

## Feedback on National Weather Service Severe Weather Communication

**This is a voluntary survey.**

The National Weather Service is seeking public feedback on how it communicates severe weather. Please consider participating in this survey and contributing toward the improvement of severe weather communication. The survey is estimated to take 20 minutes of your time. Completing this survey is voluntary, and your responses to the questions are anonymous.

*Paperwork Reduction Act Statement: Public reporting burden for this collection of information is estimated at 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Sarah Brabson, NOAA National Weather Service, SSMC 2, Room 17205, 1325 East West Highway, Silver Spring, MD. Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subjected to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.*

### Part I

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**state:** Using the dropdown list, please select the state where your primary residence is located.  
[Dropdown list of the states in the sample frame: NC, OK, IA, AL]

**how\_long:** Approximately how long have you lived in that state?

- 1 - Less than 1 year
- 2 - 1 to 3 years
- 3 - 3 to 5 years
- 4 - 5 to 10 years
- 5 - More than 10 years

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**adults:** Including yourself, how many adults age 18 and older live at your primary residence?  
[Verbatim]

**children:** How many children age 17 and younger live at your primary residence? [Verbatim]

**home\_type:** What type of home is your primary residence?

- 1 - Apartment
- 2 - Single family home
- 3 - Duplex

- 4 - Mobile home
- 5 - Condo or townhouse
- 6 - Other (please specify) [Verbatim]

**home\_lot:** Which of the following categories best describes the location of your primary residence?

- 1 - Urban location in a densely populated area
- 2 - Suburban location in a neighborhood that is near a densely populated area
- 3 - Rural location in a sparsely populated area

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**age:** What is your age?

- Under 18 years
- 18 to 24 years
- 25 to 34 years
- 35 to 44 years
- 45 to 54 years
- 55 to 64 years
- Age 65 or older

**edu:** What is the highest level of education you have completed?

- 1 - Elementary or some high school
- 2 - High school graduate/GED
- 3 - Some college/vocational school
- 4 - College graduate
- 5 - Some graduate work
- 6 - Master's degree
- 7 - Doctorate (of any type)
- 8 - Other degree [Verbatim]

**gend:** Are you male or female?

- 0 - Female
- 1 - Male

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The National Weather Service issues different kinds of messages to the public about tornadoes. To the best of your knowledge, is the following advisory considered a tornado WATCH or a WARNING? [Split; 50% get **tor\_watch**; 50% get **tor\_warn**]

**tor\_watch:** This advisory is issued when tornadoes are possible in and near the area. It does not mean that they will occur. It only means they are possible.

- 1 - Tornado WATCH
- 2 - Tornado WARNING
- 3 - Don't know

**tor\_warn:** This advisory is used when a tornado is imminent. When this advisory is issued, seek safe shelter immediately.

- 1 - Tornado WATCH
- 2 - Tornado WARNING
- 3 - Don't know

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**tor\_risk:** Considering both the likelihood and potential consequences of tornadoes throughout the year, and using a scale from zero to ten, where zero means *no risk* and ten means *extreme risk*, how do you rate the overall risk to you and your family from tornadoes?

- 0 - No risk
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 - Extreme risk

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**tor\_exp\_past:** Have you or members of your family, neighbors, friends, or associates ever experienced property damage, personal injury, or loss of life from a tornado? *Please select all that apply.*

- 1 - No
- 2 - Yes, for you personally
- 3 - Yes, for family
- 4 - Yes, for neighbors
- 5 - Yes, for close friends or associates

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**tor\_exp\_fut:** If you were to live in your neighborhood for the rest of your life, what is the probability that you or one of your neighbors will experience property damage, personal injury, or loss of life from a tornado? Please indicate the probability as a percent. [Verbatim]

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Tornado WARNINGS are issued by the National Weather Service when a tornado is imminent or occurring.

**warn\_hist:** Do you recall having ever received a tornado WARNING for the neighborhood where you live?

0 - No [skip to **myth\_under**]

1 - Yes

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Think about the most recent tornado WARNING that you remember being issued for the neighborhood where you live.

**warn\_how:** How did you receive the tornado WARNING? Please select all that apply.

1 - Broadcast radio

2 - Weather radio (National Weather Service radio)

3 - Television

4 - Siren

5 - Internet

6 - Social media such as Twitter or Facebook

7 - Cell phone application or automated text messages

8 - Word-of-mouth (including telephone or text messages, email, etc.) from family, friends, neighbors, employers, co-workers, etc.

9 - Other sources (please specify) [Verbatim]

**warn\_time:** When did you receive the tornado WARNING?

1 - Between 6am and noon

2 - Between noon and 6pm

3 - Between 6pm and midnight

4 - Between midnight and 6am

5 - I don't recall

**warn\_where:** Where were you when you received the tornado WARNING?

1 - At home

- 2 - At work/school
- 3 - At a business (such as a store or restaurant)
- 4 - In a vehicle (such as a car, truck, or bus)
- 5 - Somewhere else (please specify) [Verbatim]
- 6 - I don't recall

**protect\_act:** Did you take some kind of protective action in response to the tornado WARNING?

0 - No [skip to **myth\_under**]

1 - Yes

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**protect\_kind:** What kind of protective action did you take in response to the most recent tornado WARNING that you remember being issued for the neighborhood where you live?

- 1 - Moved to the most sheltered part of the building you were in at the time
- 2 - Moved to a nearby building to take shelter
- 3 - Moved to a storm shelter (at your residence or elsewhere)
- 4 - Drove away from the tornado warning area
- 5 - Something else (please specify) [Verbatim]

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Please indicate to the best of your knowledge whether each of the following statements about tornadoes is true or false. [Randomize order]

**myth\_tall:** Tall buildings protect large cities from tornadoes

0 - False

1- True

**myth\_mtns:** Mountains, rivers, and lakes do not protect nearby areas from tornadoes

0 - False

1- True

**myth\_brdge:** When driving, you should not take shelter from tornadoes under a bridge or overpass

0 - False

1- True

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Now, we would like you to answer a few questions about tornadoes in your state.

**tor\_ssn:** What time of the year do most tornadoes occur?

- 1 - in January, February, and March
- 2 - in April, May, and June
- 3 - in July, August, and September
- 4 - in October, November, and December

**tor\_ssn:** What time of the day do most tornadoes occur?

- 1 - 8:00 AM - 2:00 PM
- 2 - 3:00 PM - 9:00 PM
- 3 - 10:00 PM - 4:00 PM

**tor\_ssn:** On average, how many tornadoes occur per year?

- 1 - Less than 25
- 2 - 25 - 50
- 3 - 51 - 75
- 4 - 76 - 100
- 5 - More than 100

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**nws\_trust:** On a scale from zero to ten where zero means *no trust* and ten means *complete trust*, how much do you trust the National Weather Service?

- 0 - No trust
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 - Complete trust

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**nws\_prob:** When the National Weather Service issues tornado **WARNINGS** for your neighborhood, what is the probability that a tornado will actually occur? Please indicate the probability as a percent. [Verbatim]

**nws\_cons:** When the National Weather Service issues tornado WARNINGS for your neighborhood, what is the probability that someone in the area will be injured or killed? Please indicate the probability as a percent. [Verbatim]

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**tor\_prep:** Do you currently have any of the following at your residence? *Please select all that apply.*

- 1 - A disaster response plan for you and your family
- 2 - An emergency preparedness kit containing such things as first-aid supplies, flashlights, batteries, etc.
- 3 - Supplies of water and food specially packaged or designated for use in emergencies
- 4 - A generator (either mobile or fixed) to provide electricity in emergencies
- 5 - A designated place within your home that you consider to provide the most shelter from tornadoes
- 6 - A specially constructed room or other facility on your property designed to provide shelter from tornadoes (may be above or below ground)
- 7 - None of the above

**tor\_Safe:** On a scale from 0-10, how safe do you feel your home is from a tornado?

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## Part II - IBW Treatments

Now, we have a few questions about TORNADO WARNINGS and how you might respond to them in the future. In this section of the survey, it is important that you are realistic and honest about how you might respond to the different scenarios. Government officials may consider your responses when making decisions about how to issue warnings in the future.

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react\_base: While you are at home during daylight hours, if you were to learn that the National Weather Service has issued a TORNADO WARNING for your local area, which of the following most accurately describes what you would do?

- 0 - Nothing; continue on as before the warning was received
- 1 - Move to the most sheltered part of your residence, but do not leave your residence
- 2 - Move to a specially constructed storm shelter on your property
- 3 - Move to a nearby location or building that you consider to provide better shelter

- 4 - Leave your residence and drive away from the tornado warning area
- 5 - Something else (please specify) [verbatim]

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In some cases, the National Weather Service issues TORNADO WARNINGS when trained professionals see a tornado on the ground ("observed"). In these instances, tornadoes are definitely occurring in the warning area. In other instances, the National Weather Service issues TORNADO WARNINGS when tornadoes are identified using radar technology alone ("radar indicated"). In these instances, tornadoes are likely but not definitely occurring in the warning area.

react\_source: While you are at home during daylight hours, if you were to learn that the National Weather Service has issued a [randomize: radar indicated, observed] TORNADO WARNING for your local area, which of the following most accurately describes what you would do?

- 0 - Nothing; continue on as before the warning was received
- 1 - Move to the most sheltered part of your residence, but do not leave your residence
- 2 - Move to a specially constructed storm shelter on your property
- 3 - Move to a nearby location or building that you consider to provide better shelter
- 4 - Leave your residence and drive away from the tornado warning area
- 5 - Something else (please specify) [verbatim]

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RANDOM SPLIT: 33%

In extreme cases, the National Weather Service may use enhanced wording in TORNADO WARNINGS to communicate the potential severity of ongoing storms. When issued, these warnings may forecast a "particularly dangerous situation." This wording may be used when long-lived, strong, and violent tornadoes are possible.

react\_pds: While you are at home during daylight hours, if you were to learn that the National Weather Service has issued a TORNADO WARNING for a particularly dangerous situation in your local area, which of the following most accurately describes what you would do?

- 0 - Nothing; continue on as before the warning was received
- 1 - Move to the most sheltered part of your residence, but do not leave your residence
- 2 - Move to a specially constructed storm shelter on your property
- 3 - Move to a nearby location or building that you consider to provide better shelter

- 4 - Leave your residence and drive away from the tornado warning area
- 5 - Something else (please specify) [verbatim]

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RANDOM SPLIT: 66%

In extreme cases, the National Weather Service may use enhanced wording in TORNADO WARNINGS to communicate the potential severity of ongoing storms. When issued, these warnings may forecast “considerable” or “catastrophic” damage. The word “considerable” may be used when there is credible evidence that a tornado, capable of producing significant damage, is imminent or occurring. The word “catastrophic” may be used when there is credible evidence that a violent, life-threatening tornado, is occurring.

react\_tag: While you are at home during daylight hours, if you were to learn that the National Weather Service has issued a TORNADO WARNING for [randomize: considerable, catastrophic] tornadoes in your local area, which of the following most accurately describes what you would do?

- 0 - Nothing; continue on as before the warning was received
- 1 - Move to the most sheltered part of your residence, but do not leave your residence
- 2 - Move to a specially constructed storm shelter on your property
- 3 - Move to a nearby location or building that you consider to provide better shelter
- 4 - Leave your residence and drive away from the tornado warning area
- 5 - Something else (please specify) [verbatim]

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In most cases, the National Weather Service issues TORNADO WARNINGS before they have complete information about a storm system. Sometimes they overestimate the damage that a storm system will cause, and sometimes they underestimate the damage that it will cause. We are interested in how these miscalculations might influence your trust in the National Weather Service. Please imagine the following scenarios:

The National Weather Service issues a TORNADO WARNING for [randomize: considerable, catastrophic] tornadoes in your local area. When the storm system passes, you realize that a tornado occurred in your local area, but it caused relatively minor damage--trees are broken, a few mobile homes are destroyed, and several houses are damaged, but there are no injuries or fatalities. How would this influence your trust in the National Weather Service?

- 1 - It would strongly reduce my trust in the National Weather Service

- 2 - It would reduce my trust in the National Weather Service
- 3 - It would have no effect on my trust in the National Weather Service
- 4 - It would increase my trust in the National Weather Service
- 5 - It would strongly increase my trust in the National Weather Service

The National Weather Service issues a TORNADO WARNING for your local area, but does not use enhanced language to communicate the potential severity of the storm. When the storm system passes, you realize that a [randomize: considerable, catastrophic] tornado occurred in your local area. How would this influence your trust in the National Weather Service?

- 1 - It would strongly reduce my trust in the National Weather Service
- 2 - It would reduce my trust in the National Weather Service
- 3 - It would have no effect on my trust in the National Weather Service
- 4 - It would increase my trust in the National Weather Service
- 5 - It would strongly increase my trust in the National Weather Service

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### **Part III - Urgency of Action**

Imagine the NWS has issued a tornado warning for your area in [Randomize: "12 minutes," "24 minutes"]. How urgent is it to implement your tornado preparedness plan based on the following messages:

1- Not at all urgent                    5                    10- Extremely urgent

5

## 10- Extremely urgent

## Take Action and Monitor

## **Shelter and Monitor**

### Go to Safe Place and Monitor

Take Action NOW

## Shelter NOW

Go to Safe Place NOW

Take Action: Life-Threatening!

## **Shelter: Life-Threatening!**

## Go to Safe Place: Life-Threatening!

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The next question involves a word association.

the first three ACTIONS that come to mind when you think about that phrase. For example, we might say, "school," to which you might respond, "read," "work on homework," or "study for

exam." Or, if we say, "rain," and you might say, "bring umbrella," "stay inside," or "close windows."

Relative to a tornado warning, think about the phrase [rand\_phrase: "take action" "Shelter" and "Go to safe place] for a moment. When you think about the phrase [rand\_phrase], what are the first three ACTIONS that come to mind? [RANDOMIZE WORD ASSIGNMENT]

act1: [VERBATIM]

act2: [VERBATIM]

act3: [VERBATIM]

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#### **Part IV - Demographics**

**hispanic:** Are you, yourself, of Hispanic or Latino origin or descent, such as Mexican, Puerto Rican, Cuban, or other Spanish background?

0 - No, I am not of Hispanic or Latino origin or descent.

1 - Yes, I am of Hispanic or Latino origin or descent.

**race:** Which of the following best describes your race?

1 - White

2 - Black or African American

3 - American Indian or Alaska Native

4 - Asian

5 - Native Hawaiian or Pacific Islander

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**income:** Thinking specifically about the past 12 months, what was your annual household income from all sources?

1 - Less than \$24,999

2 - \$25,000 - \$49,999

3 - \$50,000 - \$99,999

4 - \$100,000 - \$199,999

5 - \$200,000 or more

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Information often influences the way in which people answer survey questions. With this in mind, we are interested in whether you are taking the time to read the text that precedes each question. To demonstrate that you have read this text, please type “x” in the textbox next to “other.”

**test:** Which of the following devices do you typically use to answer surveys on the Internet?

- 1 - A computer
- 2 - A tablet (such as an iPad)
- 3 - A smart phone (such as an Android or iPhone)
- 4 - Other (please specify) [Verbatim]