



Communicating Uncertainty: Differences in Perspectives of Weather Forecasters, Emergency Managers and the General Public

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Uncertainty in weather forecasts can have many origins. Differences in interpretation are one source of uncertainty. Several studies show that this uncertainty about the uncertainty (NRC 2006) can cause additional challenges in communicating weather information and warnings, as end-users are not a homogeneous group (Demuth et al. 2011; Silver, Conrad 2010; Kox et al. 2014).

As the role of human forecasters is likely to expand from the preparation of deterministic forecasts to probabilistic forecast guidance (Hirschberg et al. 2010), there is a need to understand differences in the perception of uncertainty in weather information between different end-users and forecasters in order to communicate appropriately.

This paper compares results from three different studies by the interdisciplinary research project WEXICOM. Each study discusses the perception on uncertainty by different groups of end-users with the forecaster side. Perceptions and use of uncertainty in weather information by a representative sample of the Berlin population (n= 1342) as well as by members of emergency services in Germany (n=161; see Kox et al. 2014) were compared with perceptions of uncertainty and intended use of weather information by forecasters in Germany (n= 41).

In detail, questions in all surveys aimed at individual risk perceptions for different weather phenomena, understanding of verbal uncertainty information in weather forecasts, confidence in forecasts regarding different lead times and weather phenomena, and thresholds for action based on probabilistic weather information.

Results show that both emergency managers and the public have a good sense of uncertainty in weather information, but the public underestimates the risk (frequencies and threat) of particular weather phenomena compared to the forecaster group. In addition, forecasters seem to reasonably grasp when emergency managers would start with protective action measures when they receive probabilistic weather information.