

## **WEATHER WARNINGS AND WHY DON'T WE TAKE ACTION**

**Weather warnings are critical, but most people don't immediately jump to action. Why?**

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**Cost, transportation and mobility can prevent someone from taking action during weather events. While officials and community groups are working to close those gaps, human psychology is also part of the problem.**

During natural disasters, some may end up staying in the way of danger despite warnings from the National Weather Service or local officials. Those watching from afar sometimes ask the same question:

*"Why didn't they leave?"*

There are many factors which may prevent someone from evacuating or taking protective actions, including cost, transportation, and mobility. Some weather events, like tornadoes, may only provide a few minutes of lead time. Emergency managers, community groups and municipal agencies are working to close those gaps to get people to safety as quickly as possible.

But part of the problem is also as simple as human psychology.

### **"A human problem"**

"No environmental problem is really an environmental problem, it's a behavioral problem. It's a human problem," said Robyn Wilson, Professor of Risk Assessment and Decision Science at Ohio State University.

Wilson studies how individuals make decisions in relation to risk and uncertainty. Traditionally, researchers thought people do not take lifesaving actions because of an information deficit. So for example, in a hurricane scenario, someone may not evacuate because they lack information on the storm and its severity. But that theory has been debunked, Wilson said.

Especially in today's world, where abundant information is available at one's fingertips, the challenge is framing that information to inspire action.

"We have to build the decision environment for people to make those right choices," she said.

Gina Esosco, social scientist and risk communication expert at NOAA, said understanding this kind of decision making is critical to NOAA's work.

"We have a mission to save lives," she said.

"Weather is just one variable in people's decision making, it's often not the only variable."

Gina Esosco

When someone sees a weather warning pop up on their phone or social media, ideally, they would begin to work immediately to take protective actions like going indoors or into a storm shelter. However, Wilson said humans naturally exhibit a “wait and see” mentality, where they seek additional information to justify their actions.

Eosco calls this “information seeking and processing” and said every human goes through it. Instead of triggering immediate action, warnings create a path to action in the human mind.

“First, we look for social cues,” Wilson said, “Should I care? If not, the path stops here.”

For example, if someone doesn’t see their friends or neighbors preparing their homes ahead of a hurricane, they may decide to do the same.

Eosco said this is also why it’s so important for messaging to come from trusted sources, if not several, to reinforce the warning.

Secondly, Wilson said people look for visual confirmation. This can be problematic because all weather events are not immediately visible. So, if someone gets a warning for a wildfire in their area, and they stick their head out the window and don’t see smoke, they may determine there is no threat.

The third step is determining “is this a threat to me?” Warnings that are too general and do not offer localized information may lead people to believe they are not in the way of danger. Eosco calls this personalizing the warning, and said it can be a challenge for communicators, since no one can predict how a storm will specifically impact your home.

Finally, the last step is determining if they can act. If someone doesn’t have the resources to evacuate after an evacuation order, they will likely minimize the threat in order to stay calm, Wilson said. Again, a lack of transportation or funds may deter action.

“Weather is just one variable in people’s decision making, it’s often not the only variable,” said Eosco.

If they do have that ability, then finally, they will take those actions to protect themselves.

### **Changing the "information environment"**

While this process may be human nature, minutes matter. Eosco said for some events like hurricanes, there is an action window. But many short fuse events, like a tornado, don’t allow much time for decision making.

This kind of behavior is deeply innate to humans, Wilson said, and is hard to escape even when you’re aware of it happening. So it’s the job of social scientists to find strategies to cut down on that decision inertia as much as possible.

“Having a written plan can help jumpstart you into action instead of creating that tendency to wait and see.”

Robyn Wilson

Both Wilson and Eosco also said it's important for emergency messaging to meet the public where they are.

“We need to optimize our weather communications,” Eosco said, “we are not going to change human psychology. So I don’t think about changing the person. We want to change the information environment.”

Some of Eosco’s previous research involved testing the level of urgency of the language in weather warnings. At least in that study, no difference was found in the way people responded.

Wilson said what is important is not to scare people or paralyze them with fear, but to provide easy, actionable steps to get to safety.

But it’s also a matter of changing up those cues. For example, by the time someone decides to take shelter, they may not reach that safe place in time.

That’s why Wilson recommends first and foremost, making a plan before the weather warning arrives.

“Having a written plan can help jumpstart you into action instead of creating that tendency to wait and see,” she said.

For example, instead of looking for confirmation or social cues after receiving a severe weather warning, head to that predetermined safe place in your home first, and then look on social media or check the news.

“Put effort into preparing for that action. That way when that first cue comes, you can jump right into action,” Wilson said.

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