NEWSLETTER
National Weather Association

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PRESIDENT'S MESSAGE

THE FUTURE OF WEATHER FORECASTING IS NOW

The value of Weather Warnings cannot be simply measured by a false alarm rate, or probability of detection. While a forecast organization must compute verification statistics, these scores do not tell the entire story. By their very nature, statistical performance measures consider the world as black and white, and do not allow for the many real-world subtleties that occur. The person in a building destroyed by a 140 mph wind gust does not really care if there was rotation with the wind or not. However, the verification statistics do, and a tornado warning issued for such an event would register as a false alarm.

As sociologists point out, **a successful warning program requires more than good verification scores**. There are three distinct stages in an individual's warning response: risk identification, risk assessment, and finally risk reduction. While these may be explicit or implicit steps, each requires a decision. A warning program must insure that each decision is made in a timely, prudent manner.

Upon hearing a warning, people try to determine if there is a real threat. They try both to determine its validity and to confirm the warning. Here, the credibility of the source of the warning is important. A high false alarm rate is a negative, but it is far from the only factor. The quality of general weather forecasts also play a significant role. If we cannot forecast if it is going to rain, how can we possibly forecast the location of a flash flood? Many people "channel surf" during a severe thunderstorm event to see if all stations are reporting the same thing. If conflicting messages are received, the warning will likely be ignored. While being the first with a story might appeal to a station manager, it is not necessarily in the public good. Unless the weather forecasting community speaks with a unified voice, people are likely to "shop for the best warning" rather than immediately protecting themselves.

As an almost concurrent step, people assess their personal risk. If there is hazardous weather coming, will it affect them personally? Actions run the gamut from looking out the window to calling family and friends. On 13 April 1998, the members of a church in Alabama were saved when a parishioner called from home to tell them about a tornado warning. The content of the warning is a factor here. Information on the location, timing, and severity of a storm in a warning makes the hazard more real. Personal experience helps determine how one perceives a threat. If past hurricanes have not caused significant damage to my house, why will this one? People must be reminded of the damage that such storms have done to other places. We must emphasize that rivers, hills, cities and the like only protect places in folklore. In the real world, a F-5 tornado does not understand that Burnetts' mound is protecting Topeka. Public education is an essential part of making them realize that they might indeed be in danger.

Once people perceive that there is a personal risk they will try to reduce their risk. Their goal is for the storm to cause the least negative impact upon them. Actions are based on how they perceive the danger. Although safety recommendations have changed, upon receipt of a tornado warning many people disregard on-going rain and open windows as they were told to do 40 years ago. Further, many people will not take evasive action until all members of their family are accounted for. While this problem is faced by emergency managers when trying to implement an evacuation, it also is a factor for short-fused events. This year, there was a widely shown video of a woman in Nashville screaming for her son to come to her as a tornado approached their house. **Action statements are essential in warnings** — people must know what is the best response for them to take.

All of this leads us to the conclusion that **effective warnings require a team effort**. National Weather Service forecasters, broadcast meteorologists and emergency managers cannot function effectively without each other. We must work together to publicize storm safety rules. The public must understand what they should do when they hear a warning.

We need to remember that quality weather services start with the day-to-day forecast. We will only command respect from the public in warning situations if they perceive us as competent professionals who provide a useful service/product, and are not simply light entertainment between the news and the sports. **Finally, and most importantly, in warning situations we must speak with a unified voice, giving the public one message upon which they should act.** - Joe Schaefer