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The evolving role of the forecaster and data in the Scottish Flood Forecasting Service

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The Scottish Flood Forecasting Service (SFFS) was established in March 2011. It is a partnership between the UK Met Office and the Scottish Environment Protection Agency (SEPA) combining meteorological and hydrological forecasting skills. The SFFS produces a countrywide Flood Guidance Statement for responders that identifies the risk of fluvial, coastal and surface water flooding over a five day period. It also issues flood alerts to the general public on a regional basis up to 24 hours before a flood event. Both of these products are aligned, as far as possible, to the Met Office National Severe Weather Warning Service (NSWWS). Two years on from its inauguration, this paper will review the evolving role of the forecaster and data in the SFFS partnership, particularly in light of rapid changes in deterministic and probabilistic Numerical Weather Prediction (NWP).

The paper will address three key areas, firstly the increasing quality and amount of data available to the flood forecaster to inform their decision making. It will explore how the forecaster is able to direct their attention to the most appropriate datasets and high risk areas using tools developed by the SFFS including deterministic rainfall guidance figures and probabilistic heavy rainfall alerts. Secondly it will look at where the forecaster is able to add value to the NWP by identifying circumstances where models are likely to perform poorly or by incorporating information about existing catchment conditions and ongoing impacts. Finally it will review the decision making process including the use of probabilistic data, particularly with reference to the Grid to Grid distributed hydrological model developed by CEH Wallingford and ensemble rainfall predictions from the Met Office MOGREPS system. These three areas will be illustrated using recent case studies of flood events in Scotland involving flooding from fluvial, snowmelt and surface water sources.