



# EXTREME WEATHER AND CLIMATE CHANGE IN THE AMERICAN MIND

APRIL 2013

YALE PROJECT ON CLIMATE CHANGE COMMUNICATION

GEORGE MASON UNIVERSITY CENTER FOR CLIMATE CHANGE COMMUNICATION



## Table of Contents

<b>Introduction .....</b>	<b>4</b>
<b>Executive Summary .....</b>	<b>6</b>
<b>1. Global Warming and Extreme Weather Events .....</b>	<b>7</b>
A majority of Americans say global warming is affecting weather in the United States .....	7
Half of Americans say global warming is affecting weather in the United States "a lot" or "some" .....	8
At least four in ten Americans say global warming made several extreme weather events "more severe" .....	9
<b>2. Observations and Perceptions of Weather in the United States .....</b>	<b>10</b>
A growing majority of Americans believes weather in the United States has been "worse" over the past several years .....	10
Half of Americans say weather in their local area has been "worse" over the past several years.....	11
<b>3. Personal Experience with Extreme Weather .....</b>	<b>12</b>
A large majority of Americans say they experienced one or more extreme weather events in the past year.....	12
More people in the Northeast and Midwest report experiencing extreme high winds, snowstorms, and cold temperatures over the past year .....	13
More people in the South report experiencing extreme cold weather and high winds over the past year .....	14
A growing number of Americans report suffering harm from extreme weather events in the past year .....	15
<b>4. Extreme Weather Events Experienced by Close Friends or Family Members.....</b>	<b>16</b>
A large majority of Americans have close friends or family members who have experienced extreme weather events in the past year.....	16
Some Americans report that extreme weather events harmed close friends or family members in the past year.....	17
<b>5. Preparedness for Extreme Weather .....</b>	<b>18</b>
Over half of Northeasterners and Southerners believe that extreme weather will cause a natural disaster in their community in the next year.....	18
Over half of Southerners and Northeasterners have thought a "great deal" or "some" about preparing for a natural disaster .....	19
One in three Americans have prepared for natural disasters with emergency plans and supply kits.....	20
<b>6. How Americans Communicate About the Extreme Weather Events They Experience .....</b>	<b>21</b>
Most Americans talk about extreme weather face to face or by phone, although a minority also use email and social media.....	21

<b>Appendix I: Data Tables .....</b>	<b>22</b>
<b>Appendix II: Survey Method.....</b>	<b>30</b>
<b>Appendix III: Sample Demographics.....</b>	<b>32</b>



## Introduction

This report is based on findings from a nationally representative survey – *Climate Change in the American Mind* – conducted by the Yale Project on Climate Change Communication and the George Mason University Center for Climate Change Communication. Interview dates: April 8 - 15, 2013. Interviews: 1,045 Adults (18+) Total average margin of error: +/- 3 percentage points at the 95% confidence level; regional margins of error are +/- 7 percentage points for the Northeast and West; +/- 6 percentage points for the Midwest; and +/- 5 percentage points for the South. The research was funded by the Surdna Foundation, the 11th Hour Project, the Grantham Foundation, and the V.K. Rasmussen Foundation.

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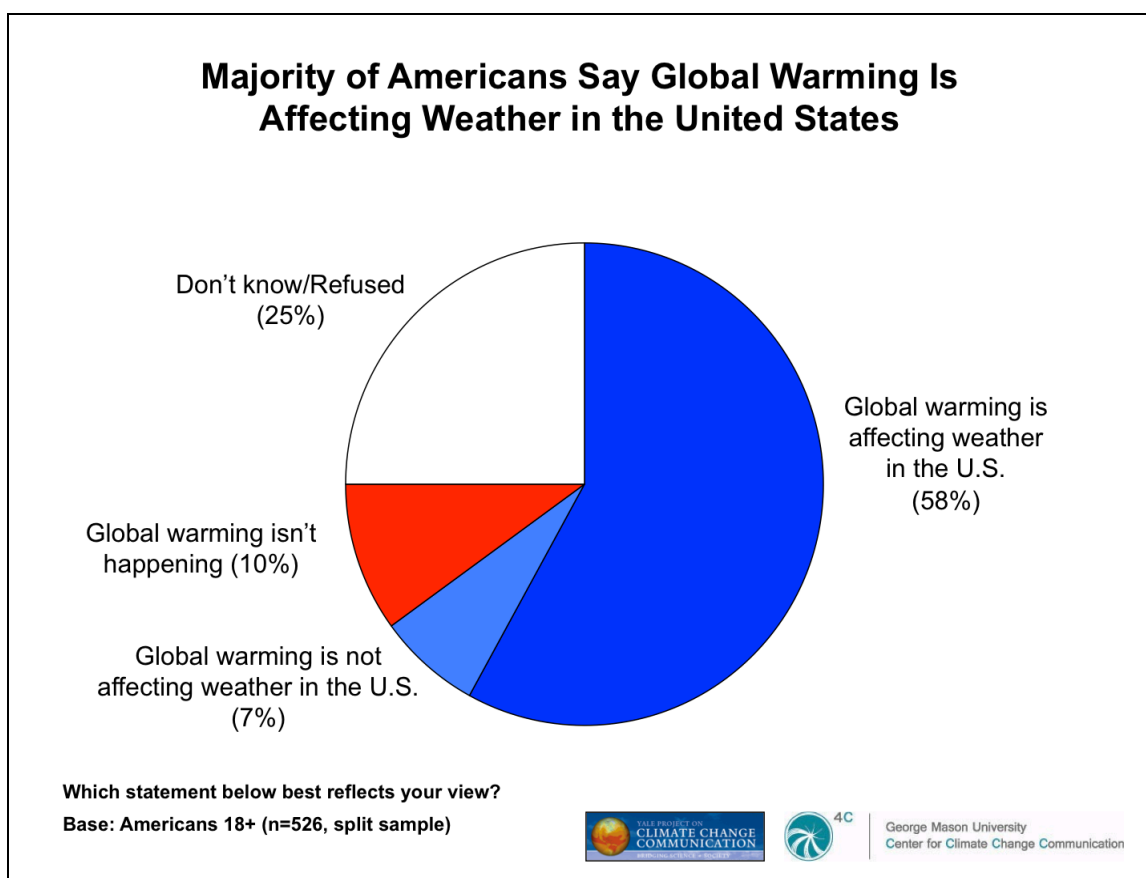
## Executive Summary

- About six in ten Americans (58%) say “global warming is affecting weather in the United States.”
- Many Americans believe global warming made recent extreme weather and climatic events “more severe,” specifically: 2012 as the warmest year on record in the United States (50%); the ongoing drought in the Midwest and the Great Plains (49%); Superstorm Sandy (46%); and Superstorm Nemo (42%).
- About two out of three Americans say weather in the U.S. has been worse over the past several years, up 12 percentage points since Spring 2012. By contrast, fewer Americans say weather has been getting better over the past several years – only one in ten (11%), down 16 points compared to a year ago.
- Many Americans (51%) also say weather in their *local area* has been worse over the past several years.
- Overall, 85 percent of Americans report that they experienced one or more types of extreme weather in the past year, most often citing extreme high winds (60%) and extreme heat (51%).
- Of those Americans who experienced extreme weather events in the past year, many (37%) say they were significantly harmed. Moreover, the number who have been harmed appears to be growing (up 5 percentage points since Fall 2012 and 4 points since Spring 2012). For example, about one in five Americans today say they suffered a moderate or great deal of harm from extreme high winds (18%, up 8 points since Fall 2012) or extreme cold weather (10%, up 5 points). More also say they were harmed by a hurricane (6%, up 3 points).
- Most Americans (80%) have close friends or family members (not living with them) who experienced extreme weather events in the past year, including extreme high winds (47%), an extreme heat wave (46%), an extreme snowstorm (39%), extreme cold temperatures (39%), an extreme rainstorm (37%), or a drought (35%).
- Over half of Americans (54%) believe it is “very” or “somewhat likely” that extreme weather will cause a natural disaster in their community in the coming year.
- Americans who experienced an extreme weather event are most likely to have communicated about it person-to-person – either in person (89%) or on the phone (84%) – although some used social media, such as writing about the experience on Facebook (23%) or sharing a photo of the event or its aftermath using Facebook, Tumblr, or Instagram (19%).

## 1. Global Warming and Extreme Weather Events

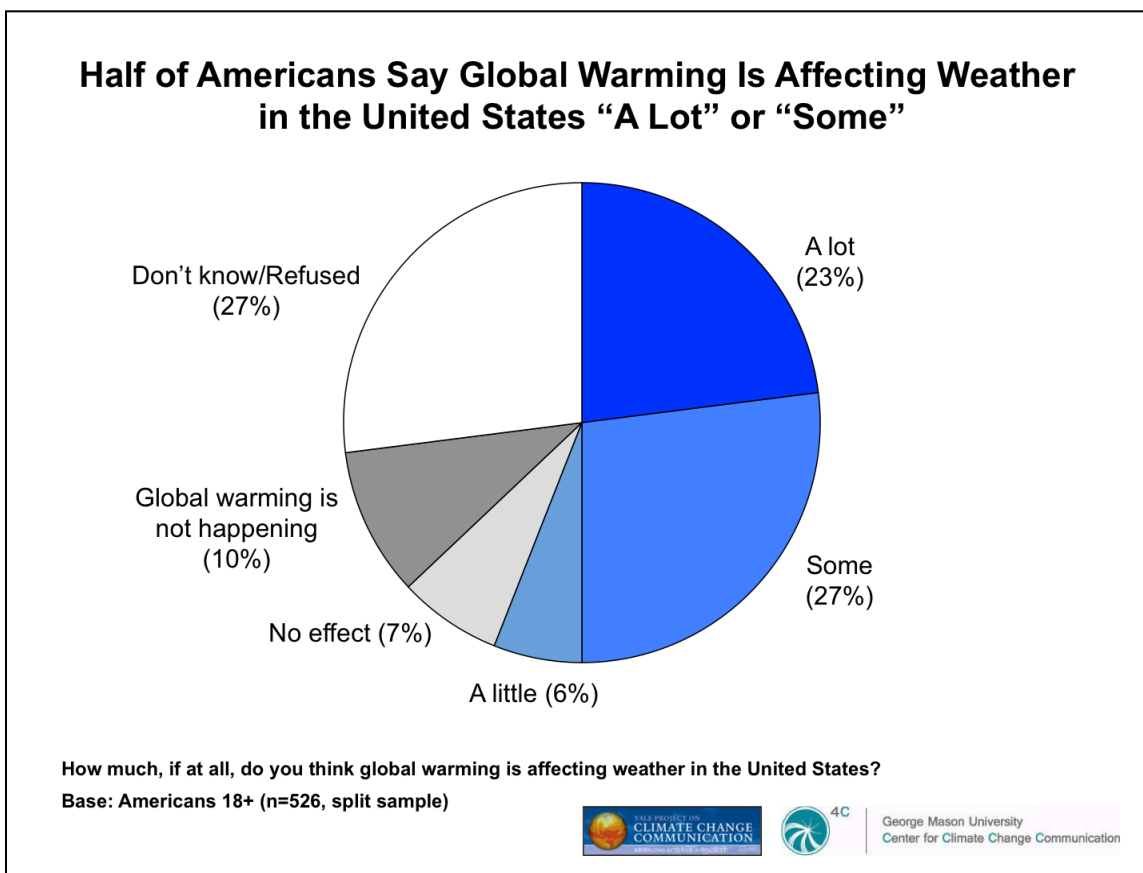
### A Majority of Americans Say Global Warming Is Affecting Weather in the United States.

About six in ten Americans (58%) say “global warming is affecting weather in the United States.” By contrast, only 7% say global warming is not affecting the weather and 10% say that global warming isn’t happening. One in four (25%) don’t know or did not answer the question.



## Half of Americans Say Global Warming Is Affecting Weather in the United States “A Lot” or “Some.”

Half of Americans say global warming is affecting the weather “a lot” (23%) or “some” (27%). Relatively few say it is affecting the weather only “a little” (6%).



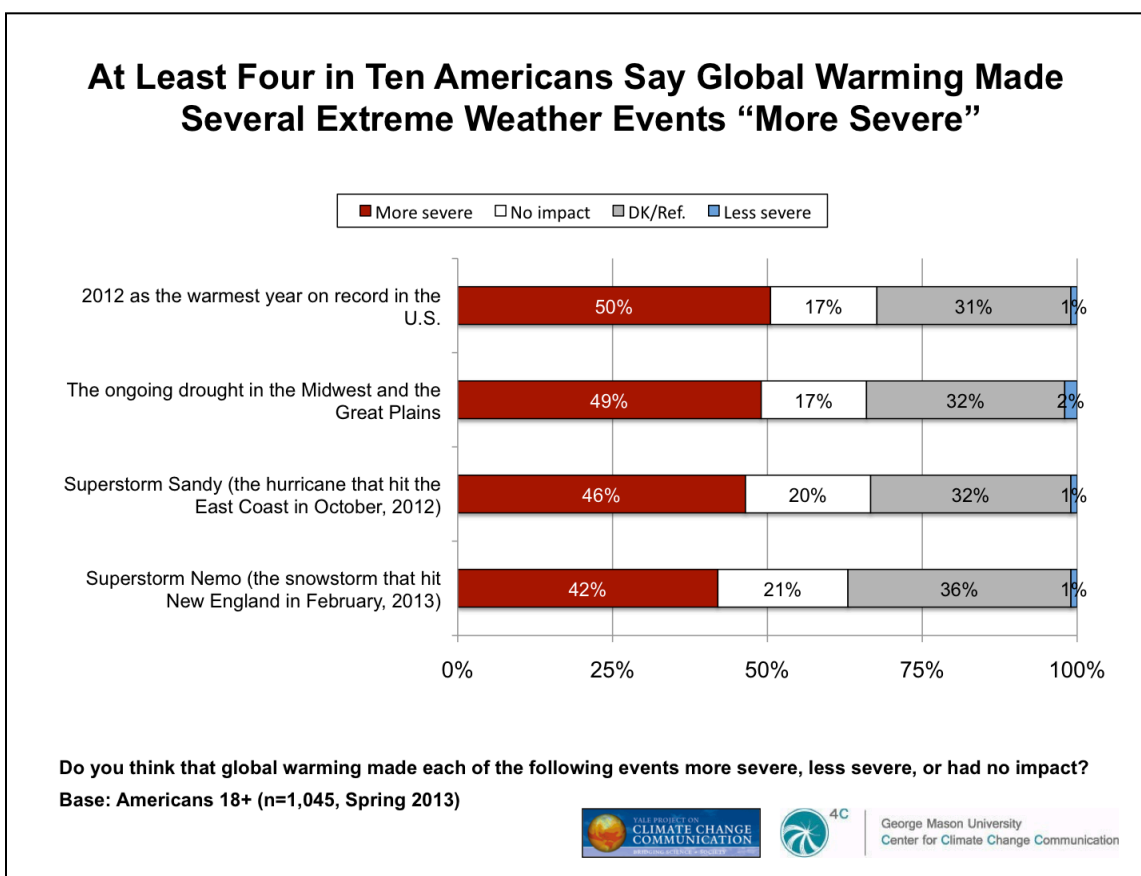


## At Least Four in Ten Americans Say Global Warming Made Several Extreme Weather Events “More Severe.”

Many Americans believe global warming made several recent extreme weather events “more severe:”

- 2012 as the warmest year on record in the United States (50%)
- The ongoing drought in the Midwest and the Great Plains (49%)
- Superstorm Sandy (46%)
- Superstorm Nemo (42%)

About one in three is not sure about the impact of global warming, and fewer (about one in five) believe it had no impact on these events.

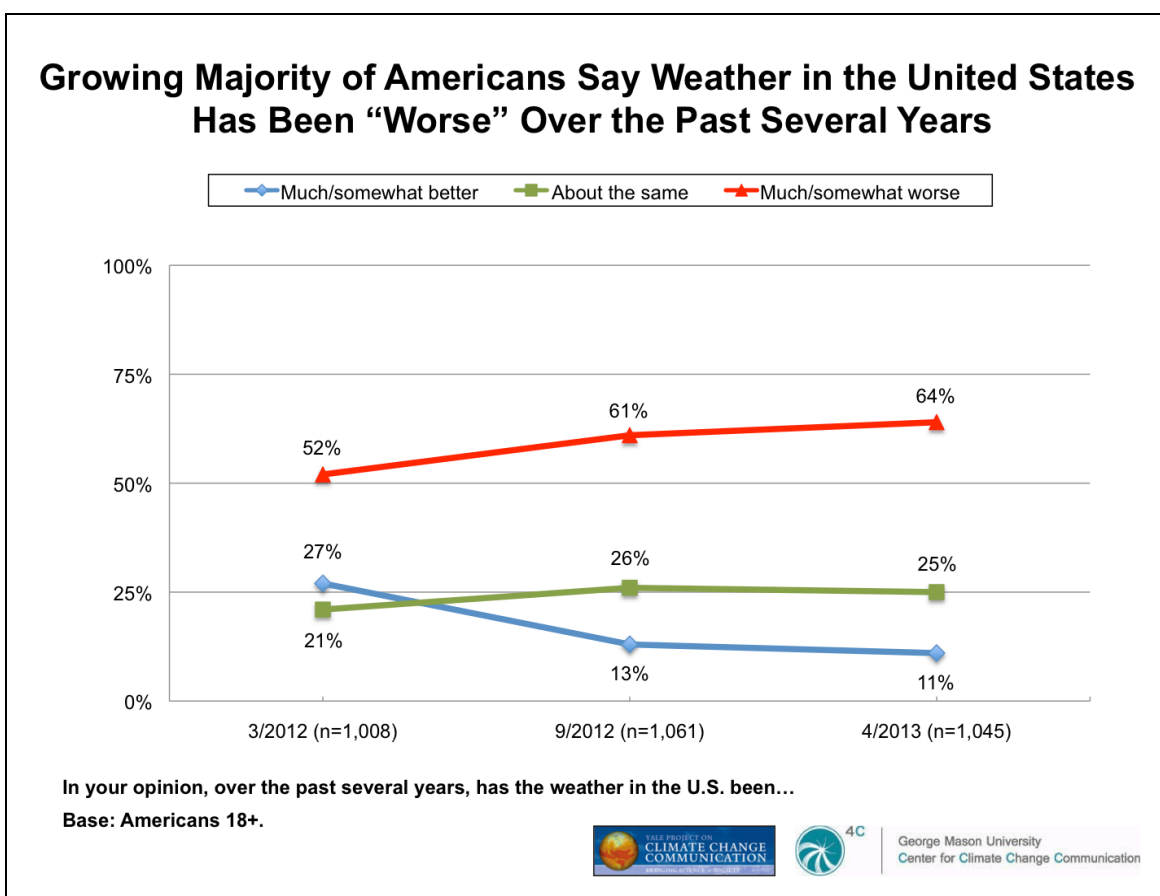


## 2. Observations and Perceptions of Weather in the United States

### A Growing Majority of Americans Say Weather in the United States Has Been “Worse” Over the Past Several Years.

About two out of three Americans say weather in the U.S. has been worse over the past several years, up 12 percentage points since Spring 2012.

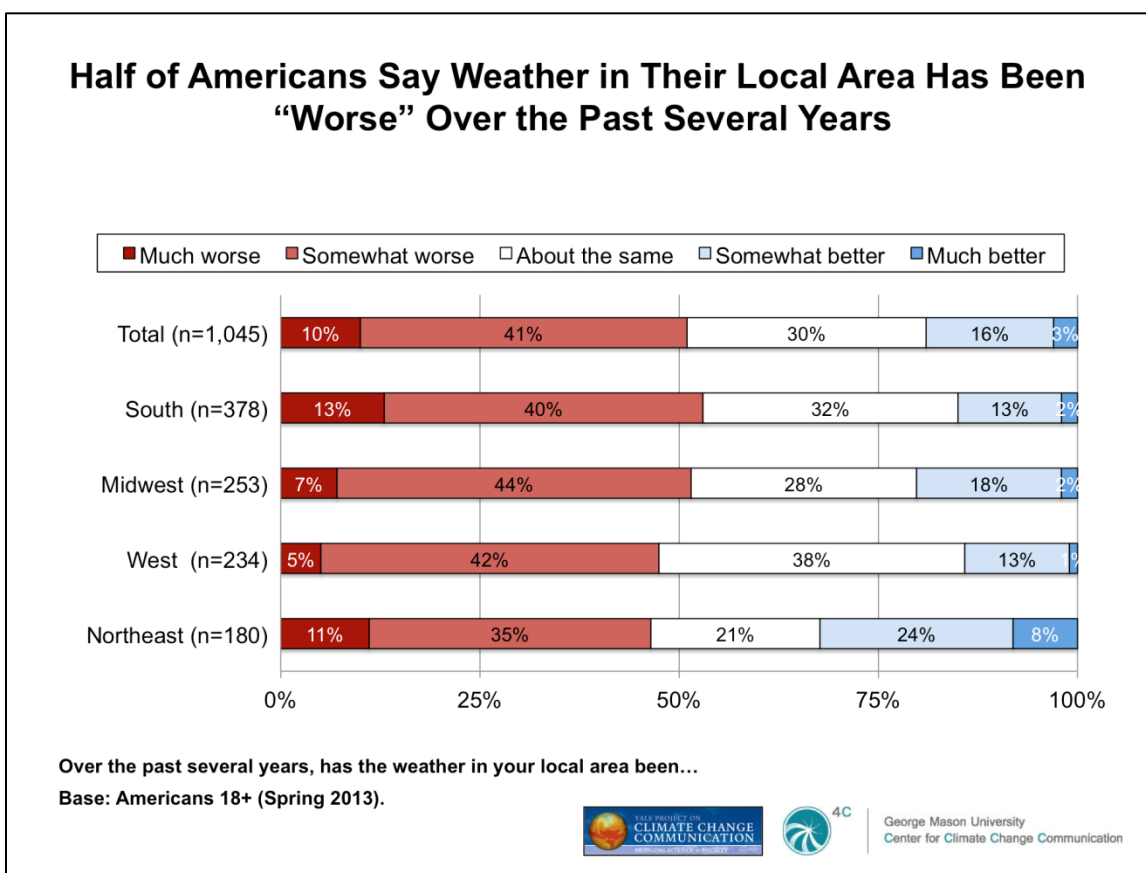
By contrast, fewer Americans say weather has been getting better over the past several years – only one in ten (11%), down 16 points compared to a year ago.



## Half of Americans Say Weather in Their Local Area Has Been “Worse” Over the Past Several Years

Many Americans also say weather in their *local area* has been worse over the past several years. This is particularly the case in the South, where just over half (53%) say their local weather has been “much” (13%) or “somewhat” (40%) worse.

By contrast, relatively few in any region say the weather has been better, except in the Northeast, where 32% say the weather has been better.



### 3. Personal Experience with Extreme Weather

#### A Large Majority of Americans Say They Experienced One or More Extreme Weather Events in the Past Year.

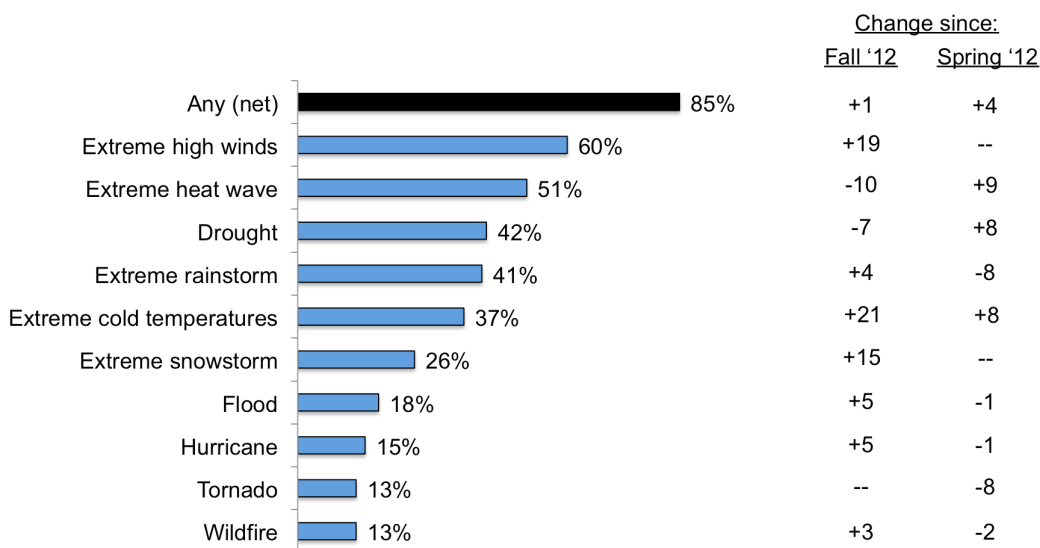
A large majority of Americans (85%) experienced one or more extreme weather events in the past year, most often citing extreme high winds (60%) and extreme heat waves (51%).

Compared to Fall 2012, Americans were more likely to say that they had experienced in the past year: extreme cold temperatures (37%, up 21 percentage points since Fall 2012); extreme high winds (60%, up 19 points); extreme snow storm (26%, up 15 points); flood (18%, up 5 points); hurricane (15%, up 5 points); extreme rainstorm (41%, up 4 points); and wildfire (13%, up 3 points).

By contrast, fewer Americans report having experienced an extreme heat wave (51%, down 10 points) or drought (42%, down 7 points) in the past year.

Comparisons to the Spring 2012 data look very different, suggesting that event recency affects how people answer the questions (e.g., people in the Spring are more likely to remember cold weather events from the past winter, whereas people in the Fall remember extreme heat conditions from the summer). For example, compared to Spring 2012, *more* Americans today say they experienced an extreme heat wave (up 9 points) and drought (up 8 points).

#### Large Majority of Americans Say They Experienced One or More Extreme Weather Events in the Past Year



In the past year, have you personally experienced each of the extreme weather events or natural disasters listed below?

Base: Americans 18+ (n=1,045 in Spring 2013; n=1,061 in Fall 2012; n=1,008 in Spring 2012)



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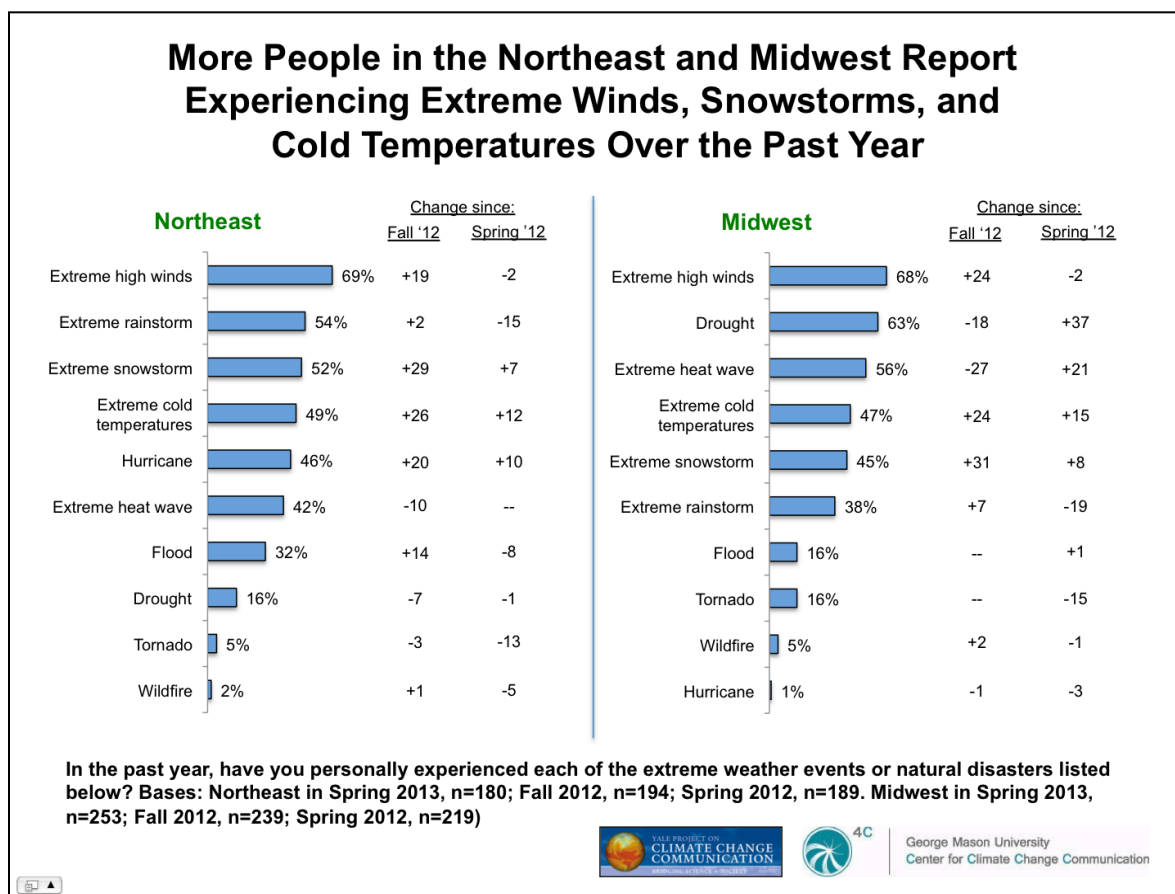
## More People in the Northeast and Midwest Report Experiencing Extreme High Winds, Snowstorms, and Cold Temperatures Over the Past Year.

Different regions of the country experienced different kinds of extreme weather over the past year, and this is reflected in the events reported.

Since Fall 2012, more Northeasterners say they have experienced several types of extreme events. About half or more say they experienced extreme high winds (69%, up 19 percentage points since Fall 2012), an extreme snowstorm (52%, up 29 points), extreme cold temperatures (49%, up 26 points), or a hurricane (46%, up 20 points). Fewer Northeasterners report having experienced an extreme heat wave (42%, down 10 points).

In the Midwest as well, a number of events were reported more often: extreme high winds (68%, up 24 points), extreme cold temperatures (47%, up 24 points), and extreme snowstorms (45%, up 31 points). By contrast, fewer Midwesterners say they experienced a drought (63%, down 18 points) or an extreme heat wave (56%, down 27 points) in the past year.

As with the national data, comparisons to Spring 2012 findings yield very different results. More residents of both regions report increases in cold temperatures and snowstorms, and fewer say they experienced extreme rainstorms, tornadoes and, in the Midwest, flooding. More Midwesterners also report experiencing heat waves, while more Northeasterners say they experienced hurricanes.



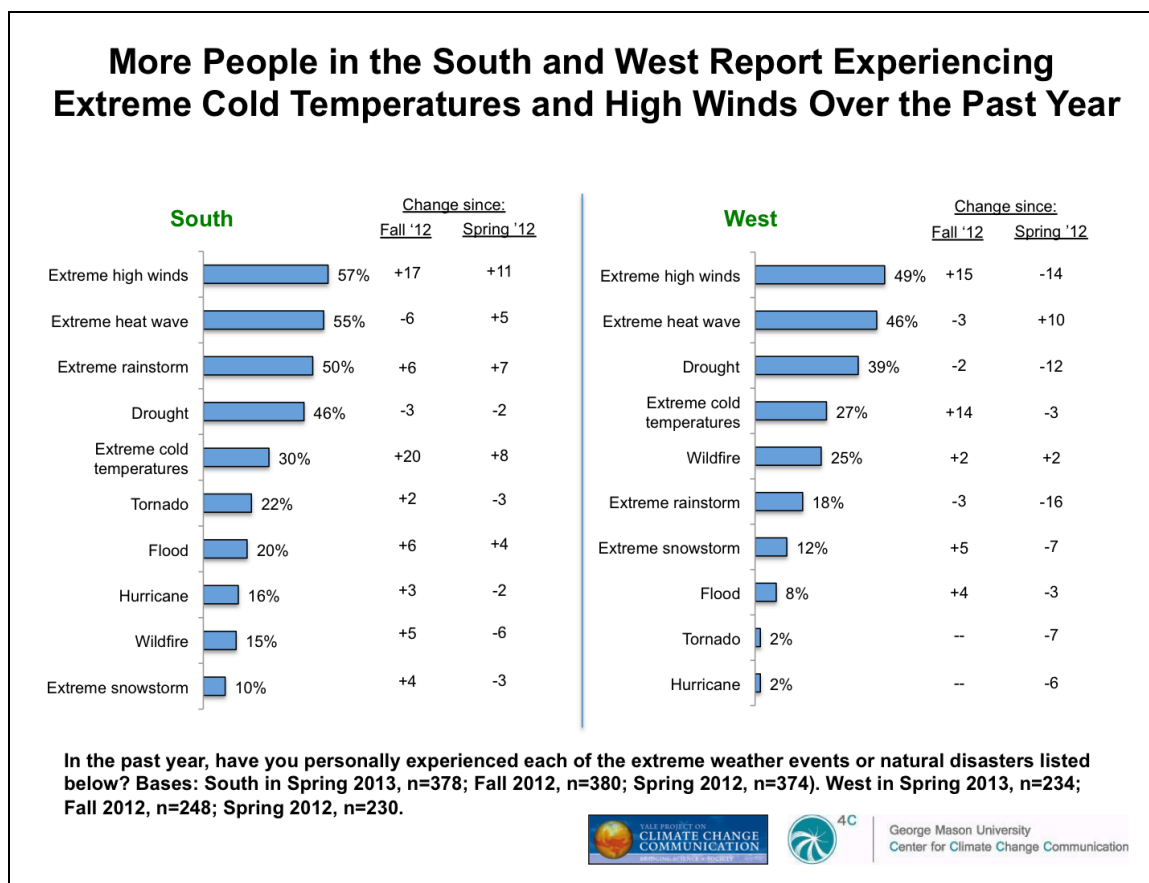


## More People in the South and West Report Experiencing Extreme Cold Weather and High Winds Over the Past Year

Compared to Fall 2012, more Southerners report having experienced extreme high winds (57%, up 17 points since Fall 2012) or extreme cold temperatures (30%, up 20 points). By contrast, fewer say they experienced an extreme heat wave (55%, down 6 points).

In the West, compared to Fall 2012, more residents say they experienced extreme high winds (49%, up 15 points) or extreme cold temperatures (27%, up 14 points).

As with the national data, comparisons to the Spring 2012 survey findings yield different results. More Southerners report more high winds, cold temperatures, extreme rainstorms, and heat waves, and fewer wildfires, while more Westerners say they experienced more extreme heat, and fewer experienced high winds, extreme rainstorms, drought, snowstorms, tornadoes and hurricanes.

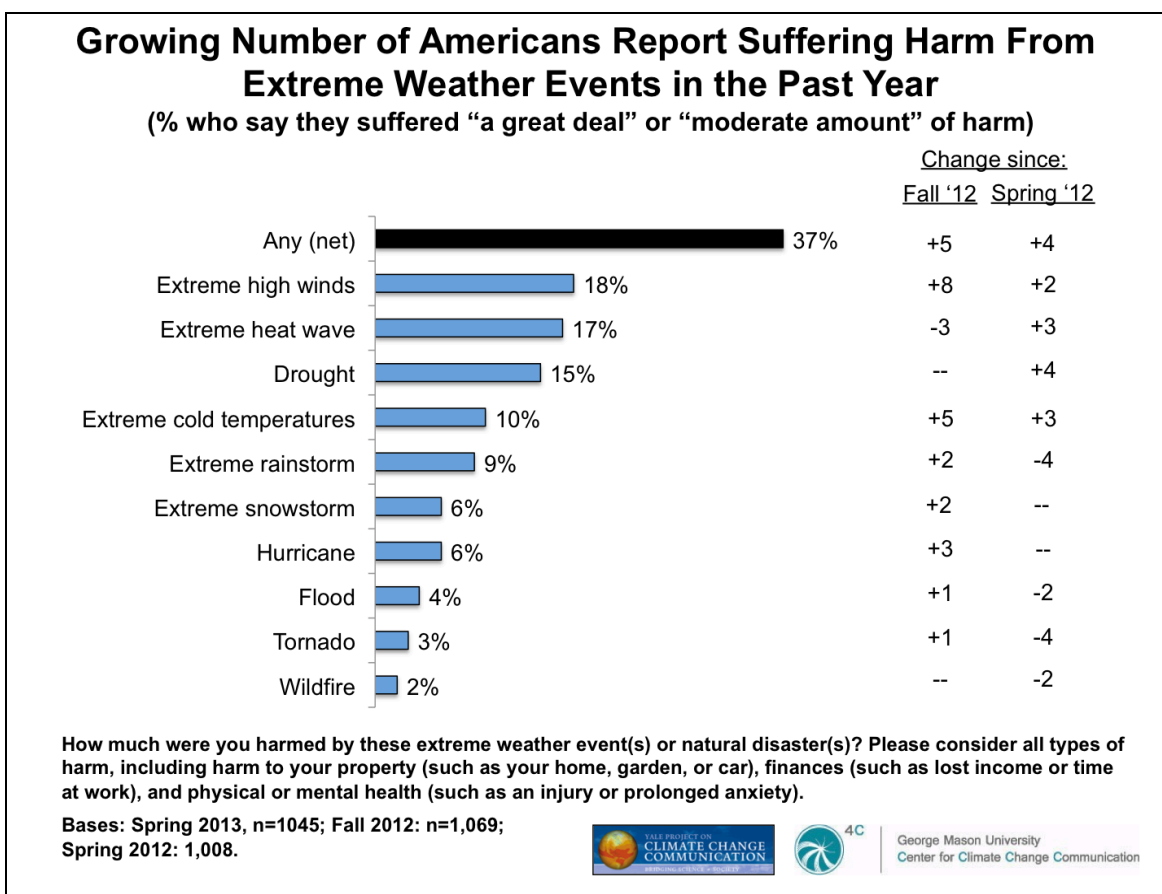


## A Growing Number of Americans Report Suffering Harm From Extreme Weather Events in the Past Year

Nearly four in ten Americans (37%) say they suffered a moderate or great deal of harm from extreme weather in the past year, which is an increase from Fall 2012 (up 5 percentage points) and Spring 2012 (up 4 points).

These events include high winds (18%, up 8 points since Fall 2012) and extreme cold temperatures (10%, up 5 points). More also say they were harmed by a hurricane (6%, up 3 points).

As with the national data, comparisons to the Spring 2012 survey findings yield somewhat different results. Reported harm from drought, heat and cold all increased over the prior year.

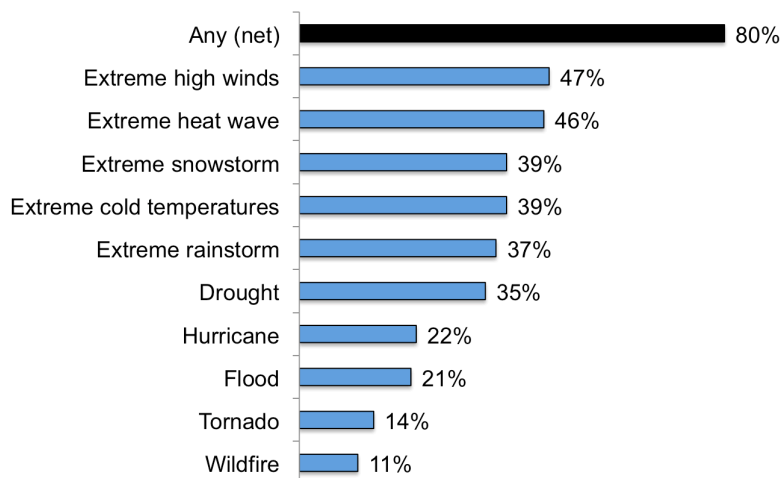


#### 4. Extreme Weather Events Experienced by Close Friends or Family Members.

##### **A Large Majority of Americans Have Close Friends or Family Members Who Have Experienced Extreme Weather Events in the Past Year.**

Four out of five Americans (80%) have close friends or family members (not living with them) who have experienced extreme weather events in past year, including extreme high winds (47%), an extreme heat wave (46%), an extreme snowstorm (39%), extreme cold temperatures (39%), extreme rainstorm (37%), or a drought (35%).

##### **A Large Majority of Americans Have Close Friends or Family Members Who Have Experienced Extreme Weather Events in the Past Year**



Now we'd like to ask about the experiences of your close friends and family who don't live in your home. To the best of your knowledge, did any of them experience any of the extreme weather events or natural disasters listed below over the past year?

Base: Americans 18+ (n=1,045, Spring 2013)

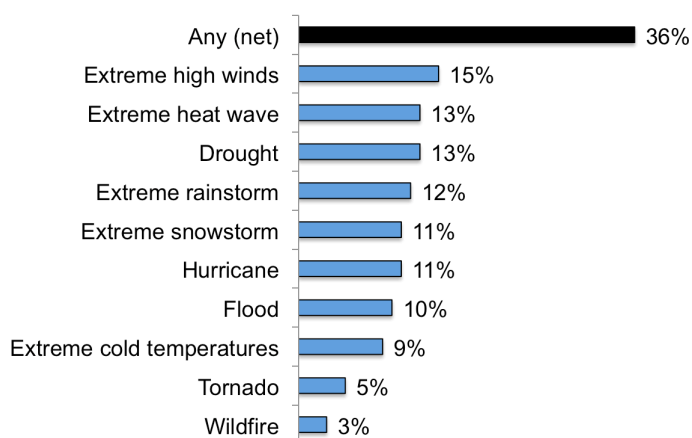


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## Some Americans Report That Extreme Weather Events Harmed Close Friends or Family Members in the Past Year.

More than one in three Americans (36%) have close friends or family members not living with them who have suffered a “great deal” or “moderate amount” of harm from extreme weather; for example, extreme high winds (15%), an extreme heat wave (13%), or a drought (13%).

### Some Americans Report That Extreme Weather Events Harmed Close Friends or Family Members in the Past Year (% who say they suffered “a great deal” or “moderate amount” of harm)



On average, how much were your close friends and/or family members harmed by these extreme weather event(s) or natural disaster(s)? Please consider all types of harm, including harm to their property (such as their home, garden, or car), finances (such as lost income or time at work), and physical or mental health (such as an injury or prolonged anxiety).

Base: Americans 18+ (n=1,045, Spring 2013)



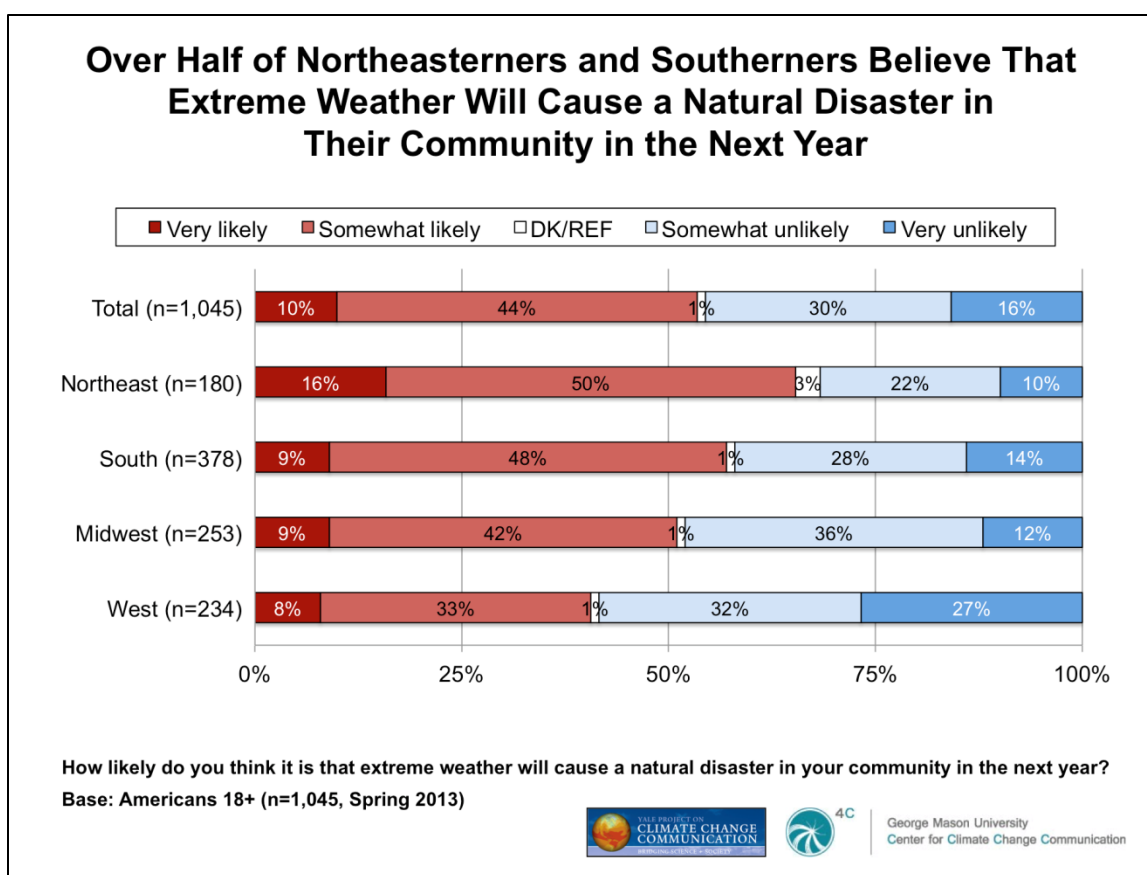
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## 5. Preparedness for Extreme Weather

### Over Half of Northeasterners and Southerners Believe That Extreme Weather Will Cause a Natural Disaster in Their Community in the Next Year.

Just over half of Americans (54%) believe it is “very” or “somewhat likely” that extreme weather will cause a natural disaster in their community in the coming year.

Northeasters (66%) and Southerners (57%) are the most likely to believe this.

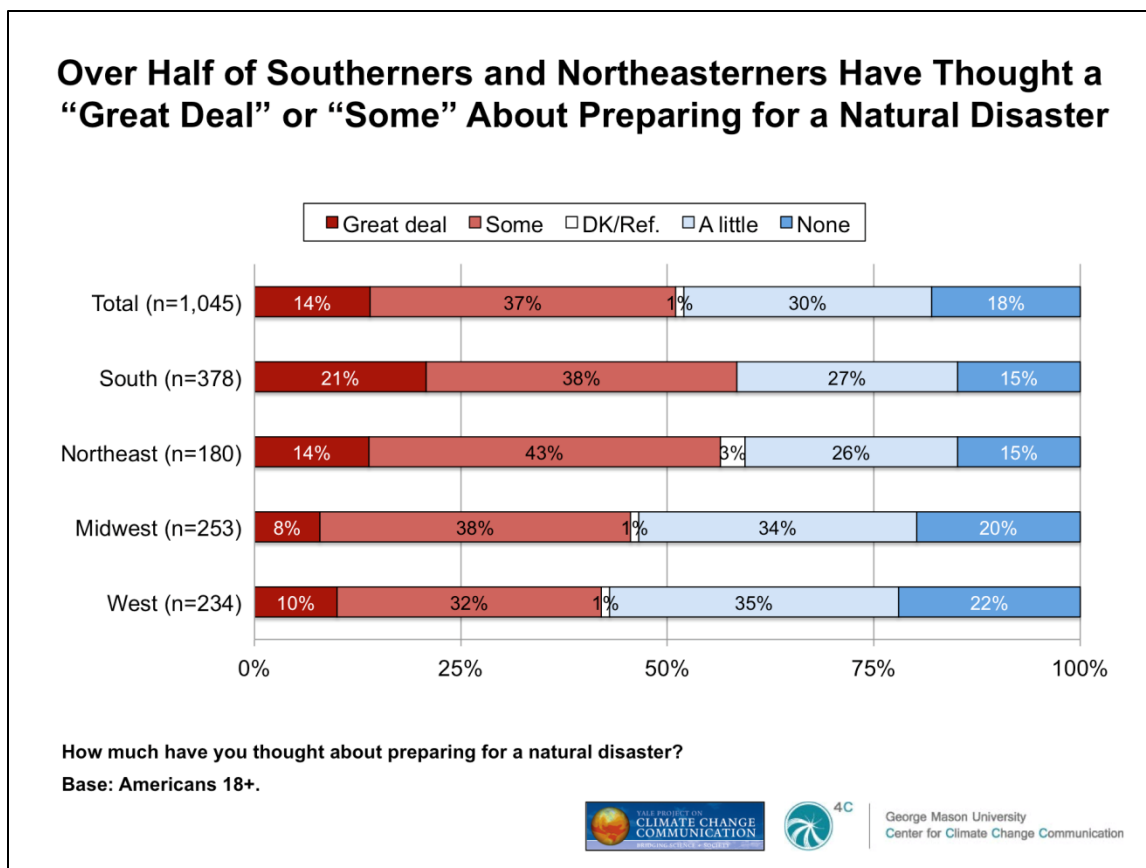




## Over Half of Southerners and Northeasterners Have Thought a “Great Deal” or “Some” About Preparing for a Natural Disaster.

Half of Americans (51%) say they have put a “great deal” or “some” thought into preparing for a natural disaster.

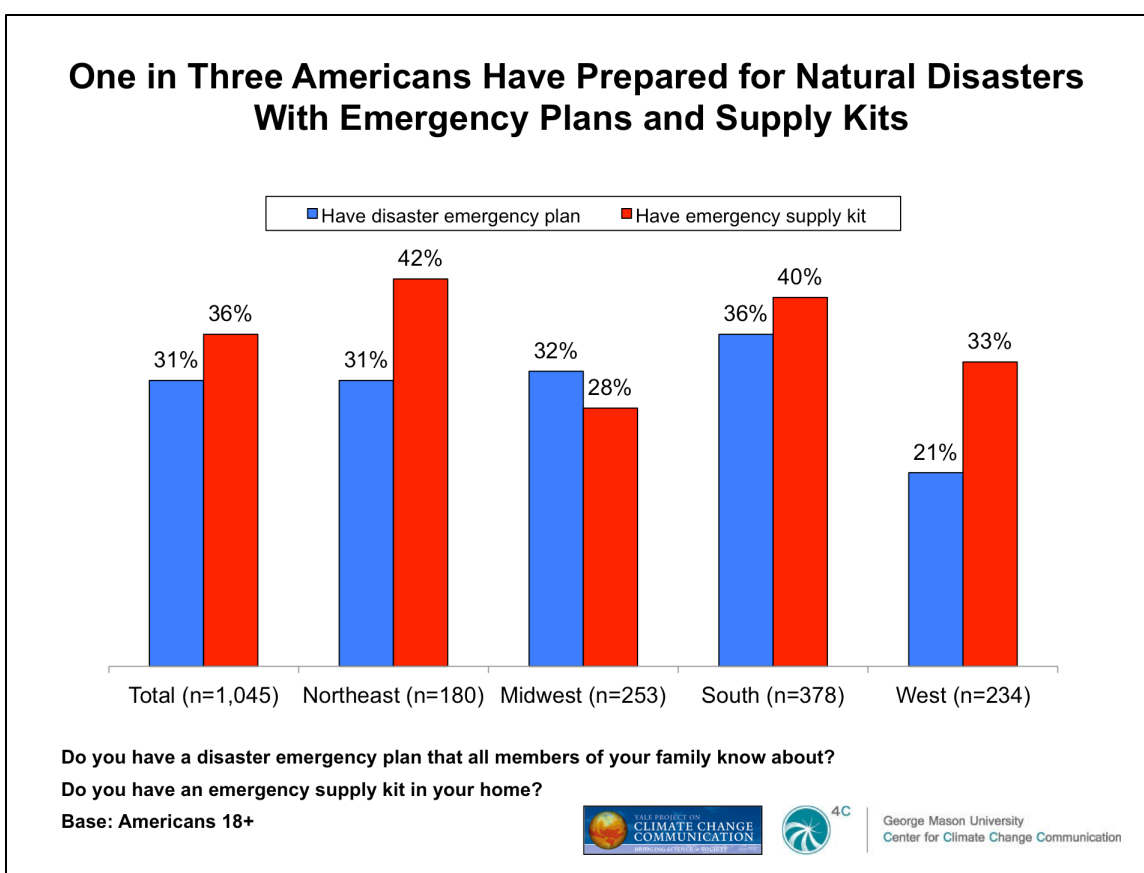
Southerners (59%) and Northeasterners (57%) are the most likely to say this.



## One in Three Americans Have Prepared for Natural Disasters With Emergency Plans and Supply Kits

Only three out of ten Americans (31%, down 5 percentage points since Spring 2012, the last time this question was asked) have a natural disaster emergency plan that all members of their family know about. Least likely to have a plan are people in the West (21%, down 18 points).

About one in three Americans (36%, no change since Spring 2012) has an emergency supply kit in their home. Most likely to have one are Northeasterners (42%, up 9 points) and Southerners (40%, no change). Least likely are Midwesterners (28%, down 4 points) and people in the West (33%, down 8 points).

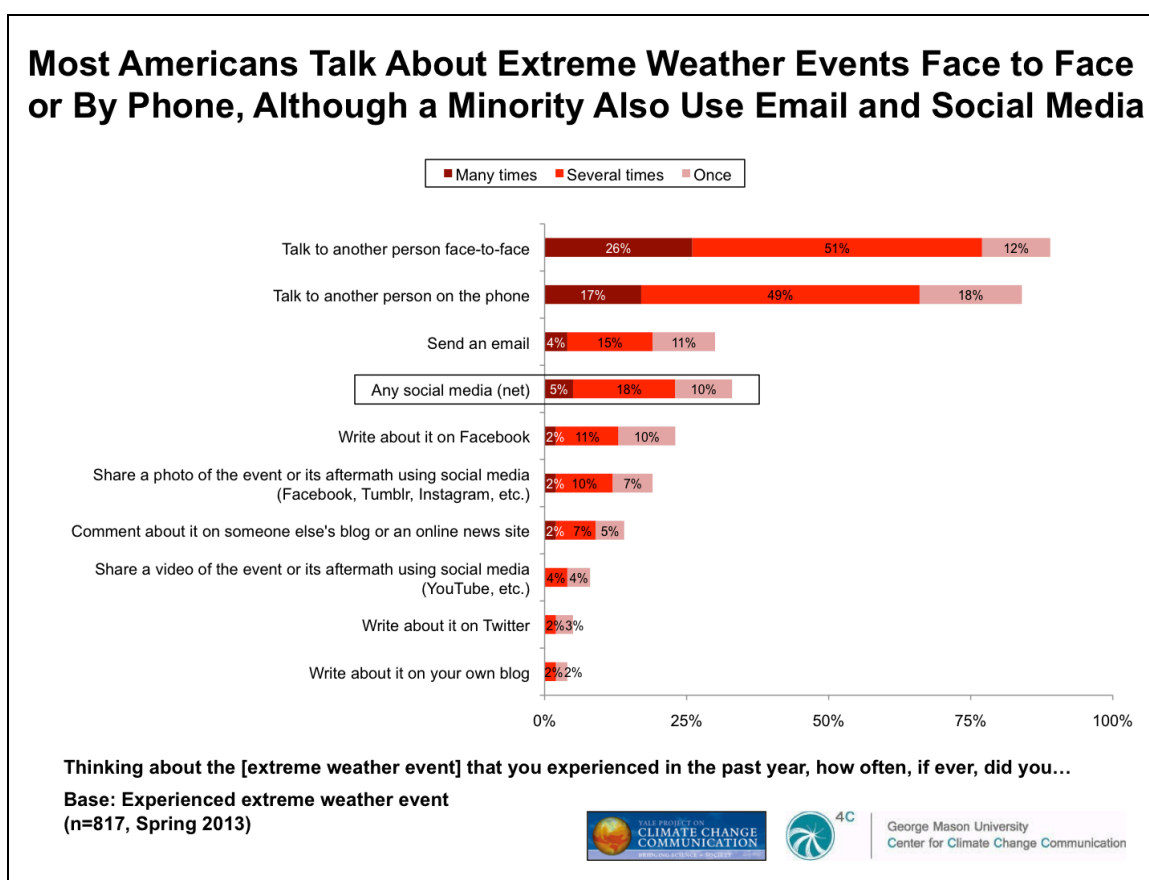


## 6. How Americans Communicate About the Extreme Weather Events They Experience

### Most Americans Talk About Extreme Weather Events Face to Face or By Phone, Although a Minority Also Use Email and Social Media

Americans who have experienced an extreme weather event are most likely to communicate about it by talking to other people in person (89% have done it at least once) or on the phone (84%).

Fewer use social media, such as writing about the experience on Facebook (23%) or sharing a photo of the event or its aftermath using social media such as Facebook, Tumblr, or Instagram (19%). Fewer still have used social media to communicate about extreme weather events by commenting on a blog, online news site, sharing a video (e.g., on YouTube), or Tweeting about it.



## Appendix I: Data Tables

Statistically significant differences at the 95% confidence level are noted with an “a,” “b,” “c,” or “d” following proportions that are significantly higher than the corresponding proportion in the column falling under the letter heading.

### 1. Global Warming and Extreme Weather Events

(Base: Americans 18+, split sample)

Which statement below best reflects your view?

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(526)	(99)	(119)	(196)	(112)
		a	b	c	d
	%	%	%	%	%
Global warming is affecting weather in the United States	58	60	61	55	54
Global warming is not affecting weather in the United States	7	5	3	9	11
Global warming isn't happening	10	11	7	11	8
Don't know/prefer not to answer	25	24	26	25	28

(Base: Americans 18+ who agree global warming is affecting weather in the U.S.; includes people who say, in an alternative question, they “strongly” or “somewhat agree” global warming is affecting weather in the United States)

How much, if at all, do you think global warming is affecting weather in the United States?

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(679)	(126)	(168)	(227)	(158)
		a	b	c	d
	%	%	%	%	%
A lot	37	37	34	33	44
Some	38	35	39	40	35
A little	15	17	19	13	13
Don't know	9	4	8	12	8
Prefer not to answer	2	8 <sup>bcd</sup>	--	2	--

**(Base: Americans 18+; n=1,045)**

**Do you think that global warming made each of the following events more severe, less severe, or had no impact?**

	<u>Less severe</u> %	<u>No impact</u> %	<u>More severe</u> %	<u>Don't know/Ref.</u> %
The ongoing drought in the Midwest and Great Plains	2	17	49	32
2012 as the warmest year on record in the United States	1	17	50	31
Superstorm Sandy (the hurricane that hit the East Coast in October, 2012)	1	20	46	32
Superstorm Nemo (the snowstorm that hit New England in February, 2013)	1	21	42	36



## 2. Observations and Perceptions of Weather in the United States

(Base: Americans 18+)

In your opinion, over the past several years, has the weather in the U.S. been...

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(1,045)	(180)	(253)	(378)	(234)
		a	b	c	d
	%	%	%	%	%
<b>Better</b>	<b>11</b>	<b>21<sup>bcd</sup></b>	<b>11</b>	<b>7</b>	<b>7</b>
Much better	2	4	1	2	1
Somewhat better	9	17 <sup>cd</sup>	10	6	6
About the same	25	18	28	24	29
<b>Worse</b>	<b>64</b>	<b>61</b>	<b>61</b>	<b>69</b>	<b>64</b>
Much worse	17	22 <sup>b</sup>	12	18	15
Somewhat worse	48	39	50	51	49

(Base: Americans 18+)

Over the past several years, has the weather in *your local area* been...

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(1,045)	(180)	(253)	(378)	(234)
		a	b	c	d
	%	%	%	%	%
<b>Better</b>	<b>19</b>	<b>32<sup>bcd</sup></b>	<b>19</b>	<b>15</b>	<b>14</b>
Much better	3	8 <sup>bcd</sup>	2	2	1
Somewhat better	16	24 <sup>bcd</sup>	18	13	13
About the same	30	21	28	32 <sup>a</sup>	38 <sup>a</sup>
<b>Worse</b>	<b>50</b>	<b>45</b>	<b>51</b>	<b>53</b>	<b>48</b>
Much worse	10	11	7	13 <sup>d</sup>	5
Somewhat worse	41	35	44	40	42

### 3. Personal Experience With Extreme Weather

(Base: Americans 18+)

In the past year, have *you personally* experienced each of the extreme weather events or natural disasters listed below? (% who say “yes”)

(Unweighted base)	<u>Total</u> (1,045)	<u>NE</u> (180)	<u>MW</u> (253)	<u>S</u> (378)	<u>W</u> (234)
		a	b	c	d
		%	%	%	%
Extreme high winds	60	69 <sup>cd</sup>	68 <sup>cd</sup>	57	49
Extreme heat wave	51	42	56 <sup>a</sup>	55 <sup>a</sup>	46
Drought	42	16	63 <sup>acd</sup>	46 <sup>a</sup>	39 <sup>a</sup>
Extreme rainstorm	41	54 <sup>bd</sup>	38	50 <sup>bd</sup>	18
Extreme cold temperatures	37	49 <sup>cd</sup>	47 <sup>cd</sup>	30	27
Extreme snow storm	26	52 <sup>cd</sup>	45 <sup>cd</sup>	10	12
Flood	18	32 <sup>bcd</sup>	16 <sup>d</sup>	20 <sup>d</sup>	8
Hurricane	15	46 <sup>bcd</sup>	1	16 <sup>bd</sup>	2
Tornado	13	5	16 <sup>ad</sup>	21 <sup>ad</sup>	2
Wildfire	13	2	5	15 <sup>ab</sup>	25 <sup>abc</sup>

(Base: Americans 18+ who experienced the extreme weather event)

How much were you harmed by these extreme weather event(s) or natural disaster(s)?

Please consider all types of harm, including harm to your property (such as your home, garden, or car), finances (such as lost income or time at work), and physical or mental health (such as an injury or prolonged anxiety).

	<u>Not at all</u>	<u>Only a little</u>	<u>A moderate amount</u>	<u>A great deal</u>
	%	%	%	%
Hurricane (n=143)	33	26	27	15
Extreme heat wave (n=513)	29	37	25	10
Drought (n=478)	31	34	25	10
Extreme cold temperatures (n=360)	34	39	18	9
Flood (n=154)	43	33	15	8
Extreme high winds (n=614)	30	40	24	6
Extreme rainstorm (n=417)	36	40	18	6
Extreme snow storm (n=260)	37	41	16	7
Tornado (n=123)	47	30	20	3
Wildfire (n=108)	68	16	13	3

#### 4. Friends and Family Who Have Experienced Extreme Weather

(Base: Americans 18+)

Now we'd like to ask about the experiences of your close friends and family who don't live in your home. To the best of your knowledge, did any of them experience the extreme weather events or natural disasters listed below over the past year?

(% who say "yes")

(Unweighted base)	<u>Total</u> (1,045)	<u>NE</u> (180)	<u>MW</u> (253)	<u>S</u> (378)	<u>W</u> (234)
		a	b	c	d
		%	%	%	%
Extreme high winds	47	57 <sup>cd</sup>	53 <sup>d</sup>	45	36
Extreme heat wave	46	38	58 <sup>acd</sup>	45	41
Extreme snow storm	39	49 <sup>cd</sup>	44 <sup>c</sup>	34	33
Extreme cold temperatures	39	40	41	35	40
Extreme rainstorm	37	46 <sup>d</sup>	37	40 <sup>d</sup>	27
Drought	35	18	53 <sup>acd</sup>	39 <sup>ad</sup>	28
Hurricane	22	47 <sup>bcd</sup>	7	23 <sup>b</sup>	15 <sup>b</sup>
Flood	21	35 <sup>bcd</sup>	17	20	14
Tornado	14	13	16	17 <sup>d</sup>	9
Wildfire	11	9	8	10	18 <sup>bc</sup>

(Base: Americans 18+ who say friend/family member experienced the event)

On average, how much were your close friends and/or family members harmed by these extreme weather event(s) or natural disaster(s)? Please consider all types of harm, including harm to their property (such as their home, garden, or car), finances (such as lost income or time at work), and physical or mental health (such as an injury or prolonged anxiety).

	<u>Not at all</u>	<u>Only a little</u>	<u>A moderate amount</u>	<u>A great deal</u>
	%	%	%	%
Hurricane (n=236)	19	33	27	22
Flood (n=204)	18	34	28	20
Tornado (n=154)	31	33	22	12
Extreme high winds (n=500)	23	44	23	10
Extreme rainstorm (n=400)	27	40	23	10
Wildfire (n=113)	47	22	21	9
Drought (n=389)	22	40	30	8
Extreme heat wave (n=454)	25	45	22	7
Extreme snow storm (n=411)	25	44	24	5
Extreme cold temperatures (n=385)	30	45	20	5

## 5. Preparedness for Extreme Weather

(Base: Americans 18+)

How likely do you think it is that extreme weather will cause a natural disaster in your community in the next year?

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(1,045)	(180)	(253)	(378)	(234)
		a	b	c	d
	%	%	%	%	%
<b>Likely</b>	54	66 <sup>cd</sup>	51	58 <sup>d</sup>	40
Very likely	10	16	9	9	8
Somewhat likely	44	50 <sup>d</sup>	42	48 <sup>d</sup>	33
<b>Unlikely</b>	<b>45</b>	<b>31</b>	<b>49<sup>a</sup></b>	<b>42</b>	<b>59<sup>ac</sup></b>
Somewhat unlikely	30	22	36 <sup>a</sup>	28	32
Very unlikely	16	10	12	14	27 <sup>abc</sup>

(Base: Americans 18+)

How much have you thought about preparing for a natural disaster?

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(1,045)	(180)	(253)	(378)	(234)
		a	b	c	d
	%	%	%	%	%
A great deal	14	14	8	21 <sup>bd</sup>	10
Some	37	43	38	38	32
A little	30	26	34	27	35
None	18	15	20	15	22

**(Base: Americans 18+)****Do you have a natural disaster plan that all members of your family know about?**

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(1,045)	(180)	(253)	(378)	(234)
		a	b	c	d
	%	%	%	%	%
Yes	31	31	32 <sup>d</sup>	36 <sup>d</sup>	21
No	67	66	67	62	77 <sup>c</sup>

**(Base: Americans 18+)****Do you have an emergency supply kit in your home?**

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(1,045)	(180)	(253)	(378)	(234)
		a	b	c	d
	%	%	%	%	%
Yes	36	42 <sup>b</sup>	28	40 <sup>b</sup>	33
No	63	54	72 <sup>ac</sup>	60	66



## 6. How Americans Communicate About Extreme Weather They Have Experienced

(Base: Americans 18+ who experienced one or more extreme weather event in the past year; n=817)

(If experienced one event) Thinking about the (event) that you experienced in the past year, how often, if ever, did you...

(If experienced more than one event) Thinking about the (most extreme event) you experienced in the past year, how often, if ever, did you...

	Many times %	Several times %	Once %	Never %	DK/Ref. %
Talk to another person face-to-face about the event?	26	51	12	8	4
Talk to another person on the phone about the event?	17	49	18	13	3
Send an email about the event?	4	15	11	67	3
Write about the event on Facebook?	2	11	10	73	4
Share a photo of the event or its aftermath using social media (such as Facebook, Tumblr, or Instagram)?	2	10	7	78	3
Comment about the event on someone else's blog or an online news site?	2	7	5	83	3
Share a video of the event or its aftermath using social media (such as YouTube)?	*	4	4	90	2
Write about the event on Twitter?	*	2	3	91	3
Write about the event on your own blog?	*	2	2	92	4

## Appendix II: Survey Method

The data in this report are based on a nationally representative survey of 1,045 American adults, aged 18 and older, conducted from April 8 – 15, 2013. All questionnaires were self-administered by respondents in a web-based environment. The survey took, on average, about 27 minutes to complete.

The sample was drawn from GfK's KnowledgePanel<sup>®</sup>, an online panel of members drawn using probability sampling methods. Prospective members are recruited using a combination of random digit dial and address-based sampling techniques that cover virtually all (non-institutional) resident phone numbers and addresses in the United States. Those contacted who would choose to join the panel but do not have access to the Internet are loaned computers and given Internet access so they may participate.

The sample therefore includes a representative cross-section of American adults – irrespective of whether they have Internet access, use only a cell phone, etc. Key demographic variables were weighted, post survey, to match US Census Bureau norms.

The survey instrument was designed by Anthony Leiserowitz and Geoff Feinberg of Yale University, and Edward Maibach and Connie Roser-Renouf of George Mason University.

### Margins of error

All samples are subject to some degree of sampling error—that is, statistical results obtained from a sample can be expected to differ somewhat, due to random variation, from results that would be obtained if every member of the target population were interviewed.

Average margins of error for the Spring 2013 data, at the 95% confidence level, are as follows:

- Total (n=1,045): +/- 3 percentage points
- Northeast (n=180): +/- 7 percentage points
- Midwest (n=253): +/- 6 percentage points
- South (n=378): +/- 5 percentage points
- West (n=234): +/- 6 percentage points

### Rounding error

For tabulation purposes, percentage points are rounded off to the nearest whole number. As a result, percentages in a given chart may total slightly higher or lower than 100%.

The states included in each region are as follows:

**Northeast**

Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont

**Midwest**

Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin

**South**

Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, Washington DC, West Virginia

**West**

Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

### Appendix III: Sample Demographics

	N (unweighted)	% (weighted)
<b>Total</b>	<b>1,045</b>	<b>100</b>
<b>Sex</b>		
Men	520	48%
Women	525	52%
<b>Age</b>		
Generation Y (18-30)	145	22%
Generation X (31-48)	268	30%
Baby Boomers (49-67)	444	36%
WWII (68+)	188	12%
<b>Education</b>		
Less than high school	74	12%
High school graduate	311	30%
Some college/tech	289	29%
College graduate	228	18%
Post graduate	143	12%
<b>Household Income</b>		
<\$25K	167	19%
\$25K - <\$50K	244	24%
\$50K - <\$75K	216	19%
\$75K - <\$100K	153	15%
\$100K - <\$125K	125	12%
\$125K+	140	12%
<b>Hispanic</b>		
Yes	82	14%
<b>Race/Ethnicity</b>		
White, non-Hispanic	808	67%
Black, African-American non-Hispanic	94	12%
Other non-Hispanic	61	7%
<b>Region</b>		
Northeast	180	18%
Midwest	253	22%
South	378	37%
West	234	23%