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Challenges in communicating and using ensemble forecasts in operational flood risk management

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Following trends in operational weather forecasting, where ensemble prediction systems (EPS) are now increasingly the norm, a number of hydrological and flood forecasting centres internationally have begun to experiment with using similar ensemble methods. Most of the research to date has focused on the substantial technical challenges of developing coupled rainfall-runoff systems to represent the full cascade of uncertainties involved in predicting future flooding. As a consequence much less attention has been given to the communication and eventual use of EPS flood forecasts. Thus, this talk addresses the general understanding and communicative challenges in using EPS in operational flood forecasting. Drawing on a set of 48 semi-structured interviews conducted with flood forecasters, meteorologists and civil protection authorities (CPAs) dispersed across 17 European countries, this presentation pulls out some of the tensions between the scientific development of EPS and their application in flood risk management. The scientific uncertainties about whether or not a flood will occur comprise only part of the wider 'decision' uncertainties faced by those charged with flood protection, who must also consider questions about how warnings they issue will subsequently be interpreted. By making those first order scientific uncertainties more explicit, ensemble forecasts can sometimes complicate, rather than clarify, the second order decision uncertainties they are supposed to inform.