

Climate change scenarios
2 RCP (4.5 and 8.5)
6 GCMs and 5 RCMs (19 pairs)

Local extreme rainfall
Local IDF curve

Bias-adjustment of extreme rainfall by Quantile Delta Mapping
(Cannon et al., 2015; Padulano et al., 2019)

Output: Expected 1-hr rainfall intensity under 10 yr and 200 yr return period (total 76 scenarios)

Research questions

- ❖ How do flooding conditions change when extreme rainfall changes?
- ❖ To what extent does a service keep a certain operational level despite climate changes?

Parametrised processes

Constant infiltration
Sewer conveyance

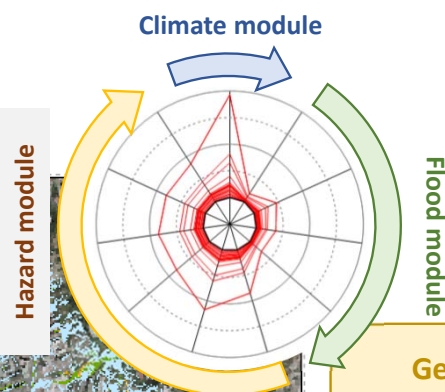
Soil features

2 mt DTM
Land Use Class map

CADDIES Caflood inundation model

(Gibson et al., 2016; Guidolin et al., 2016)

Output: Space- and time-dependent surface water depth D , velocity V , unit discharge U , total head H



Generalized hazard metrics
Runoff Volumes, Flooded Areas

Multi-purpose hazard models
Kramer et al. (2016), AIDR (2017), Kaspersen & Halsnæs (2017, adapted), Evans et al. (2020)

Output: Normalized runoff volumes and flooded areas; Normalized hazard classifications (normalization by current climate conditions)