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Flood early warning along the East Coast of Scotland and the Storm of December 2012

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Flood warning is at the heart of improved approaches to flood risk management in Scotland. The Scottish Environment Protection Agency (SEPA) is committed to reducing the impact of coastal flooding through the provision of reliable and timely flood warnings. They have specifically set out a programme of enhancing coastal flood forecasting through modelling and improved understanding of coastal flooding processes and improved approaches to wind and wave forecasting in coastal and tidal waters.

In 2011, SEPA commissioned a project to develop a flood forecasting and warning system for the Firths of Forth and Tay along Scotland's North East coast. The new approach to flood forecasting has just been implemented into the Flood Early Warning System (FEWS) (Cranston and Tavendale, 2012) to contribute to the real-time flood forecasting and warning service from November 2012.

The new system enables the prediction of coastal and tidal flooding and allows SEPA to warn people about potential flooding, using the latest advances in coastal modelling. The approach to the forecasting system includes: the transformation of tidal surge forecasts from Leith to 28 flood warning sites along the coast and inside the Firths of Forth and Tay; the transformation of offshore wave forecasts to inshore locations including the Firths of Forth and Tay; and the transformation of inshore wave forecasts to mean wave overtopping forecasts at six key communities at risk.

In December 2012, some communities along the east coast of Scotland experienced their most severe storm damage since the Great 1953 Storm. This paper will discuss how the flood forecasting system was developed and how the system was utilised in real time during the recent storm.

References

Cranston, M. D. and Tavendale, A. C. W. (2012) Advances in operational flood forecasting in Scotland. Proceedings of the ICE – Water Management, 165, 2, 79-87.