



Using weather radar to optimise operation of an urban drainage system with distributed rainwater storage

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ABSTRACT

The perspective of controlling the local rain water storage tanks for a small catchment is investigated to evaluate if a predictive control reduces the CSO from the storm drainage system. A weather radar based nowcast system is used to predict the actual precipitation two hours ahead. In case of more than 1 mm rain - the control strategy is set to empty all rainwater storage tanks down to 50% capacity in order to capture a significant part of the approaching rain. This strategy is evaluated through simulation with the MOUSE model. Simulations of scenarios without local storage tanks and with passive local rainwater storage tanks are used as a reference. The results show that local rain water storage tanks reduce the CSO's by 50% and lower the maximal water levels in the storm drainage system. The active control clearly outperforms the passive storage strategy.

KEYWORDS

Drainage, modelling, urban, Rain water harvesting, SUDS, Weather radar, nowcast, MOUSE