

## DECISION MAKING BY AUSTIN, TEXAS, RESIDENTS IN HYPOTHETICAL TORNADO SCENARIOS

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### I. INTRODUCTION

Weather forecasters and emergency managers aim to provide the public with the best warnings for hazardous weather so that the public will take appropriate action to protect themselves and their families. Two common assumptions are that the public receives this information and subsequently makes the best decisions. The Warning Project was initiated to understand the factors affecting how people receive these warnings (if at all) and how they use this information to make decisions, with the hope of providing guidance for improving how warnings are disseminated in the future.

### II. METHODOLOGY

Surveys asking about respondents' views of flash floods were distributed to about 6000 people living in the flood plains in Denver, Colorado, and Austin, Texas. Surveys distributed in Austin also asked about respondents' views of tornadoes. About 1000 surveys were returned, with 519 respondents in Austin.

### III. RESULTS AND CONCLUSIONS

Respondents were asked whether they receive their weather information, and, of those sources, which they consider the most important. Local television stations, environmental cues, local radio stations, and The Weather Channel are used by two thirds or greater of the respondents. Of these, the most important single source was local television (48.7%), followed by the environmental cues, The Weather Channel, local radio stations, and NOAA Weather Radio. More recent innovations such as cell phones and the internet received very few responses.

A high percentage of the respondents correctly knew that a tornado warning indicates a more serious threat (88.5%) or more likely threat (90.2%) than a tornado watch. Only 23.7% of respondents disagreed or strongly disagreed that a tornado in Austin would pose a life-threatening risk to them. Only 9.9% of respondents believed that officials are too sensitive to the possibility of tornadoes, 11.2% would prefer less warnings even if it means there were more false alarms or close calls, and 13.8% of respondents say that one or two tornado false alarms or close calls would reduce their confidence in future warnings. These results indicate that respondents are not as susceptible to the cry-wolf effect, at least for tornadoes, implying that some level of overwarning is acceptable with the public. More discussion of this topic is found in Barnes et al. (2007).

One aspect of the surveys were two scenarios: a tornado while respondents were sitting at home and a tornado while respondents were driving their cars. Although 81.6% of respondents said that they were knowledgeable enough to know what to do to keep their family and themselves safe in the tornado at home scenario, only 61.9% felt completely capable of keeping safe. People with a tornado plan for their family would be more likely to stay at their house than leave, but that result is not statistically significant.

For the tornado while driving scenario, only 47.2% of respondents felt confident that they were capable of keeping themselves and their family safe. Of the respondents, 19.1% would stop their car and remain in it, whereas 71.7% would leave their car and seek shelter. Some respondents (16.4%) would attempt to drive through the storm to get home to loved ones and/or pets, and 39.2% would stay in their car and drive away from the tornado.

A disturbing result from this scenario is that 45.2% of respondents would stop their car under a highway overpass and climb up into the rafters for safety. In the past, this behavior has killed several people because of strong winds in these locations. Furthermore, stopped traffic can congest the highways for emergency vehicles and prevent traffic from moving away from the approaching tornado. Thus, the National Weather Service needs to make a greater commitment to educating the public that tornado overpasses are dangerous places during tornadoes.

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### V. REFERENCES

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