

FLOODING SIMULATION FOR THE CITY CENTRE OF DRESDEN

Assignment

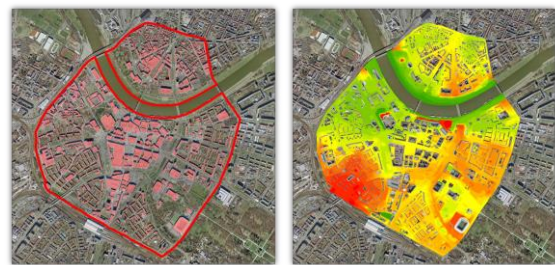
The Federal Ministry of Education and Research funded a project called REGKLAM (regional climate adaptation program for the model region Dresden). One aim was to identify the impacts of climate change on the overflow and flood behaviour of canalisation systems. Several progressive studies were undertaken for the city of Dresden to identify the main overflow and flood areas, and to determine their potential hazard in connection with climate change projections.

All findings were summarised in a finalising study. For this purpose, the evaluation of flood safety is exemplarily conducted in the city centre of Dresden (26th ring).

What impacts the estimated climate changes exert on the overflow behaviour of sewer systems is part of the risk analysis. Hereto, simulation results of various previous case studies are contrasted in a new load case study, with consideration to climate projection. For the review of the hazard potential of the, from the sewer system leaking, water, 2D overflow calculations are performed, as a linked calculation of the

sewer system (1D) and surface (2D) of the surveyed area.

For the assessed area, various adaptation strategies are exemplified, both conceptually and location-based. These strategies offer suggestions for customised measures against the negative repercussions from climatic change.



Study area with buildings and elevation model

Scope

- Setting boundary conditions and load cases
- Developing a 2D surface model
- Not stationary 2D flow calculation
- Evaluation of flood areas
- Creating hazard and risk maps
- Discussing strategies to reduce hazard potential
- Proof of possible strategies with the help of 2D simulations on example areas
- Developing specific recommendations to reduce hazard potential



Flooded areas in the assessed area

Short description

Client Stadtentwässerung Dresden GmbH

Project period 2012 - 2013

Fee 45.000 €

Parameters $A_E \approx 520$ ha; $L_{Kanal} \approx 88$ km; 350.000 triangular cells; 754 buildings

Characteristics

Hydrodynamic 2D-flooding simulation

Use of HYSTEM-EXTRAN 2D

Project number 40965

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