*Forecasting the weather
- ensemble techniques
in probabilistic weather prediction*

Optimised presentation methods for public understanding of probabilistic weather forecasts

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The communication of forecasts produced by ensemble prediction systems is one of the major challenges facing meteorologists today. Most ensemble output is not currently communicated to the general public, leading to a gap that is increasing over time between what information is computed and what is provided. Using an online game we explore communication methods, providing unique insight into the best methods of presenting probabilistic forecasts and the potential of these methods for improving public decision making.

Lack of public understanding is often cited as a reason not to present probabilistic information, as well as the difficulty in the actual presentation of this complex information. Many forecasters are also intimidated by the role of the media, and want to avoid these probabilities being interpreted as 'covering their backs' or an admission of professional inadequacies. Nevertheless many acknowledge that effective communication of probabilistic forecasts could be of benefit to the public by improving decision making as well as leading to a more widespread understanding of the process of weather prediction.

This work attempts to move towards a better communication of forecast probabilities to the public by developing and optimising different methods of presenting this complex information, as well as acquiring both qualitative and quantitative feedback on the potential of these methods for improving decision making.

In spring 2011 the UK Met Office launched an online game where players were asked to make decisions based on randomly assigned methods of presenting probabilistic weather forecasts, and state their confidence in these decisions. From this we were able to assess differences in decision making between those provided with deterministic or probabilistic forecasts, as well as determining the effectiveness of different presentations. We also explore how these results vary with different demographics.

Our conclusions provide unique insight into the best methods of presenting probabilistic forecasts, as well as lessons learned when designing presentation tools and testing user understanding.