

# **The Impact of Climate Change on a Small Urban Watershed by the Event Based Rainfall Runoff and Inundation Simulation**

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## **Abstract**

A general expected consequence of climate change is an increase of extreme rainfall intensities in short time based on theoretical reasoning. It is clearly possible that extreme short-term rainfall intensities will increase in the future, which will affect society in different ways. A very direct consequence would be an increased flow on urban river system. Problems with efficient dewatering following heavy rainfall events are not uncommon already today because of urbanization. Thus, urban river flow evaluation are required in many cities and a key issue in this situation is whether to take climate change into account.

Evaluation of climate change impact on urban river flow has been based on deign rainfall data because of lack of data availability so far. Rainfall data with high time and space resolution by the regional climate model has been ready to use in these days. There is little study to use such a high resolution data with evaluation on the urban river flow system.

In this study, event based storm runoff and inundation simulation were performed using as inputs from the regional climate model with 5 km space and 10 minutes time resolution of today's and future climate. The future storm generates more floods in the catchment. Visually the difference is not very dramatic, but it is possible that the additional flooding has a substantial impact depending on the type of buildings and activities in the flooded area.