that climate change was magnifying its anticipated rainfall, intensity, and size.⁶

Finally, as we have discussed in other analyses, newsrooms that want to provide better climate reporting for their audiences but lack the resources to do so can adapt or reprint stories from better-resourced publications or wire services, some of which are producing a good deal of excellent work.⁷ Standouts include *The New York Times*, *The Washington Post*, and the *Associated Press*.

Methodology

For this analysis, we searched television news transcripts, print newspaper articles, and online news articles on climate-relevant topics—for example, “record heat wave” or “historic flooding”—to find the number of pieces on each topic that mentioned and did not mention climate change. The terms we used are listed in Table 1 at the end of this report. We counted a piece as discussing a topic if it made the barest mention of the relevant terms—that is, if the piece merely turned up in the search results for those terms.

The list of the top 50 U.S. papers by circulation was compiled using data from Cision in May 2018 and is limited to English-language, subscription newspapers. Many significant local dailies are not included, such as *The Palm Beach Post* and *The Charlotte Observer*. The same is true of papers that cover Capitol Hill, like *The Hill*, *Politico*, and *Roll Call* (although the list of digital media includes Politico.com). This analysis also does not include radio or local television.

⁵ See Public Citizen, *Note to reporters and editorial boards: As hurricane season begins, connect the dots to climate change*, May 31, 2018, <https://pubc.it/2J3vBAo>; Public Citizen, *Note to reporters and editorial boards: As summer begins, remember to connect the dots between extreme heat and climate change*, June 22, 2018, <https://pubc.it/2WtZPQ2>.

⁶ See Kevin A. Reed, *Estimating the potential impact of climate change on Hurricane Florence*, Sep. 12, 2018, <https://pubc.it/2Ws2Lwu>.

⁷ See, e.g., Public Citizen, *Extreme silence: How the U.S. media have failed to connect climate change to extreme heat in 2018*, July 26, 2018, <https://pubc.it/2AdkBMv>.

We used Nexis to search the top 50 U.S. newspapers and television transcripts from six national television news networks (ABC, CBS, CNN, Fox, MSNBC, and NBC).⁸ We used the “Group Duplicates” feature, set on “High Similarity.” We did not examine the results, often voluminous, to discard false positives.

For online sources, we used Media Cloud’s “U.S. Top Online News 2017” collection, which includes 32 sources.⁹ Media Cloud does not permit proximity searches, in which one searches for two terms within a certain number of words of one another, or in the same sentence or paragraph. Therefore, in instances where we used proximity searches for television transcripts and newspapers, we were limited to using the AND connector for digital content. As a result, some searches of digital sources are significantly more inclusive than those for newspapers and television.

Analysis

With the fall 2018 releases of Volume II of the Fourth National Climate Assessment and the IPCC special report on global warming of 1.5°C, the connections between anthropogenic climate change and extreme weather events have become only clearer. Below, we discuss some common types of climate-influenced extreme weather and evaluate the extent to which U.S. media connected them to climate change in 2018.

Heat. Higher global temperatures are one of the principal and best known effects of climate change. Of the past 17 years, 16 have been the hottest on record.¹⁰ In addition, as global warming increases average annual temperatures, the number of extremely hot individual days is rising faster.¹¹

In 2018, a year when record high temperatures scorched areas across the globe, just 33 percent of articles in the top 50 newspapers mentioning record or extreme heat also mentioned climate change. This is a slight improvement over 2017, when the rate was 28 percent. The rate was higher on online news sites, with 38 percent of articles mentioning climate change (compared to 39 percent in 2017).

⁸ The newspapers are: *The Arizona Republic*, *Arkansas Democrat-Gazette*, *Atlanta Journal-Constitution*, *The Baltimore Sun*, *The Boston Globe*, *The Buffalo News*, *Chicago Sun-Times*, *Chicago Tribune*, *The Cincinnati Enquirer*, *The Plain Dealer (Cleveland)*, *The Columbus Dispatch*, *Dallas Morning News*, *The Denver Post*, *Detroit Free Press*, *East Bay Times*, *Honolulu Star-Advertiser*, *Houston Chronicle*, *Indianapolis Star*, *Kansas City Star*, *Las Vegas Review-Journal*, *Los Angeles Times*, *The Mercury News*, *Miami Herald*, *Milwaukee Journal Sentinel*, *Daily News (New York)*, *New York Post*, *The New York Times*, *Newsday*, *The Oklahoman*, *Omaha World-Herald*, *The Orange County Register*, *The Oregonian*, *Orlando Sentinel*, *Philadelphia Inquirer*, *Pittsburgh Post-Gazette*, *The Sacramento Bee*, *The San Diego Union-Tribune*, *San Francisco Chronicle*, *The Seattle Times*, *St. Louis Post-Dispatch*, *St. Paul Pioneer Press*, *Star Tribune*, *The Star-Ledger*, *Sun Sentinel*, *Tampa Bay Times*, *The Times Picayune*, *USA Today*, *The Virginian-Pilot*, *The Wall Street Journal*, *The Washington Post*.

⁹ According to Media Cloud, the collection includes the “top news websites of the year by August 2017 in the United States, according to data from comScore, Activate and Alexa.” The websites are: *blogs.wsj.com*, *Breitbart*, *Business Insider*, *Buzzfeed*, *CBS News*, *CNBC*, *CNN*, *Daily Caller*, *Daily News*, *Forbes*, *FOX News*, *Guardian - United States*, *Huffington Post*, *LA Times*, *NBC News*, *New York Times*, *New Yorker*, *NewsMax*, *Politico*, *Reuters*, *Slate.com*, *The Atlantic*, *The Blaze*, *Time*, *USA Today*, *Vox*, *Wall Street Journal*, *Washington Post*, and *Yahoo News - Latest News & Headlines*. Media Cloud lists three additional websites in the collection (*Bloomberg*, *Drudge Report*, and *finance.yahoo.com*) for a total of 32, but it does not appear to have any content from these three sites for the period covered by this analysis.

¹⁰ U.S. Global Change Research Program, Fourth National Climate Assessment, *Our changing climate*, Nov. 2018, <https://nca2018.globalchange.gov/chapter/2/> (visited Jan. 9, 2019).

¹¹ *Id.*

On television networks, the rate was lower: Only 22 percent of television news segments also mentioned climate-related terms. Television networks improved significantly from 2017 to 2018 though. In 2017, only 10 percent of segments on extreme heat mentioned climate.

Drought, Rainfall, and Flooding. Climate change is altering precipitation around the world in several ways. In some areas, it increases or decreases the total amount of rain or snowfall. In others, total precipitation may remain roughly the same, but become concentrated into fewer, heavier events.¹² Heavier precipitation causes more runoff, potentially leading to drought.¹³ Where precipitation remains the same overall, warmer temperatures can lead to more evaporation and therefore drier conditions and more drought. Both droughts and heavy downpours are increasing due to climate change, and climate change is also projected to worsen U.S. droughts severely in the coming decades.¹⁴

Regarding **drought** coverage, we found improvement across all media categories between 2017 and 2018. This past year, nearly 40 percent of television news transcripts that mentioned drought also mentioned climate change—an improvement on 2017, when only 27 percent did so. There was a similar increase among the top 50 newspapers; although only 18 percent of articles on drought mentioned climate change in 2017, the rate jumped to 33 percent in 2018. For online news sources, 25 percent linked drought to climate change in 2017, and 36 percent did so in 2018.

The numbers are worse when it comes to **extreme rainfall**. For television news, only 11 percent of pieces that mentioned extreme rainfall also mentioned climate change in both 2017 and 2018. In 2018, 25 percent of print media stories on extreme rainfall connected it to climate change, an improvement over 19 percent in 2017. Online news sources were the most likely to link extreme precipitation to climate change, with 32 percent of online pieces making the connection (versus 28 percent in 2017).

The numbers on **flooding** are less promising still. In general, outlets reported on extreme flooding less often than they reported on extreme heat, drought, or rainfall. Of the articles that turned up, few mention climate change. In 2018, the top newspapers published 45 pieces that mentioned extreme flooding, of which only five (11 percent), mentioned of climate change. National television news networks and top online news sites ran similarly small numbers of pieces, 24 and 44, respectively, mentioning climate change at rates of 8 percent and 23 percent, respectively. The rates for 2017 for newspapers, television, and online sources were 7 percent, 14 percent, and 11 percent, respectively.

Wildfires. Climate change has lengthened the wildfire season, and U.S. wildfires have been growing both in total area burned and financial cost.¹⁵ Wildfires have burned record amounts of land across

¹² Climate Communication, *Precipitation, floods and drought*, <http://pubc.it/2kHdhv> (visited Jan. 9, 2019)

¹³ Climate Signals, *Drought risk increase*, <https://pubc.it/2WuTjsh> (visited Jan 9, 2019).

¹⁴ U.S. Global Change Research Program, Fourth National Climate Assessment, *Our changing climate*, Nov. 2018, <https://nca2018.globalchange.gov/chapter/2/> (visited Jan. 9, 2019).

¹⁵ Climate Nexus, *Wildfires*, <http://pubc.it/2BpRgeK> (visited Jan. 9, 2019)

the US. Between 2000 and 2016, wildfires burned approximately 3.7 million acres of land in the US each year. In 2015, a record 10.2 million acres burned.¹⁶

In 2018, a year when wildfires lead to record losses of human life and property, the data show improvement across all media categories compared to 2017. In 2017, television networks mentioned climate change in only 8 percent of transcripts where record wildfire was mentioned; that number increased to 21 percent in 2018. The top 50 papers also improved; 19 percent of 2017 articles linked wildfires to climate change, while 29 percent did so in 2018. Online news sources also improved, with the rate of mentioning climate increasing from 22 percent in 2017 to 28 percent in 2018.

The list of top 50 U.S. papers includes multiple outlets in California, the state affected most directly by severe wildfires in 2018. California papers therefore might have printed an inordinate number wildfire articles focused on emergency efforts or other matters with which one would not expect a discussion of climate change. Indeed, if one excludes California papers, the rates of connecting wildfires to climate change for newspapers in 2018 improves from 29 to 34 percent. For 2017, by contrast, excluding California papers changes the overall figure by a negligible 0.3 percent.

Hurricanes. Like 2017, the year 2018 saw multiple hurricanes whose destruction was exacerbated by climate change. In 2017, it was Harvey, Irma, Maria, and Nate. In 2018, it was Florence and Michael.

There are well-established links between climate change and increased hurricane damage. For example, warmer ocean temperatures lead to stronger winds and faster intensification of storms. Warmer air leads to more rain (and worse flooding) and higher sea levels worsen storm surges.¹⁷

Hurricanes Harvey, Maria, and Irma were among the top five most expensive hurricanes in US history, with a combined \$265 billion in damage.¹⁸ Despite these recent, staggering economic costs, as well as the human toll, the U.S. media in 2018 continued rarely to discuss how human-caused climate change contributes to the devastation from hurricanes.

In 2018, online news sources published 10,895 pieces on the hurricanes named above. Only 10 percent of those pieces (1,041) mentioned climate change. For television news, of the 2,090 transcripts that mention the hurricanes, a mere 8 percent (165) make the connection to climate change. Print media fared the worst. Of the 11,983 articles mentioning the hurricanes, 567 (5 percent) mentioned climate change. As for most other topics, these numbers are improvements over 2017, when the rates were 6 percent for television and online media and 3 percent for newspapers.

¹⁶ U.S. Global Change Research Program, Fourth National Climate Assessment, *Forests*, Nov. 2018, <https://nca2018.globalchange.gov/chapter/6/> (visited Jan. 9, 2019).

¹⁷ Climate Signals, *Intense cyclone, hurricane, typhoon frequency increase*, <https://pubc.it/2WvkaED> (visited Jan. 9, 2019); U.S. Global Change Research Program, Fourth National Climate Assessment, *Our changing climate*, Nov. 2018, <https://nca2018.globalchange.gov/chapter/2/> (visited Jan. 9, 2019).

¹⁸ Office for Coastal Management, National Oceanic and Atmospheric Administration, *Hurricane costs*, <https://pubc.it/2WvAiWD> (visited Jan. 15, 2019).

The list of top 50 U.S. newspapers includes some papers from Florida, Louisiana, and Texas—states directly affected by hurricanes in 2017 and 2018. If one excludes papers in those states, the rates in those years improve to 4 and 6 percent, respectively.

Table 2 below provides more detailed data on mentions of extreme weather and climate change.

Solutions

Perhaps the most critical question on climate change is whether and how we can solve the problem. Significant warming has already occurred, and more is unavoidable. But it is still possible to prevent the worst harms with policies that are not just feasible and affordable, but beneficial on their own terms, even if not for mitigating climate change,¹⁹ as well as widely popular across the political spectrum.²⁰ It is critical that media outlets discuss the availability, affordability, and popularity of climate solutions so that the public and policy makers can make informed decisions.

Our analysis found that the media is falling far short here. In 2018, only 8 percent of newspaper articles, 5 percent of television transcripts, and 16 percent of online news articles mentioned solutions or mitigation in pieces discussing climate change. Like most other topics, these rates represent improvements over 2017, in which 6 percent of print newspaper articles, 13 percent of online news pieces, and 3 percent of television broadcasts mentioned mitigation or solutions. Full results on solutions are available in Table 3 below.

Conclusion

Climate change is the greatest crisis of our time. Responding to it adequately will require extraordinary engagement by the public and important decisions by both voters and policy makers. News media have a major role to play in providing key information about the crisis and solutions to inform those actions. One way to report on the subject is simply to connect everyday coverage to climate where relevant; another is to cover the climate crisis directly, including by discussing how we can mitigate it. This analysis finds that, on the whole, major news outlets fell short on both types of coverage in 2018.

¹⁹ See, e.g., Kirk Hamilton, Milan Brahmbhatt, Jiemei Liu, *Multiple benefits from climate change mitigation: Assessing the evidence*, Grantham Research Institute on Climate Change and the Environment (2017), <https://pubc.it/2ME7Pt4>; David Arkush, “How moving away from fossil fuels can save lives and lead to expanded health coverage,” *The Hill*, June 30, 2017, <http://pubc.it/2CSgS4U>.

²⁰ See, e.g., Timothy Cama, “Poll: Majorities of both parties support Green New Deal,” *The Hill*, Dec. 17, 2018, <https://pubc.it/2WxOKNE>; see generally, Yale Program on Climate Communication, *Yale climate opinion maps 2018*, Aug. 7, 2018, <https://pubc.it/2Wum882>.

Tables

Table 1. Search Terms

Topic	Search Terms*
Drought	("historic drought" OR "record drought" OR "severe drought" OR "extreme drought")
Floods	("historic flood*" OR "record flood*" OR "severe flood*" OR "extreme flood*")
Extreme heat	("heat record*" OR "record heat" OR "record heat wave*" OR "extreme heat" OR "severe heat" OR "historic heat")
Rainfall	("historic rainfall" OR "record rainfall" OR "severe rainfall" OR "extreme rainfall")
Wildfires	wildfire* /3 (historic OR severe OR extreme OR record OR record-setting OR record-breaking OR unprecedented OR catastrophic OR massive OR deadliest OR worst OR deadly)
Hurricanes	("hurricane michael") OR ("hurricane florence") OR ("hurricane harvey") OR ("hurricane irma") OR ("hurricane maria") OR ("hurricane nate")
Climate change and solutions	((("climate change" OR "global warming" OR "changing climate") /s solution) OR ((("climate change" OR "global warming" OR "changing climate") /s mitigat*) OR ((("climate change" OR "global warming" OR "changing climate") /s solv*)

* For Media Cloud, we used "AND" instead of proximity connectors such as "/3" or "/s".

Table 2. Mentions of extreme weather and climate change by the top 50 U.S. newspapers by circulation and six national television news networks, 2018

Topic	Sources	Mentioned Climate	2018		Mentioned Climate	2017	
			Total Pieces	Percentage		Pieces Total	Percentage
Drought	All Sources	283	811	34.9%	206	916	22.5%
	Newspapers	111	339	32.7%	63	356	17.7%
	Television	23	59	39.0%	15	56	26.8%
	Online News	149	413	36.1%	128	504	25.4%
Flooding	All Sources	17	113	15.0%	18	189	9.5%
	Newspapers	5	45	11.1%	6	88	6.8%
	Television	2	24	8.3%	4	29	13.8%
	Online News	10	44	22.7%	8	72	11.1%
Heat	All Sources	643	1,889	34.0%	514	1,642	31.3%
	Newspapers	251	756	33.2%	177	641	27.6%
	Television	57	258	22.1%	19	188	10.1%
	Online News	335	875	38.3%	318	813	39.1%
Rainfall	All Sources	136	514	26.5%	156	670	23.3%
	Newspapers	49	200	24.5%	48	251	19.1%
	Television	7	62	11.3%	7	64	10.9%
	Online News	80	252	31.7%	101	355	28.5%
Hurricanes	All Sources	2,038	29,187	7.0%	2,415	51,773	4.7%
	Newspapers	567	11,983	4.7%	623	18,996	3.3%
	Newspapers (Excluding FL, LA, and TX)	265	4,219	6.3%	339	7,920	4.3%
	Television	165	2,090	7.9%	181	3,115	5.8%
	Online News	1,041	10,895	9.6%	1,272	21,742	5.9%
Wildfire	All Sources	2,463	8,855	27.8%	1,031	5,067	20.3%
	Newspapers	507	1,746	29.0%	131	696	18.8%
	Newspapers (Excluding CA)	230	677	34.0%	65	341	19.1%
	Television	133	638	20.8%	29	355	8.2%
	Online News	1,593	5,794	27.5%	806	3,675	21.9%

Table 3. Mentions of mitigation or solutions and climate change by the top 50 U.S. newspapers by circulation and six national television news networks, 2018

Sources	2018			2017		
	Mentioned solutions	Total pieces on climate	Percentage	Mentioned solutions	Total pieces on climate	Percentage
All Sources	4,327	34,545	12.5%	5,063	48,990	10.3%
Newspapers	1,097	13,741	8.0%	926	15,228	6.1%
Television	69	1,429	4.8%	61	1,967	3.1%
Online News	3,161	19,375	16.3%	4,076	31,795	12.8%