



## **Communicating probabilistic weather forecasts to emergency managers**

Nadine Fleischhut (1,3), Martin Göber (2,3), Stefan Herzog (1), and Ralph Hertwig (1)

(1) Max Planck Institute for Human Development, Berlin, Germany, (fleischhut@mpib-berlin.mpg.de), (2) Deutscher Wetterdienst (DWD), Offenbach, Germany (martin.goeber@dwd.de), (3) Hans Ertel Centre for Weather Research (HERZ)

In the last decades, meteorology has made considerable progress in developing probabilistic weather forecast models. Despite the reliable probabilistic forecasts now available, actual forecasts and weather warnings are still mostly communicated in a deterministic way. Withholding probabilistic information not only impedes shared decision-making between meteorological experts, institutions and the public. The current practice also takes no advantage of the fact that probabilistic information is favoured by lay people (Morss et al., 2008), can increase trust in forecasts (LeClerk & Joslyn, 2015) and improve decision making (e.g. Roulston et al., 2006)

A main problem preventing a change is the notorious difficulty to communicate probabilities information to forecast users. This study presents results from a longitudinal observational study investigating which risk representations promote the use of probabilistic information within a real-life, operational setting. We implemented different formats of communicating probabilistic weather warning information within the fire brigade information system (FeWIS) of the German National Weather Service DWD. By analyzing web usage and search behaviour, we quantify (1) which representations are relied upon under real operational constraints and (2) which representations could aid emergency managers in their decisions. A case study comparing the behaviour during two severe storms and a 2 year statistics will be presented. An online survey of the users gives further information on the understanding and usage of the data.

The study is part of an interdisciplinary research project on the effective communication of weather warnings (WEXICOM) funded by the Hans Ertel Centre for Weather Research of the German National Weather service.