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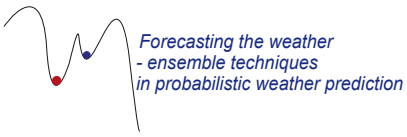

Lost in complexity: how probabilistic forecasts can fail to elicit an appropriate response

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Good weather forecasts are often understood as a one-way process whereby forecasters disseminate their predictions to non-scientists using state-of-the-art forecasting techniques. However, as has been demonstrated, technological advances in forecasting complex atmospheric phenomena are worth little if they are not understood by forecast recipients or even more importantly, if they are used incorrectly by specialised users such as civil protection authorities in the context of a crisis. This paper explores these questions about whether, in actual practice, the longer time horizons and additional probabilistic information provided by Ensemble Prediction Systems (EPS) lead to earlier and better prepared response from those charged with managing weather related hazards. By drawing on political sciences to recast the warning-response problem, we define various discrete steps of reception-attention, acceptance, and action in which a break-down may occur. This explanation allows us to demonstrate that it is important to comprehend the role of all actors involved in the production, dissemination, reception, interpretation and use of forecasts rather than exclusively looking at finding ways to better educate non-scientists about atmospheric sciences. This is because the development and delivery of effective communication strategies require not only knowing how forecasts are understood cognitively, but also, appreciating the institutional factors shaping whether and how they are responded to.