Comparison of short term rainfall forecasts for model based flow prediction in urban drainage systems

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ABSTRACT

Forecast based flow prediction in drainage systems can be used to implement real time control of drainage systems. This study compares two different types of rainfall forecasts – a radar rainfall extrapolation based nowcast model and a numerical weather prediction model. The models are applied as input to an urban runoff model predicting the inlet flow to a waste water treatment plant. The modelled flows are auto-calibrated against real time flow observations in order to certify the best possible forecast. Results show that it is possible to forecast flows with a lead time of 24 hours. The best performance of the system is found using the radar nowcast for the short leadtimes and weather model for larger lead times.

KEYWORDS

DMI-HIRLAM , forecast, numerical weather model, radar, runoff model,