Communicating Uncertainty in Weather Forecasts: Results from a Survey of the U.S. Public

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Weather forecasts are inherently uncertain, and meteorologists have substantial information about weather forecast uncertainty that is not readily available to most forecast users. This uncertainty information has potential to benefit users by helping them make more informed forecast-related decisions. Yet effectively communicating uncertainty to non-meteorologists remains challenging.

Improving forecast uncertainty communication requires research-based knowledge that can inform decisions on what uncertainty information to communicate and when and how to do so. To help build such knowledge, this talk will discuss the public's perspectives on weather forecast uncertainty and uncertainty information using results from a nationwide survey. The survey questions examined here focus on communication of everyday weather forecasts to the general public, but aspects of the results may also be applicable to other types of hydrometeorological forecasts and other, more specialized audiences.

Topics investigated include people's uncertainty-related interpretations of deterministic forecasts, their confidence in different types of forecasts, and their interpretations of probability of precipitation forecasts. We also explore people's preferences for deterministic forecasts versus those that express uncertainty and their preferences for different uncertainty communication formats. While these issues are sufficiently complex that they cannot be definitively addressed in a single study, the findings contribute to fundamental understanding of laypeople's views on forecast uncertainty, and in doing so can inform both uncertainty communication efforts and uncertainty communication research.