

On the Risks of Miscommunicating Risk in Decision Support and Policy

Effective decision support requires both the communication of information and the communication of how reliable and relevant that information is. In environmental forecasting, information on risk and uncertainty is of significant value to a wide variety of users, ranging from the person-in-the-street, to industrial managers, and on to government policy makers. In the long run, effective risk communication must account for the fact that users will alter their usage of information based upon how it was phrased in the past and what actually happened. This holds both for severe hazard warnings and for forecasts of mundane everyday inconveniences.

Examples are drawn from CATS' experience with real-time industrial decision making and policy support. Questions of decision support change as the information content in forecasts fades; this is illustrated by considering time scales of days (weather), months (seasonal forecasts) and decades (climate modelling). Our aim is to inform users of current known unknowns, both due to the phenomena of interest and due to limitations of state-of-the-art models, in a constructive and informative manner. Examples include the safety of offshore platforms, likely energy sector impacts from uncertainty in today's weather forecast(s), and attempts to bound our uncertainty of likely climate change.

Most users can take advantage of quite sophisticated information if it communicated in the context of their interests; arguably we are not over-delivering to recipients beyond their capabilities to respond nearly as often as we risk over promising what can be delivered, and many users correctly reinterpret statements of risk in light of this fact. Expectation management, effective communication of the relevant uncertainties, and mitigation of the impacts of perceived forecasts "busts" provide primary targets for significant future improvement in communicating risk.

MG Altalo & LA Smith (2004) Using ensemble weather forecasts to manage utilities risk; *Environmental Finance*, 20:8

MS Roulston & LA Smith (2004) The Boy Who Cried Wolf Revisited: The Impact of False Alarm Intolerance; *Weather and Forecasting* 19:391-397

DA Stainforth et al (2005) Evaluating Uncertainty in the Climate Response to Changing Levels of Greenhouse Gases; *Nature* 433(7024):403