



EXTREME WEATHER AND CLIMATE CHANGE IN THE AMERICAN MIND

NOVEMBER 2013

YALE PROJECT ON CLIMATE CHANGE COMMUNICATION

GEORGE MASON UNIVERSITY CENTER FOR CLIMATE CHANGE COMMUNICATION



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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 (<http://environment.yale.edu/climate-communication>) and the George Mason University Center for Climate Change Communication (<http://www.climatechangecommunication.org>). Interview dates: November 23 – December 9, 2013. Interviews: 830 Adults (18+). Total average margin of error: +/- 3 percentage points at the 95% confidence level. The research was funded by the 11th Hour Project, the Grantham Foundation, and the V.K. Rasmussen Foundation.

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Cite as: Leiserowitz, A., Maibach, E., Roser-Renouf, C., Feinberg, G., Rosenthal, S., Marlon, J., and Howe, P. (2014) *Extreme Weather and Climate Change in the American Mind, November, 2013*. Yale University and George Mason University. New Haven, CT: Yale Project on Climate Change Communication.

Executive Summary

General findings: Weather

- Six in ten Americans (59%) say weather in the U.S. has been worse over the past several years, down 5 percentage points since Spring 2013. Majorities of Americans in all regions of the country say weather in the U.S. has been worse over the past several years. This is particularly true among Westerners, where about two in three (63%) say the weather has been “much” (16%) or “somewhat” (47%) worse.
- Two in three people in the Northeast (65%) say their local community experienced an extreme weather event in the past year, and nearly half of those in the Midwest (45%) say the same. About one in three in the West (36%) and South (31%) say they experienced such events in the past year.
- By comparison to the record-setting extreme weather disaster years of 2011 and 2012, the year 2013 in the United States was relatively normal. Nonetheless, a majority of Americans (70%, down 14 percentage points since Fall 2012) report that they experienced one or more extreme weather events in the past year, most often citing extreme high winds (40%) and extreme heat waves (32%, down 29 points).
- Since Fall 2012, more Northeasterners say they experienced several types of extreme events – extreme high winds (61%, up 11 points), a hurricane (41%, up 15 percentage points), extreme snowstorm (39%, up 16 points), or extreme cold temperatures (33%, up 10 points). By contrast, fewer Northeasterners report having experienced an extreme rainstorm (39%, down 13 points), extreme heat wave (37%, down 15 points), or drought (7%, down 16 points).
- In the Midwest as well, a number of events were reported more often: extreme cold temperatures (31%, up 8 points) and extreme snowstorms (20%, up 6 points). By contrast, fewer Midwesterners say they experienced a drought (35%, down 46 points) or an extreme heat wave (29%, down 54 points), in the past year.
- Compared to Fall 2012, more Southerners report experiencing in the past year extreme cold temperatures (21%, up 11 points). By contrast, fewer say they experienced extreme high winds (31%, down 9 points), an extreme heat wave (31%, down 30 points), extreme rainstorm (31%, down 13 points), drought (21%, down 28 points), or tornado (12%, down 8 points).
- In the West, compared to Fall 2012, more residents say they experienced a wildfire (36%, up 13 points), but fewer experienced drought (33%, down 8 points) or extreme heat wave (31%, down 18 points).
- One in four Americans (27%) say they suffered a moderate or great deal of harm from extreme weather in the past year, which is 5 points lower in Fall 2012 (32%).
- When asked to estimate how many days per summer, on average, their local area has experienced extreme heat over the past 10 years, Americans give a median answer of 10 days. When asked

how many days they estimate their local area will experience, on average, each summer over the *next* 10 years, Americans say on average (median) 15 days.

- Close to half of Americans (44%) believe it is “very” or “somewhat likely” that extreme weather will cause a natural disaster in their community in the coming year.
- When asked which of their community resources are at risk from extreme weather over the next 10 years, about half of Americans say agriculture (55%) and the electricity system (51%) are at “high” or “moderate” risk.
- Asked which of their community resources their state and local governments should give medium or high priority to protecting from extreme weather over the next 10 years, majorities of Americans say: public water supplies (78%), transportation/roads/bridges (73%), people’s health (72%), the electricity system (71%), agriculture (70%), public sewer systems (69%), and forests/prevention of wildfires (59%).
- When asked how confident they are that their state and local governments can protect community resources from extreme weather over the next 10 years, majorities of Americans say they are at least somewhat confident the following will or can be protected: public water supplies (62%), transportation/ roads/bridges (61%), the electricity system (60%), public sewer systems (59%), and state and local parks (55%).

General findings: Climate change and weather

- Over half of Americans (56%) say “global warming is affecting weather in the United States.” By contrast, only 7% say global warming is not affecting the weather and 13% say that global warming isn’t happening. One in four (24%) don’t know or did not answer the question.
- Nearly half of Americans (45%) say global warming is affecting the weather in the United States “a lot” (20%) or “some” (25%). Relatively few say it is affecting the weather only “a little” (9%) or is having “no effect” (7%).

Six Americas: Findings

- Large majorities of the Alarmed say U.S. (91%) and local weather (78%) has been “much” or “somewhat” worse over the past several years. Seven in ten of the Concerned say U.S. weather has been worse (71%), as do more than half of the Cautious (55%) and Disengaged (57%). However, all groups except the Alarmed are less likely to say *local* weather has been worse.
- Fewer than half of Doubtful and Dismissive say either the U.S. weather (38% and 26% respectively) or their local weather (26% and 13%) has been worse over the past several years.
- Eight in ten of the Alarmed (80%) and over half of the Concerned (56%) say it is “very” or “somewhat” likely that extreme weather will cause a natural disaster in their community in the next year. More than half of all other groups – notably the Dismissive (81%), Disengaged (76%),

and Doubtful (75%) believe a natural disaster will *not* happen in their local community in the next year.

- Majorities of all Six Americas feel that their local and state governments should make it a medium or high priority to protect public water supplies, the electrical system, agriculture, people's health, and transportation, roads and bridges from extreme weather over the next 10 years.

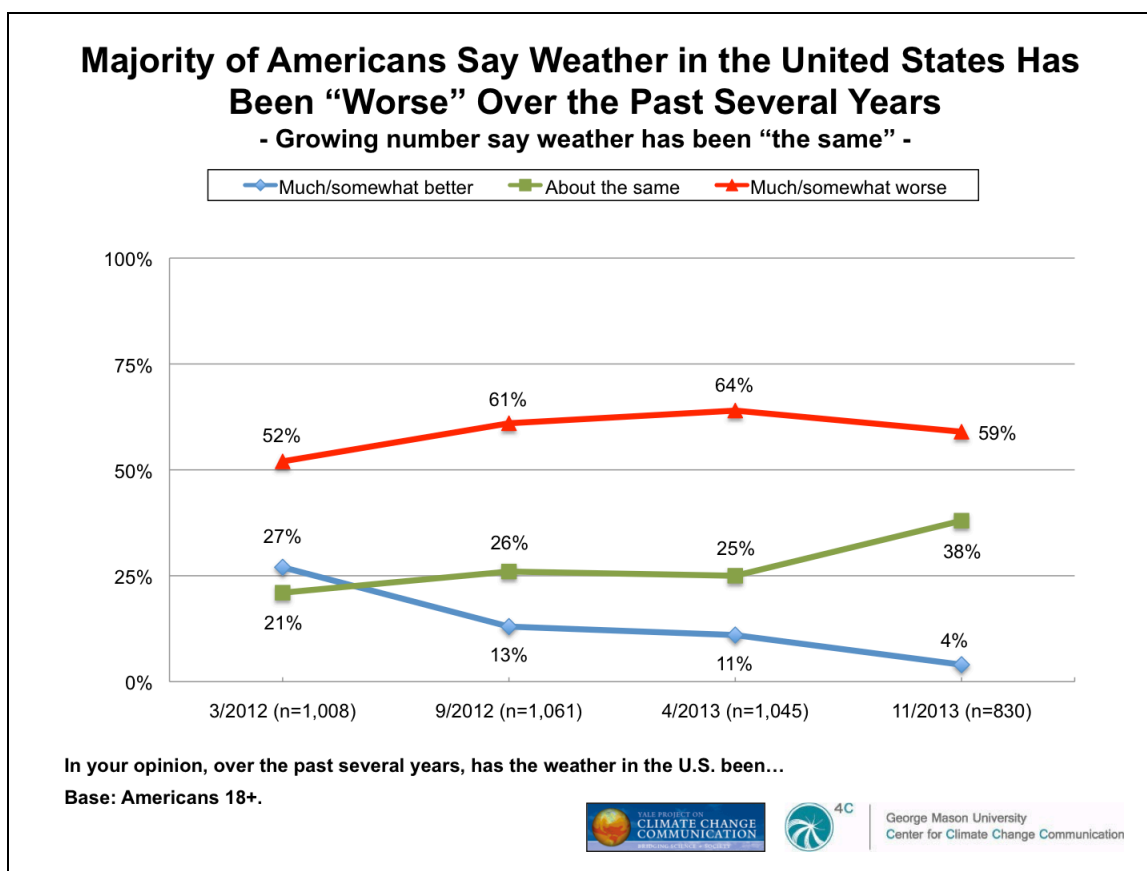
1. Observations and Perceptions of Weather in the United States

1.1. A majority of Americans say weather in the United States has been “worse” over the past several years.

Six in ten Americans (59%) say weather in the U.S. has been worse over the past several years, down 5 percentage points since Spring 2013.

By contrast, fewer Americans say weather has been getting better over the past several years – only 4%, down 9 points compared to a year ago.

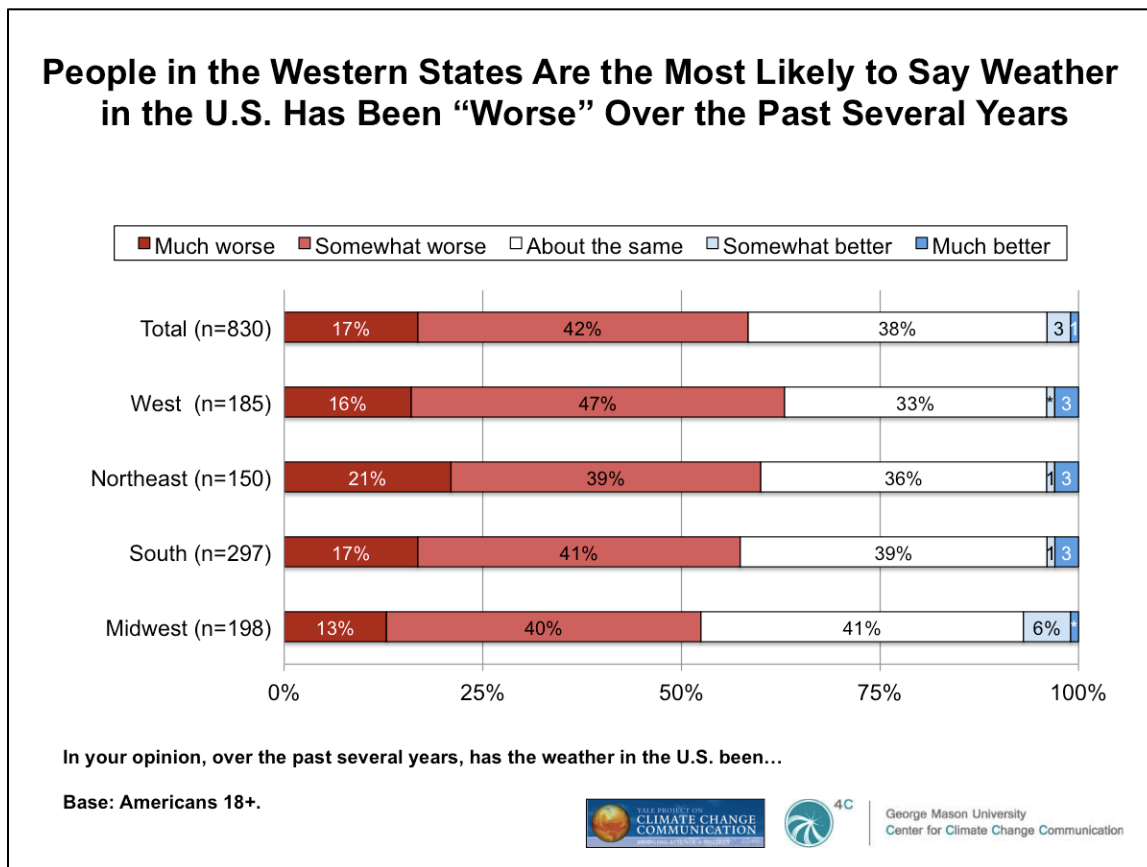
The percentage who say the weather has been “about the same” increased 12 points over the past year, from 25% in Fall 2012 to 38% in Fall 2013.



1.2. People in the western states are the most likely to say weather in the U.S. has been “worse” over the past several years.

Majorities of Americans in all regions of the country say weather in the U.S. has been worse over the past several years. This is particularly true among Westerners, where about two in three (63%) say the weather has been “much” (16%) or “somewhat” (47%) worse.

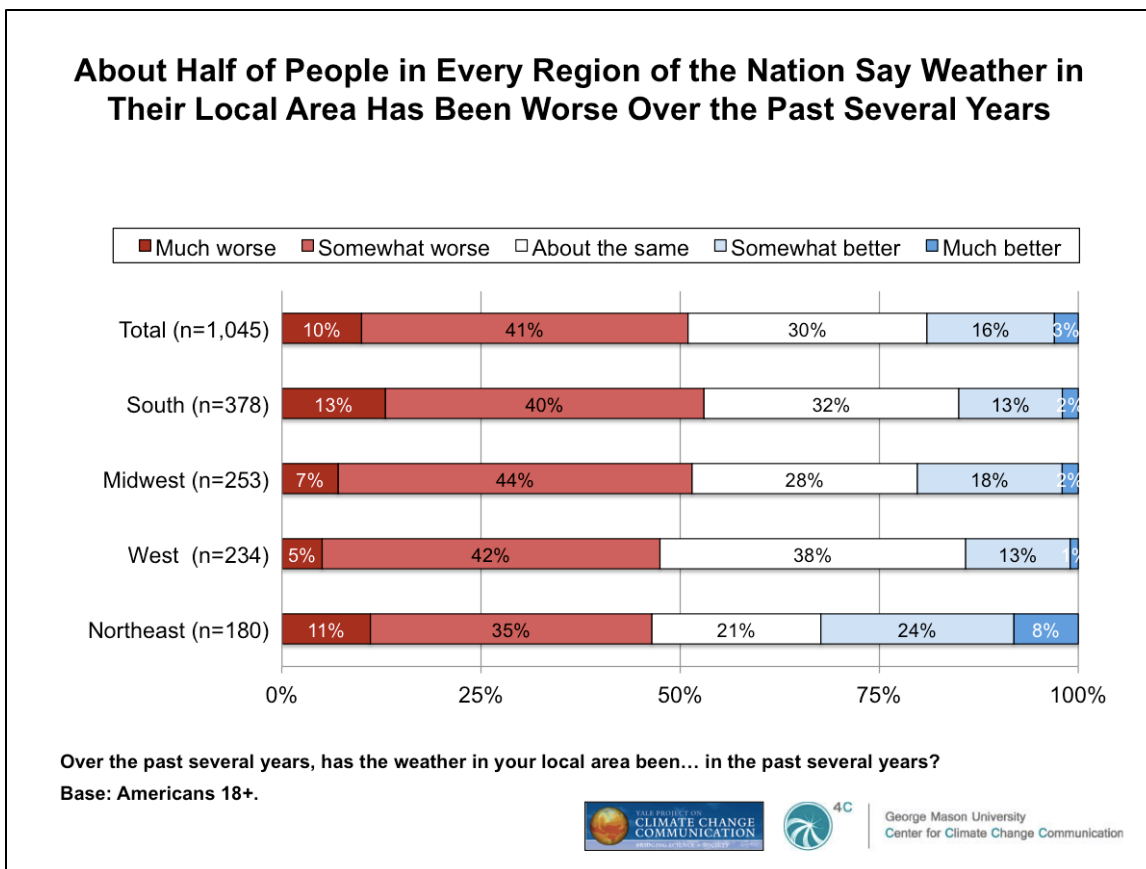
By contrast, few in any region say the weather has been better over the past several years.



1.3. About half of people in every region of the nation say weather in their local area has been worse over the past several years.

Southerners (53%) and Midwesterners (51%) are somewhat more likely than those in the West and Northeast to say weather in their *local area* has been worse over the past several years.

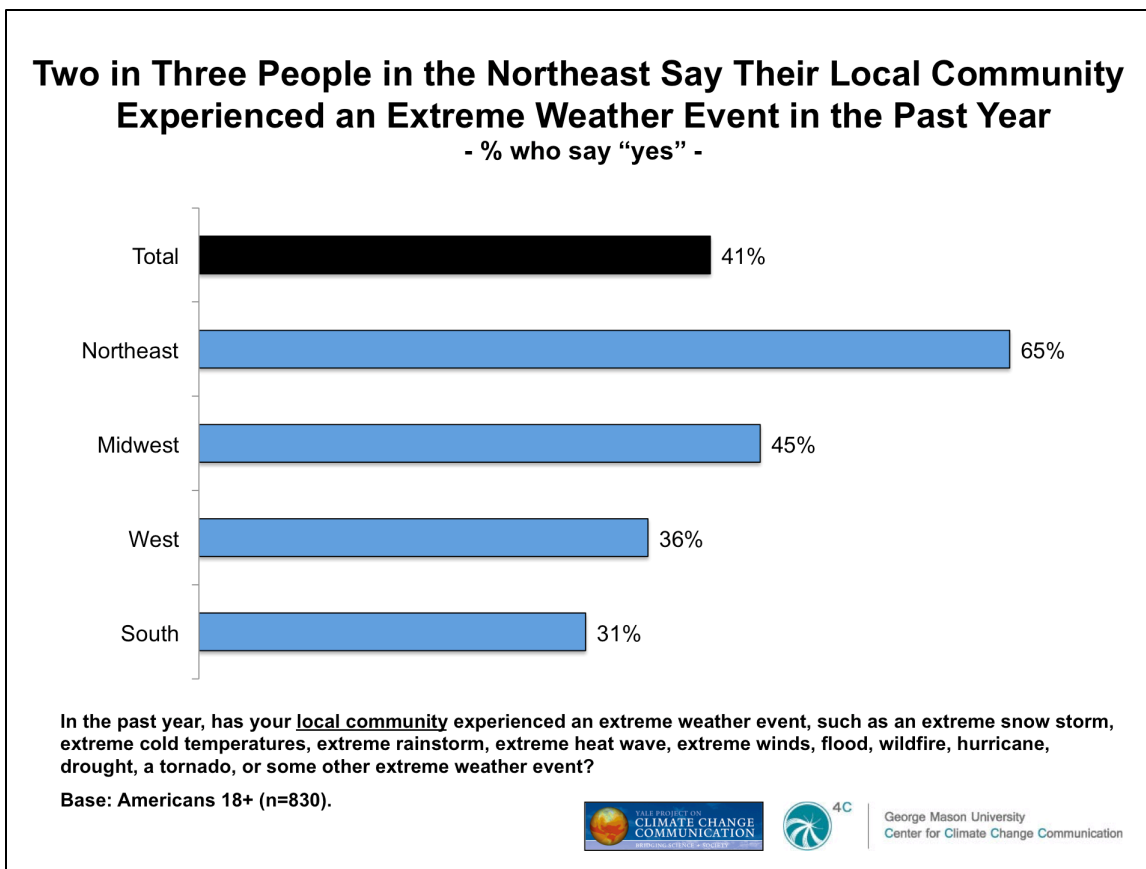
By contrast, Northeasterners (32%) are more likely than those in other regions of the nation to say the weather in their area has been better over the past several years.



1.4. Two in three people in the Northeast say their local community experienced an extreme weather event in the past year.

Two in three people in the Northeast (65%) say their local community experienced an extreme weather event in the past year, and nearly half of those in the Midwest (45%) say the same.

About one in three in the West (36%) and South (31%) say they experienced such events in the past year.



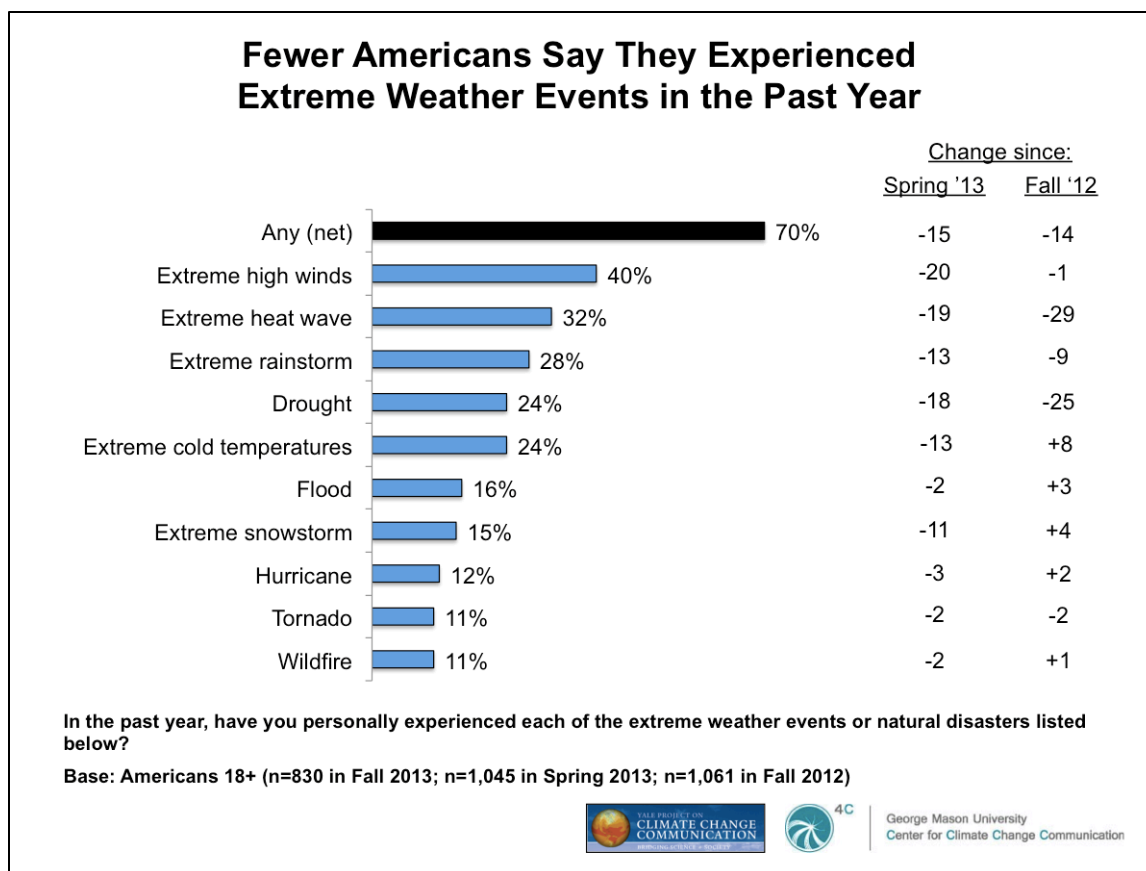
2. Personal Experience with Extreme Weather

2.1. Fewer Americans say they experienced extreme weather events in the past year.

By comparison to the record-setting extreme weather disaster years of 2011 and 2012, the year 2013 in the United States was relatively normal. Nonetheless, a majority of Americans (70%, down 14 percentage points since Fall 2012) report that they experienced one or more extreme weather events in the past year, most often citing extreme high winds (40%) and extreme heat waves (32%, down 29 points).

Compared to Fall 2012, Americans are less likely to say that they had experienced an extreme rainstorm (28%, down 9 percentage points) or drought (24%, down 25 points) in the past year. They are, however, somewhat more likely to say they experienced extreme cold temperatures (up 8 points).

Comparisons to the Spring 2013 survey findings yield different results given the different time of the year the survey was conducted.



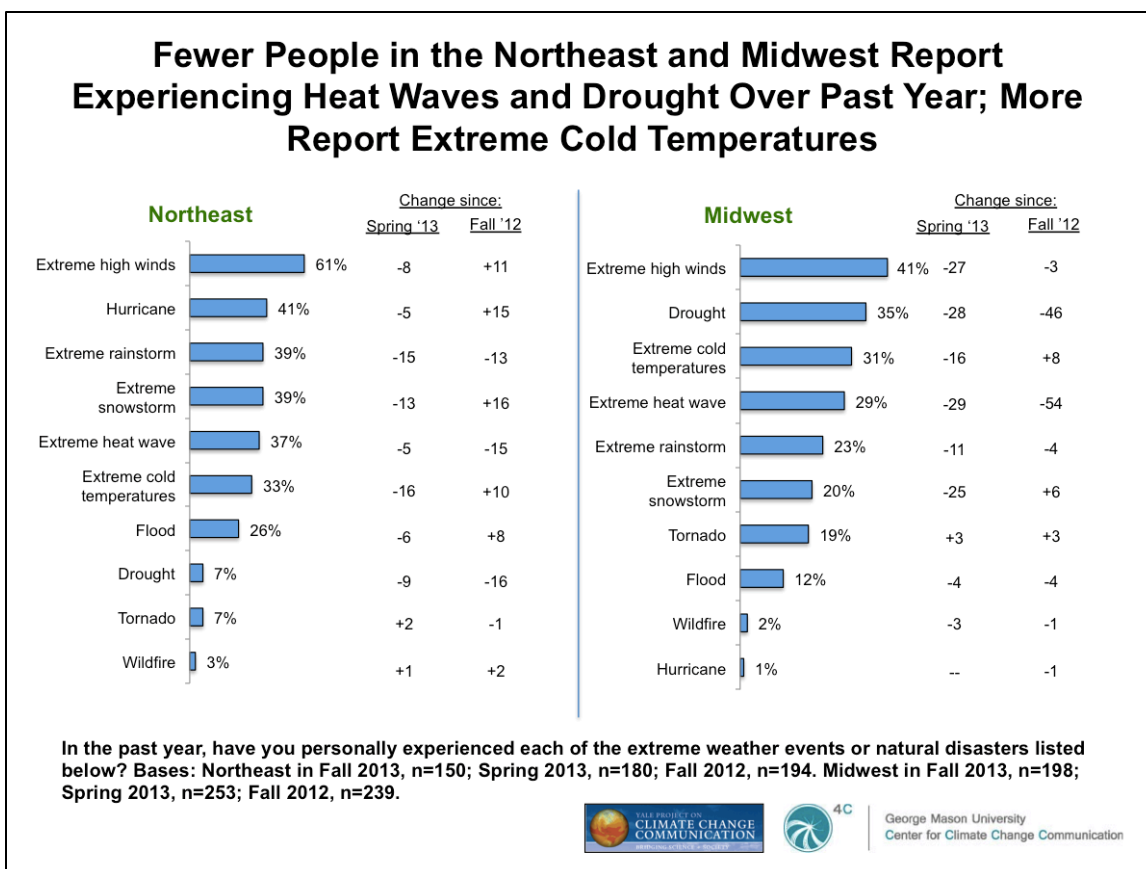
2.2. Fewer people in the Northeast and Midwest report experiencing heat waves and drought over the past year. More report experiencing extreme cold temperatures.

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 experienced several types of extreme events – extreme high winds (61%, up 11 points), a hurricane (41%, up 15 percentage points), extreme snowstorm (39%, up 16 points), or extreme cold temperatures (33%, up 10 points). By contrast, fewer Northeasterners report having experienced an extreme rainstorm (39%, down 13 points), extreme heat wave (37%, down 15 points), or drought (7%, down 16 points).

In the Midwest as well, a number of events were reported more often: an extreme rainstorm (38%, up 7 points), extreme cold temperatures (31%, up 8 points), and extreme snowstorms (20%, up 6 points). By contrast, fewer Midwesterners say they experienced a drought (35%, down 46 points) or extreme heat wave (29%, down 54 points) in the past year.

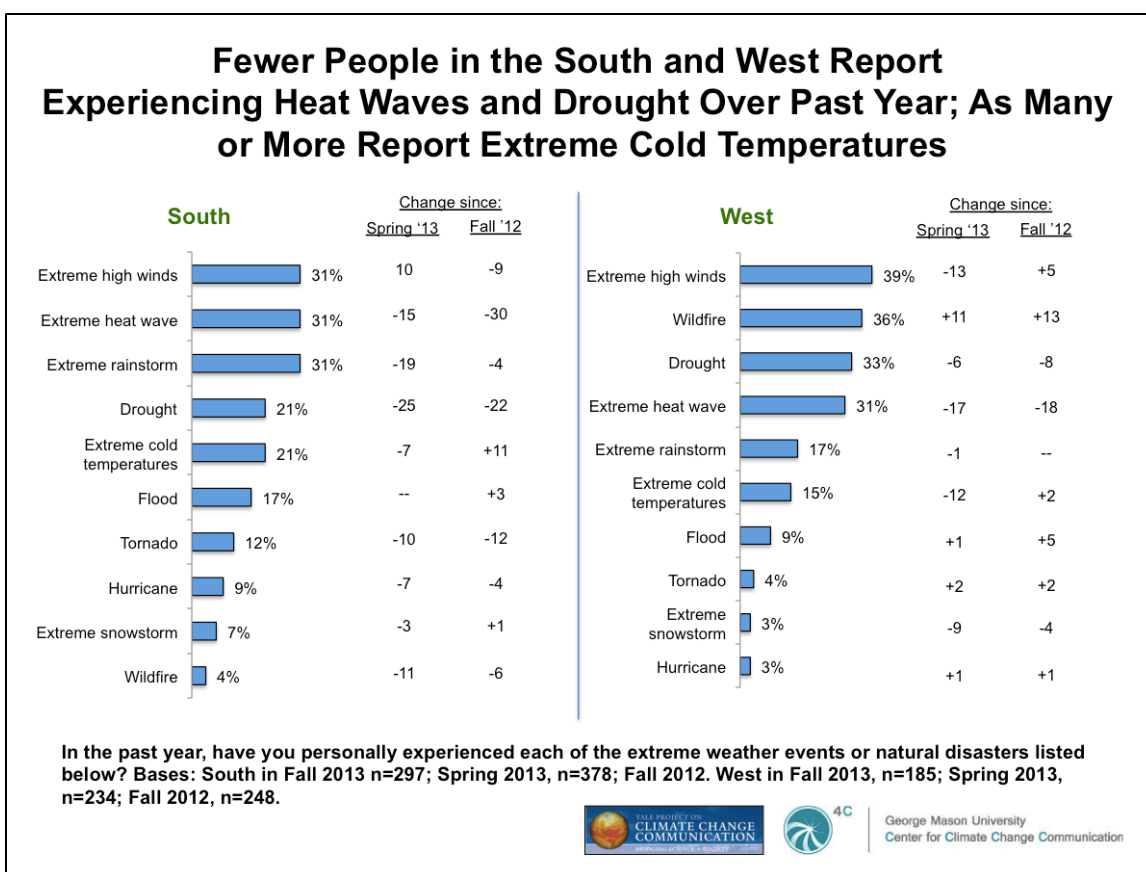
As with the national data, comparisons to the Spring 2013 survey findings yield different results given the different time of the year the survey was conducted.



Compared to Fall 2012, more Southerners report experiencing in the past year extreme cold temperatures (21%, up 11 points). By contrast, fewer say they experienced extreme high winds (31%, down 9 points), an extreme heat wave (31%, down 30 points), extreme rainstorm (31%, down 13 points), drought (21%, down 22 points), or tornado (12%, down 12 points).

In the West, compared to Fall 2012, more residents say they experienced a wildfire (36%, up 13 points), but fewer experienced drought (33%, down 8 points) or extreme heat wave (31%, down 18 points).

As with the national data, comparisons to the Spring 2013 survey findings yield different results given the different time of the year the survey was conducted.

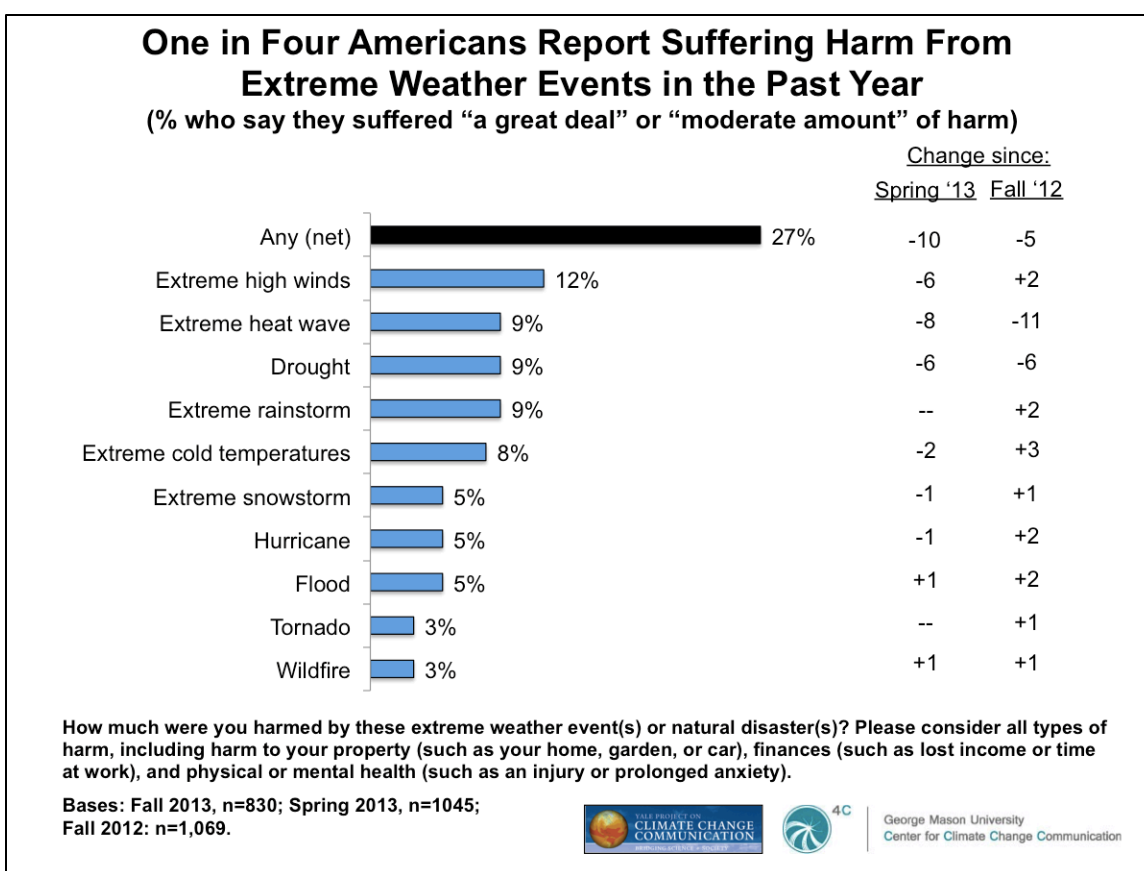


2.4. Three in ten Americans report suffering harm from extreme weather events in the past year.

One in four Americans (27%) say they suffered a moderate or great deal of harm from extreme weather in the past year, which is 5 points lower than in Fall 2012 (32%).

These events include extreme high winds (12%), extreme heat wave (9%, down 11 points since Fall 2012), drought (9%, down 6 points), extreme rainstorm (9%), and extreme cold temperatures (8%).

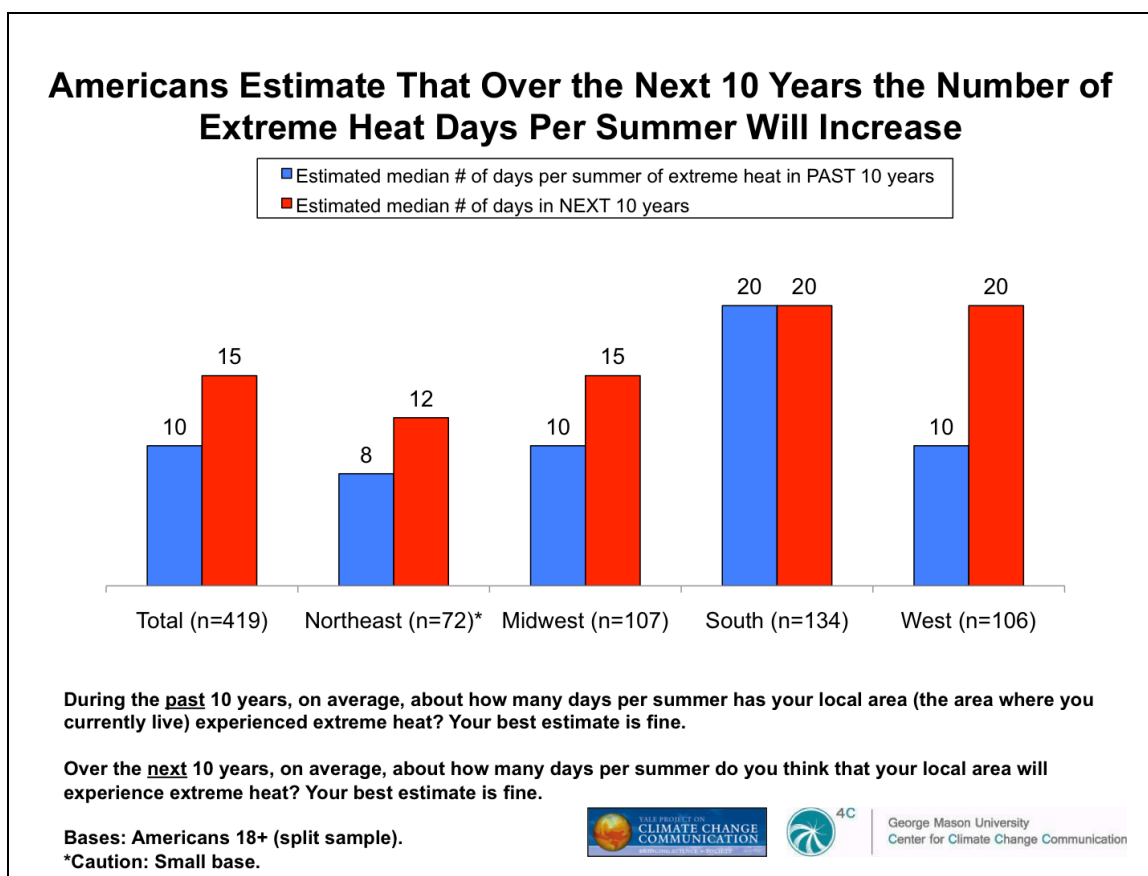
Comparisons to the Spring 2013 survey findings yield different results given the different time of the year the survey was conducted.



2.5. Americans estimate that over the next 10 years the number of extreme heat days per summer will increase.

When asked to estimate how many days per summer, on average, their local area has experienced extreme heat over the past 10 years, Americans give a median answer of 10 days. When how many days they estimate their local area will experience, on average, each summer the *next* 10 years, Americans say 15 days (median).

Westerners on average predict the biggest increase, a doubling from 10 to 20 days per summer. Southerners on average predict no change.

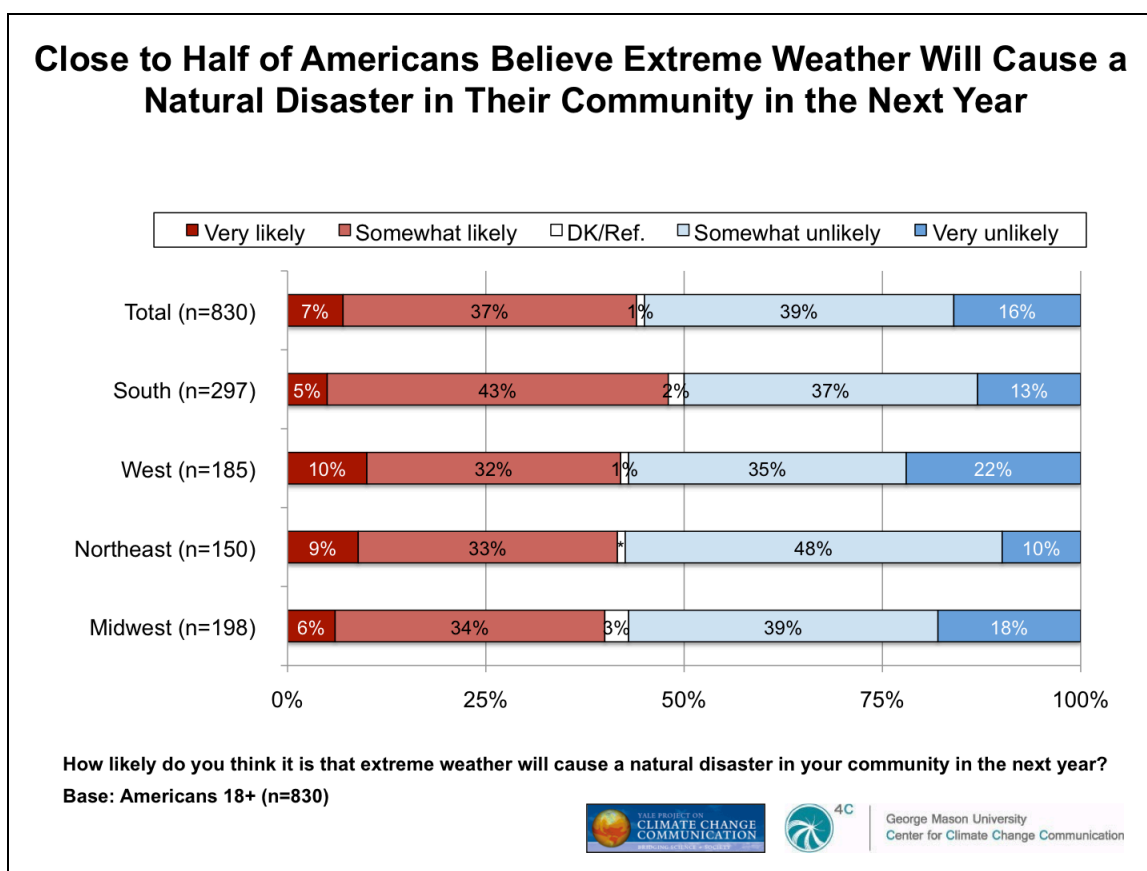


3. Preparedness for Extreme Weather

3.1. Close to half of Americans believe extreme weather will cause a natural disaster in their community in the next year.

Close to half of Americans (44%) believe it is “very” or “somewhat likely” that extreme weather will cause a natural disaster in their community in the coming year.

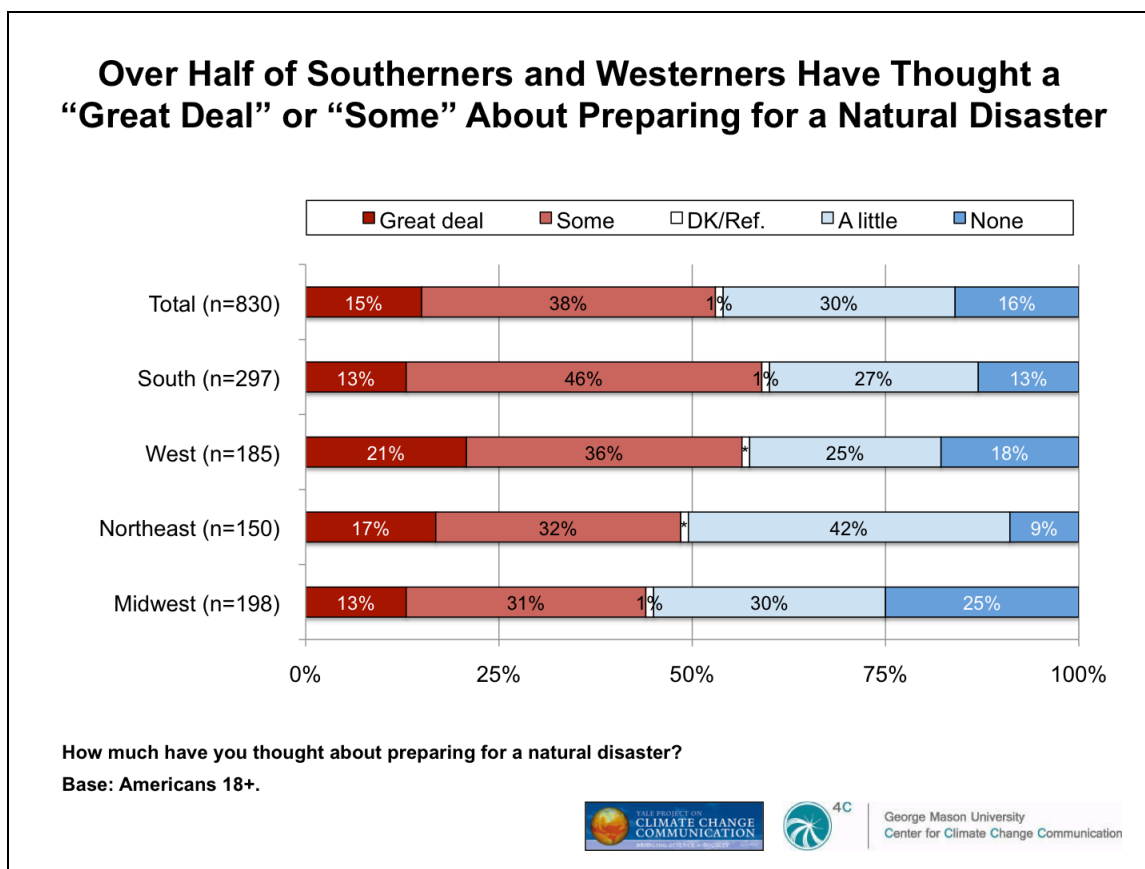
Southerners (48%) are the most likely to believe this, Midwesterners the least (40%).



3.2. Over half of Southerners and Westerners have thought a “great deal” or “some” about preparing for a natural disaster.

About half of Americans (53%) say they have put a “great deal” or “some” thought into preparing for a natural disaster.

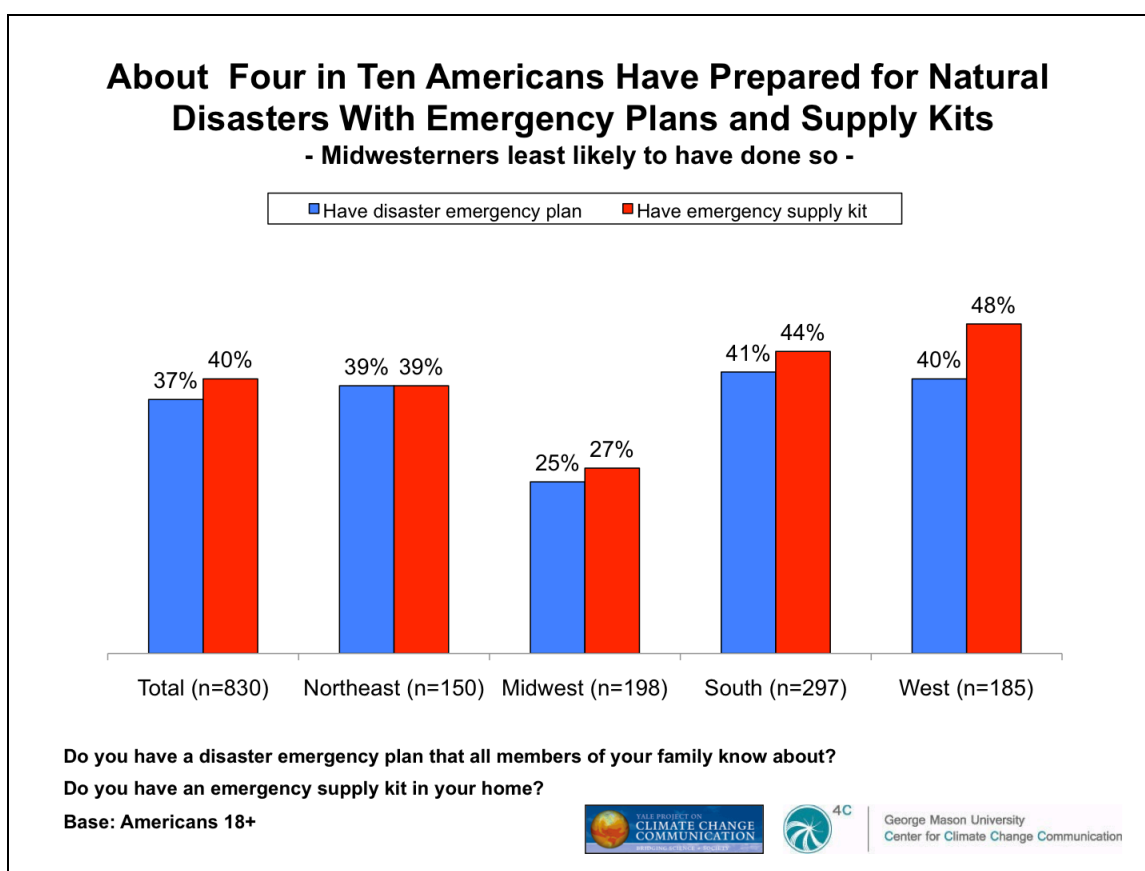
Southerners (59%) and Westerners (57%) are the most likely to say they have put thought into the subject, and Midwesterners are the least likely (44%).



3.3. About four in ten Americans have prepared for natural disasters with emergency plans and supply kits.

Close to four in ten Americans have a natural disaster emergency plan that all members of their family know about – 37%, up 6 percentage points since Spring 2013. Least likely to have a plan are people in the Midwest (25%).

Four in ten Americans have an emergency supply kit in their home (40%, up 4 points since Spring 2013). Most likely to have one are Westerners (48%) and Southerners (44%). Least likely are Midwesterners (27%).

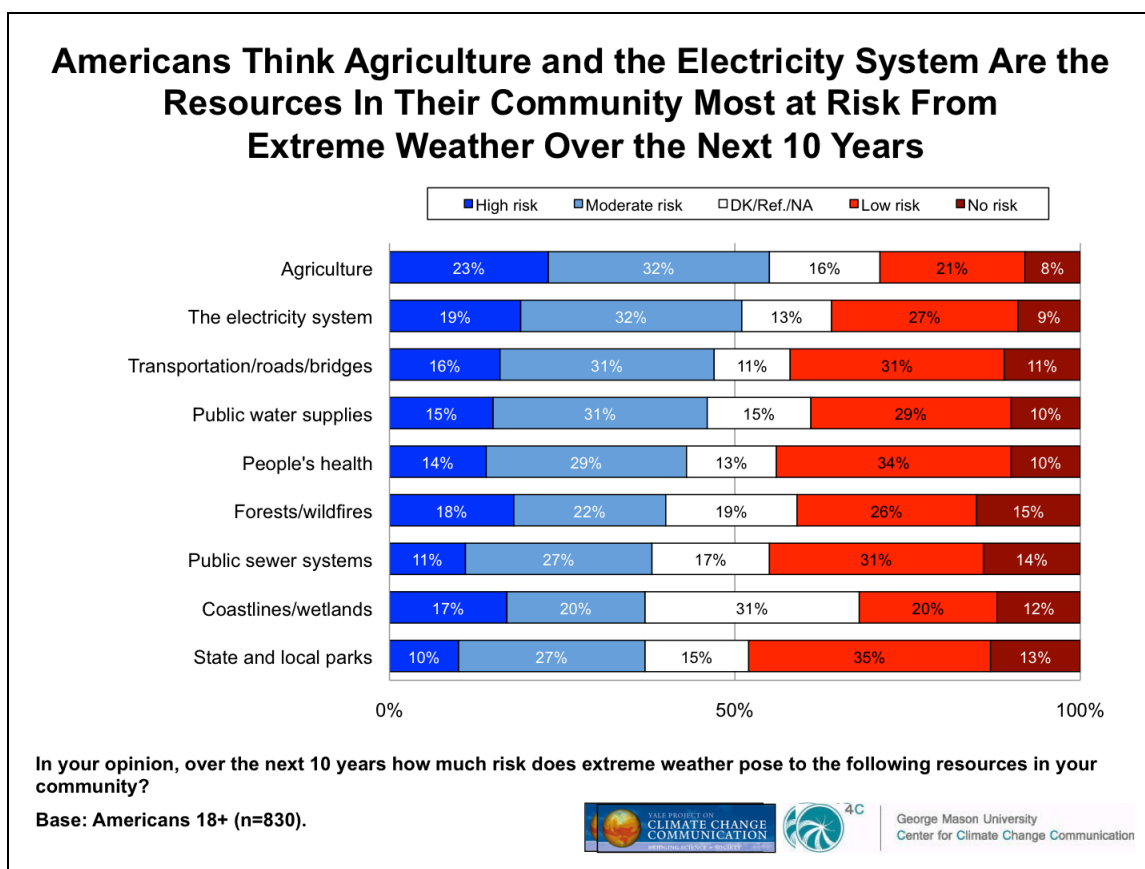


4. Perceived Government Preparedness for Extreme Weather

4.1. Americans think agriculture and the electricity system are the resources in their community most at risk from extreme weather over the next 10 years.

When asked which of their community resources are at risk from extreme weather over the next 10 years, about half of Americans say agriculture (55%) and the electricity system (51%) are at “high” or “moderate” risk. Substantial numbers also think the following are at risk:

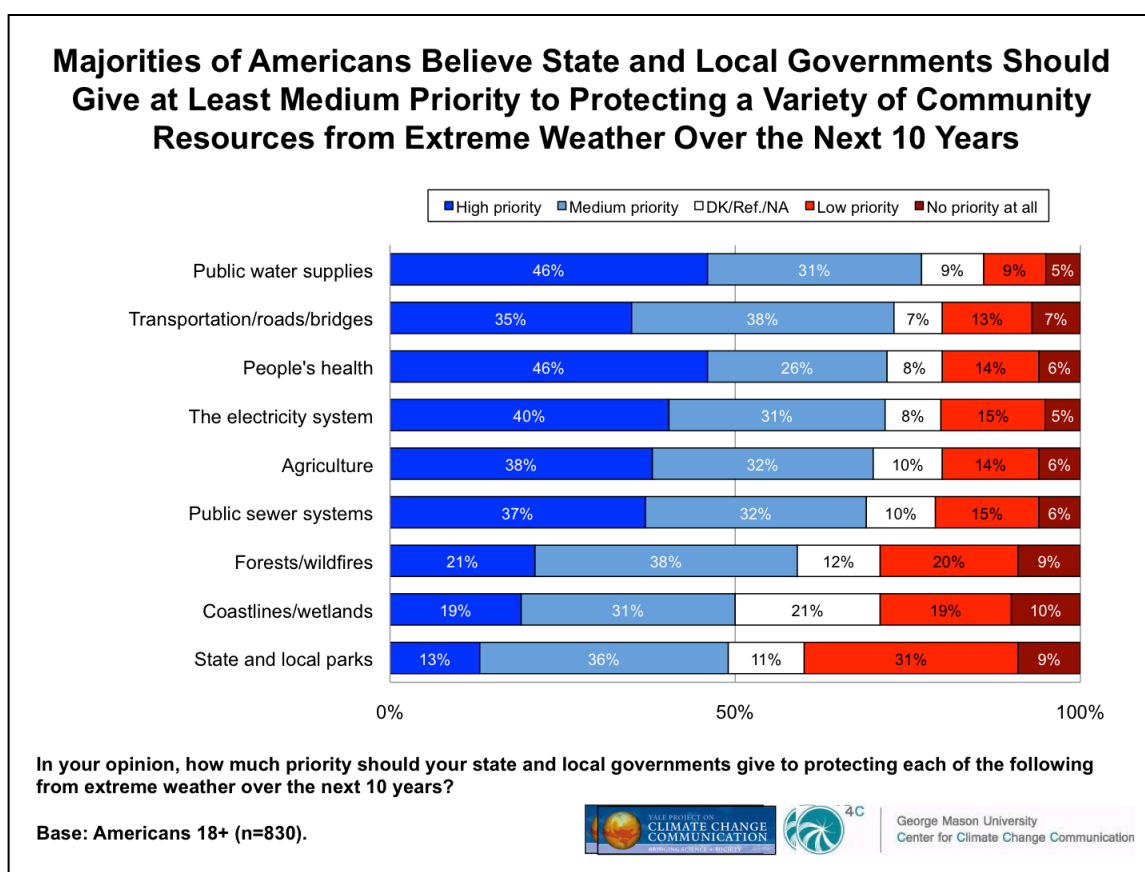
- Transportation/roads/bridges (47%)
- Public water supplies (46%)
- People’s health (43%)



4.2. Majorities of Americans believe state and local governments should give at least medium priority to protecting a variety of community resources from extreme weather over the next 10 years.

When asked which of their community resources their state and local governments should give medium or high priority to protect from extreme weather over the next 10 years, majorities of Americans say:

- Public water supplies (78%)
- Transportation/roads/bridges (73%)
- People's health (72%)
- The electricity system (71%)
- Agriculture (70%)
- Public sewer systems (69%)
- Forests/prevention of wildfires (59%)

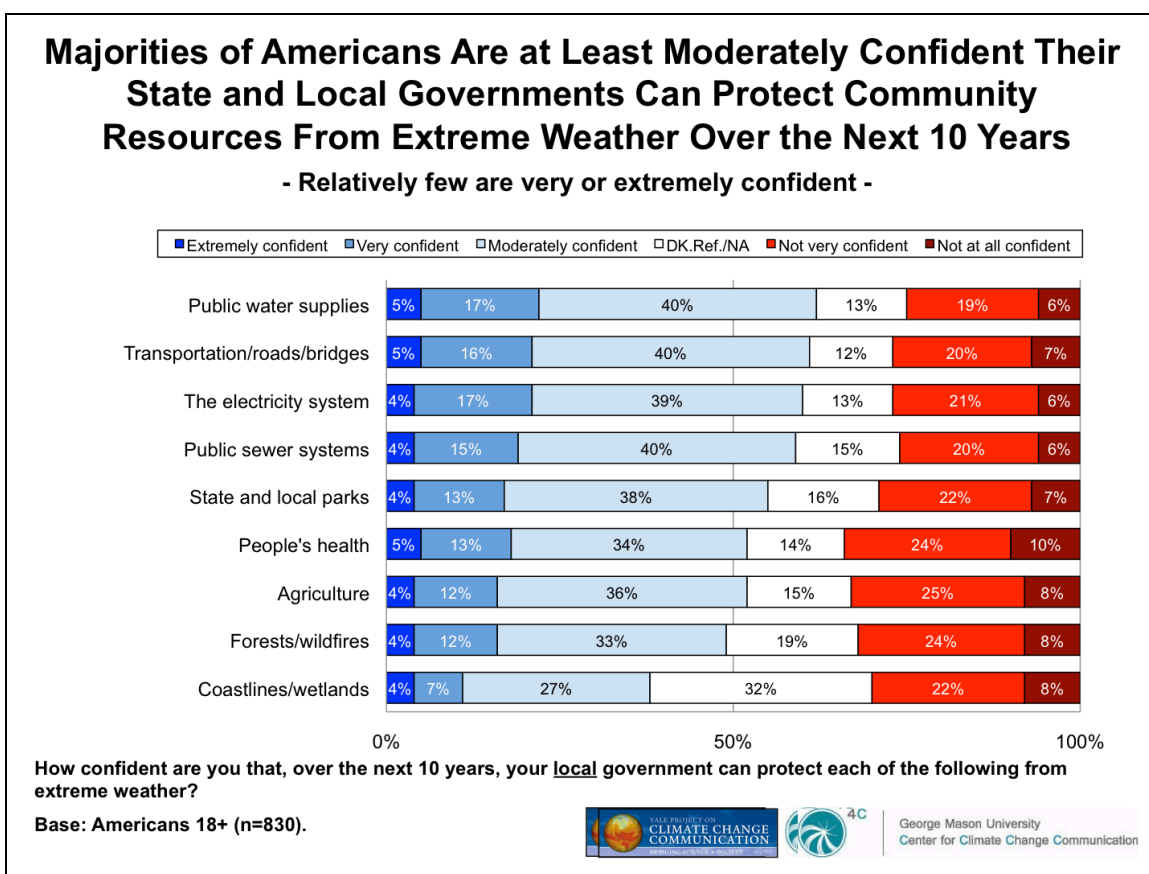


4.3. Majorities of Americans are at least moderately confident their state and local governments can protect community resources from extreme weather over the next 10 years.

When asked how confident they are that their state and local governments can protect community resources from extreme weather over the next 10 years, majorities of Americans say they are at least somewhat confident the following will be protected:

- Public water supplies (62%)
- Transportation/roads/bridges (61%)
- The electricity system (60%)
- People's sewer systems (59%)
- State and local parks (55%)

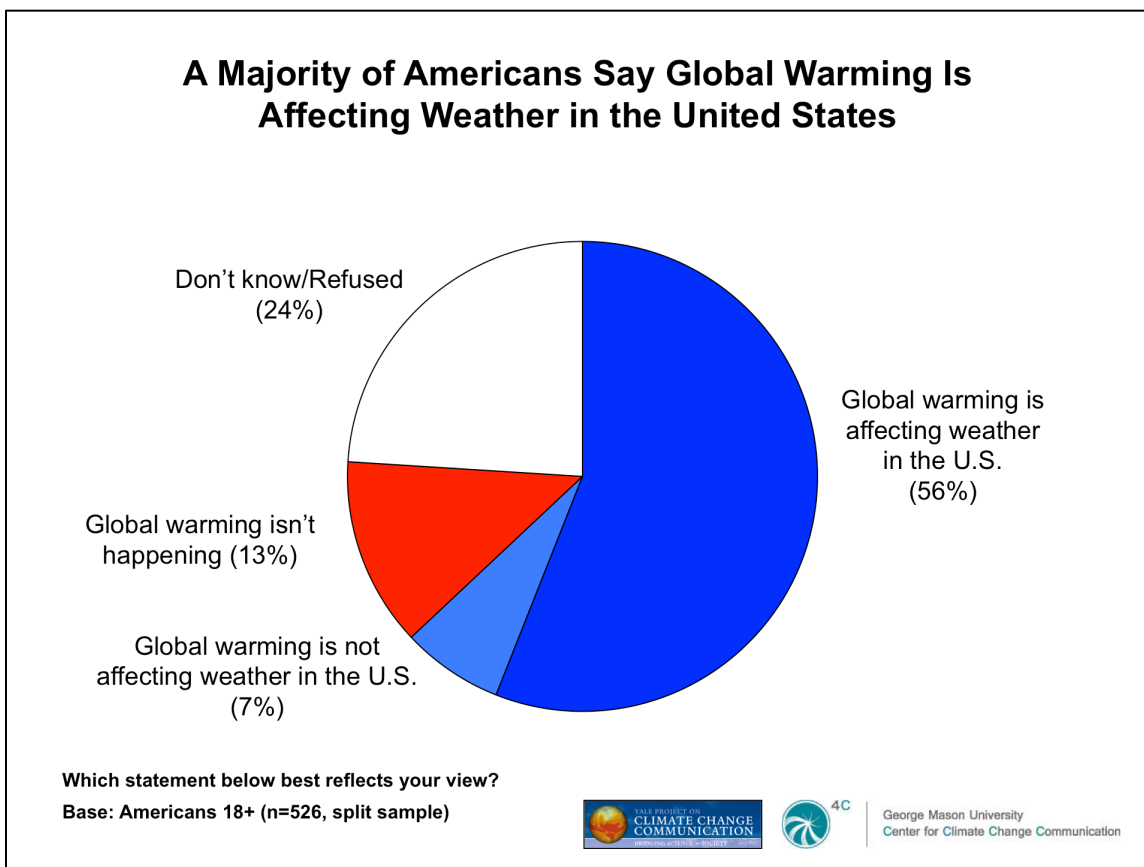
Few however, are “very” or “extremely” confident.



5. Global Warming and Extreme Weather Events

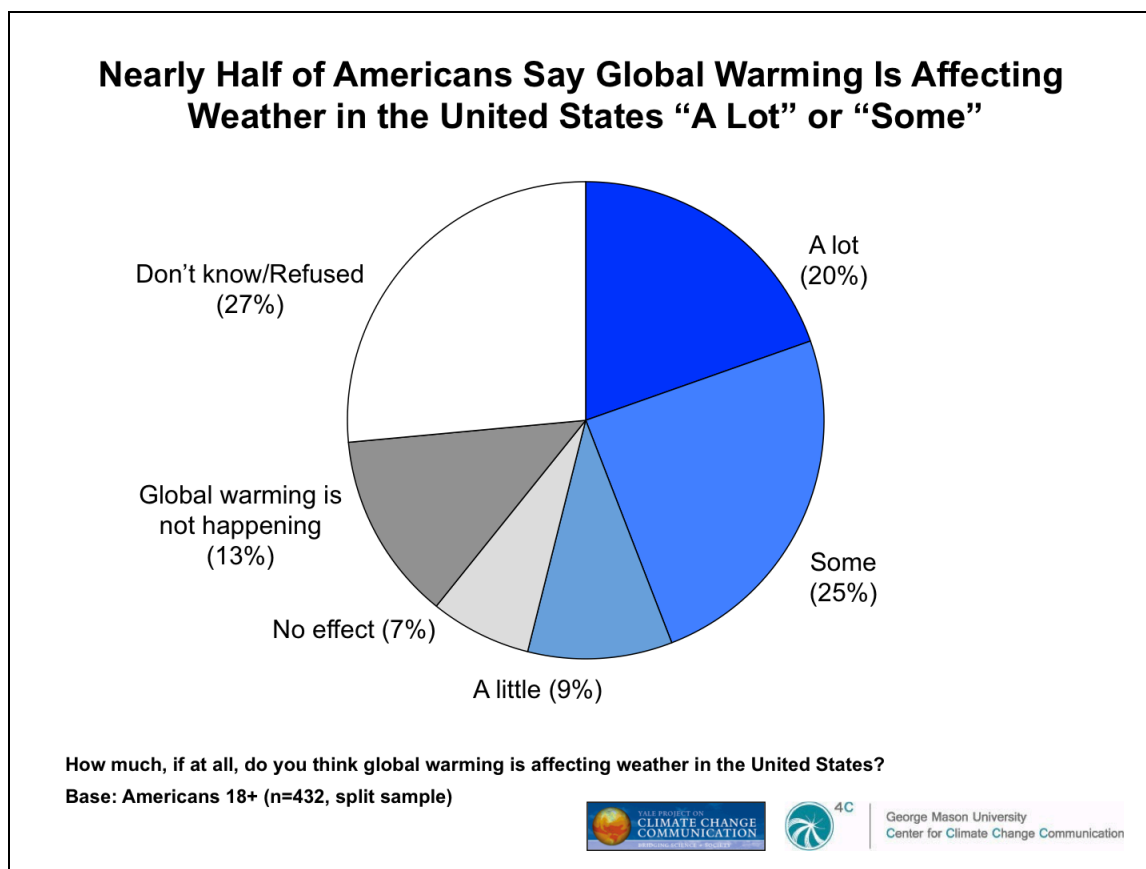
5.1. A majority of Americans say global warming is affecting weather in the United States.

Over half of Americans (56%) say “global warming is affecting weather in the United States.” By contrast, only 7% say global warming is not affecting the weather and 13% say that global warming isn’t happening. One in four (24%) don’t know or did not answer the question.



5.2. Nearly half of Americans say global warming is affecting weather in the United States “a lot” or “some.”

Nearly half of Americans (45%) say global warming is affecting the weather in the United States “a lot” (20%) or “some” (25%). Relatively few say it is affecting the weather only “a little” (9%) or is having “no effect” (7%).

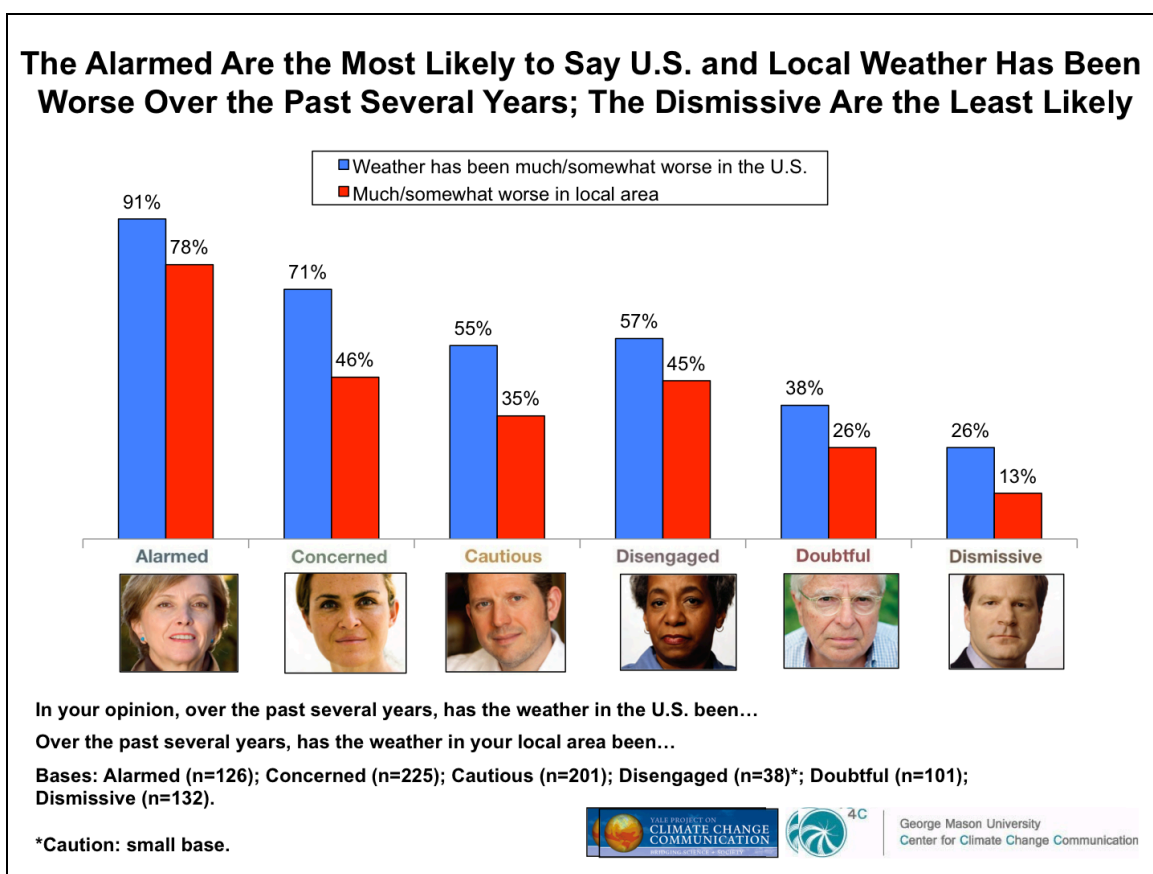


6. Extreme Weather and the Six Americas

6.1. The Alarmed are the most likely to say U.S. and local weather has been worse over the past several years. The Dismissive are the least likely.

Large majorities of the Alarmed say U.S. (91%) and local weather (78%) has been “much” or “somewhat” worse over the past several years. Seven in ten of the Concerned say U.S. weather has been worse (71%), as do more than half of the Cautious (55%) and Disengaged (57%). However, all groups are less likely to say *local* weather has been worse.

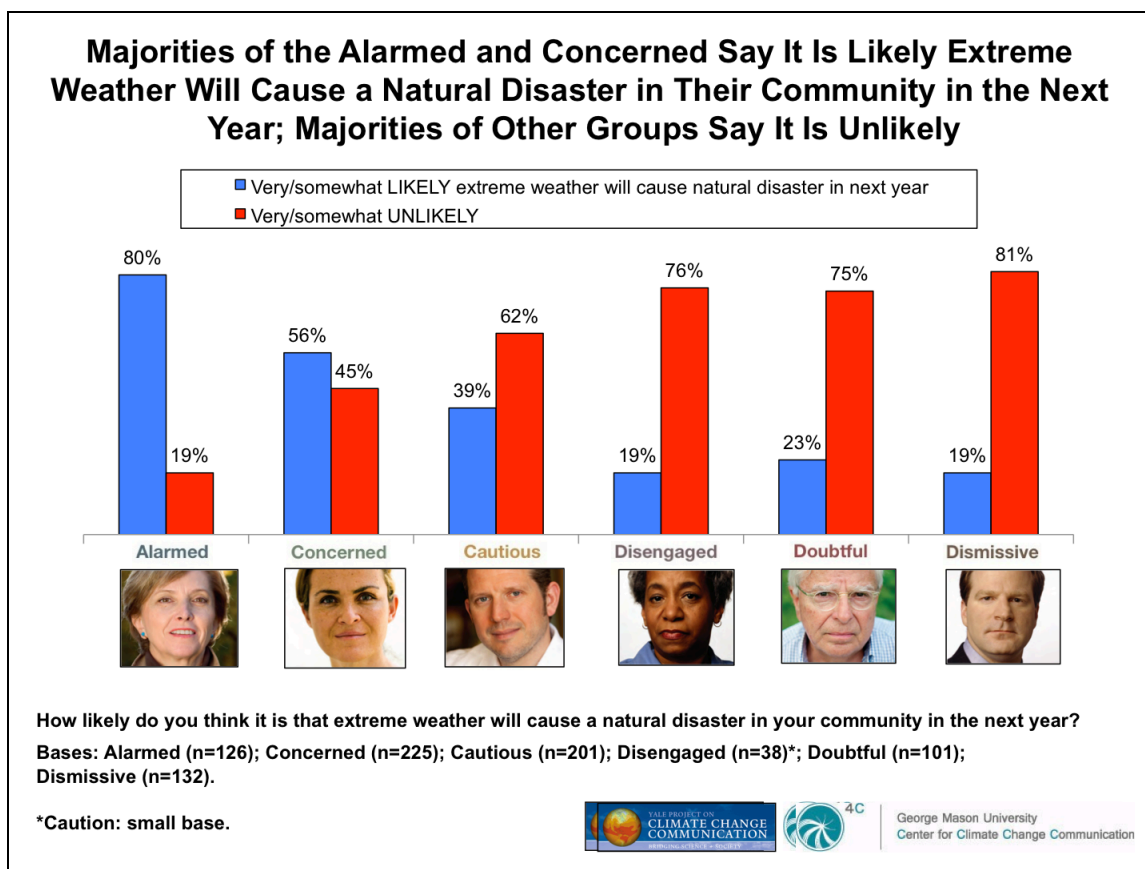
Fewer than half of Doubtful and Dismissive say either the U.S. weather (38% and 26% respectively) or their local weather (26% and 13%) has been worse over the past several years.



6.2. Majorities of the Alarmed and Concerned say it is likely extreme weather will cause a natural disaster in their community in the next year; majorities of the other groups disagree.

Eight in ten of the Alarmed (80%) and over half of the Concerned (56%) say it is “very” or “somewhat” likely that extreme weather will cause a natural disaster in their community in the next year.

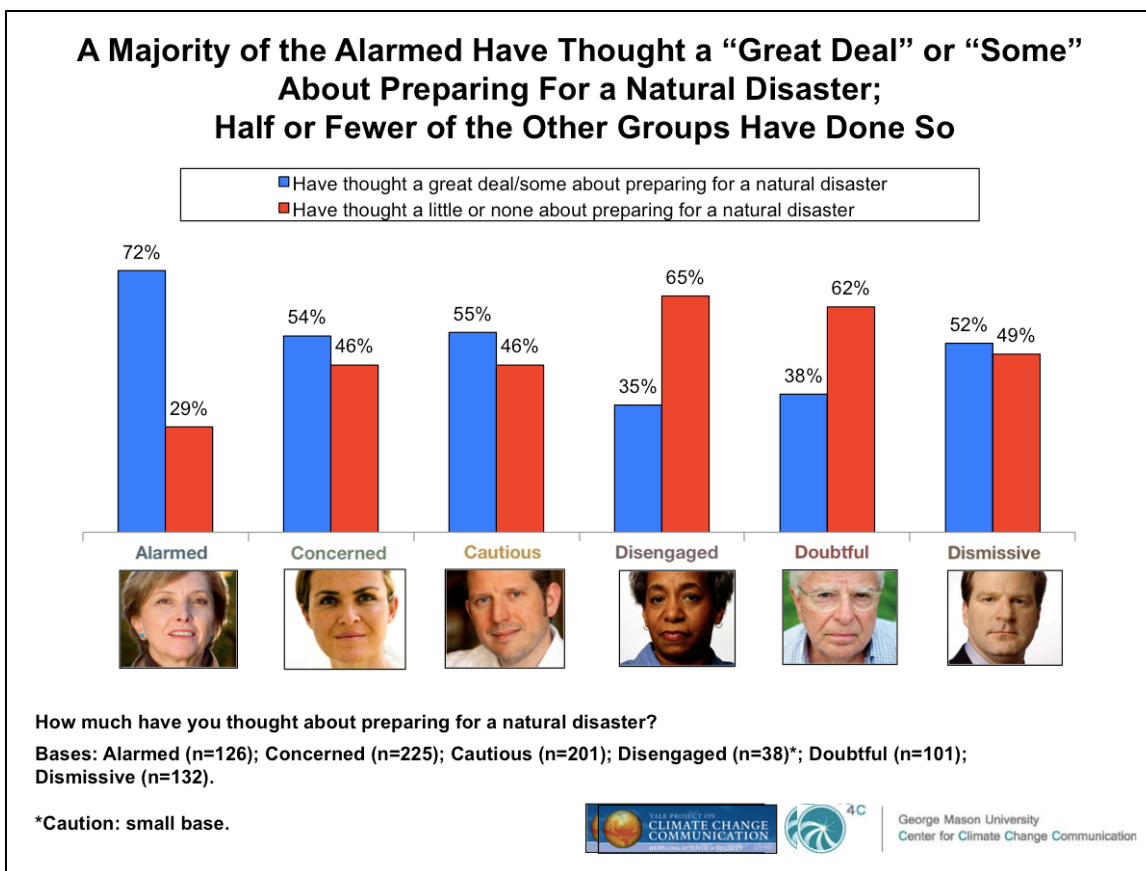
More than half of all other groups – notably the Dismissive (81%), Disengaged (76%), and Doubtful (75%) believe a natural disaster will *not* happen in their local community in the next year.



6.3. A majority of the Alarmed have thought a “great deal” or “some” about preparing for a natural disaster. Half or fewer of the other groups have done so.

Should a natural disaster strike, the Alarmed may be the most prepared to deal with it, as nearly three in four (72%) say they have thought a “great deal” or “some” about such preparations.

By contrast, most of the Disengaged (65%) and Doubtful (62%) have thought only “a little” or “none” about preparing for a natural disaster. The other groups are slightly more likely to have thought about it than not.



6.4. The Six Americas differ in how much they think state and local governments should prioritize protecting community resources from extreme weather over the next 10 years.

To varying degrees, the Six Americas say local and state governments should prioritize protecting community resources from extreme weather over the next 10 years.

The Alarmed and Concerned are the most likely to say government should play a role. The Dismissive and Disengaged are the least likely. For example:

Most of the Alarmed and Concerned say state and local government should give a high or medium priority to protecting public water supplies (96% and 90% respectively). By contrast, only six in ten of the Dismissive and Disengaged agree (62% and 61% respectively).



Appendix I: Data Tables

1. 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)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Better	4	4	6	3	3
Much better	1	3	*	1	--
Somewhat better	3	1	6	2	3
About the same	38	36	41	39	33
Worse	59	60	53	58	63
Somewhat worse	42	39	40	41	47
Much worse	17	21	13	17	16

(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)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Better	7	9	8	8	5
Much better	1	3	--	1	1
Somewhat better	6	6	8	7	4
About the same	50	41	53	52	52
Worse	41	49	37	39	42
Somewhat worse	33	36	31	31	34
Much worse	8	13	6	8	8

(Base: Americans 18+)

In the past year, has your local community experienced an extreme weather event, such as an extreme snow storm, extreme cold temperatures, extreme rainstorm, extreme heat wave, extreme winds, flood, wildfire, hurricane, drought, a tornado, or some other extreme weather event?

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Yes	41	65	45	31	36
No	47	26	46	54	53
Not sure	10	8	8	12	10
Prefer not to answer	1	--	--	1	1

2. 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”)

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Extreme high winds	40	61	41	31	39
Extreme heat wave	32	37	29	31	31
Extreme rainstorm	28	39	27	31	17
Extreme cold temperatures	24	33	31	21	15
Drought	24	7	35	21	33
Flood	16	26	12	17	9
Extreme snow storm	15	39	20	7	3
Hurricane	12	41	1	9	3
Tornado	11	7	19	12	4
Wildfire	11	3	2	4	36
Other	3	5	5	2	1

(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>A great deal</u>	<u>A moderate amount</u>	<u>Only a little</u>	<u>Not at all</u>
	%	%	%	%
Wildfire (n=80)	15	11	24	50
Extreme snow storm (n=107)	14	22	35	30
Extreme rainstorm (n=227)	14	19	28	40
Drought (n=210)	13	26	35	26
Flood (n=120)	12	22	19	48
Hurricane (n=83)	11	36	35	19
Extreme high winds (n=329)	11	18	35	35
Tornado (n=78)	11	15	26	48
Extreme heat wave (n=234)	10	21	35	36
Extreme cold temperatures (n=187)	9	24	35	32
Other (n=24)	39	35	23	4

(Base: Americans 18+)

During the past 10 years, on average, about how many days per summer has your local area (the area where you currently live) experienced extreme heat? Your best estimate is fine.

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(419)	(72)	(107)	(134)	(106)
Mean # of days	26	20	22	35	24
Median # of days	10	8	10	20	10

(Base: Americans 18+)

Over the next 10 years, on average, about how many days per summer do you think that your local area will experience extreme heat? Your best estimate is fine.

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(420)	(66)	(106)	(143)	(105)
Mean # of days	31	24	28	38	29
Median # of days	15	12	15	20	20

3. Personal Preparedness With 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)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Likely	44	42	40	48	42
Very likely	7	9	6	5	10
Somewhat likely	37	33	34	43	32
Unlikely	55	58	57	50	57
Somewhat unlikely	39	48	39	37	35
Very unlikely	16	10	18	13	22

(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)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
A great deal	15	17	13	13	21
Some	38	32	31	46	36
A little	30	42	30	27	25
None	16	9	25	13	18

(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)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Yes	37	39	25	41	40
No	62	60	72	58	59

(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)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Yes	40	39	27	44	48
No	59	61	72	55	52

4. Perceived Governmental Preparedness With Extreme Weather

(Base: Americans 18+)

In your opinion, over the next 10 years how much risk does extreme weather pose to the following resources in your community?

The electricity system

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High risk	19	31	12	21	13
Moderate risk	32	32	33	27	37
Low risk	27	21	26	30	30
No risk	9	6	16	9	6
Doesn't apply	1	3	1	*	--
Don't know	9	6	8	9	12
Prefer not to answer	1	1	3	1	2

Public water supplies

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High risk	15	17	7	15	23
Moderate risk	31	25	27	33	35
Low risk	29	30	38	28	20
No risk	10	9	14	10	7
Doesn't apply	2	7	1	2	--
Don't know	9	8	9	8	13
Prefer not to answer	1	1	3	1	2

Public sewer systems

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High risk	11	15	8	12	9
Moderate risk	27	33	22	25	31
Low risk	31	27	36	31	29
No risk	14	10	18	14	13
Doesn't apply	3	8	2	3	1
Don't know	11	7	12	11	15
Prefer not to answer	1	1	2	1	2

(Base: Americans 18+)

In your opinion, over the next 10 years how much risk does extreme weather pose to the following resources in your community? (Cont'd.)

People's health

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High risk	14	18	6	17	14
Moderate risk	29	29	29	27	32
Low risk	34	36	36	32	33
No risk	10	7	15	12	7
Doesn't apply	1	1	--	1	1
Don't know	9	9	10	9	10
Prefer not to answer	2	1	3	1	4

Transportation/roads/bridges

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High risk	16	24	12	16	14
Moderate risk	31	35	29	30	30
Low risk	31	26	34	30	32
No risk	11	9	12	12	8
Doesn't apply	2	3	2	1	1
Don't know	8	3	8	7	12
Prefer not to answer	1	1	3	1	2

Coastline/wetlands

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High risk	17	27	6	19	15
Moderate risk	20	17	15	23	23
Low risk	20	20	24	17	21
No risk	12	11	14	11	10
Doesn't apply	19	19	29	15	15
Don't know	10	5	9	11	14
Prefer not to answer	1	1	2	1	2

(Base: Americans 18+)

In your opinion, over the next 10 years how much risk does extreme weather pose to the following resources in your community? (Cont'd.)

Forests/wildfires

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High risk	18	13	7	15	37
Moderate risk	22	15	14	24	32
Low risk	26	28	33	29	13
No risk	14	17	22	14	6
Doesn't apply	9	21	16	4	1
Don't know	7	4	5	9	9
Prefer not to answer	2	1	3	1	2

Agriculture

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High risk	23	17	23	24	28
Moderate risk	32	29	35	33	29
Low risk	21	27	19	19	22
No risk	8	7	8	11	5
Doesn't apply	3	11	1	1	3
Don't know	9	9	10	8	10
Prefer not to answer	2	1	3	1	2

State and local parks

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High risk	10	13	3	9	15
Moderate risk	27	25	26	29	29
Low risk	35	37	40	33	32
No risk	13	12	19	11	9
Doesn't apply	2	5	1	3	1
Don't know	10	7	8	11	13
Prefer not to answer	1	1	3	1	2

(Base: Americans 18+)

In your opinion, how much priority should your state and local governments give to protecting each of the following from extreme weather over the next 10 years?

The electricity system

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High priority	40	47	30	45	36
Medium priority	31	27	43	28	30
Low priority	15	10	15	14	20
No priority at all	5	7	5	6	4
Doesn't apply	1	5	--	1	1
Don't know	4	2	4	4	7
Prefer not to answer	1	1	3	1	2

Public water supplies

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High priority	46	42	42	50	47
Medium priority	31	33	33	29	33
Low priority	9	11	12	10	5
No priority at all	5	6	6	4	5
Doesn't apply	1	5	--	1	--
Don't know	4	2	3	3	7
Prefer not to answer	1	1	3	1	2

Public sewer systems

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High priority	37	37	26	35	26
Medium priority	32	32	37	30	33
Low priority	15	15	22	20	22
No priority at all	6	6	7	4	6
Doesn't apply	2	7	1	1	1
Don't know	5	3	3	3	10
Prefer not to answer	1	1	3	1	2

(Base: Americans 18+)

In your opinion, how much priority should your state and local governments give to protecting each of the following from extreme weather over the next 10 years? (Cont'd.)

People's health

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High priority	46	45	36	54	43
Medium priority	26	29	37	18	25
Low priority	14	13	11	14	17
No priority at all	6	4	7	7	5
Doesn't apply	1	5	*	1	1
Don't know	5	3	4	4	7
Prefer not to answer	1	1	3	1	2

Transportation/roads/bridges

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High priority	35	47	29	37	27
Medium priority	38	31	38	38	43
Low priority	13	7	16	13	14
No priority at all	7	6	8	6	7
Doesn't apply	2	5	2	1	1
Don't know	3	2	3	2	6
Prefer not to answer	1	1	3	1	2

Coastline/wetlands

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High priority	19	29	11	23	12
Medium priority	31	27	28	32	38
Low priority	19	14	19	20	19
No priority at all	10	13	12	7	9
Doesn't apply	13	11	19	11	11
Don't know	6	4	4	5	9
Prefer not to answer	1	1	3	1	2

(Base: Americans 18+)

In your opinion, how much priority should your state and local governments give to protecting each of the following from extreme weather over the next 10 years? (Cont'd.)

Forests/wildfires

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High priority	21	18	12	23	28
Medium priority	38	37	37	36	40
Low priority	20	16	28	22	14
No priority at all	9	15	9	9	5
Doesn't apply	5	9	7	4	2
Don't know	4	3	3	4	8
Prefer not to answer	1	1	3	1	2

Agriculture

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High priority	38	27	38	41	41
Medium priority	32	34	35	31	29
Low priority	14	17	13	14	15
No priority at all	6	8	5	6	5
Doesn't apply	3	10	*	1	2
Don't know	5	2	6	5	6
Prefer not to answer	1	1	3	1	2

State and local parks

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
High priority	13	15	8	16	12
Medium priority	36	33	38	34	40
Low priority	31	30	38	31	26
No priority at all	9	13	9	9	7
Doesn't apply	2	3	--	1	3
Don't know	4	3	3	4	6
Prefer not to answer	1	1	3	1	2

(Base: Americans 18+)**How confident are you that, over the next 10 years, your local government can protect each of the following from extreme weather?****The electricity system**

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Extremely confident	4	2	5	6	3
Very confident	17	14	16	17	19
Moderately confident	39	36	41	39	40
Not very confident	21	29	17	21	17
Not at all confident	6	8	6	5	8
Doesn't Apply	2	2	2	2	2
Don't know	8	7	6	8	9
Prefer not to answer	2	1	3	1	2

Public water supplies

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Extremely confident	5	4	4	6	5
Very confident	17	13	20	16	18
Moderately confident	40	40	43	43	35
Not very confident	19	25	16	16	22
Not at all confident	6	7	4	7	7
Doesn't Apply	1	3	1	1	1
Don't know	8	7	6	8	11
Prefer not to answer	2	1	3	1	2

Public sewer systems

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Extremely confident	4	2	4	5	3
Very confident	15	15	17	14	18
Moderately confident	40	36	42	44	36
Not very confident	20	25	17	20	21
Not at all confident	6	9	4	5	6
Doesn't Apply	2	5	2	2	2
Don't know	8	7	6	9	11
Prefer not to answer	2	1	3	1	2

(Base: Americans 18+)**How confident are you that, over the next 10 years, your local government can protect each of the following from extreme weather? (Cont'd.)****People's health**

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Extremely confident	5	3	3	6	5
Very confident	13	11	18	12	14
Moderately confident	34	34	35	37	29
Not very confident	24	30	24	22	22
Not at all confident	10	11	6	9	15
Doesn't Apply	3	2	2	3	3
Don't know	9	7	7	9	10
Prefer not to answer	2	1	3	1	2

Transportation/roads/bridges

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Extremely confident	5	3	4	7	3
Very confident	16	13	20	15	15
Moderately confident	40	42	37	40	40
Not very confident	20	22	19	18	22
Not at all confident	7	9	5	7	7
Doesn't Apply	2	2	3	1	2
Don't know	8	7	4	9	9
Prefer not to answer	2	1	3	1	2

Coastline/wetlands

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Extremely confident	4	2	2	6	3
Very confident	7	8	9	7	6
Moderately confident	27	28	27	30	22
Not very confident	22	27	13	23	25
Not at all confident	8	9	6	7	9
Doesn't Apply	19	15	28	15	20
Don't know	9	7	8	9	12
Prefer not to answer	2	1	3	1	2

(Base: Americans 18+)

How confident are you that, over the next 10 years, your local government can protect each of the following from extreme weather? (Cont'd.)

Forests/wildfires

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Extremely confident	4	3	3	5	5
Very confident	12	8	14	11	14
Moderately confident	33	35	33	36	27
Not very confident	24	27	21	22	28
Not at all confident	8	10	5	6	10
Doesn't Apply	8	7	12	7	5
Don't know	9	9	6	10	9
Prefer not to answer	2	1	3	1	2

Agriculture

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Extremely confident	4	3	3	5	4
Very confident	12	7	12	13	14
Moderately confident	36	35	37	38	31
Not very confident	25	26	27	24	24
Not at all confident	8	11	6	6	11
Doesn't Apply	3	7	2	2	3
Don't know	9	8	7	9	9
Prefer not to answer	2	1	3	1	2

State and local parks

	<u>Total</u>	<u>NE</u>	<u>MW</u>	<u>S</u>	<u>W</u>
(Unweighted base)	(830)	(150)	(198)	(297)	(185)
	%	%	%	%	%
Extremely confident	4	3	3	6	4
Very confident	13	9	15	13	16
Moderately confident	38	35	40	39	37
Not very confident	22	29	22	19	20
Not at all confident	7	11	5	6	8
Doesn't Apply	4	3	4	4	3
Don't know	8	8	5	9	10
Prefer not to answer	2	1	3	1	2

5. 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)	(398)	(73)	(96)	(137)	(92)
	%	%	%	%	%
Global warming is affecting weather in the United States	56	53	65	47	66
Global warming is not affecting weather in the United States	7	13	4	6	7
Global warming isn't happening	13	10	12	16	12
Don't know	17	17	14	24	10
Prefer not to answer	7	8	6	8	5

(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)	(510)	(94)	(123)	(170)	(123)
	%	%	%	%	%
A lot	33	38	35	34	27
Some	41	40	35	38	53
A little	16	12	22	18	11
Don't know	9	9	9	10	8
Prefer not to answer	*	--	--	1	1

6. Extreme Weather and the Six Americas

(Base: Americans 18+)

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

	Alarmed (126) %	Concerned (225) %	Cautious (201) %	Disengaged (38)** %	Doubtful (101) %	Dismissive (132) %
(Unweighted base)						
Better	3	1	7	6	3	7
Much better	2	--	2	--	--	2
Somewhat better	*	1	5	6	3	5
About the same	7	28	39	37	60	68
Worse	91	71	55	57	38	26
Somewhat worse	46	59	43	38	27	22
Much worse	45	12	12	19	11	4

(Base: Americans 18+)

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

	Alarmed (126) %	Concerned (225) %	Cautious (201) %	Disengaged (38)** %	Doubtful (101) %	Dismissive (132) %
(Unweighted base)						
Better	6	4	9	2	8	11
Much better	2	--	1	--	--	3
Somewhat better	4	4	8	2	8	8
About the same	15	48	55	53	65	73
Worse	78	46	35	45	26	13
Somewhat worse	60	39	29	28	18	12
Much worse	18	7	6	17	8	1

(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?

	Alarmed (126) %	Concerned (225) %	Cautious (201) %	Disengaged (38)** %	Doubtful (101) %	Dismissive (132) %
(Unweighted base)						
Likely	80	56	39	19	23	19
Very likely	22	7	3	1	4	3
Somewhat likely	58	49	36	18	19	16
Unlikely	19	45	62	76	75	81
Somewhat unlikely	17	37	50	59	47	38
Very unlikely	2	8	12	17	28	43

(Base: Americans 18+)**How much have you thought about preparing for a natural disaster?**

	Alarmed	Concerned	Cautious	Disengaged	Doubtful	Dismissive
(Unweighted base)	(126)	(225)	(201)	(38)**	(101)	(132)
	%	%	%	%	%	%
A great deal	34	11	12	16	11	11
Some	36	43	43	19	27	41
A little	25	33	30	32	39	24
None	4	13	16	33	23	25

(Base: Americans 18+)**In your opinion, how much priority should your state and local governments give to protecting each of the following from extreme weather over the next 10 years? (% who say high or medium priority)**

	Alarmed	Concerned	Cautious	Disengaged	Doubtful	Dismissive
(Unweighted base)	(126)	(225)	(201)	(38)**	(101)	(132)
	%	%	%	%	%	%
Public water supplies	96	90	71	61	68	61
The electricity system	93	79	65	55	64	62
Agriculture	92	83	64	53	58	52
People's health	91	82	69	57	65	53
Transportation/roads/bridges	91	86	66	53	64	57
Forests/wildfires	83	75	50	39	45	38
Public sewer systems	81	76	59	50	60	43
State and local parks	81	57	42	34	37	33
Coastlines/wetlands	74	61	44	42	37	34

Appendix II: Survey Method

The data in this report are based on a nationally representative survey of 830 American adults, aged 18 and older, conducted from November 23 – December 9, 2013. All questionnaires were self-administered by respondents in a web-based environment. The survey took, on average, about 34 minutes to complete.

The sample was drawn from GfK's KnowledgePanel[®], 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, Geoff Feinberg, Seth Rosenthal, Peter Howe and Jennifer Marlon 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 from results that would be obtained if every member of the target population was interviewed. Average margins of error, at the 95% confidence level, are as follows:

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

- Total (n=830): +/- 3 percentage points
- Northeast (n=150): +/- 8 percentage points
- Midwest (n=198): +/- 7 percentage points
- South (n=297): +/- 6 percentage points
- West (n=185): +/- 7 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) 830	% (weighted) 100
Total		
Sex		
Men	424	48
Women	406	52
Age		
Generation Y (18-30)	175	28
Generation X (31-48)	165	24
Baby Boomers (49-67)	350	35
WWII (68+)	140	13
Education		
Less than high school	60	12
High school graduate	265	30
Some college/tech	244	29
College graduate	158	18
Post graduate	103	12
Household income		
<\$25K	146	18
\$25K - <\$50K	190	23
\$50K - <\$75K	171	18
\$75K - <\$100K	113	16
\$100K - <\$125K	97	12
\$125K+	113	13
Hispanic		
Yes	83	15
Ethnicity/race		
White, non-Hispanic	626	66
Black, African-American non-Hispanic	74	12
Other non-Hispanic	47	7
Region		
Northeast	150	18
Midwest	198	22
South	297	37
West	185	23

