

Severe Weather Siren Protocol in Eau Claire: Does it Produce Intended Responses?

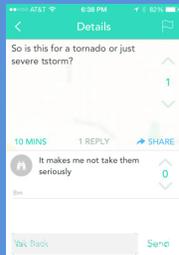
Jacob R. Larson, Lucy M. Horst, & Kyle T. Tollefson
Faculty Advisor: Scott K. Clark

Department of Geology
University of Wisconsin-Eau Claire



Introduction

This study was conducted to investigate UWEC students' knowledge, perceptions, and response behaviors related to outdoor siren alerts in Eau Claire. The City of Eau Claire activates outdoor warning sirens whenever the National Weather Service issues a severe thunderstorm warning or a tornado warning for the city.



July 13, 2015 Yik Yak posts

- The city's use of the same warning sound for severe thunderstorm warnings and tornado warnings causes some to dismiss the potential risks of an approaching tornado.
- Relatedly, not appreciating the potential severity of thunderstorms causes some to dismiss the real risks associated with these storms.

Methods

We created a Qualtrics survey to investigate UWEC students' knowledge, perceptions, and behaviors of outdoor siren alerts in Eau Claire.

The 20-question survey was distributed via email to students in seven introductory-level geology courses. Students were given about one week complete the survey.

The survey data was compiled and then coded independently by two members of the research team. The coders then met with the faculty mentor and discussed their codings, reaching 100% agreement on all codings.

Demographics of study population:

- 243 Respondents
- 65% Female
- 35% Male
- 100% Ages 18-34
- 96% Caucasian
- 4% Did not respond to race/ethnicity

This research received IRB approval (ClarkSCO46572015).

Results

Have you heard the city's outdoor warning sirens?
63%
have heard the sirens

Do you know when the sirens are tested?
37%
know when the sirens are tested

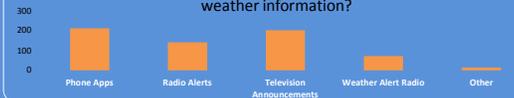
Do you know that Eau Claire activates sirens whenever the National Weather Service issues a tornado or severe thunderstorm warning?
73% said yes

Does your hometown use sirens in a different way?
65% of respondents' stated their hometowns only use sirens for tornado warnings

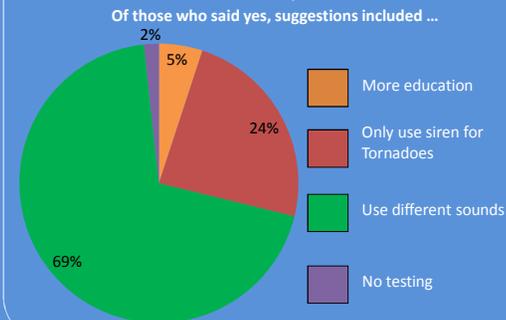
Would you pay more attention to the sirens if you knew the policy?
87% would pay more attention

Do you think people would respond more appropriately if the city increased its education efforts about the outdoor sirens?
91% said yes

What other sources do students rely upon for severe weather information?



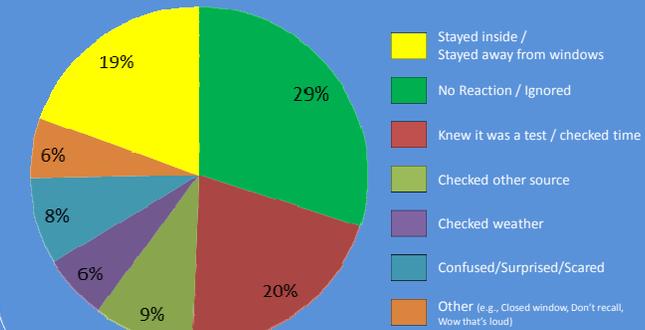
Do you think the city should revise their weather alert policy?
28% said, "no"



How have you responded to severe weather sirens in Eau Claire?

- "I was panicked because I thought it was the tornado siren. I was then informed it was not"
- "I was confused at first but realized soon after what the siren meant."
- "Didn't know what it was for"
- "I ignored it"

Reactions to the sirens



40% said the use of the same sound for both severe thunderstorm and tornado warnings affects how they react to the siren:

- "I do not take the siren very seriously. I always think it is just for a storm. I don't think I'd ever react the way I would if I knew there was a tornado on its way"
- "I tend not to care when they go off because thunderstorms aren't a big deal."
- "I would take different precautions if it were a tornado then if it were a severe thunderstorm. I wish I could know the difference."
- "I couldn't tell the difference, and I would probably ignore both assuming its just announcing that it's raining outside."

56% said that they would react differently if the city used separate and distinct sounds:

- "If they were different then I would be able to tell that either the storm is a tornado or a thunderstorm, which does not really matter to me because I would seek shelter regardless"
- "I would continue to ignore the thunderstorm siren, and seek shelter for the tornado warning"
- "I would know that it is a very serious alert, and to take the correct forms of action for a tornado rather than a storm"

Summary & Implications

- While ¾ of the respondents know the sirens are activated for both thunderstorm and tornado warnings, only one out of five students reacts appropriately.
- Many students respond differently if they know it's a tornado, instead of "just" a thunderstorm.
- Comments show that some students are taking a "a boy who cried wolf" approach and ignoring all occurrences of the sirens.
- This data shows a need for more education on the siren policy, both on the potential severity of thunderstorms and how to respond to the outdoor weather sirens.
- The city may want to consider using distinct sounds for different NWS warnings. This would provide people the ability to make informed decisions on how they choose to react. While this may lead some individuals to ignore thunderstorm warnings, many are currently ignoring the warnings for ALL alerts.

Acknowledgements

We would like to thank all the students who participated in the study.

Financial support came from Student Blugold commitment differential tuition funds through the UWEC Faculty/student Research Collaboration Grants Program.