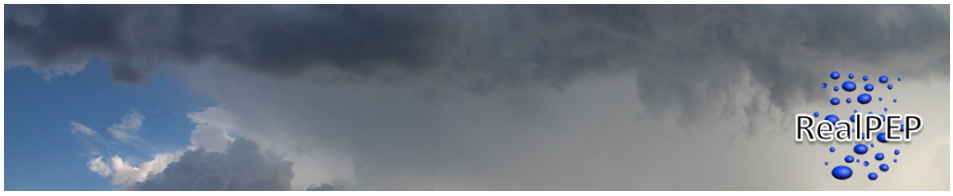

Contribution ID: **45** Type: **Oral presentation**

Turning convective forecasts into flood warnings that lead to action

Wednesday, October 7, 2020 11:00 AM (20 minutes)

Reliable and timely flood forecasts help improve flood preparedness and recovery. Unlike riverine and coastal flooding where forecasting methods are well established, surface water and flash flood forecasting presents a unique challenge due to the high uncertainties around predicting the location, timing and impact of what are typically localised events.

Thanks to the recent rapid development of convection-permitting numerical weather prediction, it is now theoretically feasible to develop operational surface water forecasting systems. However there remains a scientific limit to the predictability of convective rainfall. To overcome this challenge a re-thinking of the established role of flood forecasting is needed, alongside the development of interdisciplinary solutions for communicating uncertainty.

For scientists this means considering what information end users need to inform flood warnings, and then developing innovative solutions to meet those needs. Effectively closing the circle of the end-to-end forecasting chain while building understanding of uncertainty propagation. For example at what spatial scale to decision makers need warnings?, How much lead time do they need to take effective action?, What level of uncertainty are they prepared to accept in the forecast?

Based on experiences from the Flooding from Intense Rainfall (FfIR) programme and the development of operational surface water flood forecasts in Scotland, this presentation will categorise different approaches to surface water flood forecasting into three groups; empirical-based thresholds, hydrological forecasts linked to pre-simulated impact scenarios and hydrological forecasting linked to real-time hydrodynamic simulations at the urban scale. Using operational and near operational examples of such systems, it will consider how these approaches can make the best use of emerging scientific capability and meet the different needs of end users.

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Session Classification: Flash Flood Prediction