



## Communication and dissemination of probabilistic flood forecasts – final report

### Science Summary SC070060/SS2

A new report by the Environment Agency explores the potential users and uses of probabilistic flood warnings, looking at the need for and ways of communicating probability and uncertainty in flood forecasts and warnings.

Given that no probabilistic flood warnings have yet been made, it is difficult to establish what they might look like. However, surveys of those likely to receive such warnings suggest that end users would prefer probabilistic information displayed graphically, as symbols or in the form of a map together with text. Probabilities (that is, the likelihood of a flood occurring) expressed in percentage terms may be more readily understood than other formats.

When communicating probabilistic warnings, putting the forecast event in context with a recent event can improve people's understanding of the warning. However, there is only limited research on how the public and professional partners understand probabilistic information related to imminent natural hazards, though some evidence suggests that decision makers make better decisions when presented with probabilistic information related to hazards.

Focus groups were used to gain insight into the public's understanding of probabilistic warning information and its communication. Two workshops were held with professional partners in a similar manner, along with a series run for Environment Agency staff.

The report found that a "one size fits all" approach to probabilistic warnings would not be successful. All groups wanted to have more certainty about flooding in terms of when, where and how it was going to happen, something which they hoped could be delivered by a probabilistic flood warning. People said they would be keen to receive probabilistic flood warnings provided improvements in lead times and accuracy were made.

The report makes a number of recommendations, as outlined below.

Further work is required to establish what people think a probabilistic warning is going to deliver and the best way of generating these warnings to increase people's confidence in them. Given that the Environment Agency is developing probabilistic information, what role could this play in flood warnings?

The information content of the "Flood Watch" and "Flood Warning" codes should be revisited and possibly redefined if probabilistic flood warnings are to be introduced. The Environment Agency should ensure its staff are trained in and can cope with the additional information generated by probabilistic flood forecasts, and should encourage them to be open about the uncertainties in flood forecasting and warning with professional partners, businesses and the public.

The introduction of probabilistic flood forecasts should complement ongoing improvements to the hydrometric and flood forecasting networks. A forum should be set up with professional partners to work together on further developing probabilistic flood warnings.

Lessons learnt in the Environment Agency's Area Offices that have a close working relationship with professional partners should be shared nationally, as this will boost the successful uptake of probabilistic warnings by professional partners.

Different forms of probabilistic warnings should be developed by experts in communication and graphic design, in conjunction with the Environment Agency and the public. Comprehensive research will need to be carried out with the public to gain an understanding of how they might interpret these warnings.

The study shows that members of the public who have experience flooding would be receptive to probabilistic flood warnings. However, the Environment Agency should carry out further research with a broad range of the public to test probabilistic flood warning materials once these have been developed.

The research should include both people who have experienced flooding and others who have not, to see how their responses differ.

Further work should be carried out with the public to assess the most effective media via which probabilistic flood warnings can be distributed. Further work is also needed to understand how the public perceive “false” warnings in probabilistic terms and what effect this may have on their response.

Finally, the Environment Agency should consider the technical and operational impacts of providing a more localised probabilistic flood warning service than is currently possible.

This summary relates to information from Science Project SC070060 reported in detail in the following output:

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