

**Climate Matters:
A 2020 Census Survey of Television Weathercasters in the United States**

September 2020

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Cite as: Maibach, E., Yagatich, W., Campbell, E., Borth, A., Patzer, S., Timm, K., & Craig R. (2020).
Climate Matters: A 2020 census survey of television weathercasters in the United States. *Center for
Climate Change Communication, George Mason University.*

Available at: https://www.climatechangecommunication.org/all/weathercaster_2020/.

DOI: 10.13021/bhn0-eg85

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Introduction

This report provides the initial findings from an online census survey of U.S.-based television weathercasters. The survey was conducted to gain insights for the continued refinement of *Climate Matters*, a National Science Foundation-funded collaboration between George Mason University, Climate Central, NASA, the National Oceanic and Atmospheric Administration (NOAA), and the American Meteorological Society (AMS)—the aim of which is to enable local, science-based reporting about climate change by TV weathercasters. In this survey, we explored TV weathercasters' views of climate change, their experiences and interest in covering climate change, and their familiarity with and use of *Climate Matters* reporting resources.

The survey was conducted in early 2020. All people currently working as television weathercasters in the United States in December 2019 were invited to participate. In total, 2,188 television weathercasters were invited to participate via an email sent on January 6th; five additional requests to participate were sent throughout the month. By February 6th, when the survey closed, 570 television weathercasters had participated in the survey, yielding a survey participation rate of 26.1%. Of those who participated, 491 completed the survey in its entirety, yielding a completion rate of 22.4%.

In this survey, we found some important changes in the climate change views and reporting practices of TV weathercasters, as compared to the findings from a similar survey we conducted in 2017. On the whole, weathercasters are now: more certain the climate is changing; more convinced climate change is mostly human-caused; more likely to understand the extent of the scientific consensus about human-caused climate change; more likely to believe that additional global warming can be limited; more likely to think the climate has changed in their local area; more likely to see a range of harmful climate change impacts in their local area—as well as some beneficial impacts; more interested in reporting climate stories; more likely to think their audience is interested in hearing local climate stories; and more likely to have actually reported climate stories on-air and through other channels.

We wish to thank the American Meteorological Society for its support in conducting this survey. We also sincerely thank the 570 weathercasters who took time out of their busy schedules to participate. We hope they will find the information in this report enlightening and useful.

Funding for this research was provided by NSF Award #DRL 1713450. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.

Notes:

Due to rounding error, the figures in this report do not always total to 100%.
Open-ended responses will be coded and reported at a future date.

Summary of Findings

Science Reporting

- Eight out of ten survey participants (80%) are familiar with the AMS ‘Station Scientist’ initiative.
- Nine out of ten survey participants (90%) say they currently fill the ‘Station Scientist’ role at their stations, definitively (45%) or to some degree (45%).
- Nearly 6 out of 10 survey participants (57%) say they have reported longer-format science stories on-air in the past 12 months.

General Views about Climate Change

- Nearly all survey participants (95%) think climate change is happening, while 2% think it is not, and 3% say they do not know. More than half (54%) say they are extremely sure global warming is happening—which is an 8-percentage point increase from 2017¹—and another third (32%) say they are very sure.
- Two-thirds of survey participants (67%) say they are more certain that climate change is happening now than they were 5 years ago.
- Two-thirds of survey participants (66%) say the global warming over the past 50 years has been caused mostly (42%) or entirely (24%) by human activity, while 16% say it has been caused more or less equally by human and natural causes. Thus, more than 8 out of 10 weathercasters (82%) think human-activity is a major cause of global warming—which is a 12-percentage point increase since 2017.¹ Conversely, relatively few think it has been caused mostly (8%) or entirely (5%) by natural causes.
- One quarter of survey participants are aware that 97% or more of climate scientists think human-caused global warming is occurring, and nearly half (47%) think the scientific consensus is 90% or greater—a 5-percentage point increase since 2017.¹

Understanding and Explaining Climate Change

- Nearly 9 out of 10 survey participants (88%) feel they know the science of climate change at least somewhat well, with 6 out of 10 saying they know the science of climate change moderately well (41%) or very well (19%).
- Survey participants had varying levels of confidence in their ability to explain various relevant climate change concepts to their viewers. On a 0 to 100 scale, survey participants expressed most confidence in their ability to explain the climate impacts in the U.S. (mean = 74/100), the causes of climate change (73), and the climate impacts in the area covered by

their media market (73). They expressed less confidence in their ability to explain mitigation strategies (60), climate engineering (59), radiative forcing (56), and adaptation strategies (46).

Perceptions of Mitigation and Adaptation

- More than 9 out of 10 of survey participants (91%) think that at least some amount of additional climate change can be averted over the next 50 years, if mitigation measures are taken worldwide. Nearly two-thirds (65%) think a moderate amount (47%) or a large amount (18%) of climate change can be averted—which is a 9-percentage point increase since 2017.¹
- More than 9 out of 10 survey participants (93%) think at least some harm from climate change can be averted in the United States over the next 50 years, if adaptation measures are taken. More than two-thirds (68%) think a moderate amount (48%) or a large amount (20%) of harm can be averted.

General Attitudes about Climate Change, Climate Models, and Climate Reporting

- Survey participants are divided more or less equally on whether or not reporting on climate change should reflect a balance of viewpoints—like political or issue reporting.
- Nearly 9 out of 10 survey participants disagree (25%) or strongly disagree (62%) with the statement that “global warming is a scam,” while fewer than 1 out of 10 agree (4%) or strongly agree (3%) with the statement. Disagreement with this statement has increased 42-percentage points since 2010.²
- More than 8 out of 10 survey participants agree (52%) or strongly agree (33%) that global climate models help to understand planetary trends such as increases in global mean temperature. Agreement with the statement has increased 32-percentage points since 2010.¹

Perceptions of Local Impacts from Climate Change

- More than three-fourths of survey participants (77%) say the local climate has changed over the past 50 years in the area covered by their media market—which is a 15-percentage point increase since 2017.¹
- Of those weathercasters who think the climate in their area has changed over the past 50 years, nearly all (97%) think there have been harmful impacts. Most think the local impacts of climate change have been primarily (50%) or exclusively (5%) harmful—which is a 16-percentage point increase since 2017¹—while another 4 out of 10 (42%) say the impacts have been equally mixed between harmful and beneficial—which is a 7-percentage point decrease since 2017.¹
- Half or more of survey participants who think the climate in their area has changed say there have been a range of harmful impacts, including on seasonal cycles (73%), agricultural resources (70%), water resources (61%), infrastructure (59%), eco-systems or forests (56%), and coastal property (52%). More than 4 out of 10 also say harmful impacts have occurred

to human health (45%), the economy (45%), and tourism, recreation, or leisure (41%) in their area. These proportions of harmful impacts have increased sharply since 2017¹: 25-percentage points for seasonal cycles, 20 points for agricultural resources, 14 points for water resources, 28 points for infrastructure, 13 points for ecosystems or forests, 18 points for coastal property, 12 points for human health, 19 points for the economy, and 16 points for tourism, recreation, or leisure.

- More than half of survey participants who think the climate in their area has changed say there have been beneficial impacts on seasonal cycles (55%), while about one-fourth say tourism, recreation, or leisure (27%) and social cohesion (23%) have benefited. About one-fifth say the economy (20%), and agricultural resources (20%) have benefitted, and smaller numbers say there have been beneficial impacts of climate change on water resources (12%), human health (11%), energy resources (11%), ecosystems or forests (10%), infrastructure (5%) and coastal property (3%). Since 2017¹, there has been a 13-percentage point increase in the number of weathercasters identifying beneficial impacts seasonal cycles, and a 6 point decrease in those identifying beneficial impacts on energy resources.

Climate Reporting: Interests and Experiences

- Fully 9 out of 10 survey participants (91%) say they are at least somewhat interested in reporting local historical climate statistics on-air—nearly half (48%) are very interested. More than 8 out of 10 (84%) say they are at least somewhat interested in reporting the current local climate impacts on-air—40% are very interested. About three quarters (76%) say they are at least somewhat interested in reporting the future projected local climate impacts on-air—one third are very interested. About 8 out of 10 (81%) say they are at least somewhat interested in reporting local adaptation efforts on-air—about one third (34%) are very interested. About 8 out of 10 (78%) say they are at least somewhat interested in reporting local mitigation efforts on-air—one third are very interested. And about 8 out of 10 (78%) say they are at least somewhat interested in reporting how audiences may protect themselves on-air—more than a third (37%) are very interested. The proportion of weathercasters who are very interested in reporting on all of these local climate change topics has increased since 2017¹: 8-percentage points for historical climate statistics, 17 points for current climate impacts, 13 points for future projected impacts, 11 points for local adaptation efforts, 12 points for local mitigation efforts, and 16 points for what audience members can do to protect themselves.
- Nearly 8 out of 10 survey participants (79%) say their audience is at least somewhat interested in learning about local historical climate statistics—19% say their audience is very interested. About three quarters (76%) say their audience is at least somewhat interested in learning about current local climate change impacts—21% say their audience is very interested. Seven out of 10 (70%) say their audience is at least somewhat interested in learning about future projected local climate change impacts—17% say their audience is very interested. About two thirds (67%) say their audience is at least somewhat interested in learning about local adaptation efforts—14% say their audience is very interested. About 6 out of 10 (62%) say their audience is at least somewhat interested in learning about local mitigation efforts—12% say their audience is very interested. And seven out of 10 survey

participants say their audience is at least somewhat interested in learning about what audience members can do to protect themselves—18% say their audience is very interested. The proportion of weathercasters who say their audiences are very interested in learning about some of these local climate change topics has increased slightly since 2017¹: 8-percentage points for current climate impacts, 5 points for future projected impacts, 6 points for local adaptation efforts, and 6 points for what audience members can do to protect themselves.

- Nearly two-thirds of survey participants (65%) say they used social media in the past 12 months to inform their audience or other members of their community about the local impacts of climate change. More than half also shared information about the local impacts of climate change on-air (56%), at school visits (55%), and other community visits (51%), and more than 4 out of 10 used their station's website (49%) or social media accounts (44%). The proportion of weathercasters who say they informed their viewers about the local impacts of climate change has increased dramatically since 2017¹: 20-percentage points on-air, 16 points in their own social media accounts, 14 points during school visits, 12 points during community presentations, 14 points on their station's website, and 12 points in their station's social media accounts.
- Of those survey participants who had reported on the local impacts of climate change on-air in the past 12 months, nearly 6 out of 10 (58%) did so four or fewer times during the year, and 14% did so 5 to 9 times. Nearly three out of 10 (29%) reported 10 or more local climate impacts stories over the past year—a 9-percentage point increase since 2017.¹
- Of those survey participants who had used their own social media to inform their audience about the local impacts of climate change in the past 12 months, nearly about half (51%) did so four or fewer times during the year, and 15% did so 5 to 9 times. About one third (34%) reported 10 or more local climate impacts stories over the past year—an increase of 7-percentage points since 2017.¹
- Most survey participants (60%) had not reported any longer-format climate change stories outside of the weather segment in the past 12 months. About one-quarter (26%) had reported a 1 or 2 longer-format climate stories, and 14% had reported 3 or more—a 12-percentage point increase since 2017.¹
- Half of the survey participants are at least somewhat interested in reporting longer-format climate change stories outside of the weather segment—a 6-percentage point increase since 2017.¹
- More than 4 out of 10 survey participants (44%) say they never or rarely present an opposing viewpoint when presenting climate change stories—an increase of 20-percentage points since 2017¹—while 19% do so about half the time or less, and 14% do so most of the time or always.
- Nearly 4 out of 10 survey participants (38%) receive predominantly positive feedback when they report climate change stories on-air, while nearly one quarter (23%) receive equal



amounts of positive and negative feedback, and 15% receive predominantly negative feedback. Fully one quarter say they get few reactions either way.

- About one third of survey participants (35%) receive predominantly positive feedback when they report climate change stories on social media, while one quarter (25%) receive nearly equal amounts of positive and negative feedback, and 28% receive predominantly negative feedback. About 1 out of 10 (13%) say they receive few reactions either way.
- Among those survey participants who had not reported about climate change on-air in the past year, only about 1 out of 10 (11%) expect to receive predominantly positive feedback from viewers if they were to do so, while about one third (32%) expect equal amounts of positive and negative feedback. The majority (52%) expect to receive predominantly negative feedback if they were to report on climate change.
- Slightly more than 3 out of 10 survey participants (31%) say they have altered the way they present climate change information to their viewers as a result of recent changes in the political climate in the United States, and an additional 14% say they are not sure.
- Of those survey participants who say the current political climate has altered how they present climate information, more than 4 out of 10 (43%) say they have decreased their climate change reporting, while nearly 2 out of 10 (17%) have increased their reporting. About 2 out of 10 (18%) say they have altered where they report on climate change (e.g., moving from on-air to online), or have changed the focus of their reporting (19%).

Climate Matters: Awareness and Experiences

- Fully two-thirds of survey participants (67%) were familiar with *Climate Matters* prior to taking the survey.
- Of those survey participants who were familiar with *Climate Matters* prior to the survey, more than three-fourths (78%) currently receive *Climate Matters* materials.
- Of those survey participants who receive *Climate Matters* materials, more than 8 out 10 (84%) say they have used the materials.
- Of those survey participants who use *Climate Matters* resource materials, about 7 out 10 (72%) say it is very easy to use *Climate Matters* graphics in social media, while more than 4 out of 10 say the graphics are very easy to use on-air (46%) and on their station's website (43%). Their use of the *Climate Matters* online media library (where all past story packages are on file) in the past 12 months ranged considerably, from those who say they visited the media library at least twice per month (23%), to those who visited only once or twice (23%), or never (7%).
- Of those survey participants who visited the *Climate Matters* online media library, nearly 8 out 10 say it is somewhat (45%) or very (33%) easy to find what they are looking for on it.



- Of those survey participants who have used *Climate Matters* resource materials, fewer than 1 out of 10 (7%) regularly attend *Climate Matters* webinars, although 3 out of 10 are interested but have found it difficult to attend, and more than half (54%) have not attended but would like to learn more. Fewer than 1 out of 10 (9%) are not interested in attending.

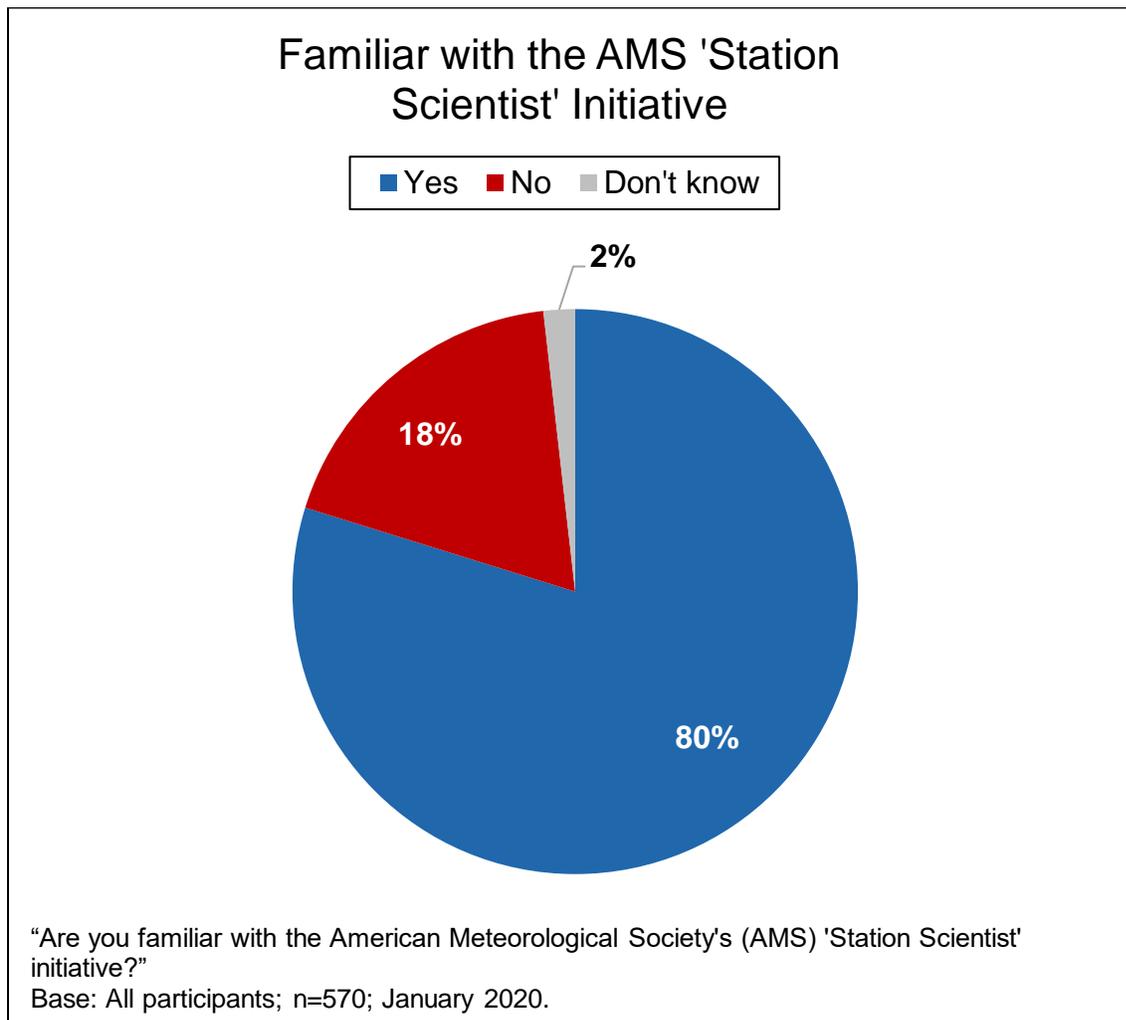


The Role of ‘Station Scientist’

The survey began with questions about the American Meteorological Society ‘Station Scientist’ initiative. The AMS defines this initiative as an effort for broadcast meteorologists to cover a broader range of science topics for their station in addition to the weather forecast. This includes agriculture, transportation, energy use, environmental and space issues, weather and climate impacts on public health, and other topics.

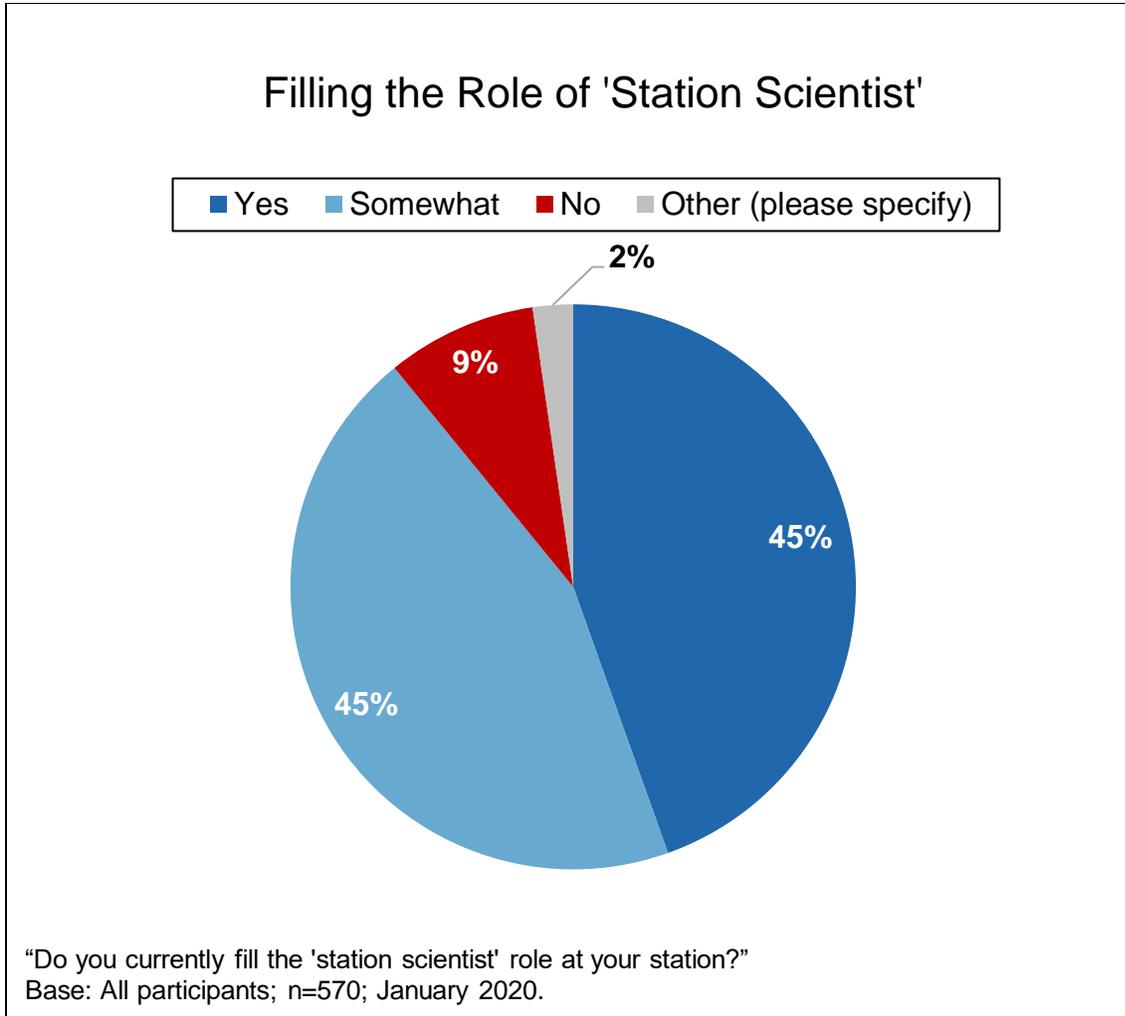
Familiarity with the AMS ‘Station Scientist’ Initiative

Eight out of ten survey participants (80%) are familiar with the AMS ‘Station Scientist’ initiative.



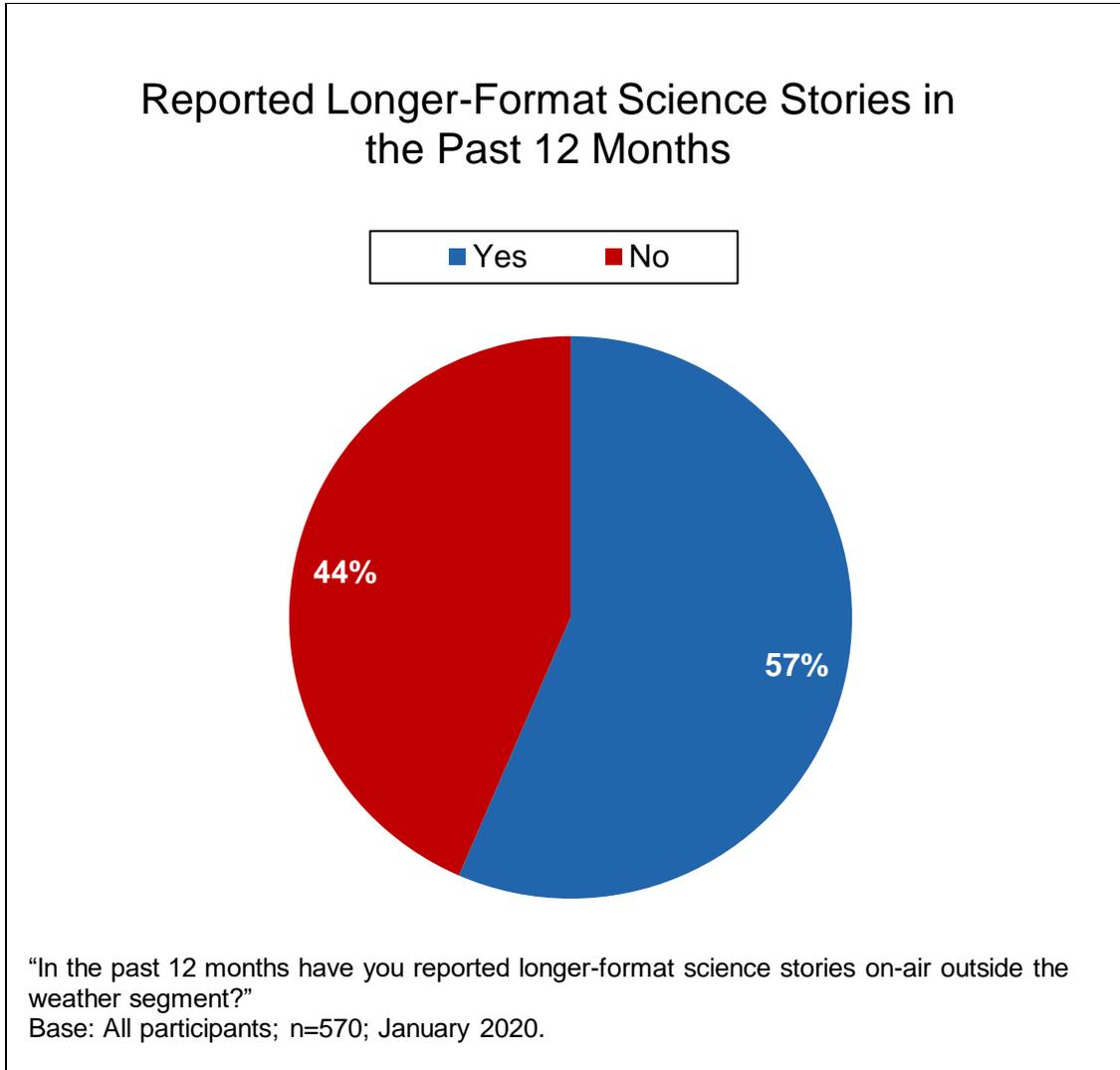
Filling the Role of 'Station Scientist'

Nine out of ten survey participants (90%) say they currently fill the 'Station Scientist' role at their stations, definitively (45%) or to some degree (45%).



Reporting Longer-Format Science Stories On-Air

Nearly 6 out of 10 survey participants (57%) say they have reported longer-format science stories on-air in the past 12 months.



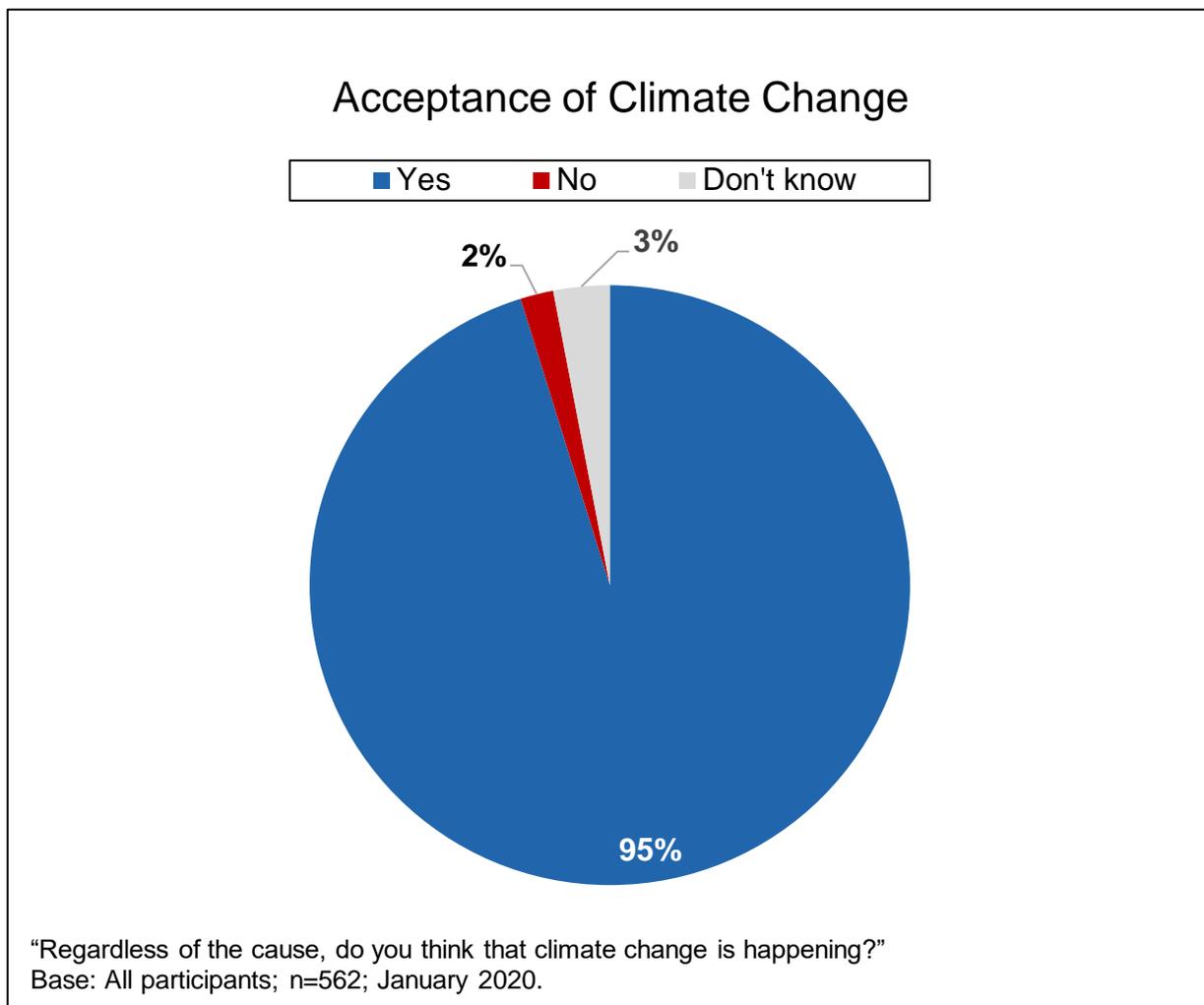
Certainty that Climate Change is Happening

Prior research has shown that the vast majority of climate scientists—97% or more—are convinced that human-caused climate change is happening,³ and that none of the 20,813 peer-reviewed climate science papers published in 2019 rejected the reality of human-caused climate change.⁴ Moreover, the 2018 U.S. National Climate Assessment found that a range of impacts from global climate change are already occurring in every region of the United States.

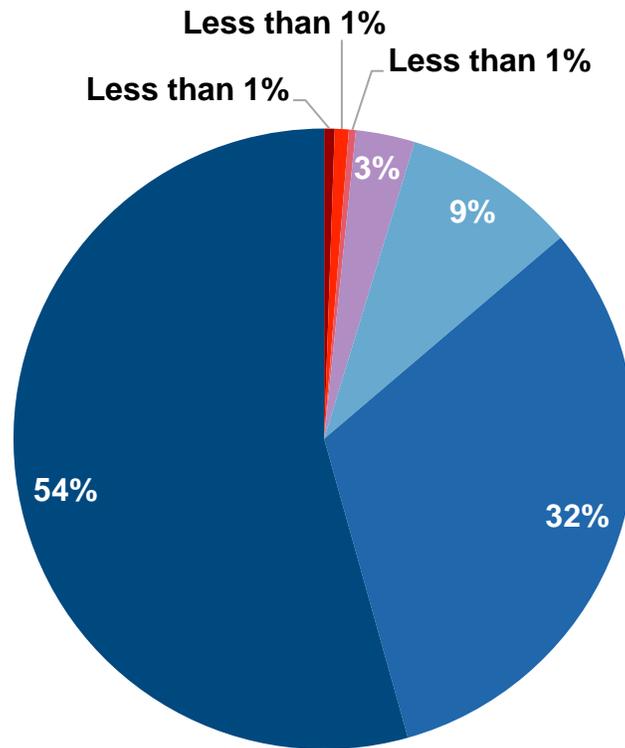
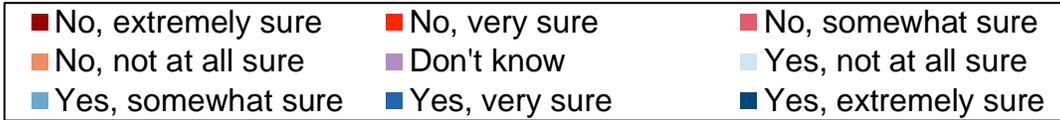
We asked two questions to determine if weathercasters think, regardless of the causes, climate change is or is not happening, and how certain they are.

Certainty

Nearly all survey participants (95%) think climate change is happening, while 2% think it is not, and 3% say they do not know. More than half (54%) say they are extremely sure global warming is happening—which is an 8-percentage point increase from 2017¹—and another third (32%) say that are very sure.



Certainty that Climate Change Is or Is Not Happening



“Regardless of the cause, do you think that climate change is happening?”

“How sure are you that climate change is happening?”

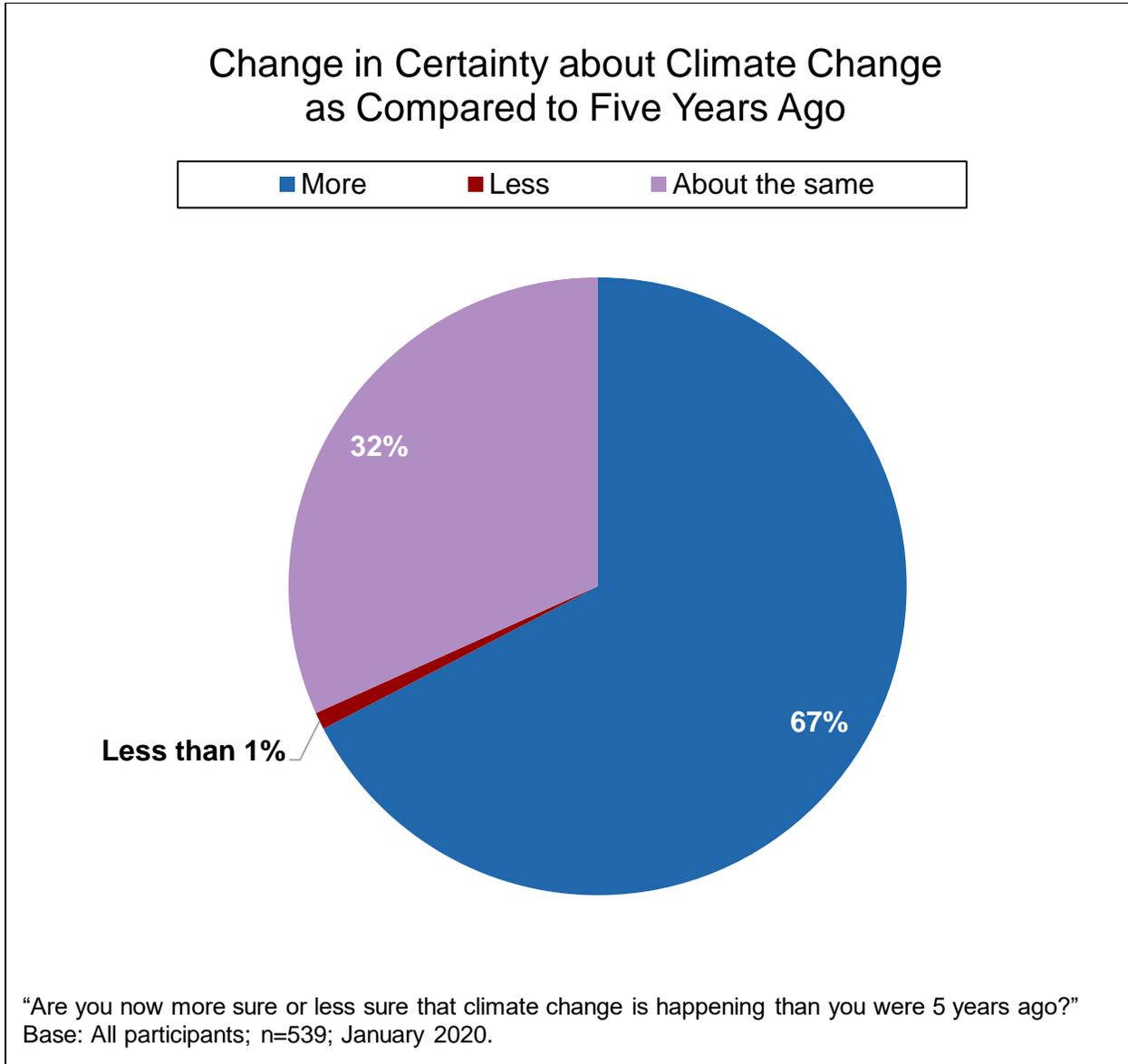
“How sure are you that climate change is not happening?”

Base: All participants who answered “Regardless of the cause, do think that climate change is happening?” and answered either “How sure are that climate change in not happening?” or “How sure are you that climate change is happening?”; n=555; January 2020.



Certainty as Compared to 5 Years Ago

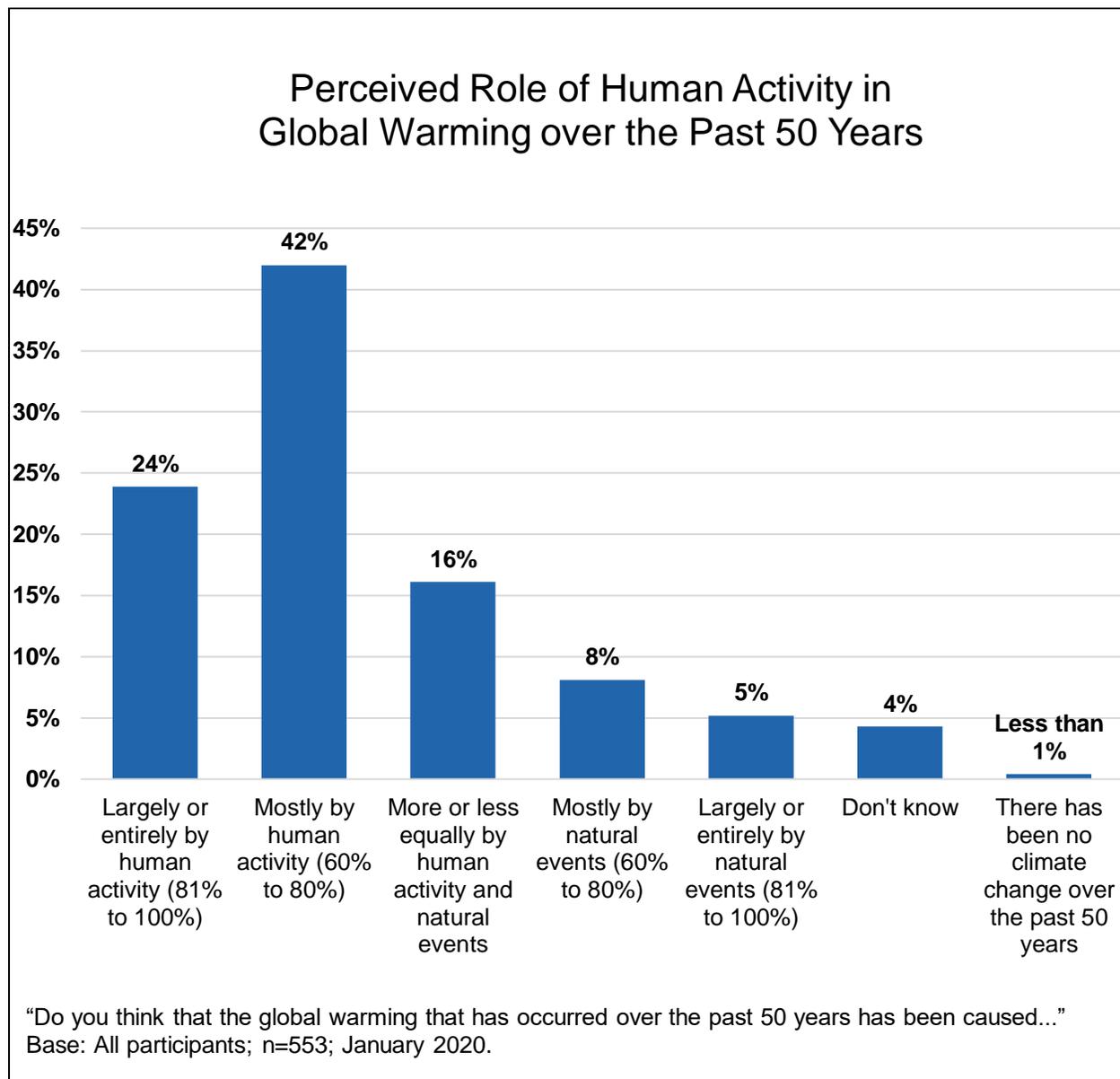
More than two-thirds of survey participants (67%) say they are more certain that climate change is happening now than they were 5 years ago.



Views on Human Causation of Global Warming

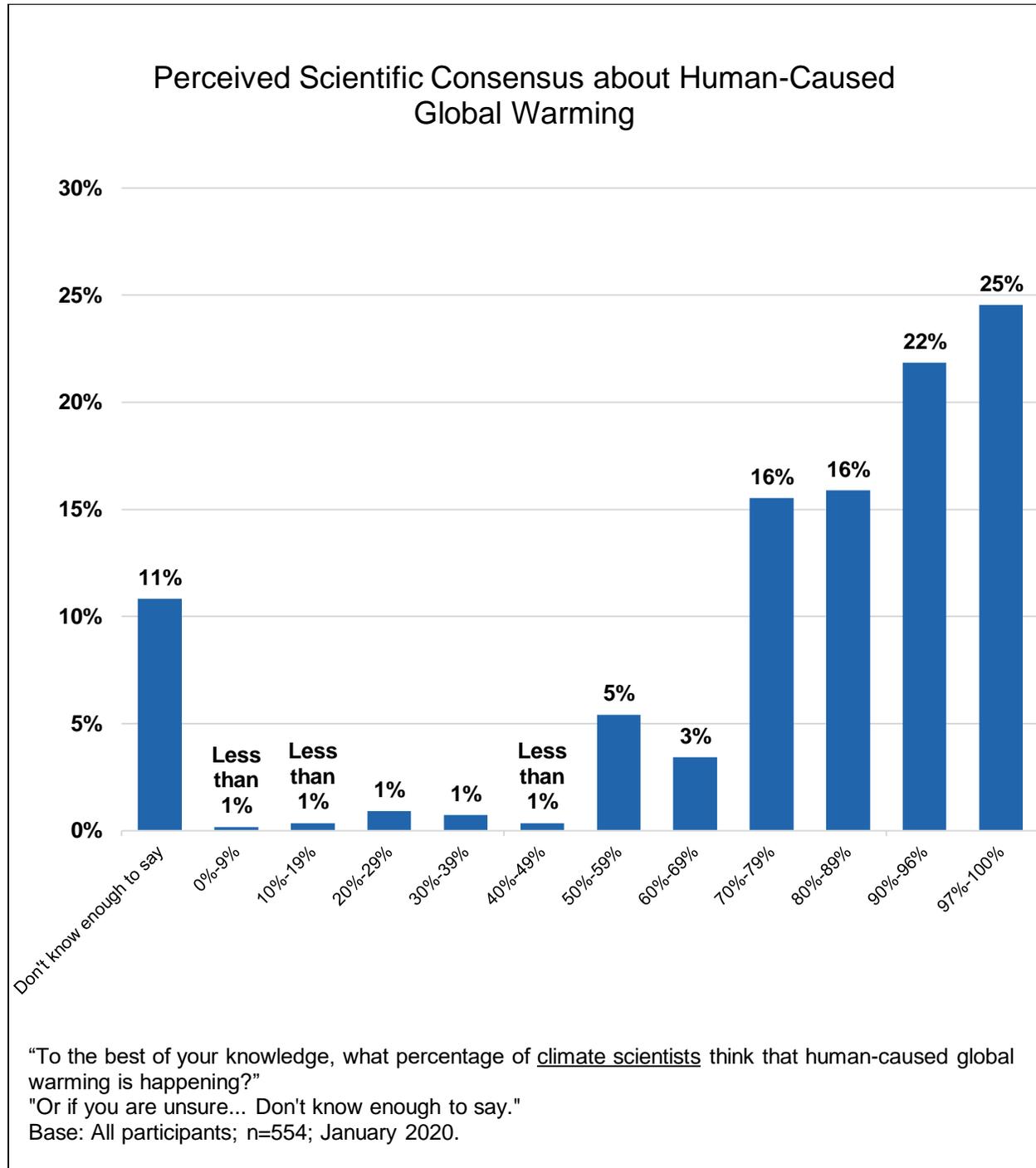
Causes of Global Warming

Two-thirds of survey participants (66%) say the global warming over the past 50 years has been caused mostly (42%) or entirely (24%) by human activity, while 16% say it has been caused more or less equally by human and natural causes. Thus, more than 8 out of 10 weathercasters (82%) think human-activity is a major cause of global warming—which is a 12-percentage point increase since 2017.¹ Conversely, relatively few think it has been caused mostly (8%) or entirely (5%) by natural causes.



Perceived Scientific Consensus about Human-Caused Global Warming

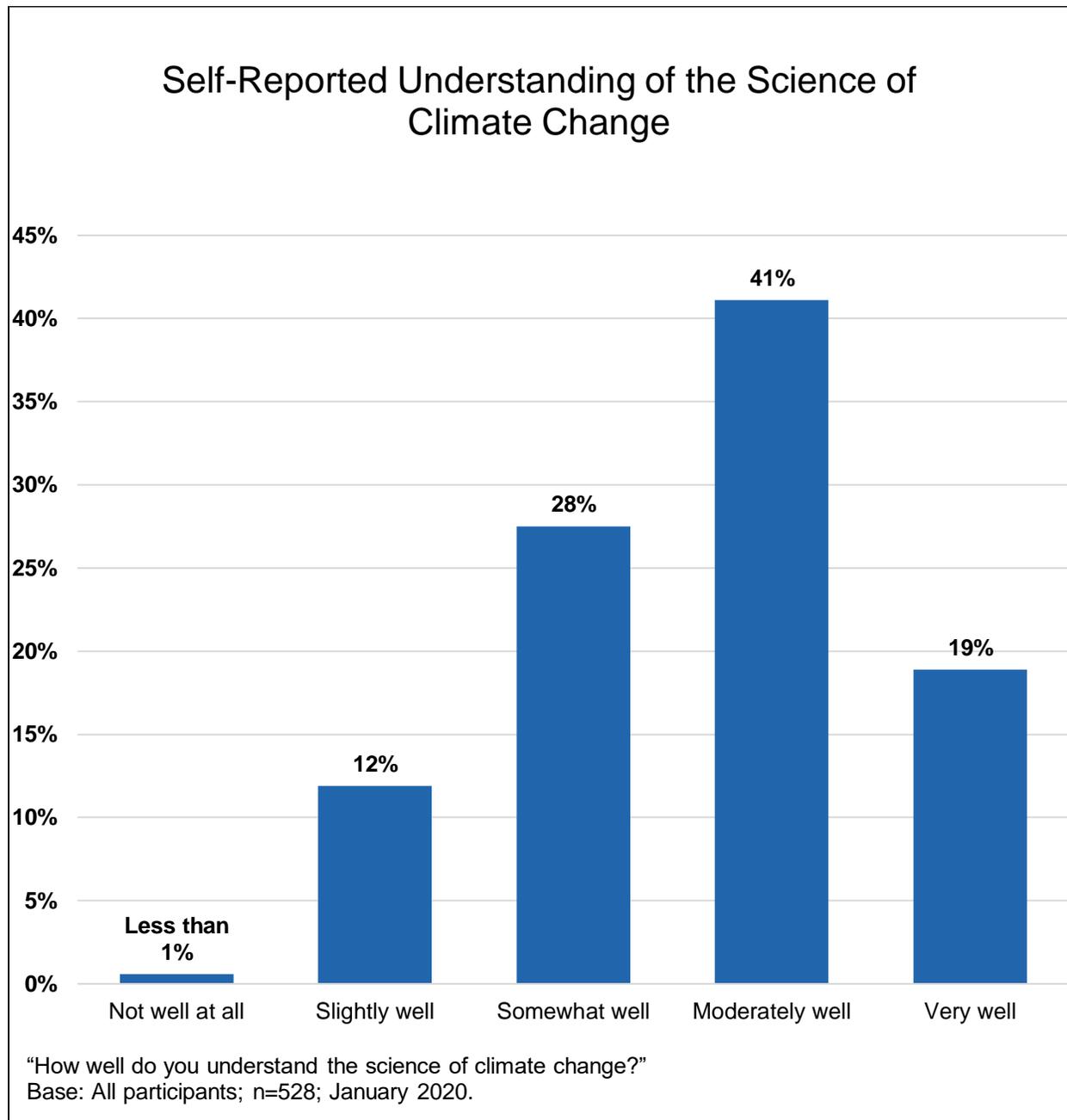
One quarter of survey participants are aware that 97% or more of climate scientists think human-caused global warming is occurring, and nearly half (47%) of survey participants think the scientific consensus is 90% or greater—a 5-percentage point increase since 2017.¹



Understanding and Explaining Climate Change

Understanding Climate Change

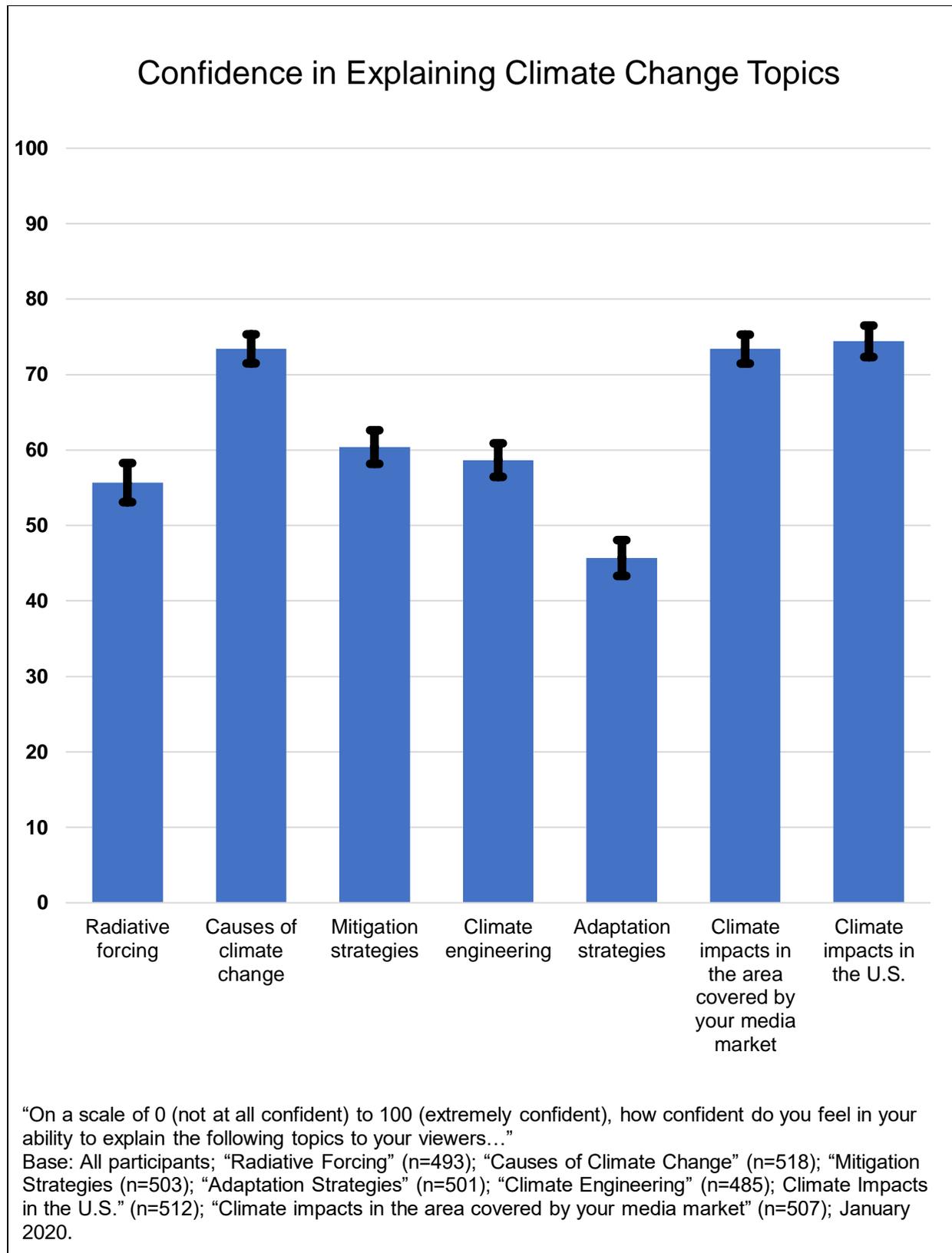
Nearly 9 out of 10 survey participants (88%) feel they know the science of climate change at least somewhat well, with 6 out of 10 saying they know the science of climate change moderately well (41%) or very well (19%).



Confidence in Explaining Climate Change

We assessed weathercaster’s confidence (i.e., their self-efficacy) in their ability to explain various relevant climate change concepts to their viewers. Extensive prior research has shown that self-efficacy beliefs have a powerful influence on people’s behavior—including the behavior of professionals in a variety of occupations—such that strong perceptions of self-efficacy foster the performance of the relevant behavior.⁵

The figure below illustrates the mean scores of survey participants’ confidence in explaining various aspects of climate change, where the error bars represent the margin of error in estimating those means. Overall, survey participants are most confident in their ability to explain climate impacts in the U.S. (mean = 74/100), causes of climate change (73), and climate impacts in the area covered by their media market (73). In contrast, survey participants were not as confident in their ability to explain mitigation strategies (60), climate engineering (59), radiative forcing (56), and adaptation strategies (46).

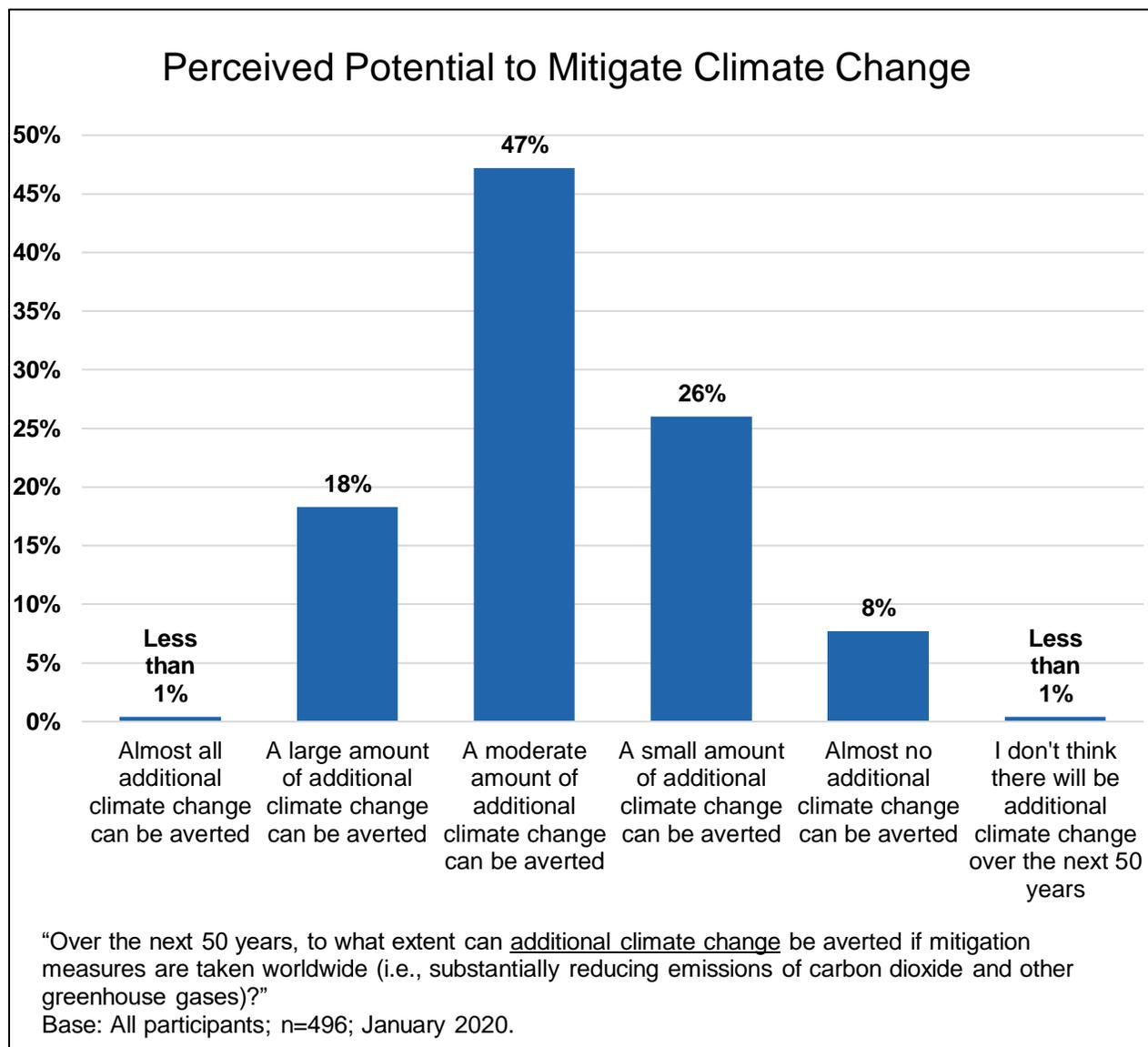


Perceptions of Climate Change Mitigation and Adaptation

The current impacts of climate change are a matter of facts. Future impacts, however, are less certain and will be largely influenced by human decisions and actions going forward. We asked television weathercasters for their views on the extent to which climate change can be prevented and harm averted, if appropriate actions are taken.

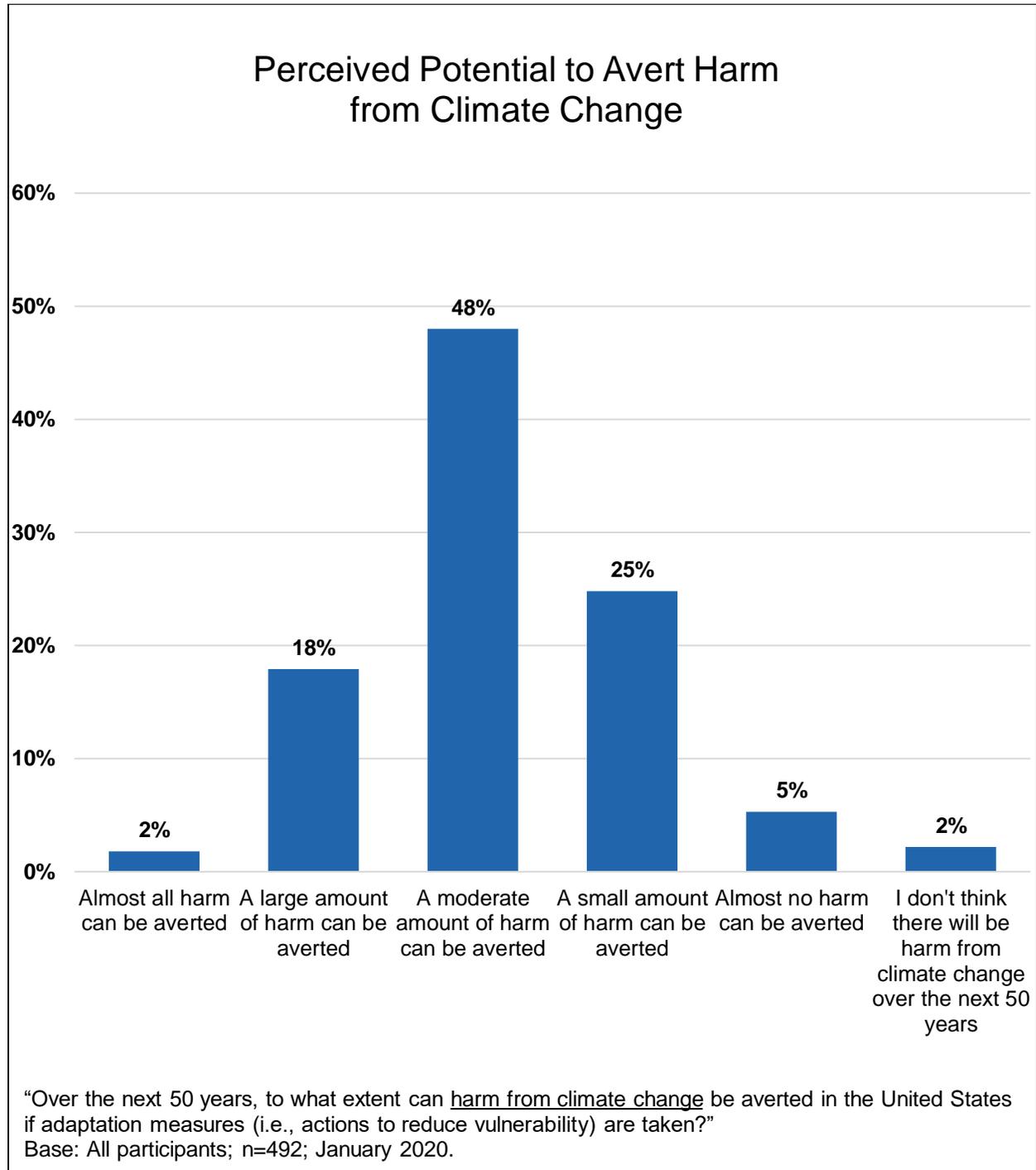
Averting Additional Climate Change

More than 9 out of 10 survey participants (91%) think that at least some amount of additional climate change can be averted over the next 50 years, if mitigation measures are taken worldwide. Nearly two-thirds (65%) think a moderate amount (47%) or large amount (18%) of climate change can be averted—which is a 9-percentage point increase since 2017.¹



Averting Harm from Climate Change

More than 9 out of 10 survey participants (93%) think at least some harm from climate change can be averted in the United States over the next 50 years, if adaptation measures are taken. More than two-thirds (68%) think a moderate amount (48%) or large amount (20%) of harm can be averted.



Attitudes About Global Warming and Climate Reporting

Social science research has shown that people’s attitudes often influence their behavior. We assessed three general attitudes to shed light on weathercasters’ larger views about climate change and climate reporting.

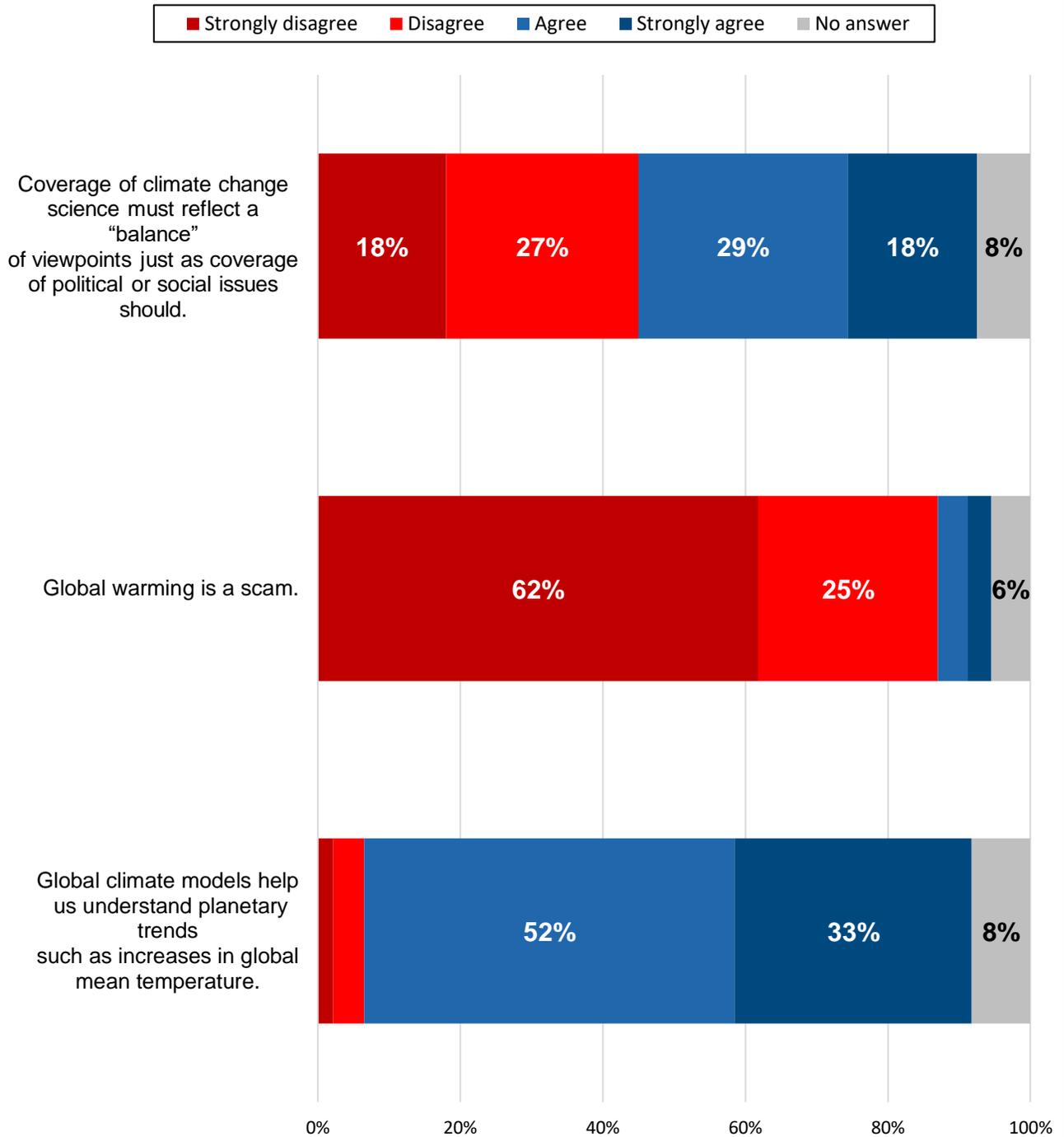
We found that survey participants are divided more or less equally on whether or not—like political or issue reporting—reporting on climate change should reflect a balance of viewpoints. This is relevant because, given the consensus among experts that human-caused climate change is occurring, climate communication scholars have argued that presenting “balanced” reporting about the reality of climate change is, in fact, biased.⁶

In contrast, nearly 9 out of 10 survey participants disagree (25%) or strongly disagree (62%) with the statement that “global warming is a scam,” while fewer than 1 out of 10 agree (4%) or strongly agree (3%) with the statement. This is relevant because a national survey of U.S. TV weathercasters conducted in 2010 found that, at that time, fewer than 5 out of 10 weathercasters disagreed (25%) or strongly disagreed (20%) with the statement, while nearly 3 out of 10 agreed (17%) or strongly agreed (9%).² Thus, disagreement with the statement has increased 42-percentage points over the past decade.

More than 8 out of 10 survey participants agree (52%) or strongly agree (33%) that global climate models help to understand planetary trends such as increases in global mean temperature. This represents a major increase in this attitude among weathercasters over the past decade. In 2010², only slightly more than half of weathercasters agreed (40%) or strongly agreed (13%) that global climate models were helpful in understanding planetary trends. Thus, agreement with the statement has increased 32-percentage points over the past decade.



How Much Do You Agree or Disagree With the Following Statements...



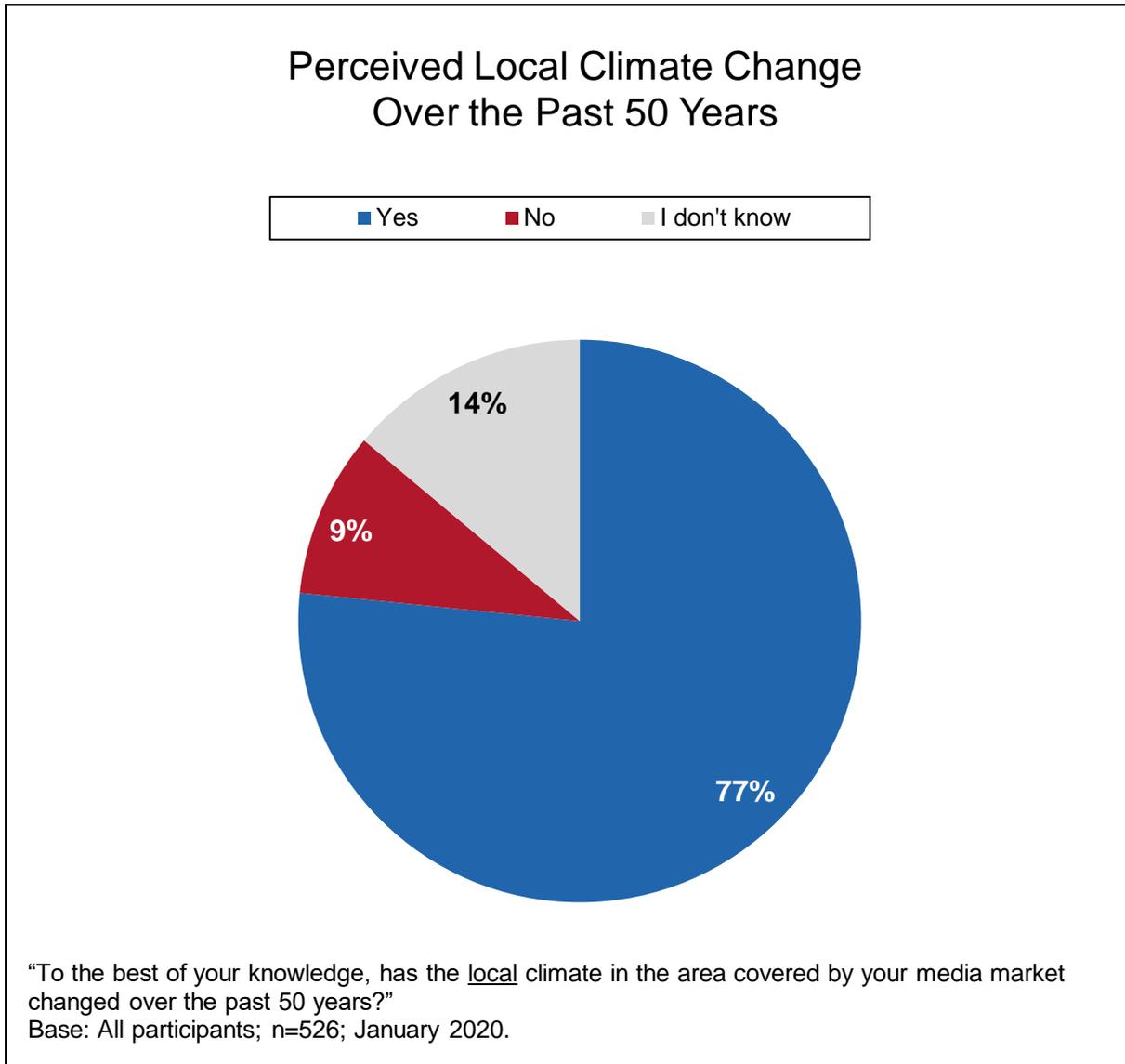
"How much do you agree or disagree with the following statements:."

Base: All participants; n=523; January 2020; Data labels are not pictured for amounts less than 5%.

Perceptions of Local Climate Change

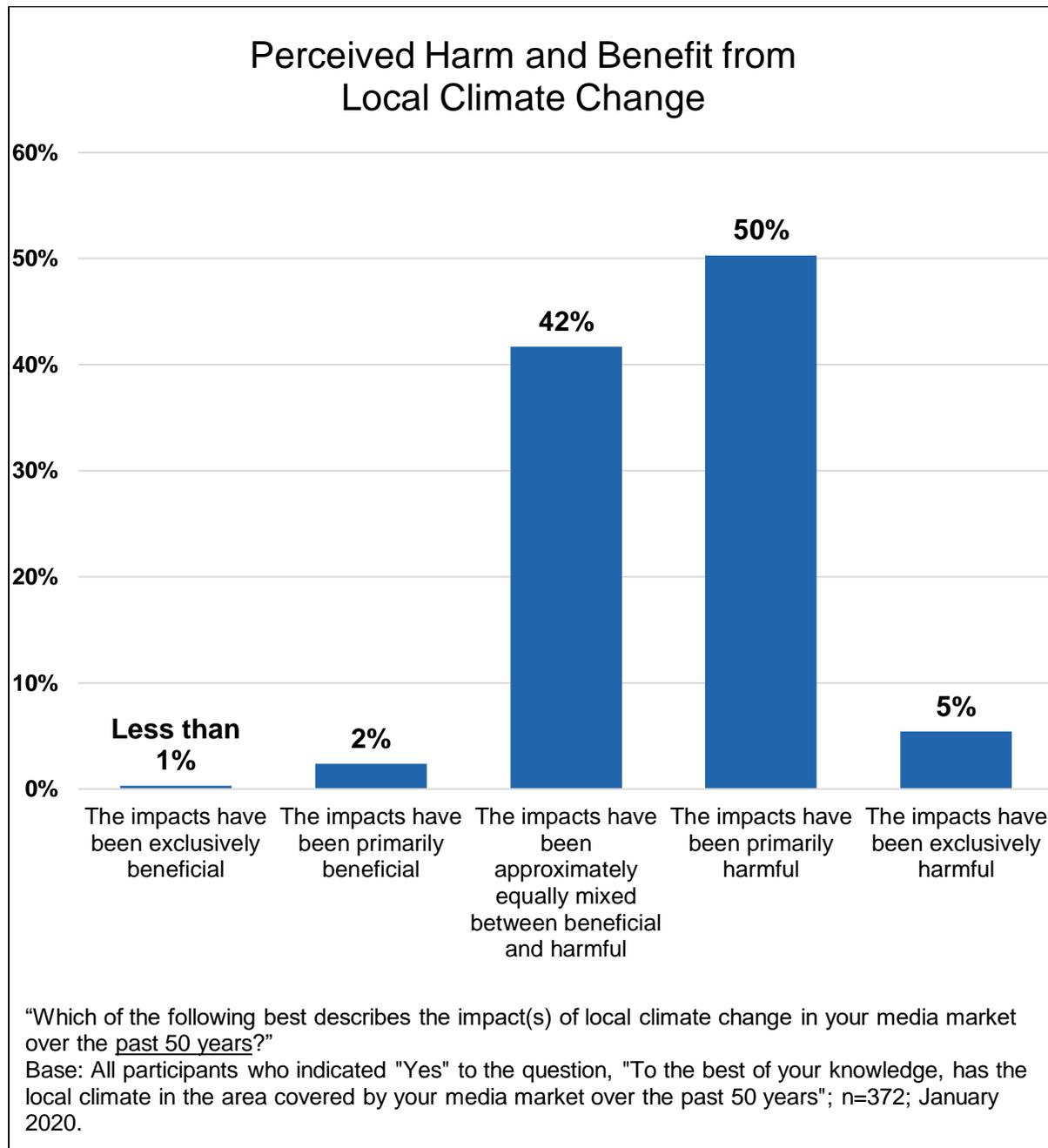
Perceived Local Climate Change

More than three-fourths of survey participants (77%) say the local climate has changed over the past 50 years in the area covered by their media market—which is a 15-percentage point increase since 2017.¹



Harmful or Beneficial Impacts

Of those weathercasters who think the climate in their area has changed over the past 50 years, nearly all (97%) think there have been harmful impacts of climate change in their area. Most think the local impacts of climate change have been primarily (50%) or exclusively (5%) harmful—which is a 16-percentage point increase since 2017.¹ Another 4 out of 10 (42%) say the impacts have been equally mixed between harmful and beneficial—a 7-percentage point decrease since 2017.¹

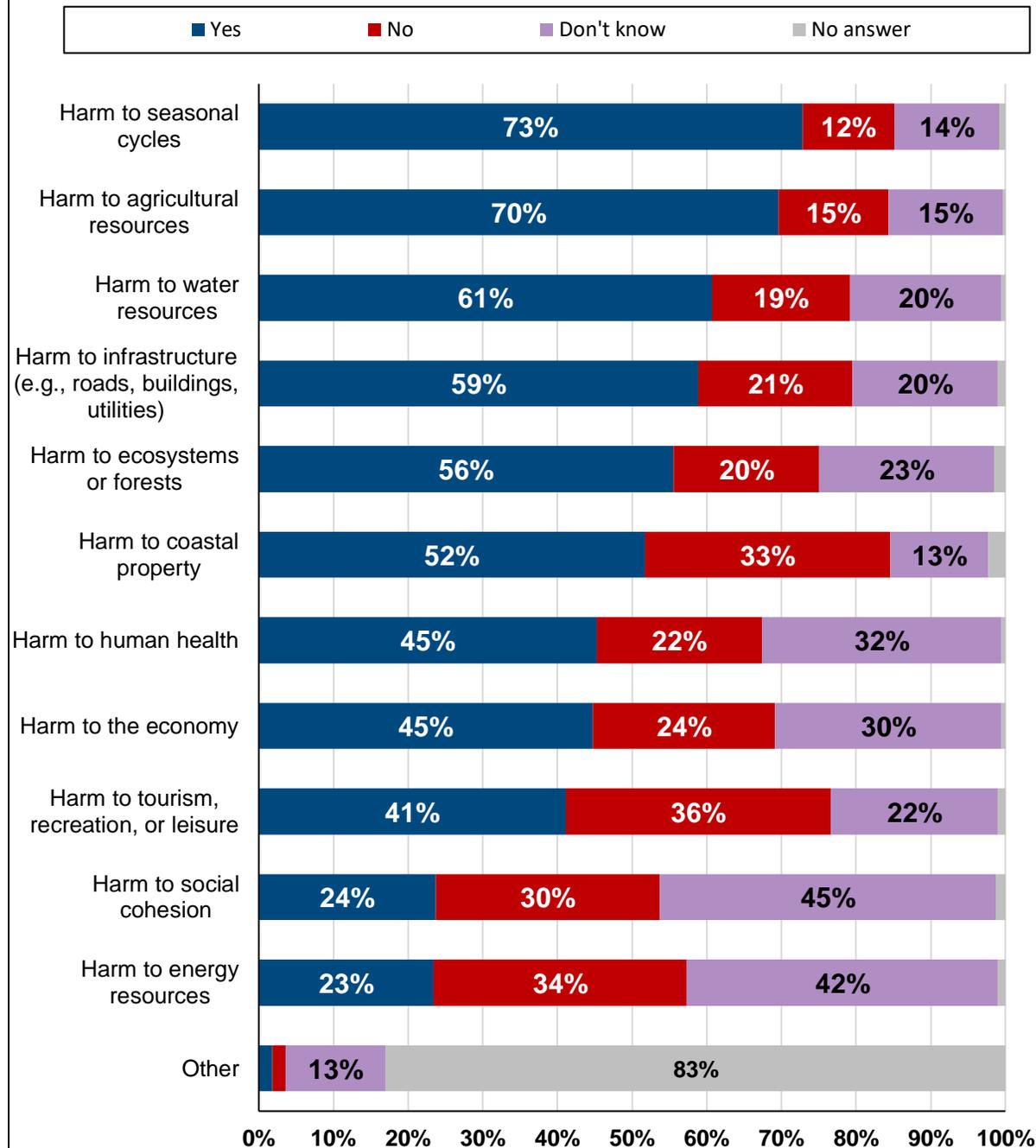


Harmful Impacts of Local Climate Change

Survey participants who think there have been climate change impacts in their area—whether harmful or beneficial—were asked which specific harmful impacts had occurred. Half or more of survey participants say there have been a range of harmful impacts in their area, including on seasonal cycles (73%), agricultural resources (70%), water resources (61%), infrastructure (59%), eco-systems or forests (56%), and coastal property (52%). More than one third also say harmful impacts have occurred to human health (45%), the economy (45%), and tourism, recreation, or leisure (41%) in their area. These proportions of harmful impacts have increased sharply since 2017¹: 25-percentage points for seasonal cycles, 20 points for agricultural resources, 14 points for water resources, 28 points for infrastructure, 13 points for ecosystems or forests, 18 points for coastal property, 12 points for human health, 19 points for the economy, and 16 points for tourism, recreation, or leisure.



Harmful Impacts of Local Climate Change



“Have any of the following harmful impacts of climate change occurred in your media market over the past 50 years?”

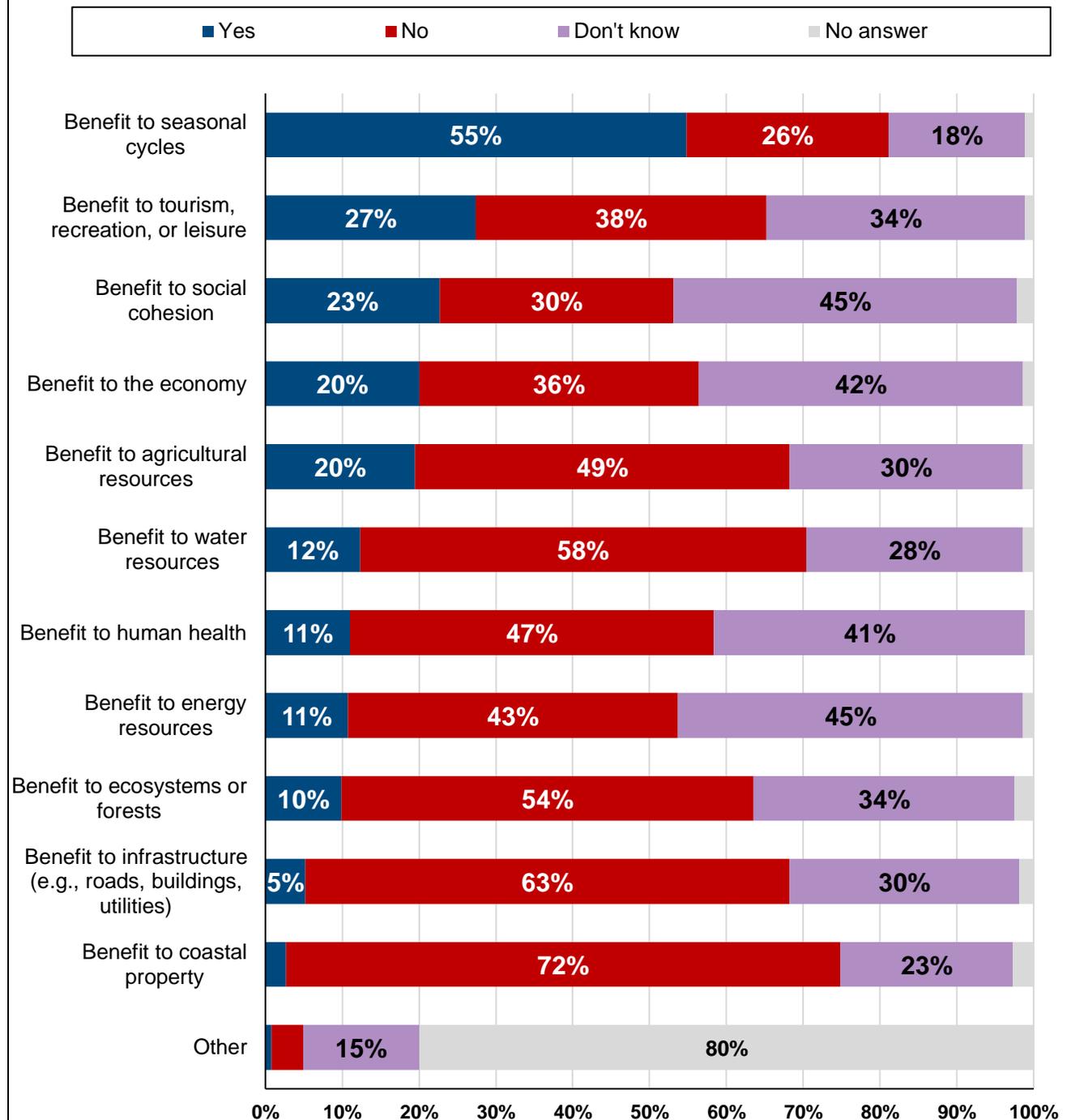
Base: All participants who indicated "Yes" to the question, "To the best of your knowledge, has the climate in your region changed over the past 50 years?"; n=389; January 2020; Data labels are not pictured for amounts less than 5%.

Beneficial Impacts of Local Climate Change

Survey participants who think there have been climate change impacts in their area—whether harmful or beneficial—were asked which specific beneficial impacts had occurred. More than half of survey participants say there have been benefits on seasonal cycles (55%), while about one-fourth of survey participants have recognized the beneficial impact of climate change on tourism, recreation, or leisure (27%). About one-fifth of survey participants recognized the beneficial impacts of climate change on social cohesion (23%), the economy (20%), and agricultural resources (20%). About one-tenth of survey respondents recognized the beneficial impacts of climate change on water resources (12%), human health (11%), energy resources (11%), ecosystems or forests (10%). Fewer recognized the beneficial impacts on infrastructure (5%) and coastal property (3%). Some of these proportions of beneficial impacts have increased since 2017¹: 13-percentage points for seasonal cycles, 2 points for water resources, 3 points for the economy, and 1 point for tourism, recreation, or leisure. Additionally, some of these proportions of beneficial impacts have decreased since 2017¹: 4-percentage points for infrastructure, 6 points for energy resources, 2 points for ecosystems or forests, 1 point for coastal property, 1 point for human health, and 1 point for tourism, recreation, or leisure. There was no change for beneficial impacts on agricultural resources.



Beneficial Impacts of Regional Climate Change



“Have any of the following impacts - harmful or beneficial - occurred in your region of the country over the past 50 years?”
 Base: All participants who indicated “Yes” to the question, “To the best of your knowledge, has the climate in your region changed over the past 50 years?”; n=365; January 2020; Data labels are not pictured for amounts less than 5%.

Climate Change Reporting: Experience, Interest, and Expectations

Surveys of the public reveal that most Americans do not read or hear much about climate change in the news—just over half of Americans hear about climate change in the media at least once a month.⁷ Central to the purpose of our survey is determining weathercasters' interests and experiences in reporting on climate change. To that end, we asked a number of questions about weathercasters' experiences, interests, and expectations regarding climate change reporting, especially local stories.

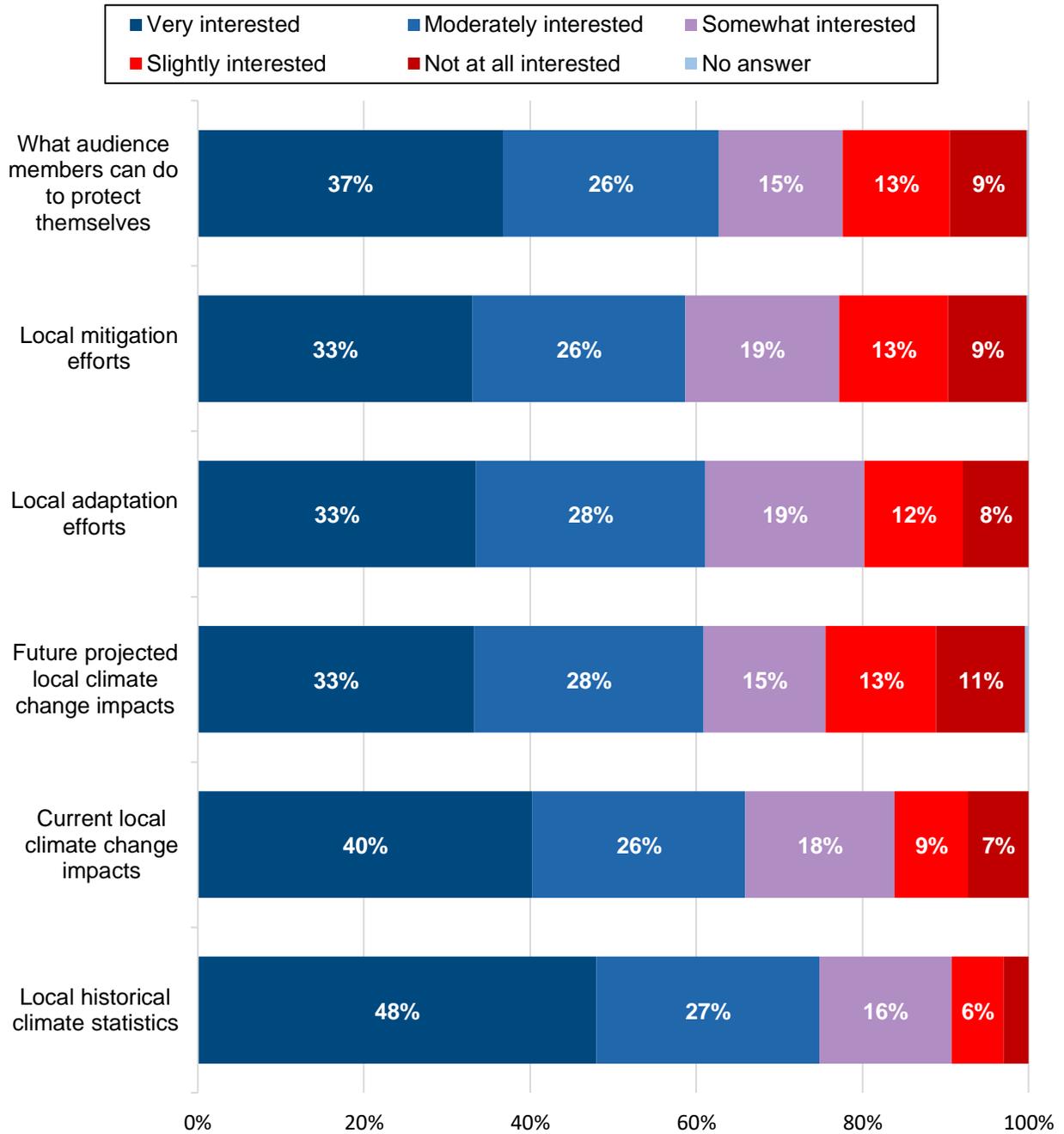
Interest in Covering Local Climate Change Topics On-Air

Fully 9 out of 10 survey participants (91%) say they are at least somewhat interested in reporting local historical climate statistics on-air—nearly half (48%) are very interested. More than 8 out of 10 (84%) say they are at least somewhat interested in reporting the current local climate impacts on-air—40% are very interested. About three quarters (76%) say they are at least somewhat interested in reporting the future projected local climate impacts on-air—one third are very interested. About 8 out of 10 (81%) say they are at least somewhat interested in reporting local adaptation efforts on-air—about one third (34%) are very interested. About 8 out of 10 (78%) say they are at least somewhat interested in reporting local mitigation efforts on-air—one third are very interested. And about 8 out of 10 (78%) say they are at least somewhat interested in reporting how audiences may protect themselves on-air—more than a third (37%) are very interested.

The proportion of weathercasters who are very interested in reporting on all of these local climate change topics has increased since 2017¹: 8-percentage points for historical climate statistics, 17 points for current climate impacts, 13 points for future projected impacts, 11 points for local adaptation efforts, 12 points for local mitigation efforts, and 16 points for what audience members can do to protect themselves.



Interest in Reporting Climate Change Topics



“How interested are you in presenting on-air about the following climate topics...?”
 Base: All participants; n=496; January 2020. Data labels are not pictured for amounts less than 5%.

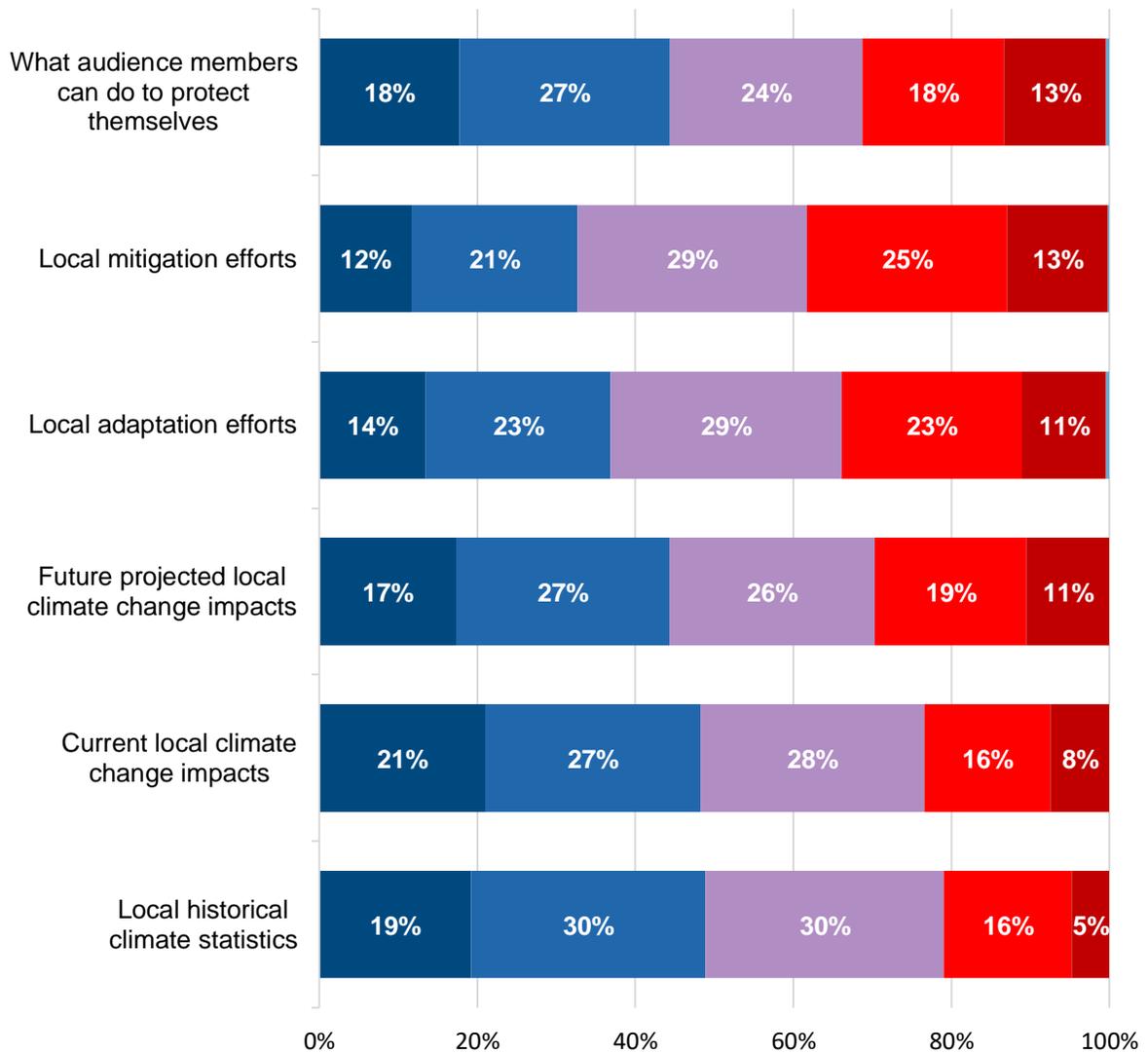
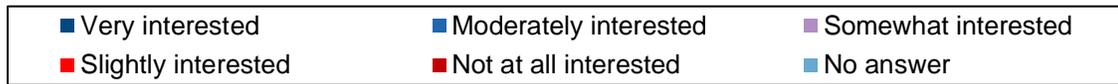
Perceived Audience Interest in Coverage of Local Climate Change Topics

Nearly 8 out of 10 survey participants (79%) say their audience is at least somewhat interested in learning about local historical climate statistics—19% say their audience is very interested. About three quarters (76%) say their audience is at least somewhat interested in learning about current local climate change impacts—21% say their audience is very interested. Seven out of 10 (70%) say their audience is at least somewhat interested in learning about future projected local climate change impacts—17% say their audience is very interested. About two thirds (67%) say their audience is at least somewhat interested in learning about local adaptation efforts—14% say their audience is very interested. About 6 out of 10 (62%) say their audience is at least somewhat interested in learning about local mitigation efforts—12% say their audience is very interested. And seven out of 10 survey participants say their audience is at least somewhat interested in learning about what audience members can do to protect themselves—18% say their audience is very interested.

The proportion of weathercasters who say their audiences are very interested in learning about these local climate change topics has increased slightly since 2017¹: 3-percentage points for historical climate statistics, 8 points for current climate impacts, 5 points for future projected impacts, 6 points for local adaptation efforts, 4 points for local mitigation efforts, and 6 points for what audience members can do to protect themselves.



Perceived Audience Interest in Coverage of Climate Topics



“How interested do you think your audience is in learning about the following climate topics...?”
 Base: All participants; n=496; January 2020. Data labels are not pictured for amounts less than 5%.

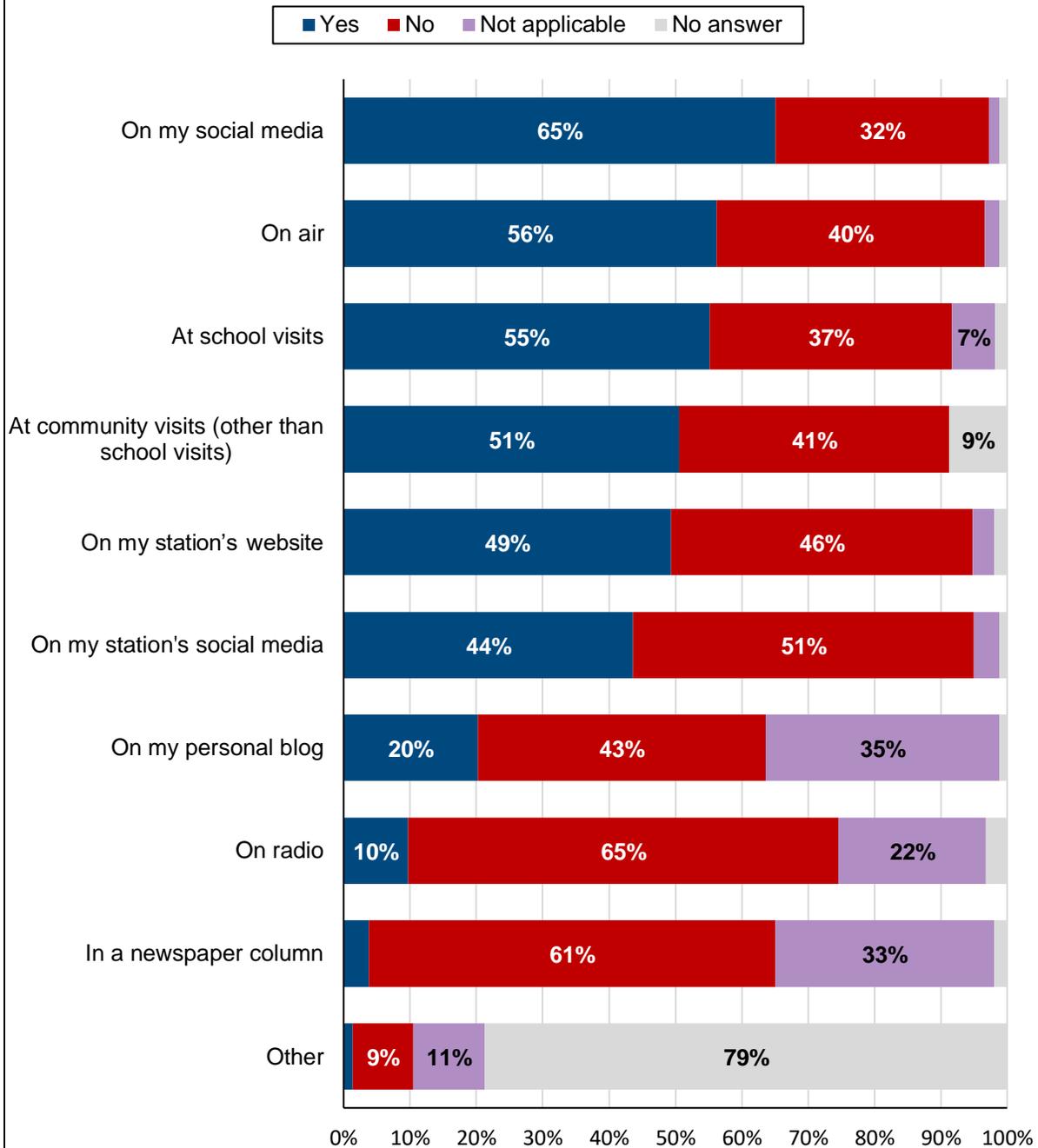
Channels Used to Inform the Public About Local Climate Impacts

Nearly two-thirds of survey participants (65%) say they used social media in the past 12 months to inform their audience or other members of their community about the local impacts of climate change. More than half also shared information about the local impacts of climate change on-air (56%), at school visits (55%), and other community visits (51%), and more than 4 out of 10 used their station's website (49%) or social media accounts (44%).

The proportion of weathercasters who say they informed their viewers about the local impacts of climate change has increased dramatically since 2017¹: 20-percentage points on-air, 16 points in their own social media accounts, 14 points during school visits, 12 points during community presentations, 14 points on their station's website, and 12 points in their station's social media accounts.



Channels Used to Inform Audience of Climate Change

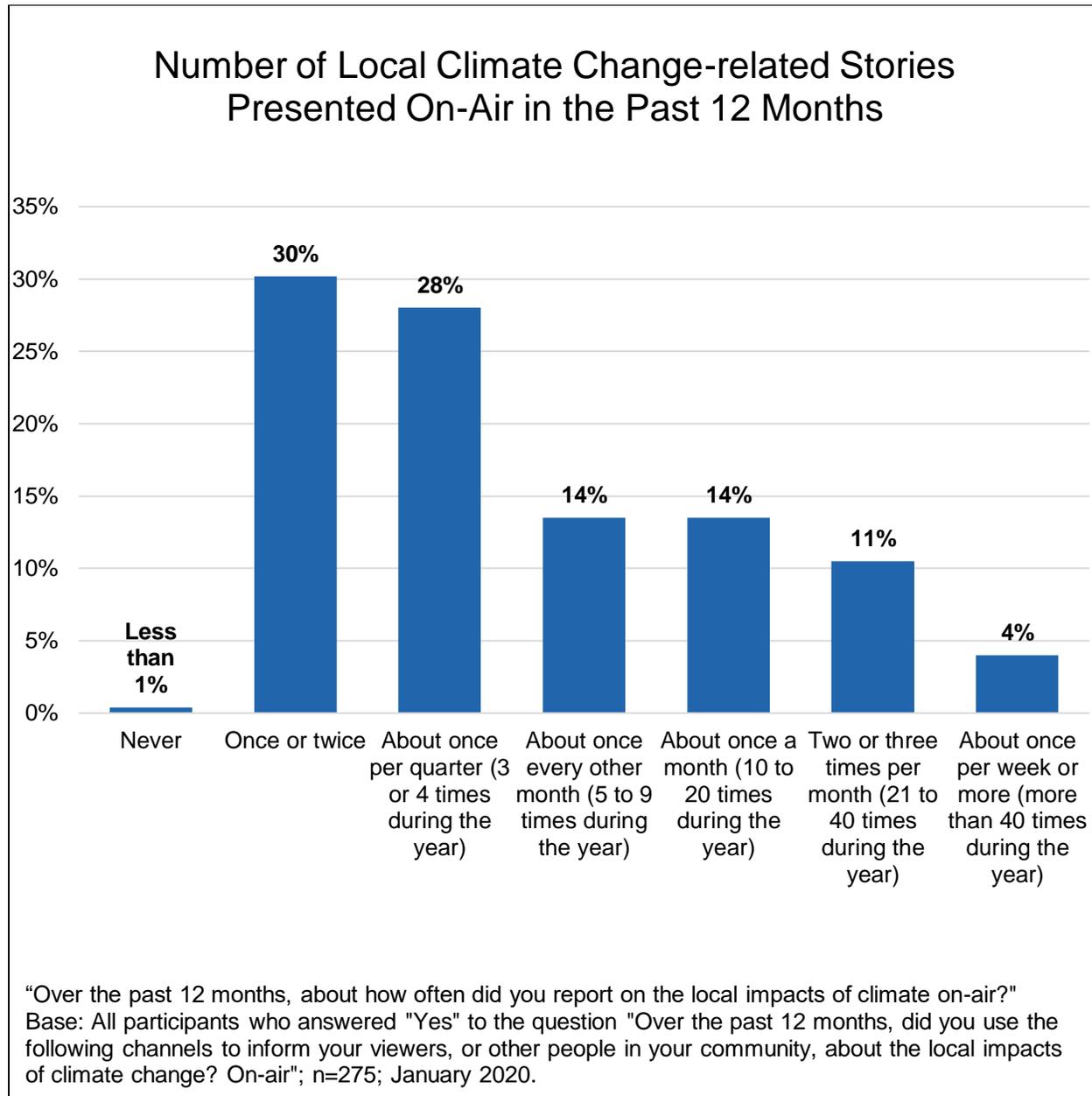


“Over the past 12 months, did you use the following channels to inform your viewers, or other people in your community, about the local impacts of climate change?”

Base: All participants; n=493; January 2020; Data labels are not pictured for amounts less than 5%.

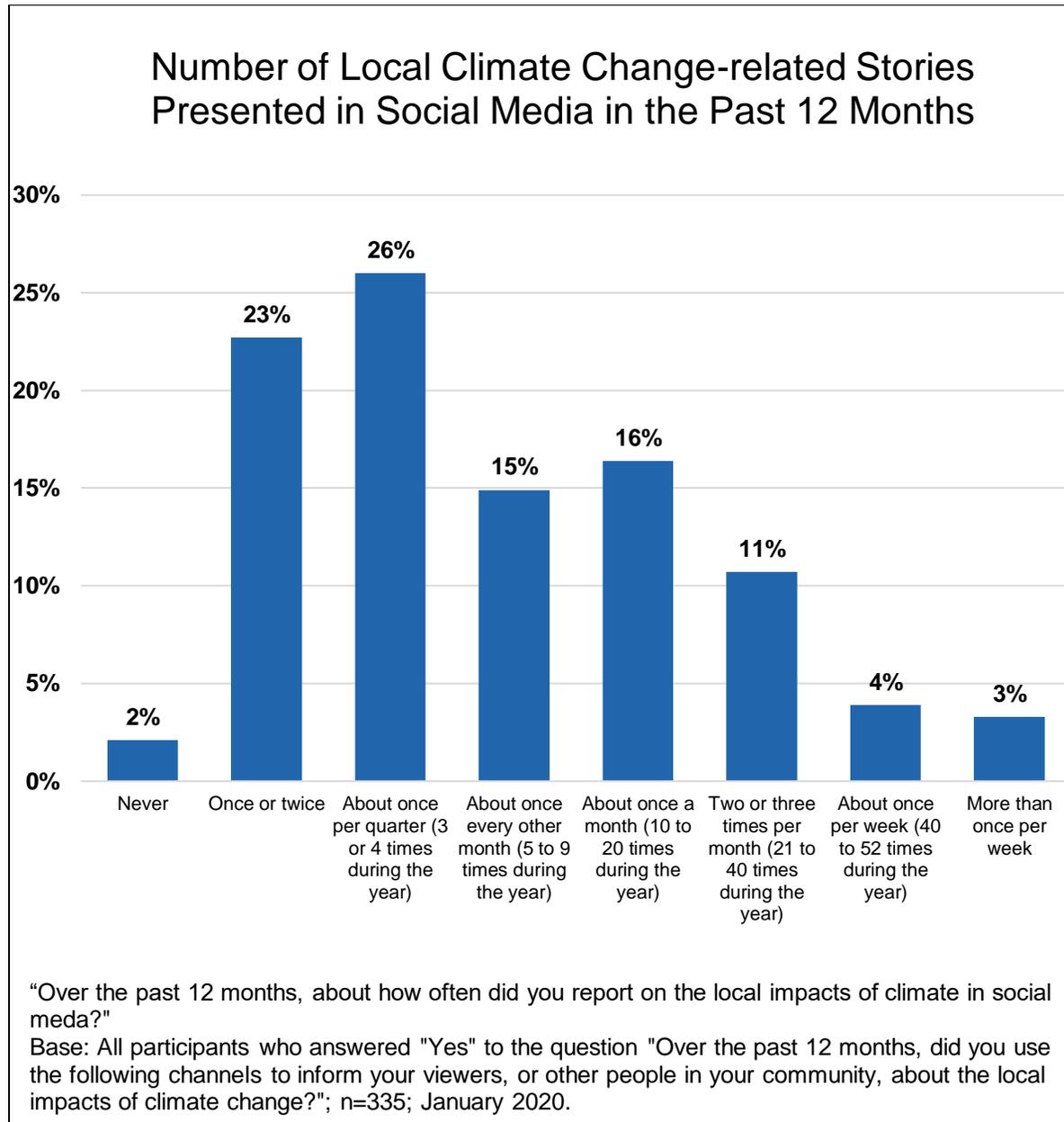
Frequency of Covering Local Climate Change Impacts On-Air

Of those survey participants who had reported on the local impacts of climate change on-air in the past 12 months, nearly 6 out of 10 (58%) did so four or fewer times during the year, and 14% did so 5 to 9 times. Nearly three out of 10 (29%) reported 10 or more local climate impacts stories over the past year—a 9-percentage point increase since 2017.¹



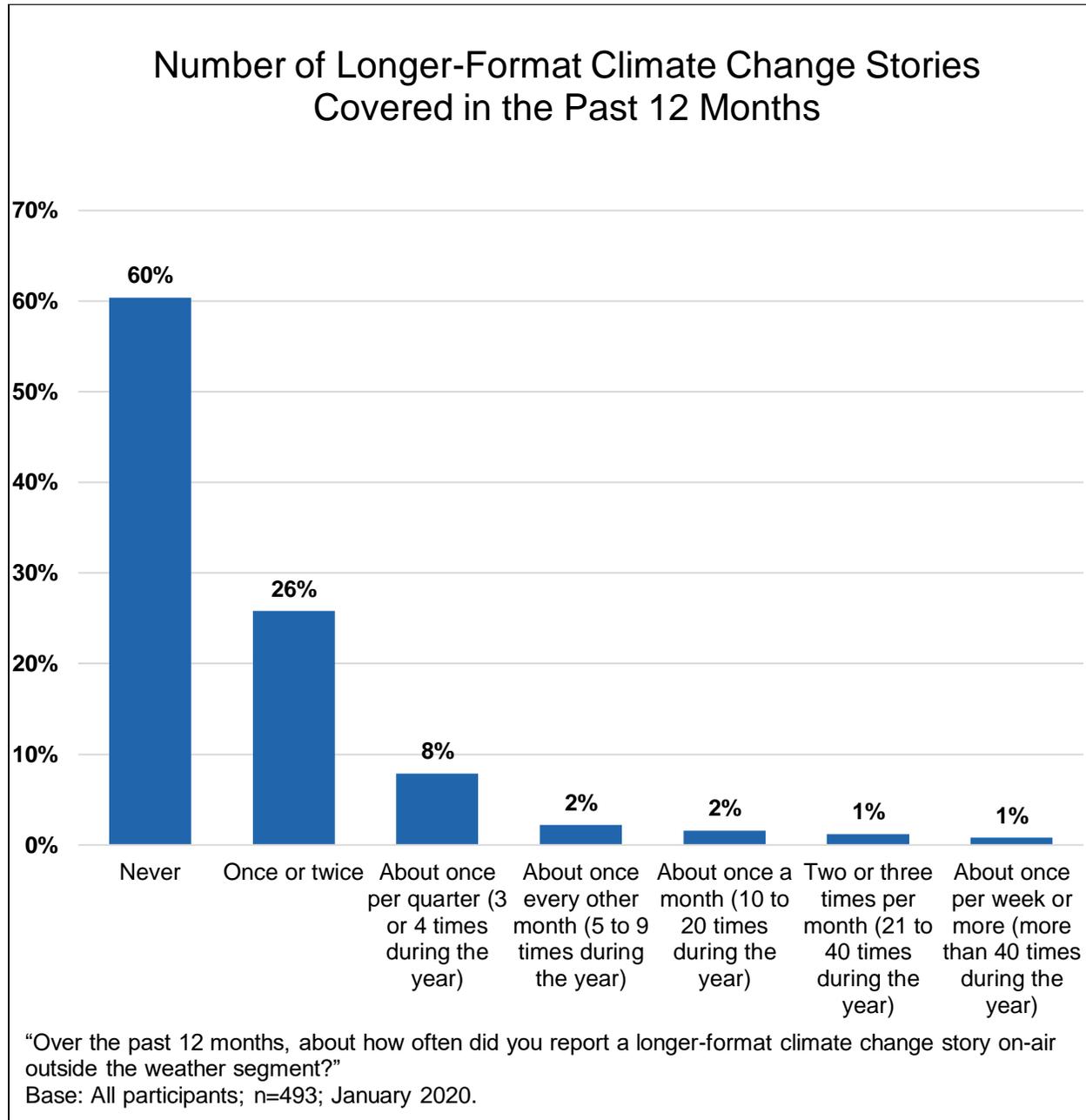
Frequency of Covering Local Climate Change Impacts on Their Social Media

Of those survey participants who had used their own social media to inform their audience about the local impacts of climate change in the past 12 months, nearly about half (51%) did so four or fewer times during the year, and 15% did so 5 to 9 times. About one third (34%) reported 10 or more local climate impacts stories over the past year—an increase of 7-percentage points since 2017.¹



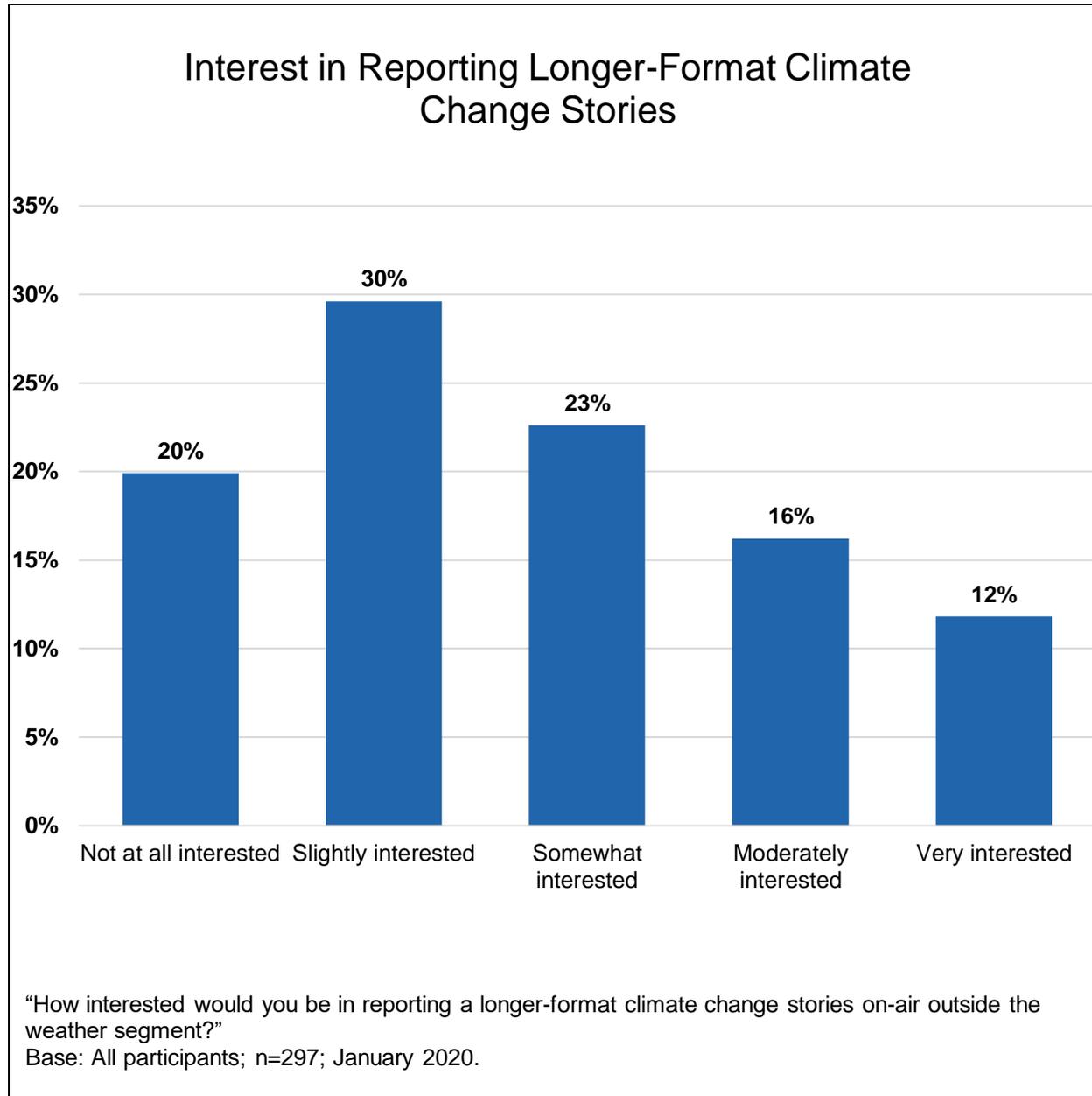
Number of Longer-Format Climate Change Stories Covered in the Past 12 Months

Most survey participants (60%) had not reported any longer-format climate change stories outside of the weather segment in the past 12 months, although about one-quarter (26%) had reported a 1 or 2, and 14% had reported 3 or more—a 12-percentage point increase since 2017.¹



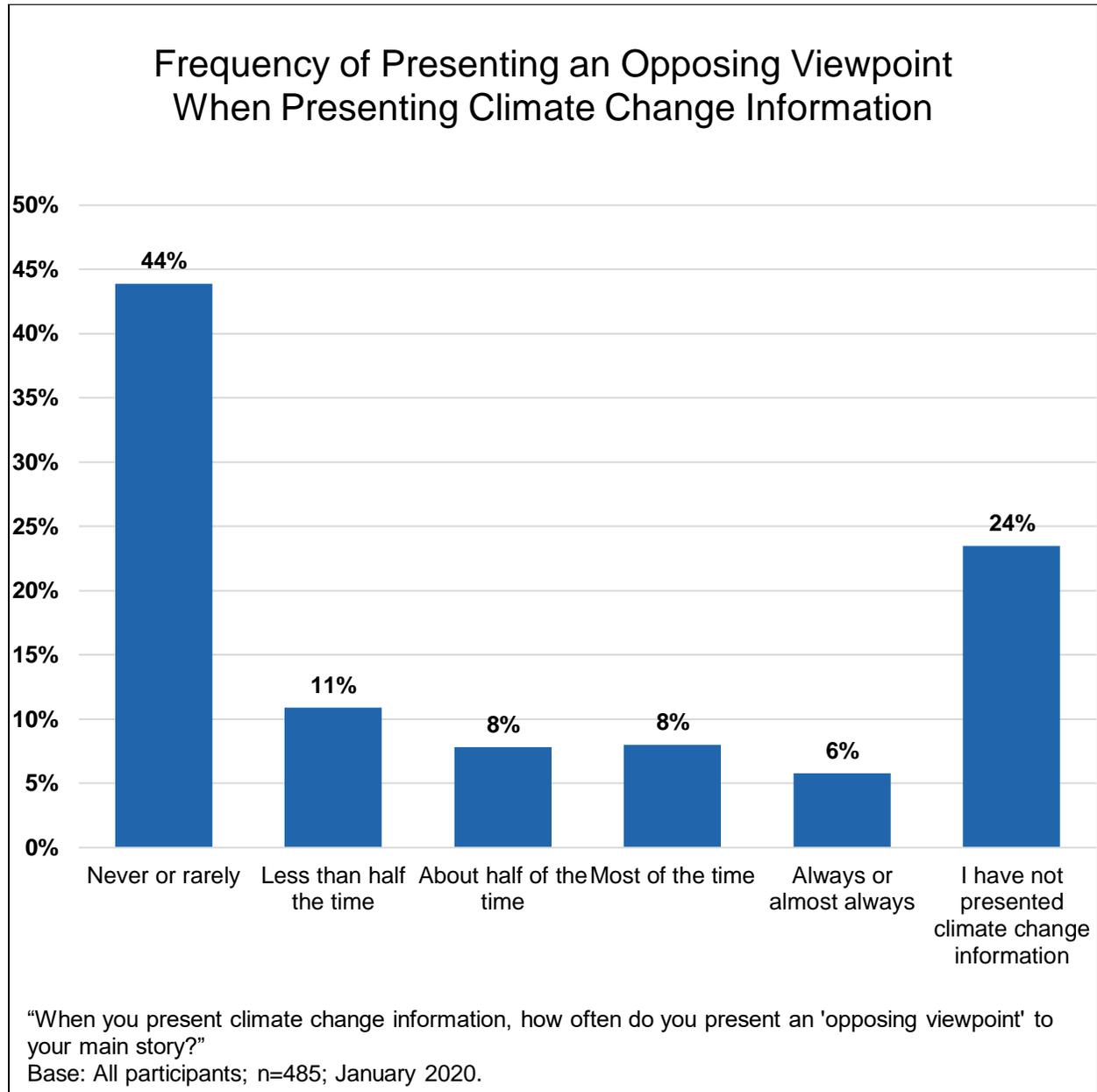
Interest in Reporting Longer-Format Climate Change Stories

Half of the survey participants are at least somewhat interested in reporting longer-format climate change stories outside of the weather segment—a 6-percentage point increase since 2017.¹



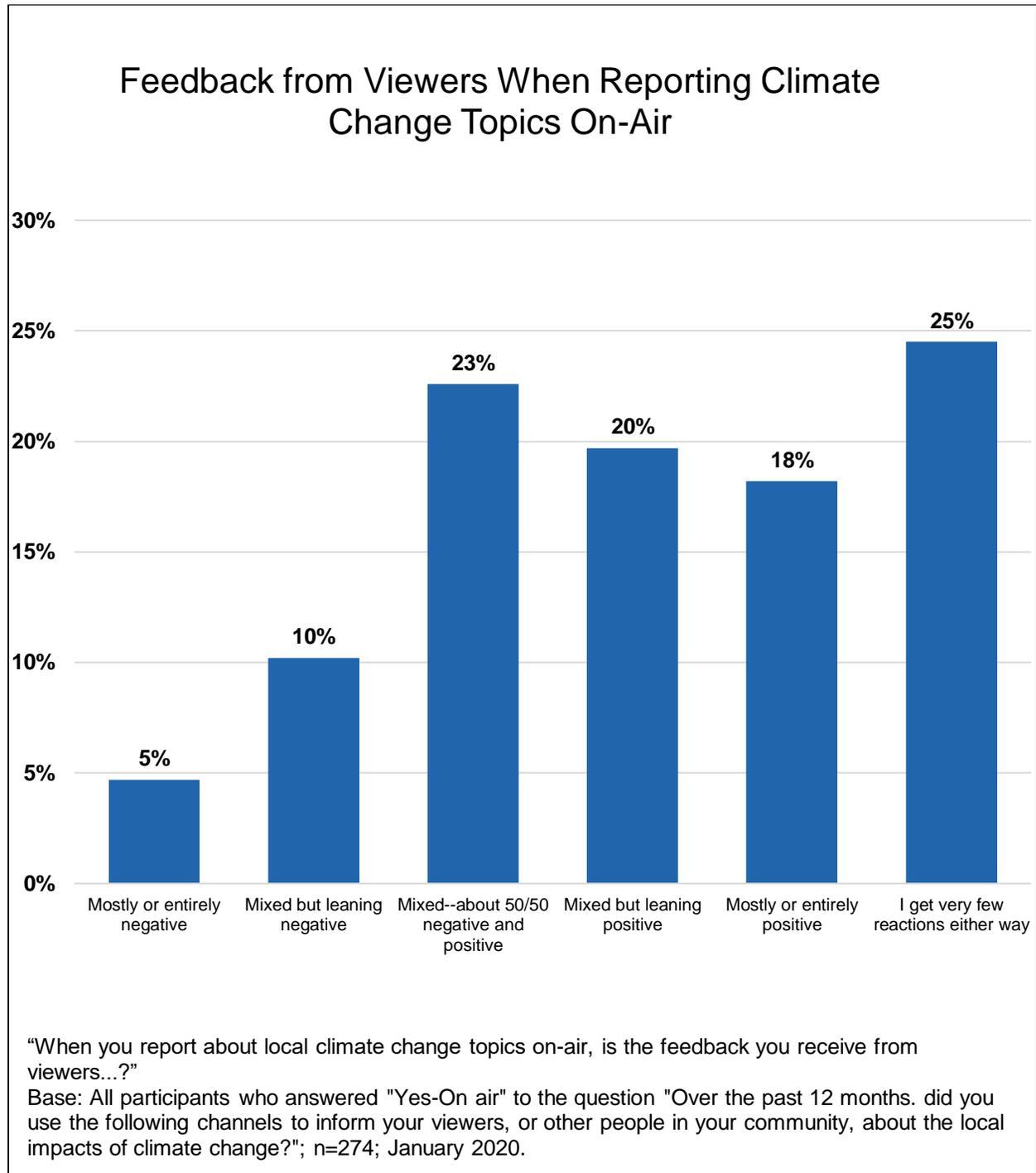
Frequency of Presenting an Opposing Viewpoint When Presenting Climate Change Information

More than 4 out of 10 survey participants (44%) say they never or rarely present an opposing viewpoint when presenting climate change stories—an increase of 20-percentage points since 2017¹—while 19% do so about half the time or less, and 14% do so most of the time or always.



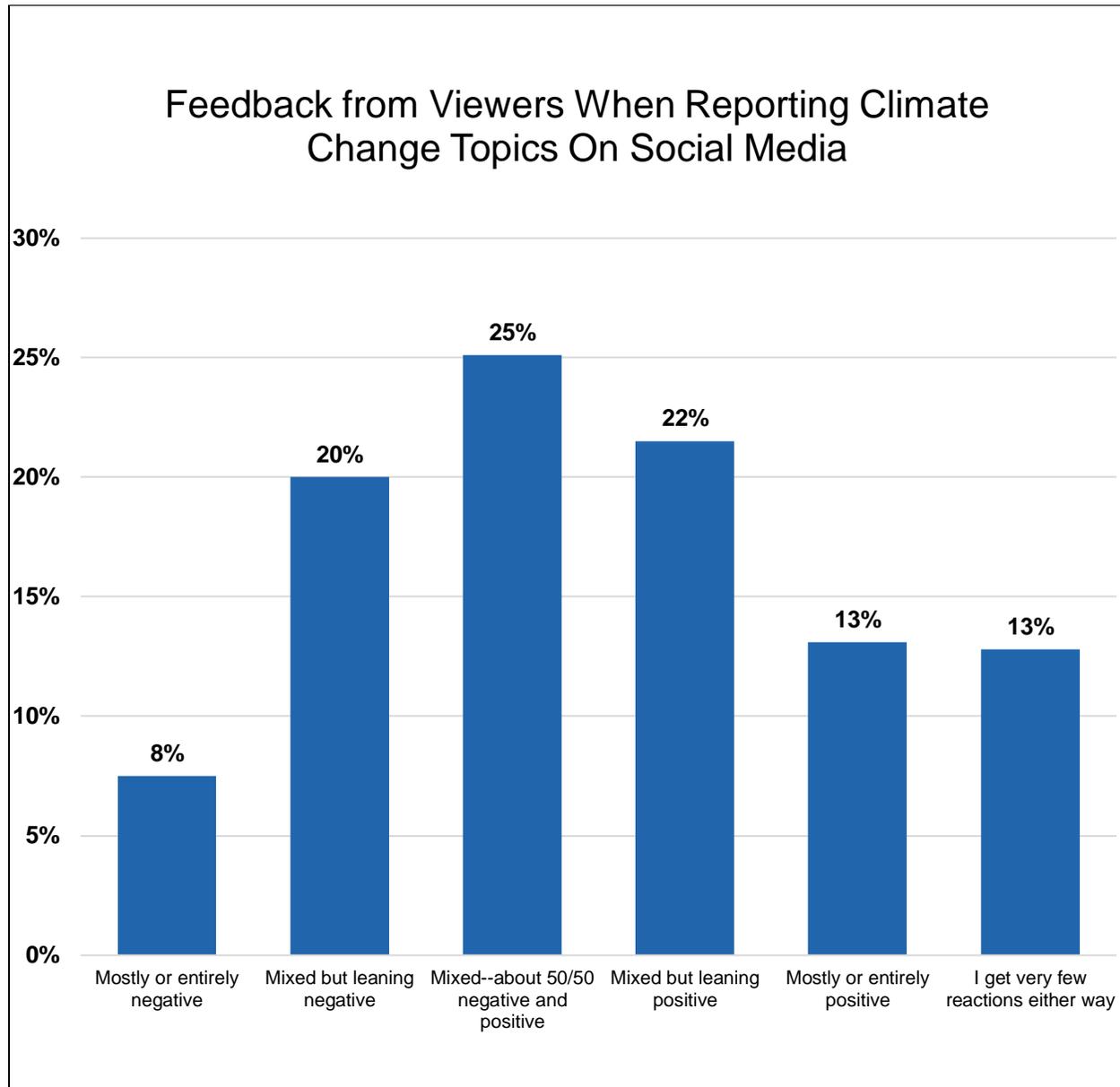
Feedback from Viewers When Reporting Climate Change On-Air

Nearly 4 out of 10 survey participants (38%) receive predominantly positive feedback when they report climate change stories on-air, while nearly one quarter (23%) receive equal amounts of positive and negative feedback, and 15% receive predominantly negative feedback. Fully one quarter say they get few reactions either way.



Feedback from Viewers When Reporting Climate Change on Social Media

About one third of survey participants (35%) receive predominantly positive feedback when they report climate change stories on social media, while one quarter (25%) receive nearly equal amounts of positive and negative feedback, and 28% receive predominantly negative feedback. About 1 out of 10 (13%) say they receive few reactions either way.

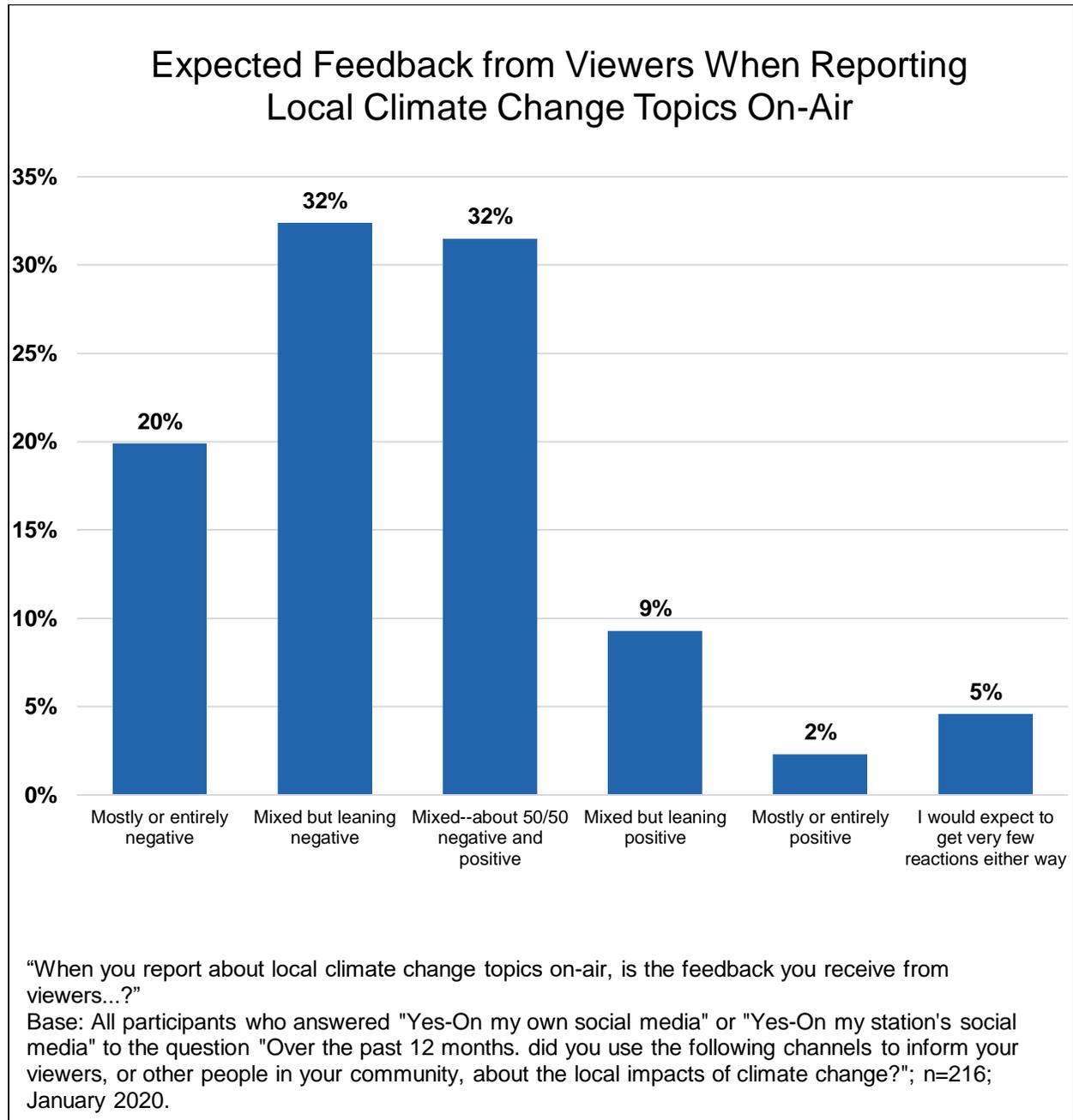


“When you report about local climate change topics on social media, is the feedback you receive from viewers...?”

Base: All participants who answered "Yes-On my own social media" or "Yes-On my station's social media" to the question "Over the past 12 months, did you use the following channels to inform your viewers, or other people in your community, about the local impacts of climate change?"; n=335; January 2020.

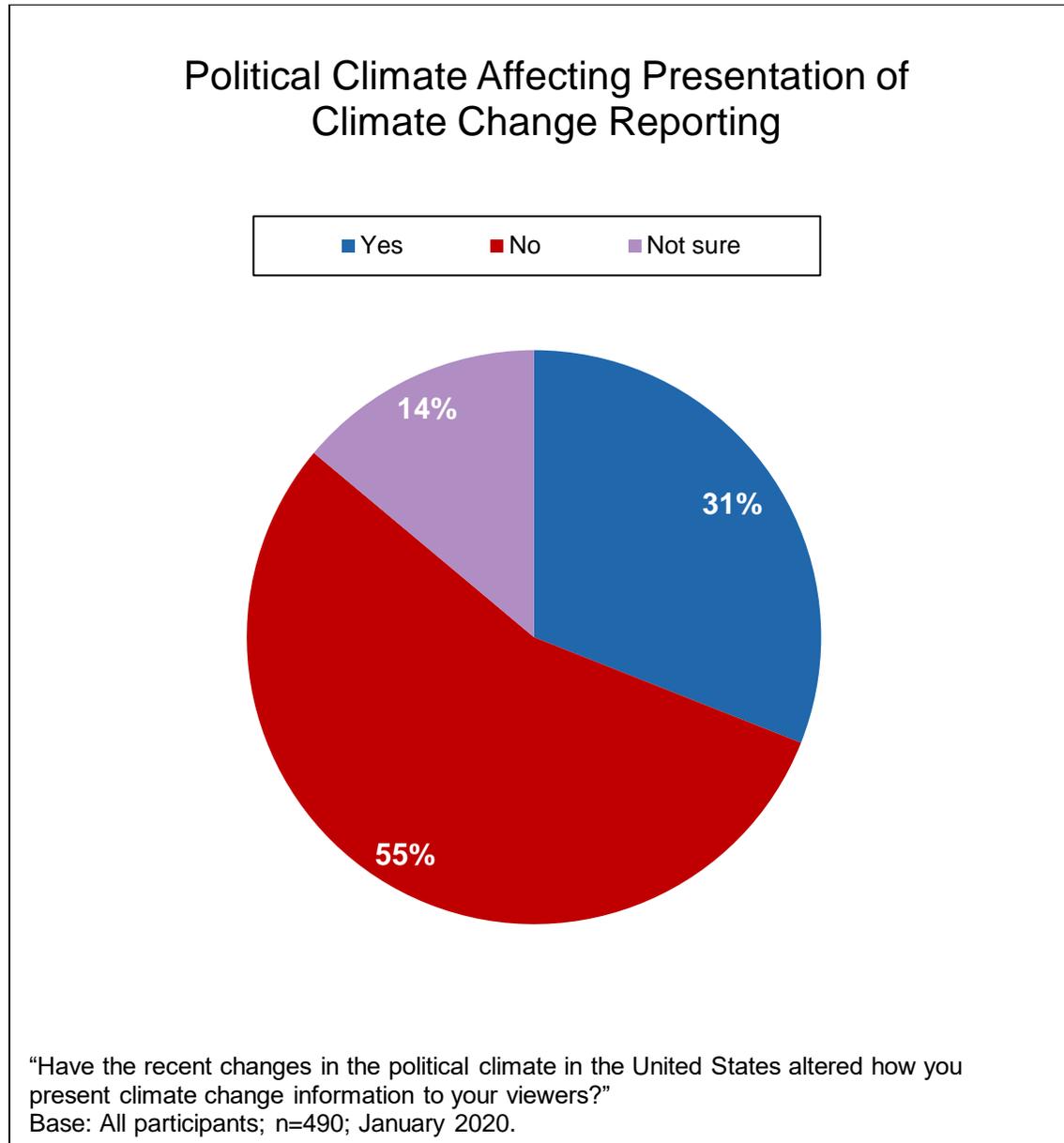
Expected Feedback from Viewers When Reporting on Climate Change

Among those survey participants who had not reported about climate change on-air in the past year, only about 1 out of 10 (11%) expect to receive predominantly positive feedback from viewers if they were to do so, while about one third (32%) expect equal amounts of positive and negative feedback. The majority (52%) expect to receive predominantly negative feedback if they were to report on climate change.



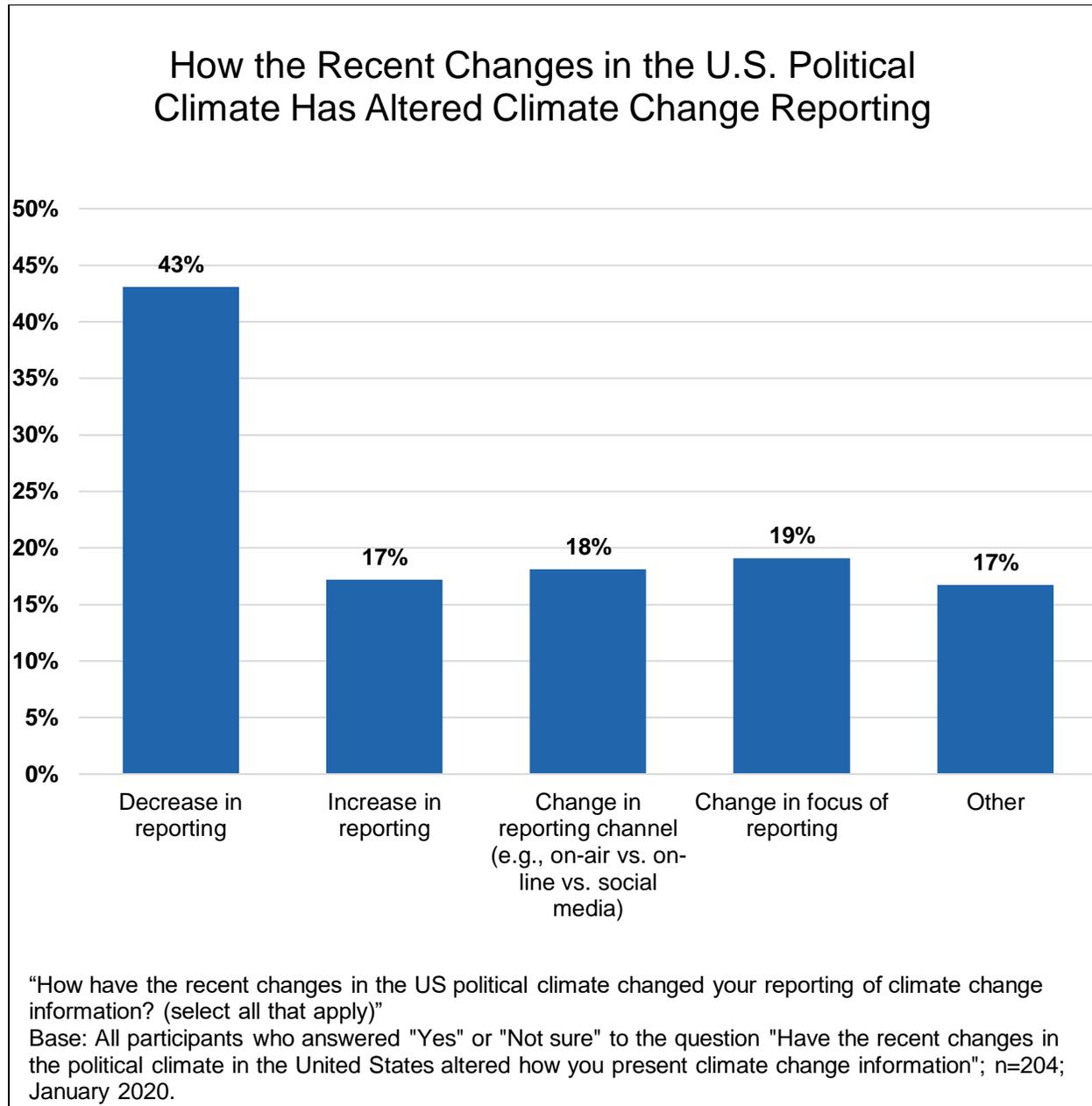
Impact of the Current Political Climate on Presentation of Climate Change Information

Slightly more than 3 out of 10 survey participants (31%) say they have altered the way they present climate change information to their viewers as a result of recent changes in the political climate in the United States, and an additional 14% say they are not sure.



Type of Impact the Current Political Climate Has Had

Of those survey participants who say the current political climate has altered how they present climate information, more than 4 out of 10 (43%) say they have decreased their climate change reporting, while nearly 2 out of 10 (17%) have increased their reporting. About 2 out of 10 (18%) say they have altered where they report on climate change (e.g., moving from on-air to online), or have changed the focus of their reporting (19%).

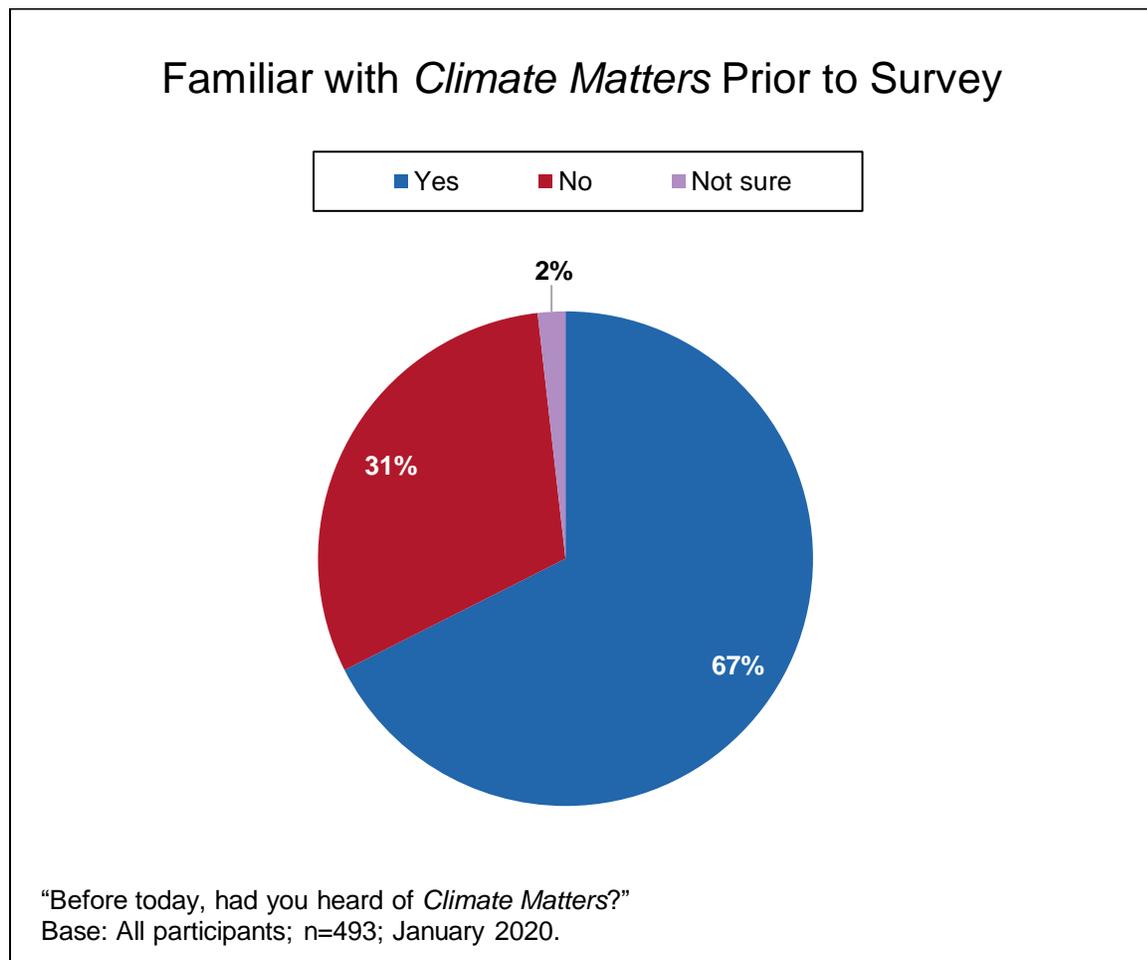


Climate Matters: Exposure, Use, and Interests

Climate Matters is a resource program—produced by Climate Central in association with NOAA, NASA, AMS and George Mason University—that helps TV weathercasters report on climate change with free localized climate analyses, broadcast-ready visuals, peer-reviewed climate research, news, resources, and continuing education (CE) opportunities.

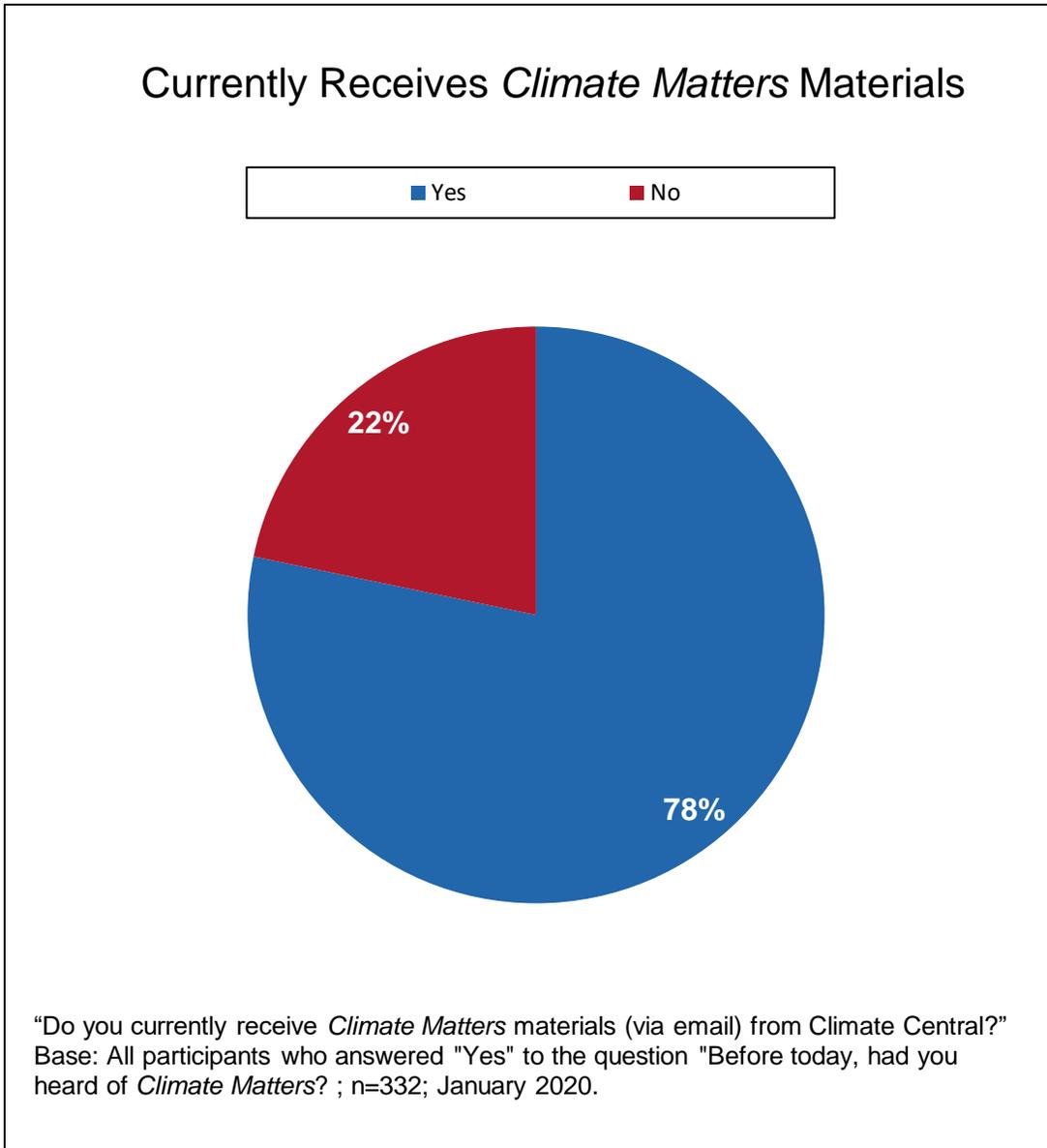
Exposure to Climate Matters

Fully two-thirds of survey participants (67%) were familiar with *Climate Matters* prior to taking the survey.



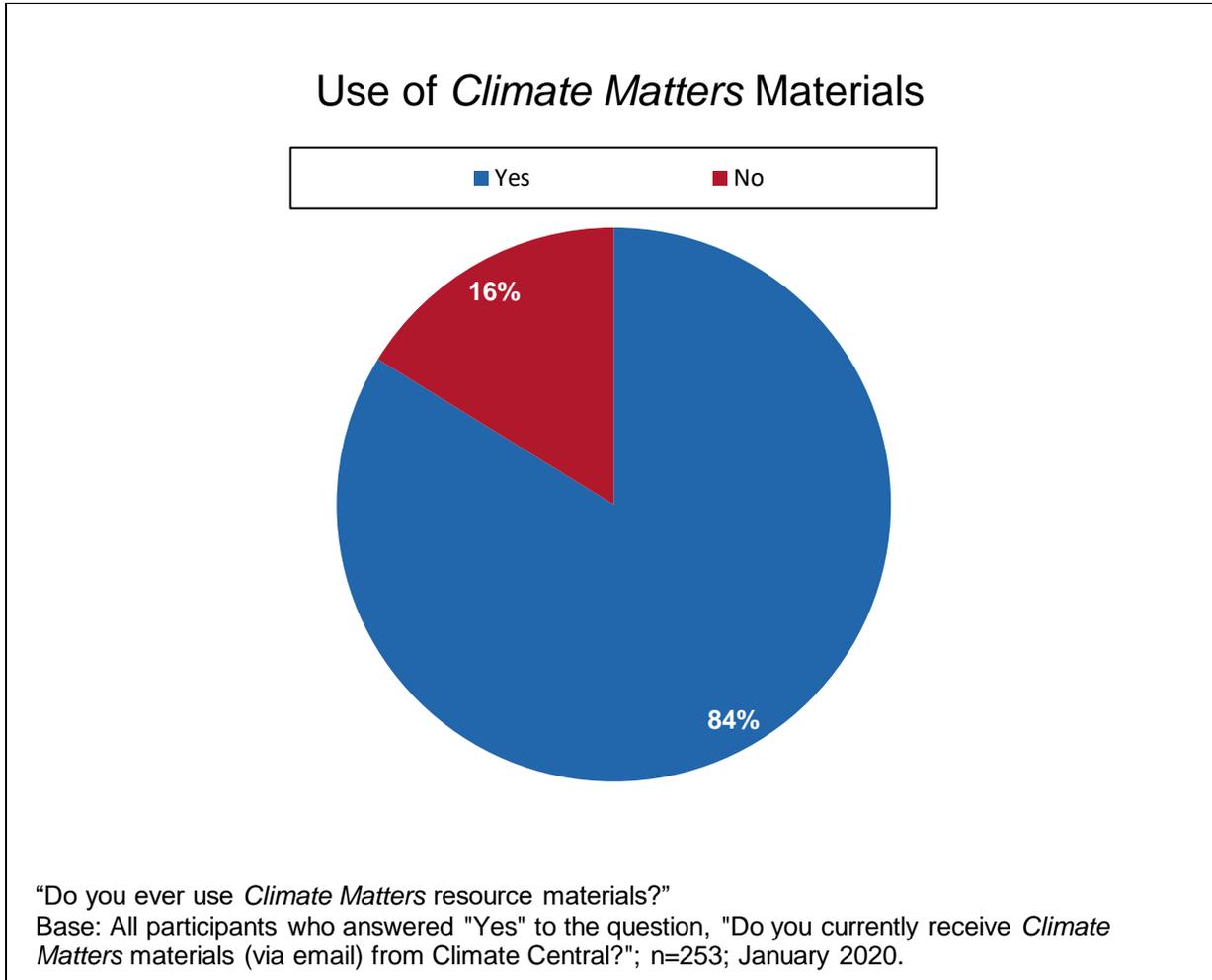
Receiving Climate Matters Materials

Of those survey participants who were familiar with *Climate Matters* prior to the survey, more than three-fourths (78%) currently receive *Climate Matters* materials.



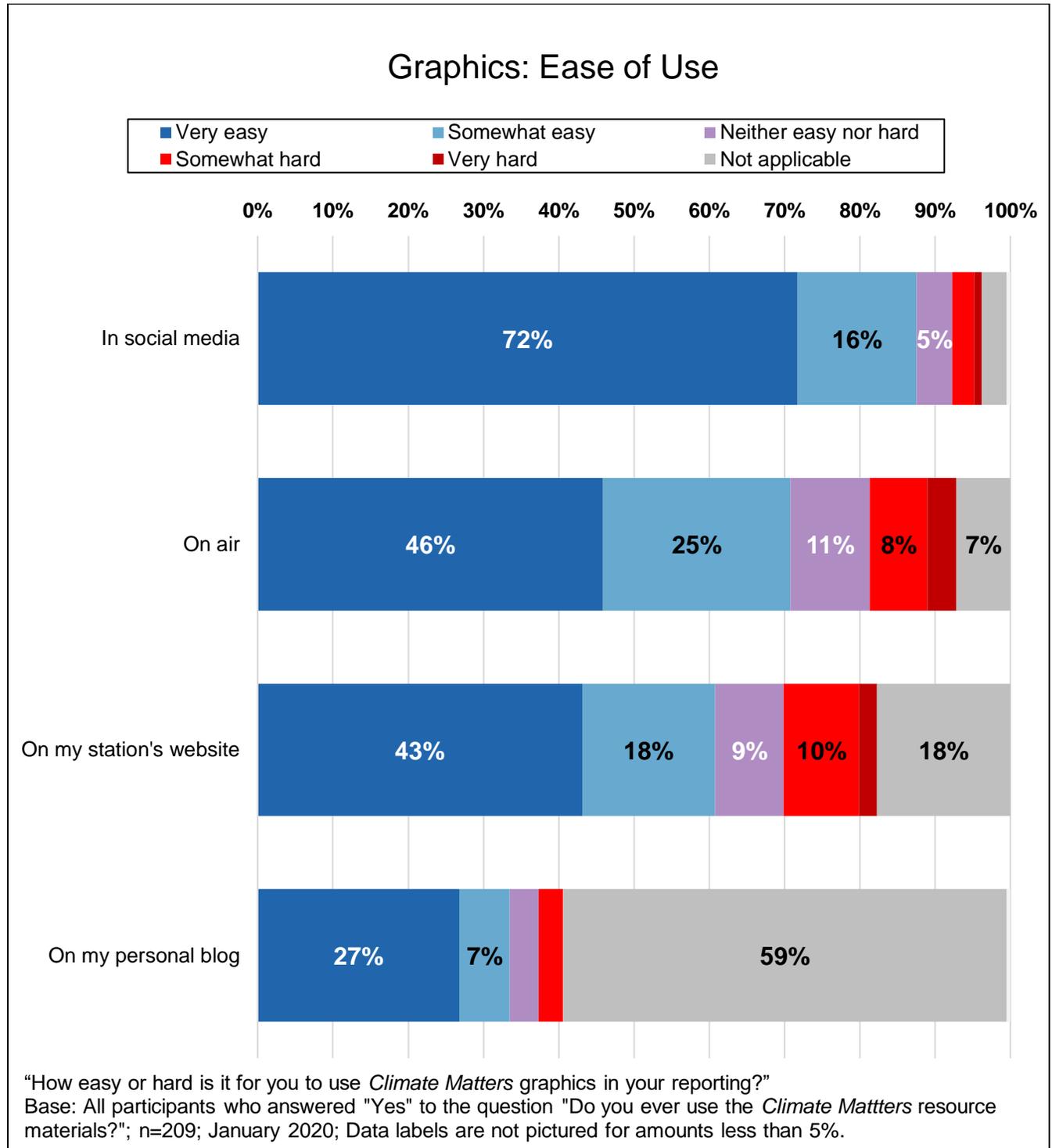
Use of Climate Matters Materials

Of those survey participants who receive *Climate Matters* materials, more than 8 out of 10 (84%) say they have used the materials.



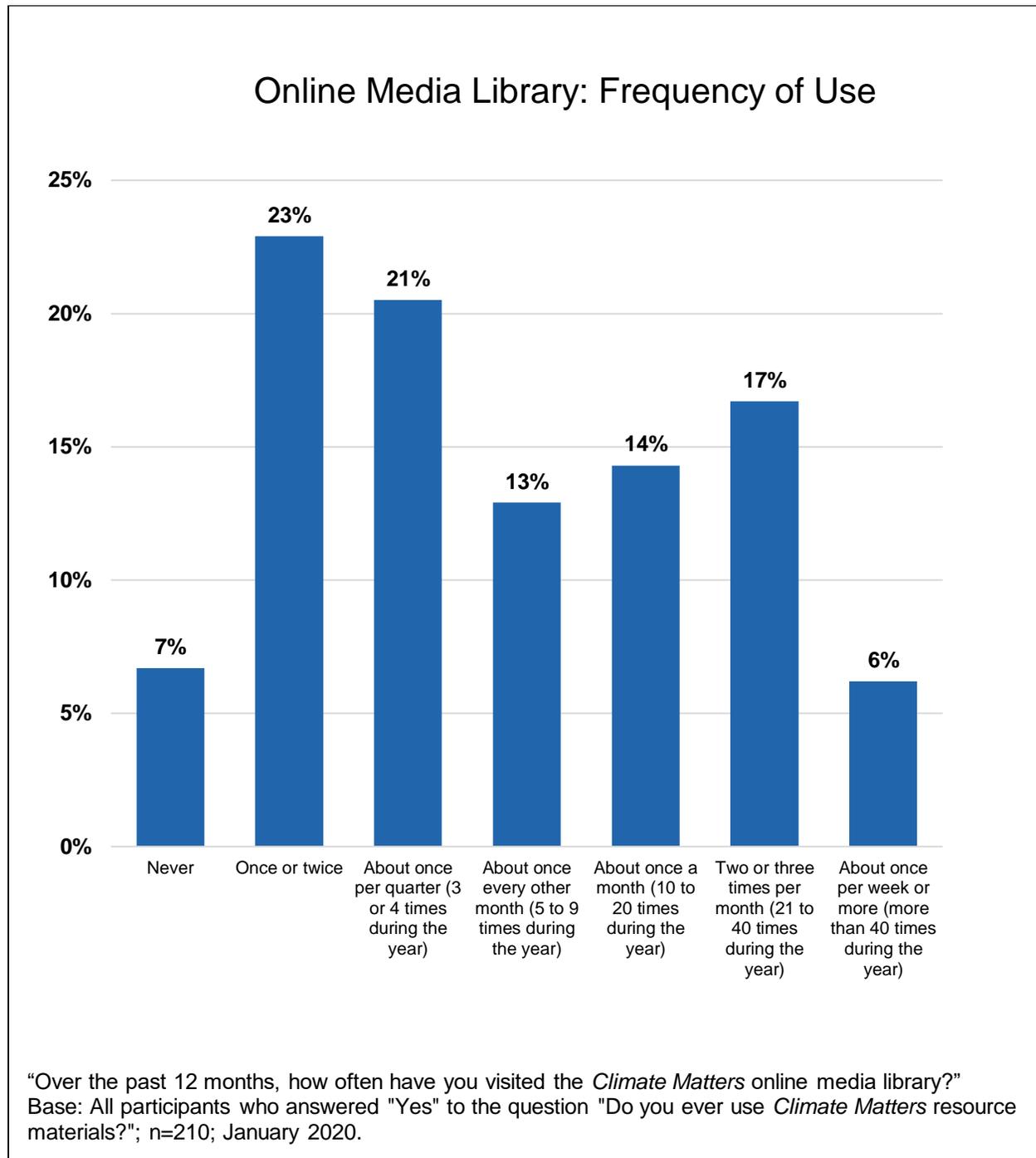
Graphics: Ease of Use

Of those survey participants who use *Climate Matters* resource materials, about 7 out of 10 (72%) say it is very easy to use *Climate Matters* graphics in social media, while more than 4 out of 10 say the graphics are very easy to use on-air (46%) and on their station’s website (43%).



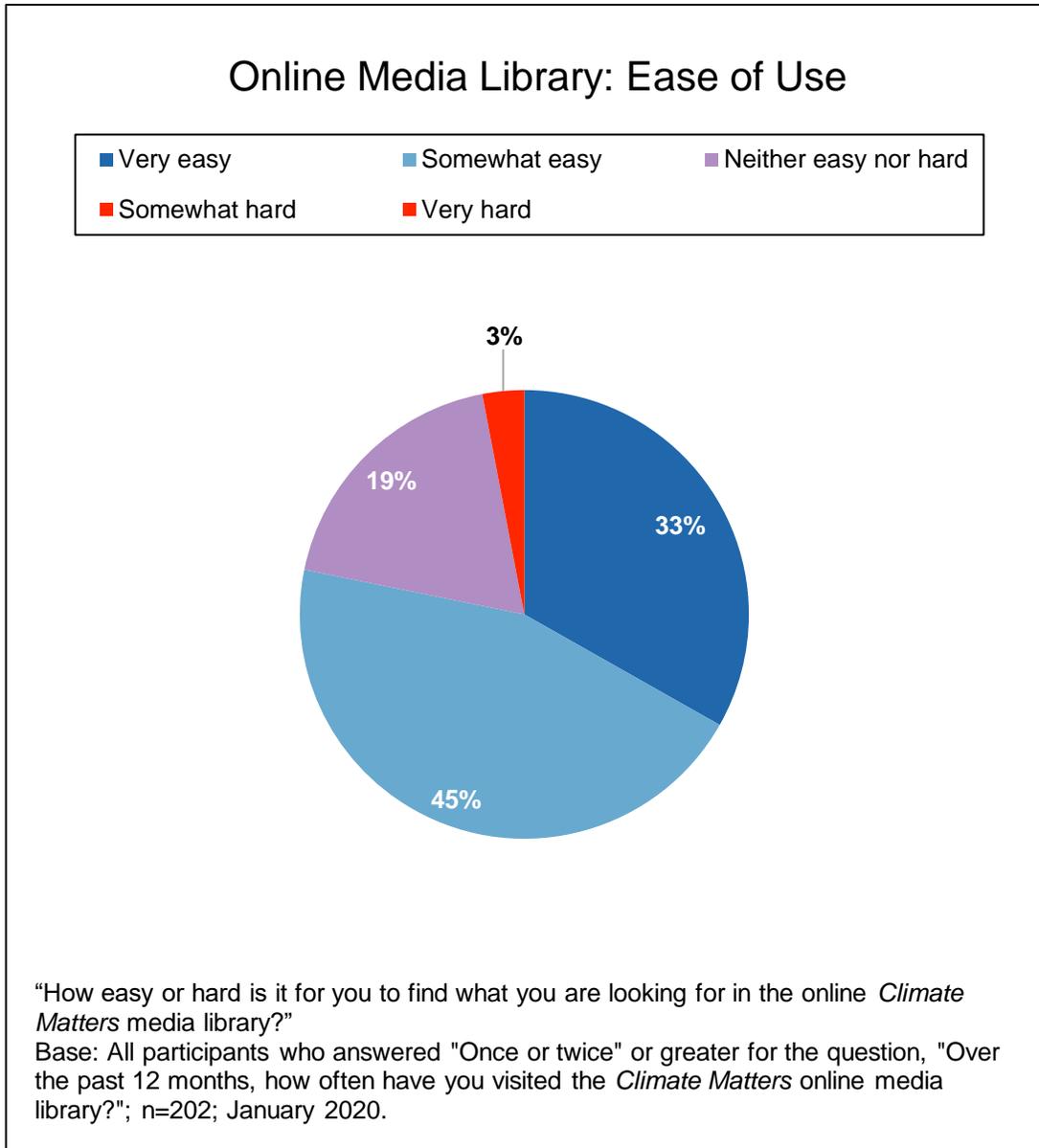
Online Media Library: Frequency of Use

Of those survey participants who use *Climate Matters* materials, use of the online media library (where all past story packages are on file) in the past 12 months ranged considerably, from those who say they visited the *Climate Matters* online media library at least twice per month (23%), to those who visited only once or twice (23%), or never (7%).



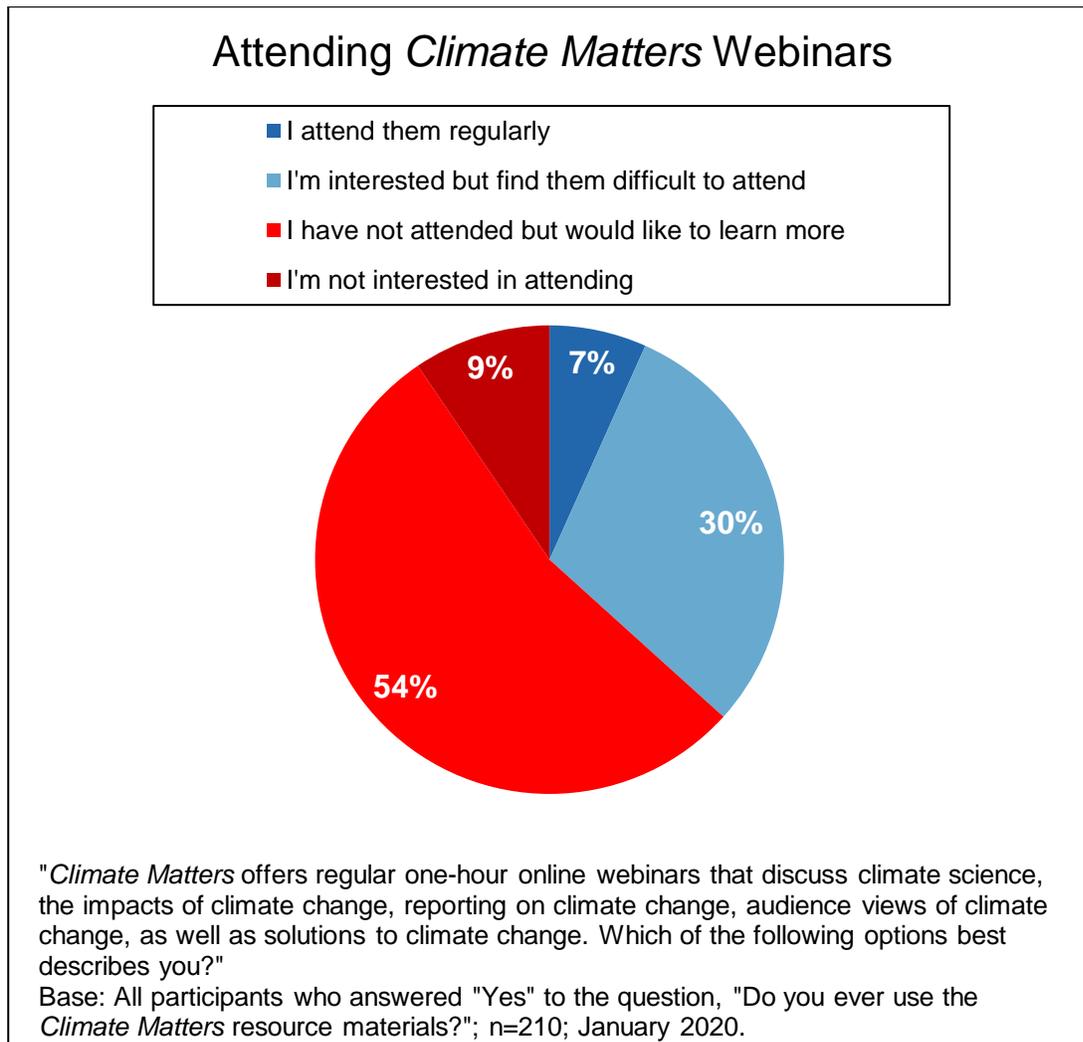
Online Media Library: Ease of Use

Of those survey participants who visited the *Climate Matters* online media library, nearly 8 out of 10 say it is somewhat (45%) or very (33%) easy to find what they are looking for on it.



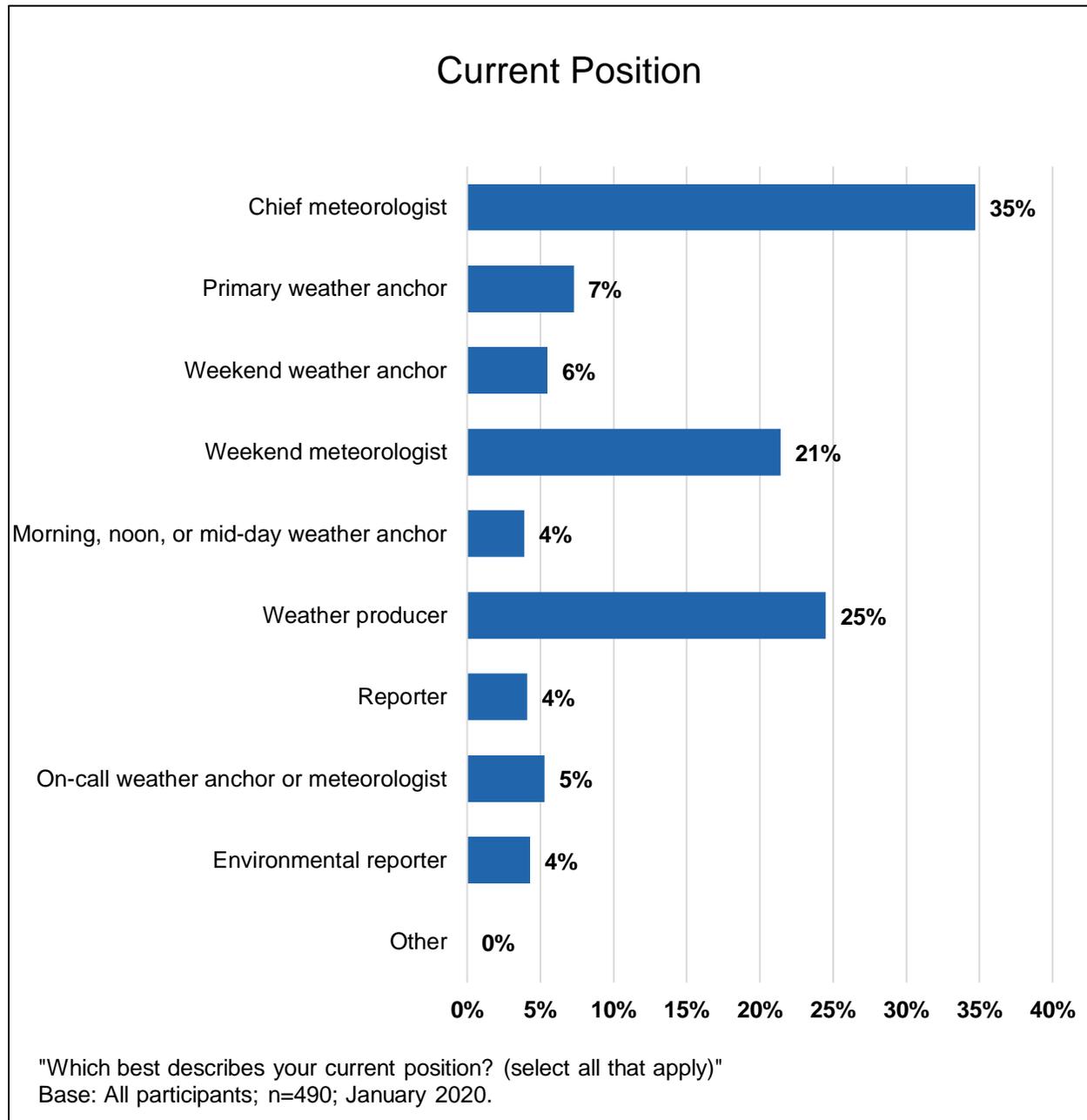
Webinars: Attendance

Of those survey participants who previously used *Climate Matters* resource materials, fewer than 1 out of 10 (7%) regularly attend *Climate Matters* webinars, although 3 out of 10 are interested but have found it difficult to attend, and more than half (54%) have not attended but would like to learn more. Fewer than 1 out of 10 (9%) are not interested in attending.

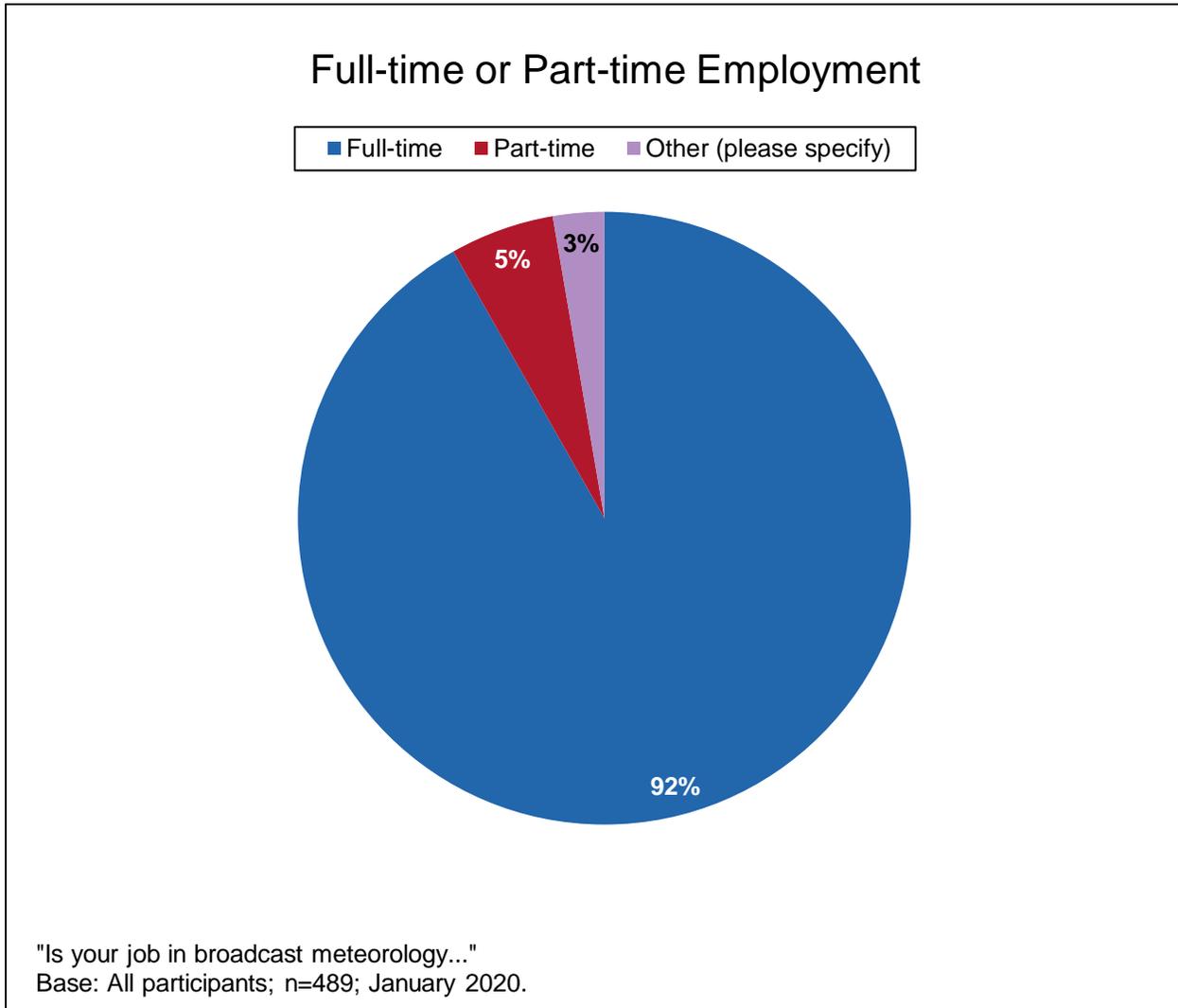


Personal Characteristics

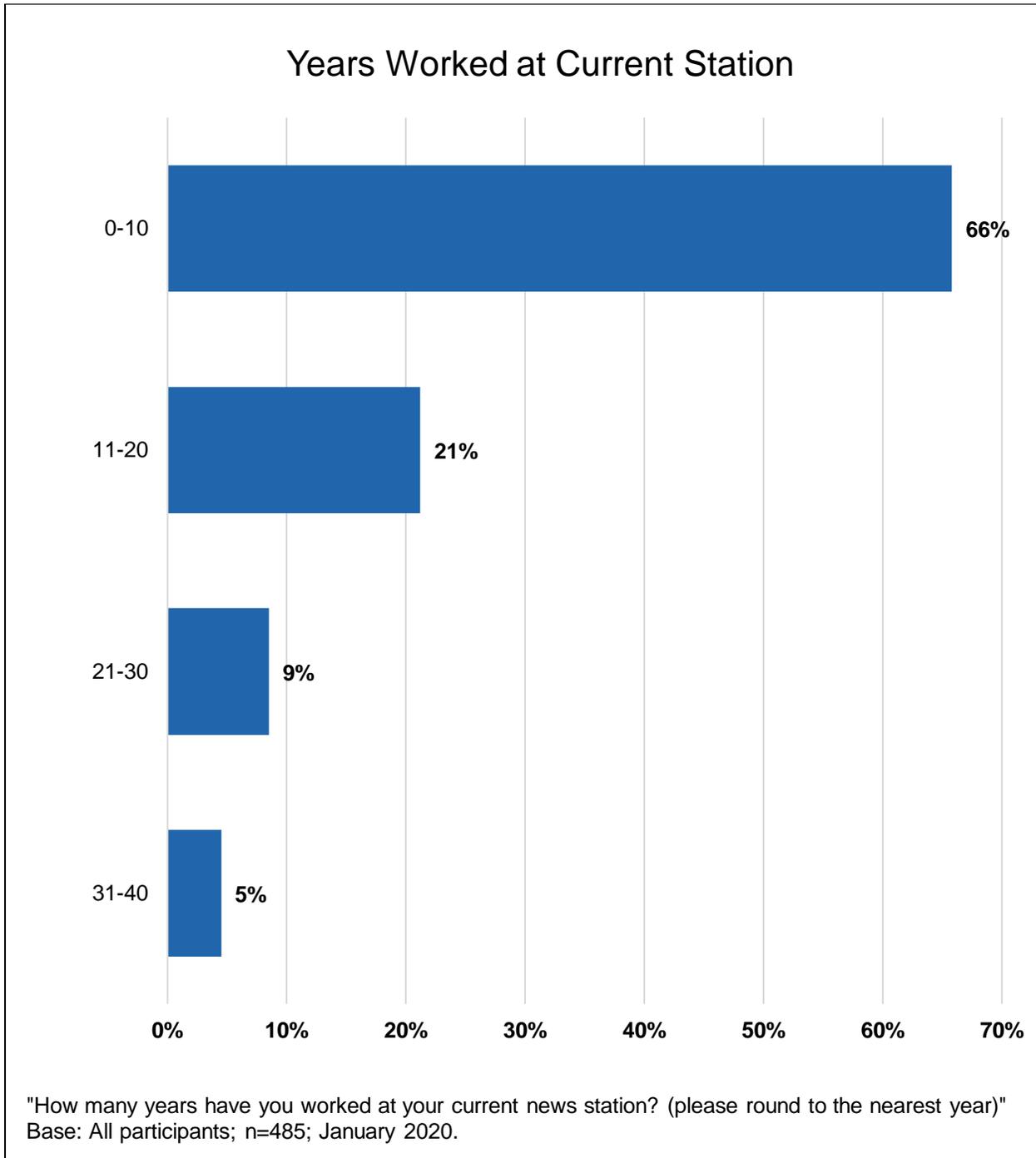
Current Position



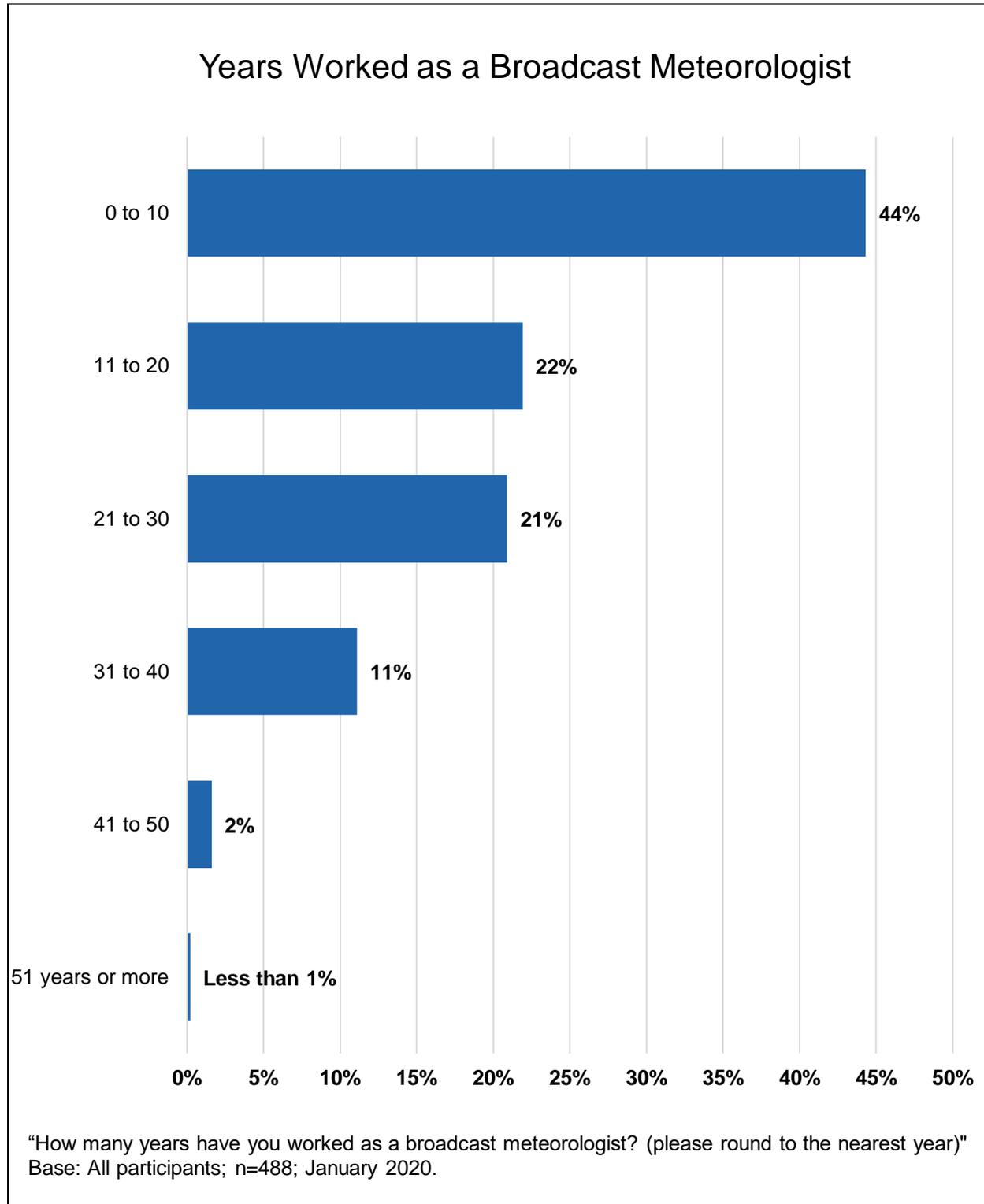
Full-Time or Part-Time Employment



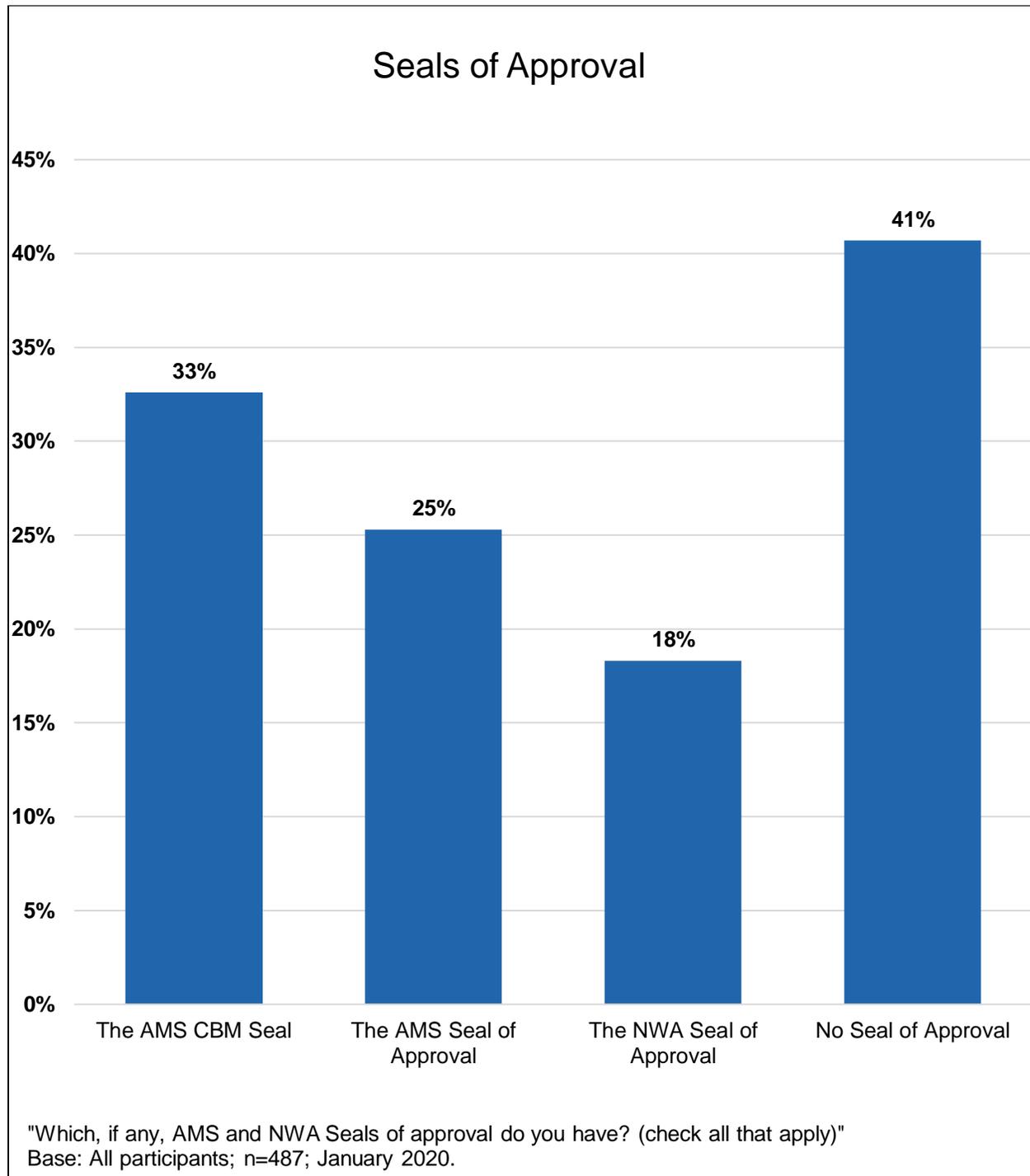
Years Worked at Current Station



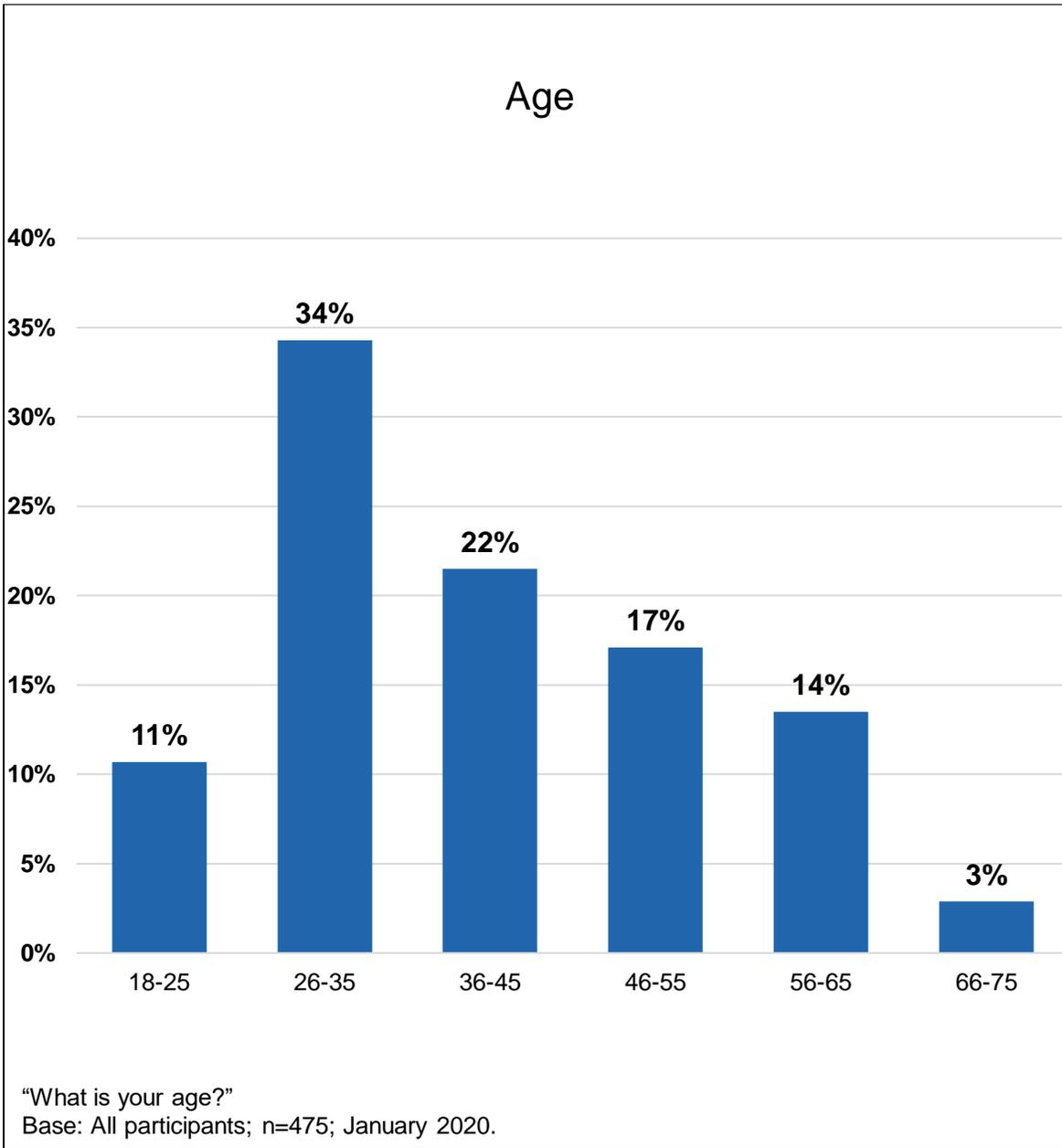
Years Worked as a Broadcast Meteorologist



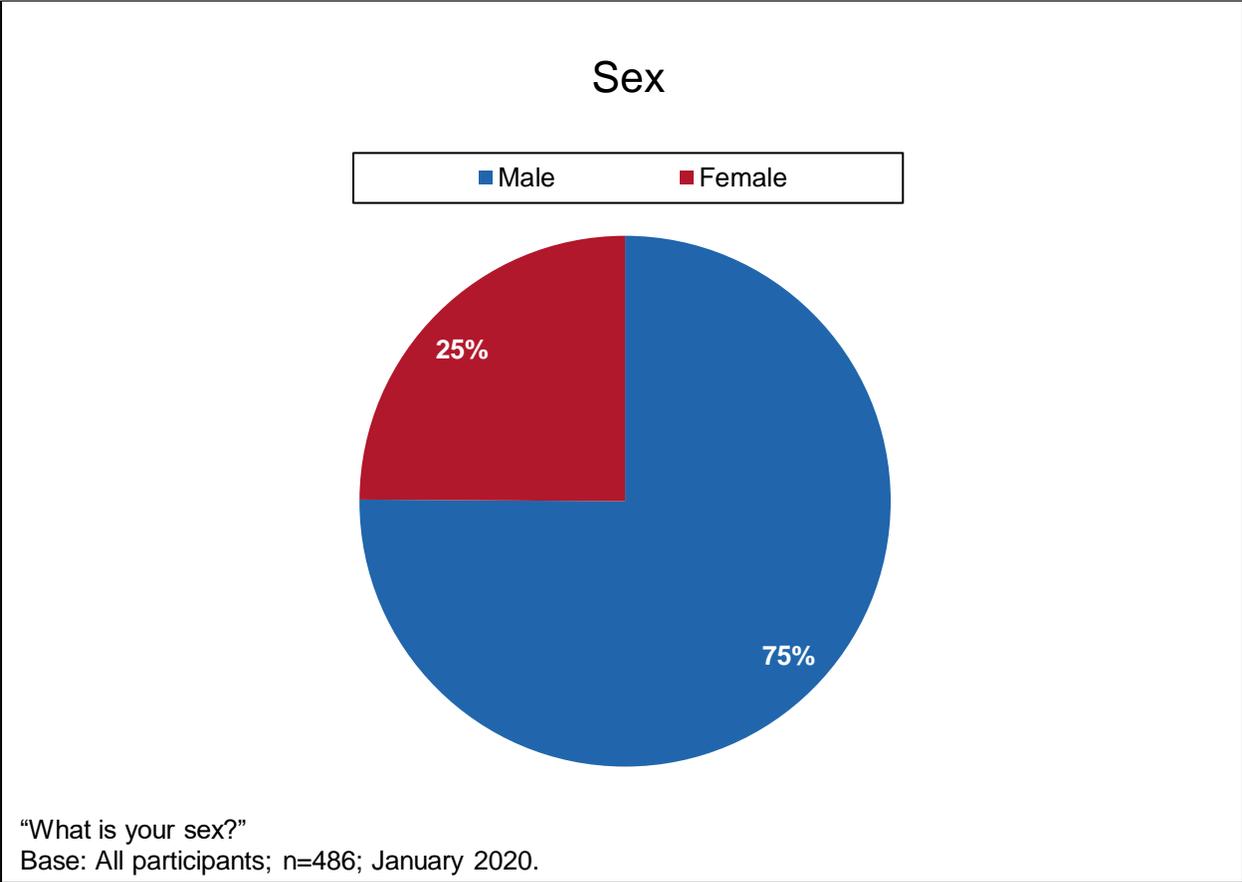
Seals of Approval



Age



Sex



Appendix I: Survey Method

We conducted a census survey of all U.S.-based television weathercasters working in January 2020. To identify them, we started with an existing list of all U.S. television weathercasters produced and used in our 2017 survey.¹ We updated that list by checking the websites of every news station in the U.S., using publicly available email addresses listed on station websites, or when necessary, weathercasters' social media accounts. A total of 2,188 weathercasters were identified.

All broadcast members of the American Meteorological Society were made aware of—and were encouraged to participate in—the survey via an email from the AMS Executive Director two weeks prior to its initiation. The survey was administered online using Qualtrics, a web-based survey system. On January 6th, an email was sent to all weathercasters inviting them to participate; each email included a personalized link to the survey. Up to five reminders to participate were emailed to non-respondents over the next month. The survey was closed on February 6th. In total, 570 weathercasters participated in the survey, yielding a participation rate of 26.1%; 491 survey participants completed the survey, a completion rate of 22.4%. The survey took participants a median time of 16 minutes to complete.

The survey instrument was designed by Edward W. Maibach, Richard T. Craig, William A. Yagatch, Kristin Timm, Shaelyn M. Patzer, Amanda C. Borth, and Eryn Campbell of George Mason University. The survey instrument is available upon request.

End Notes

¹Maibach, E., et al. (2017) A 2017 national survey of broadcast meteorologists: Initial Findings. George Mason University, Fairfax, VA: Center for Climate Change Communication.

²Maibach, E., Wilson, K. & Witte, J. (2010). A National Survey of Television Meteorologists about Climate Change: Preliminary Findings. Fairfax, VA: George Mason University Center for Climate Change Communication.

³Cook, J., Oreskes, N., Doran, P., Anderegg, W., Verheggen, B., Maibach, E., Carlton, S., Lewandowsky, S., Skuce, A., Green, S., Nuccitelli, D., Jacobs, P., Richardson, M., Winkler, B., Painting, R. & Rice, K. (2016). Consensus on consensus: a synthesis of consensus estimates on human-caused global warming. *Environmental Research Letters*, 11 048002.

⁴Powell, J. (2020) Scientists Unanimous on Anthropogenic Global Warming in 2019. *Bulletin of Science, Technology & Society*. DOI: 10.1177/0270467620922151.

⁵Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Inglewood Cliffs, NJ: Prentice Hall.

⁶Boykoff, M. & Boykoff, J. (2004) Balance as bias: Global warming and the US prestige press. *Global Environmental Change*. 14: 125-136.

⁷Leiserowitz, A., Maibach, E., Rosenthal, S., Kotcher, J., Bergquist, P., Ballew, M., Goldberg, M., & Gustafson, A. (2019). Climate Change in the American Mind: November 2019. Yale University and George Mason University, New Haven, CT: Yale Program on Climate Change Communication.