

Tornado Warnings and Public Action

Michael E Brown*

Michael E. Brown, Professor, Department of Geosciences, Mississippi State University, USA

Tornadoes are a prevalent threat in the Great Plains and Southeast regions of the United States. Advances in technology such as higher resolution forecasting models, improved RADAR platforms, and expanded cellular and wireless capabilities all help with the forecasting, identification, and dissemination of the tornado warnings. Despite the best efforts of the warning meteorologist, not all tornado warnings result in a confirmed tornado. According to NOAA approximately three of every four tornado warnings issued do not result in a tornado. Additionally, of those warning that do have a tornado, 75% of the tornadoes are weak, often giving the impression that the warning was not warranted.

Two recent studies looked at individual response to tornado warnings related to violent EF-5 tornadoes [1,2]. While the study regions were geographically dissimilar in terms of population size, the results of each study were quite similar. The two study areas were the city of Joplin, Missouri [2], and the rural town of Smithville, Mississippi [1]. Many believe that the “cry wolf” effect of non-verified warnings decrease the likelihood of people seeking shelter during these tornado warnings. However, Legates and Biddle [3] and Paul et al. [4] indicate that the majority of people do seek shelter during tornado warnings. Interestingly, What the Sherman-Morris and Brown, and NWS studies found was that, despite the manner in which an individual received the tornado warning, confirmatory information was required before people were convinced to take action. The vast majority of people who understood their relative location to the projected path of the tornado, did at least try to seek shelter, but only after hearing of the warning from at least two trusted sources. The extra time needed for verifying the warning through a trusted source prior to taking action) was in some cases on the order of several minutes.

The tornado warning process seems simple enough. A warning is

issued by the National Weather Service, expected time and location of the tornado is given as well as an action statement (e.g. seek shelter now). It is then expected that people take appropriate action. However, during the dissemination of the warning things can get confusing as there is an implied expectation of a certain level of knowledge related to understanding related to an individual’s relative location related to the tornado. Sherman-Morris and Brown [1] showed that many people (even well educated individuals) have difficulty perceiving threats from a tornado that is located at a point location (per the tornado warning) and moving across the landscape toward or away from their relative location. Additionally, many individuals do not have a good understanding of their location relative to descriptors used in the tornado warning (e.g. “tornado will be near mile marker 174 on Interstate 80” or “tornado is 6-miles south of Dennard”).

There is an opportunity for Geo-scientists to bridge the gap between warning and public perception. This opportunity includes decreasing the time between warning and taking action by providing educational materials/products to increase an individual’s geographic awareness.

References

1. Sherman-Morris K, Brown ME (2012) Experiences of Smithville, Mississippi Residents with the 21 April 2011 Torando, National Weather Digest 36: 2.
2. NWS (2001) NWS Central Region Service Assessment, Joplin, Missouri, Tornado – May 22, 2011. US Department of Commerce, National Oceanic and Atmospheric Administration.
3. Legates DR, Biddle MD (1999) Warning response and risk behavior in the Oak Grove – Birmingham, Alabama, tornado of 8 April 1998. Natural Hazards Center Quick Response Rep 116.
4. Paul BIK, Brock VT, Csiki S, Emerson L (2003) Public response to tornado warnings: A comparative study of the May 4, 2003, tornadoes in Kansas, Missouri and Tennessee. Natural Hazards Center Quick Response Rep 165: 27.

*Corresponding author: Michael E. Brown, Professor, Department of Geosciences, Mississippi State University, E-mail: mike.brown@msstate.edu

Received July 13, 2013; Accepted July 15, 2013; Published July 18, 2013

Citation: Michael EB (2013) Tornado Warnings and Public Action. J Geol Geosci 2: e110. doi: [10.4172/2329-6755.1000e110](https://doi.org/10.4172/2329-6755.1000e110)

Copyright: © 2013 Michael EB. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.