Optimisation of Rainfall-Runoff Modelling for Urban Flood Management with Ensemble Radar Nowcasts

The results of the Ensemble Radar Nowcasts (Fig. 1) and the Ensemble Flood Forecasts (Fig. 3) are used to optimise the Flood Warning Service Hamburg (WaBiHa: http://www.wabiha.de) (Fig. 5).

Summary: Especially in urban areas, improved strategies are required to assess the influence of small scale precipitation patterns of local heavy rainfall events in a flood warning context. The results of the case study show a wide range of possible precipitation scenarios given by the radar nowcast ensemble members for a local rainfall event. This reflects the large uncertainty in predicting discharge curves. The first steps of the project StucK (2015 till 2018) are presented here: (1) developing a methodology to compute ensemble nowcasts of local heavy rainfall events, (2) integration of small scale radar rainfall nowcasts in a Rainfall-Runoff Model and (3) first approach with percentiles to optimize the Flood Warning Service Hamburg. Within the project different statistical approaches will be analysed to improve the online forecast system.