Pathways to designing and running an operational flood forecasting system: an adventure game!

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In the design and building of an operational flood forecasting system, a large number of decisions have to be taken. These include technical decisions related to the choice of the meteorological forecasts to be used as input to the hydrological model, the choice of the hydrological model itself (its structure and parameters), the selection of a data assimilation procedure to run in real-time, the use (or not) of a post-processor, and the computing environment to run the models and display the outputs. Additionally, a number of trans-disciplinary decisions are also involved in the process, such as the way the needs of the users will be considered in the modelling setup and how the forecasts (and their quality) will be efficiently communicated to ensure usefulness and build confidence in the forecasting system.

We propose to reflect on the numerous, alternative pathways to designing and running an operational flood forecasting system through an adventure game. In this game, the player is the protagonist of an interactive story driven by challenges, exploration and problem-solving. For this presentation, you will have a chance to play this game, acting as the leader of a forecasting team at an operational centre. Your role is to manage the actions of your team and make sequential decisions that impact the design and running of the system in preparation to and during a flood event, and that deal with the consequences of the forecasts issued. Your actions are evaluated by how much they cost you in time, money and credibility. Your aim is to take decisions that will ultimately lead to a good balance between time and money spent, while keeping your credibility high over the whole process.

This game was designed to highlight the complexities behind decision-making in an operational forecasting and emergency response context, in terms of the variety of pathways that can be selected as well as the timescale, cost and timing of effective actions.