

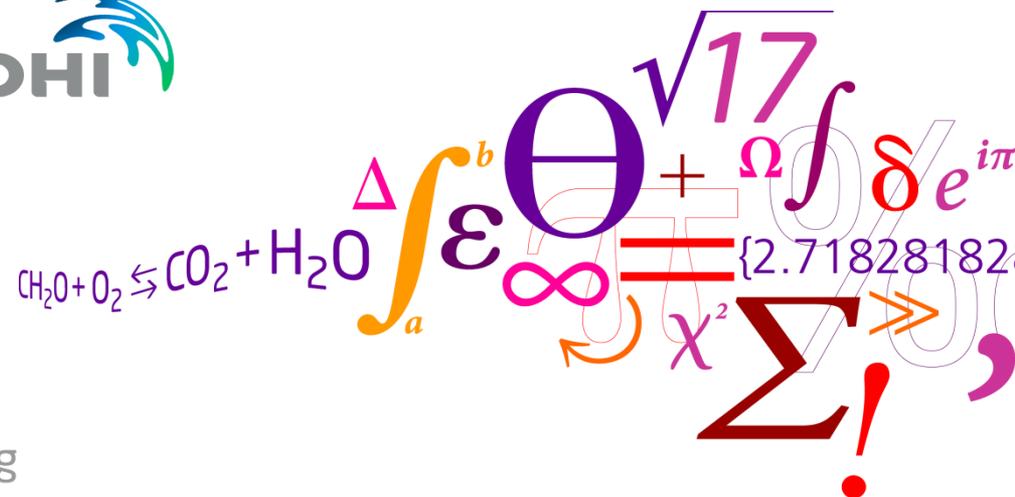
Modelling the impact of stormwater infiltration in Beder

Luca Locatelli, Britta Bockhorn

Phd Student

DTU - Environment

Philip John Binning, Knud Erik Klint, Ole Mark, Peter Steen Mikkelsen, Henrik Olesen, Niels Bischoff



DTU Environment

Department of Environmental Engineering

Aim of the project

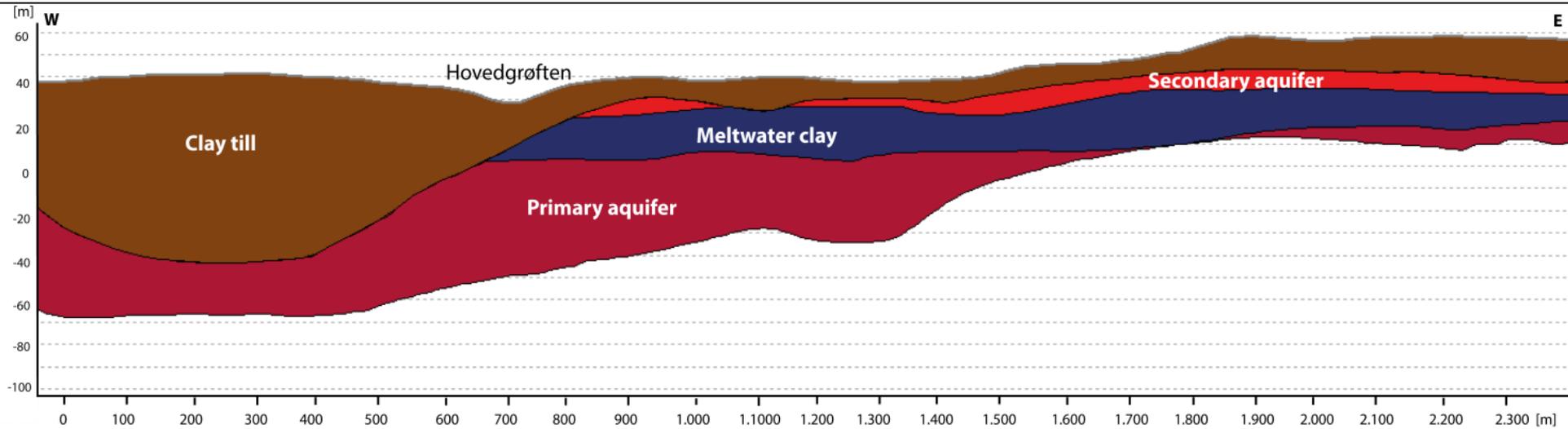
To model the impact of stormwater infiltration in Beder

- Does it pose a risk to the primary aquifer?
- How does it impact the water balance in Beder?
- Can it contribute to streamflow in dry periods?

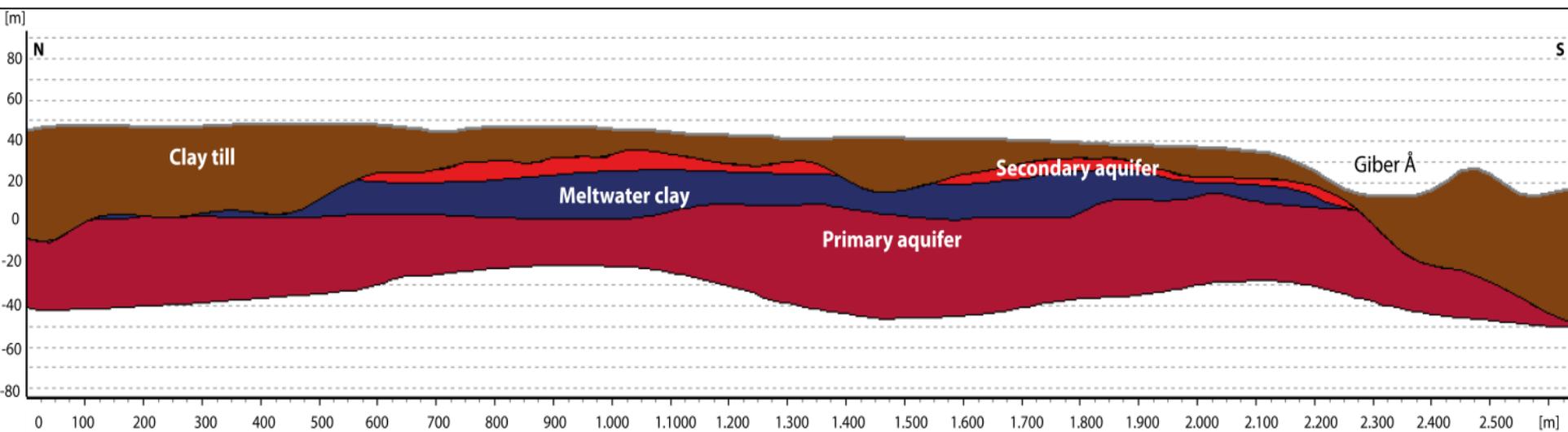


Cross sections

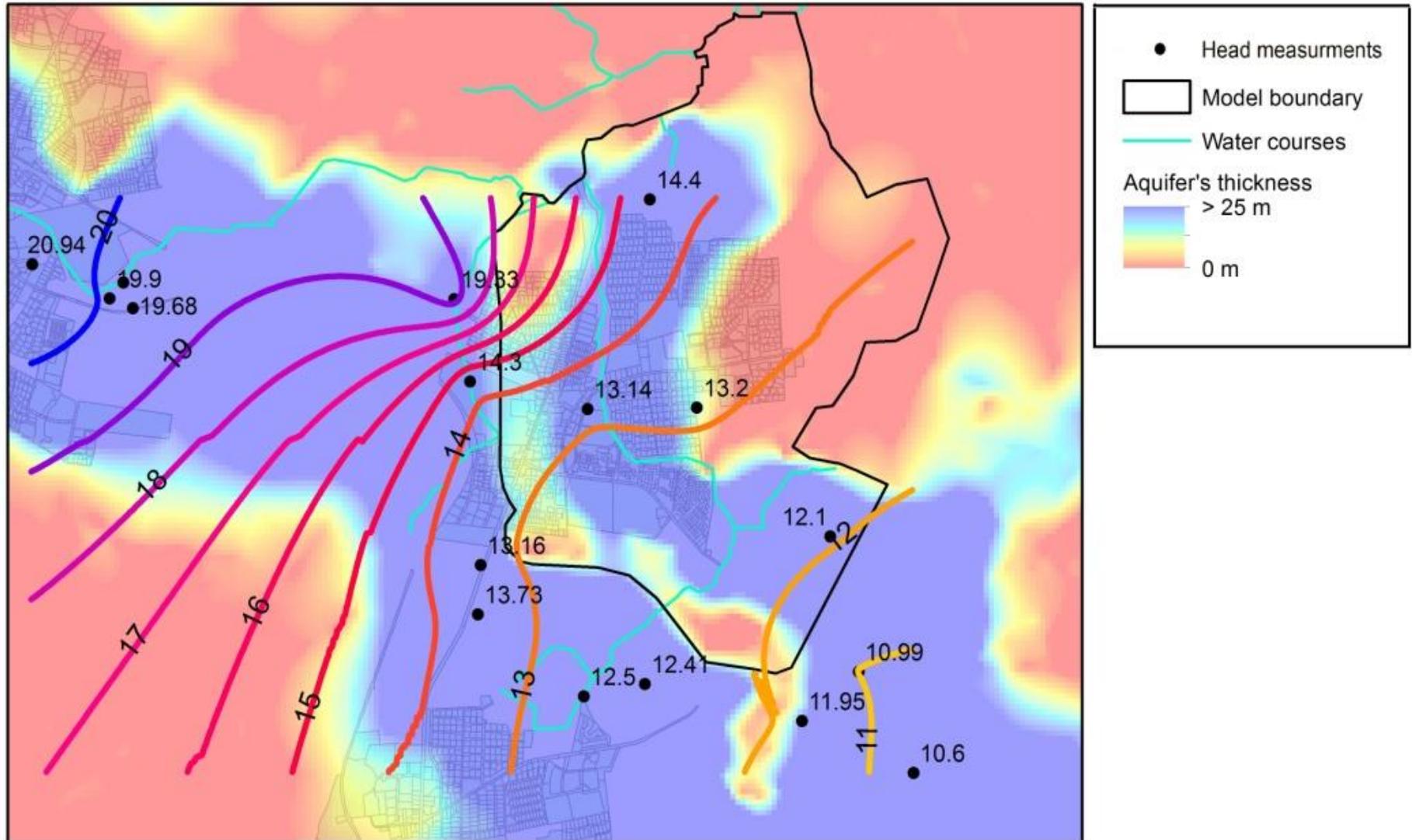
X-X



Y-Y

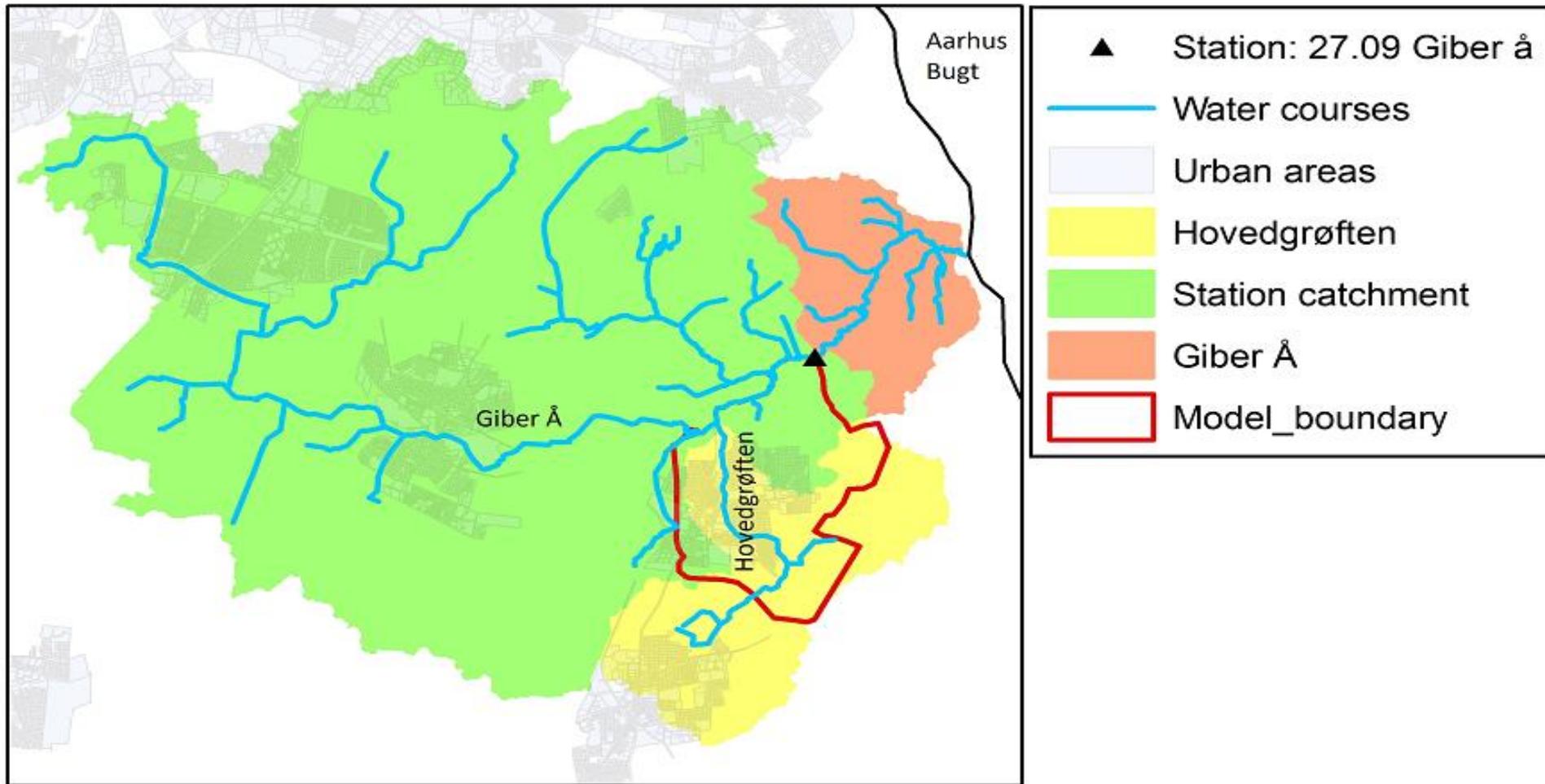


The primary aquifer



May-Oct 2003

Giber Å and Hovedgrøften

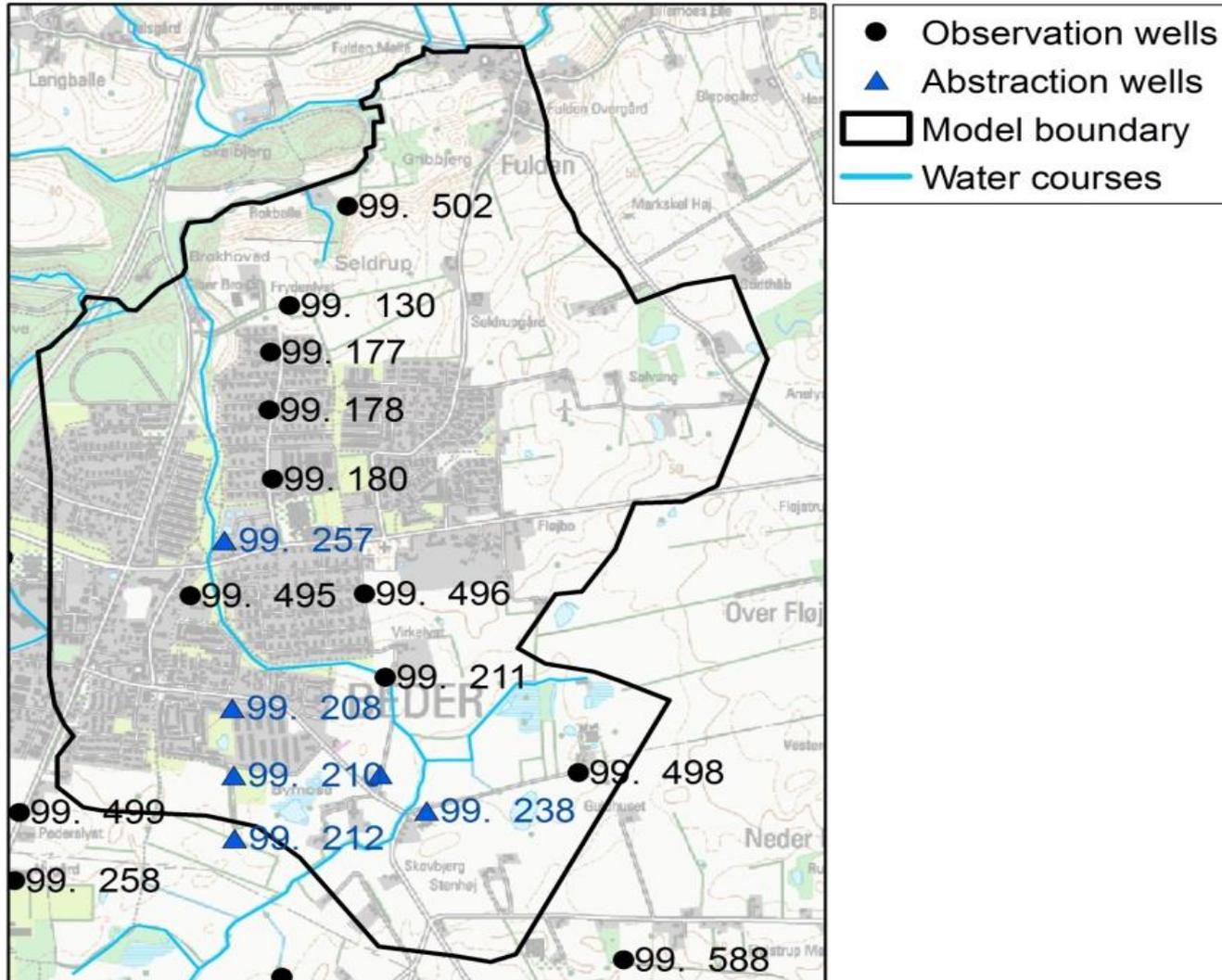


Giber Å catchment area = 51 km²

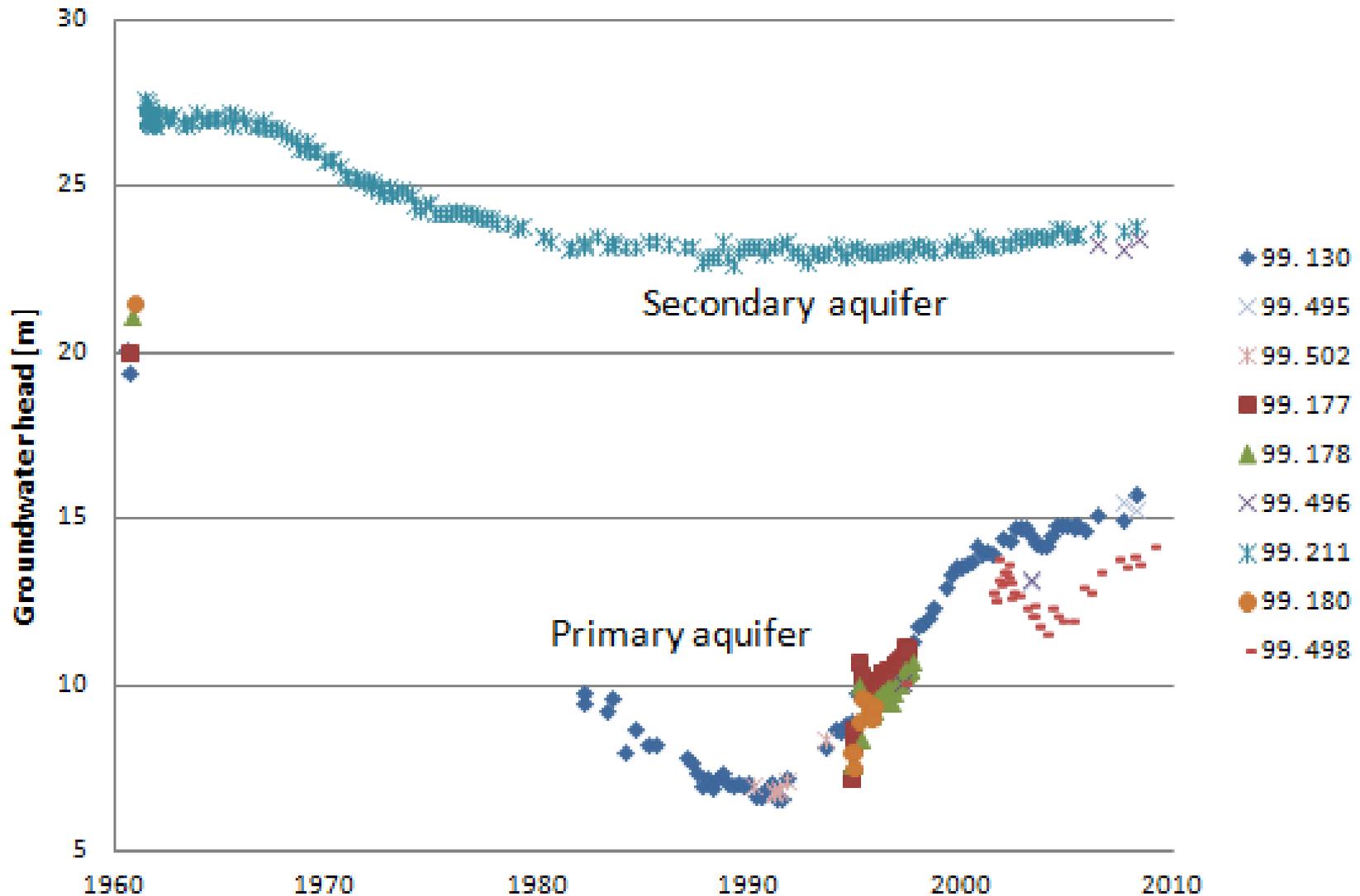
Hovedgrøften catchment area = 6.6 km²

Hovedgrøften is assumed to contribute 16.2% to the flow measured at the station

Observation and drinking water wells (1)



Observation and drinking water wells (2)



Method. MIKE SHE – MIKE 11

1. BASELINE scenario



Water balance

2. Realistic stormwater infiltration

6.8 ha (25% impervious)

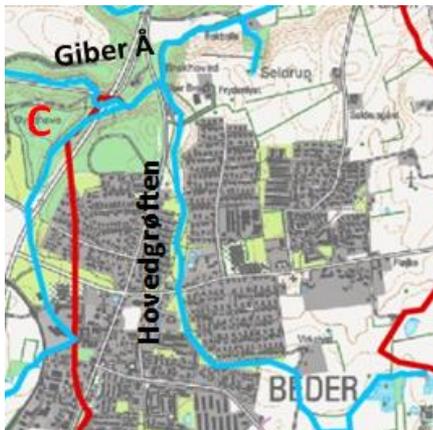


Water balance

+

Particle tracking

3. Potential stormwater infiltration



1.5 km² (25% impervious)

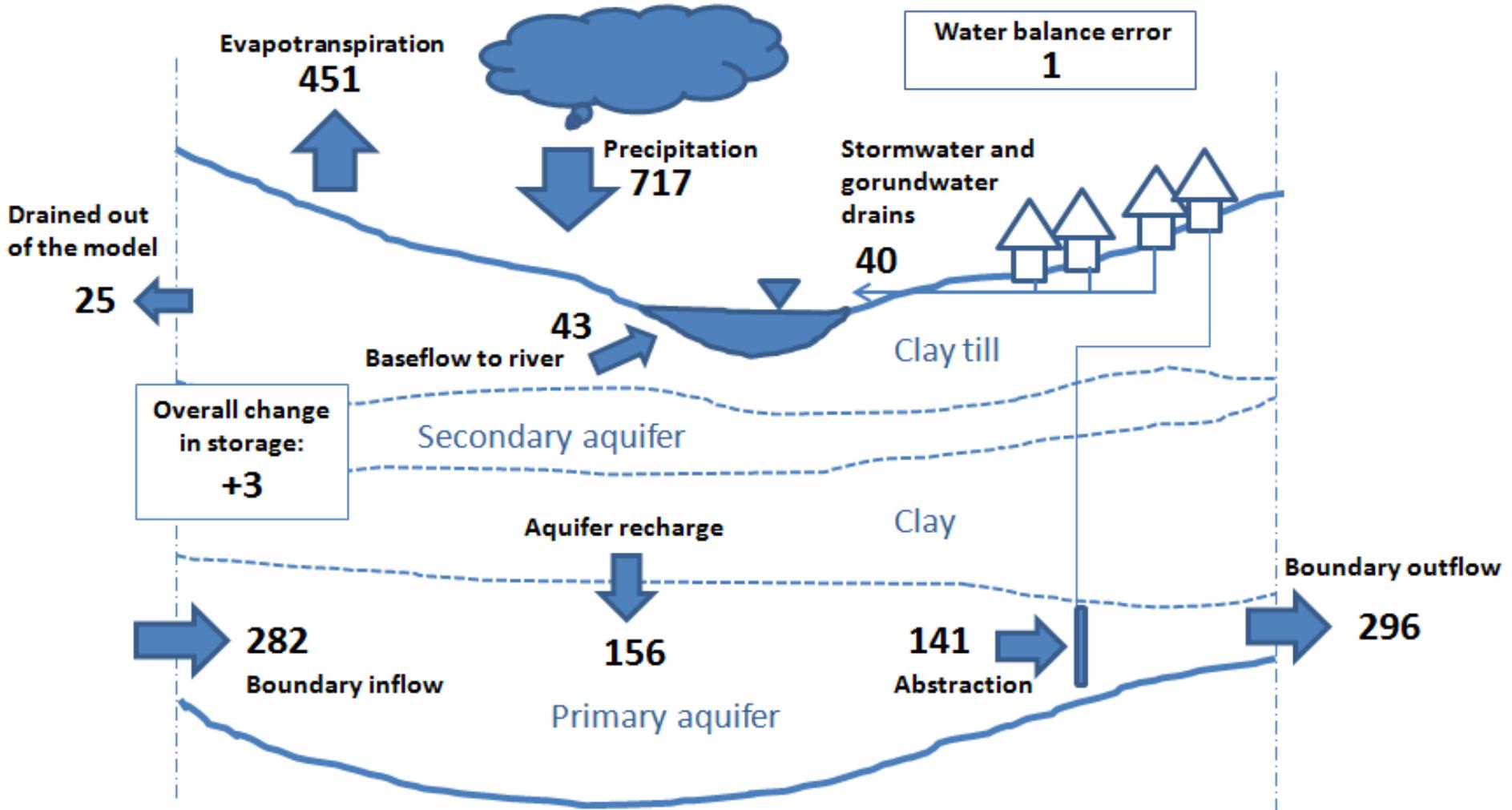


Water balance

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Stream flow hydrograph

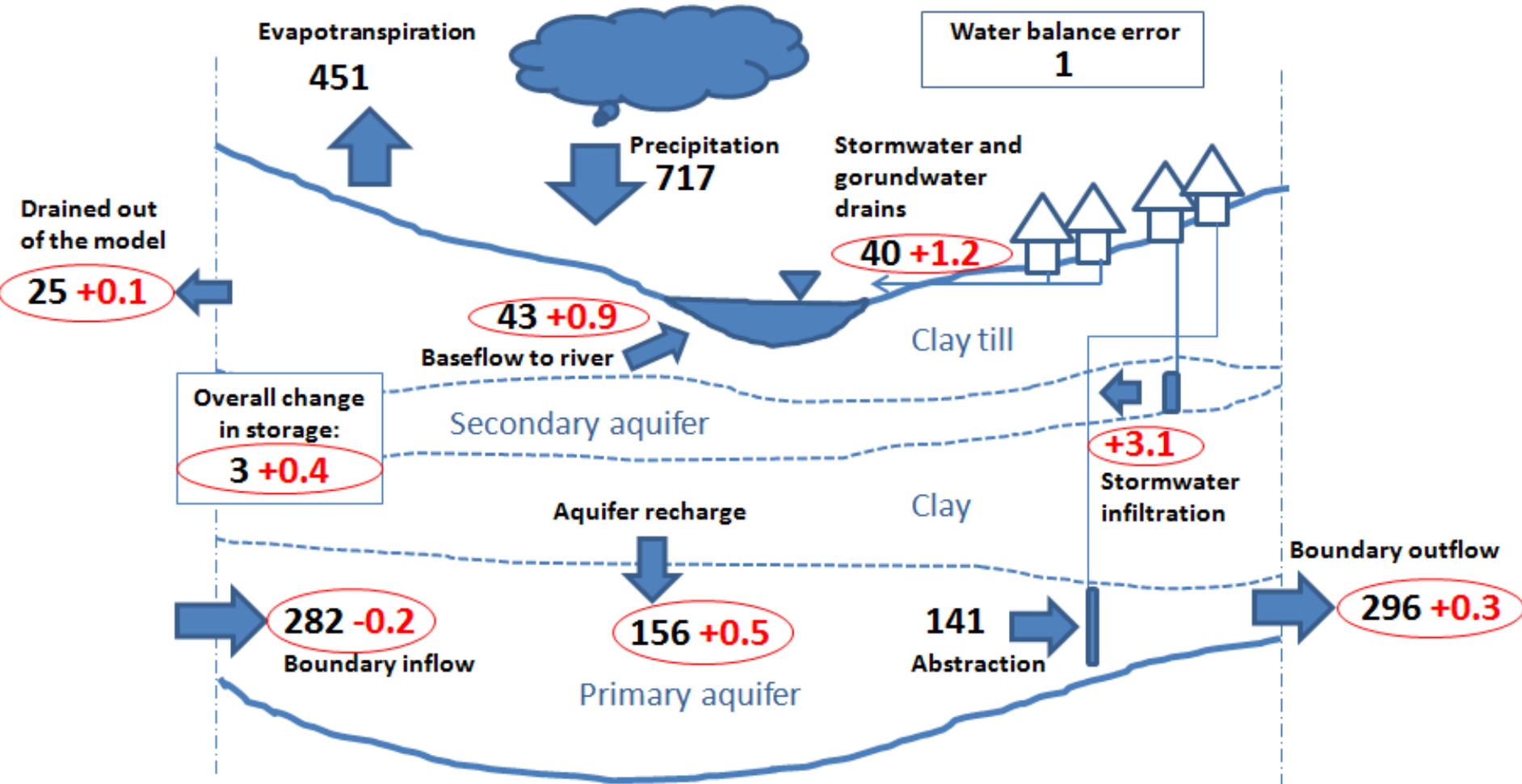
Results (1). Baseline scenario



5 years average water balance

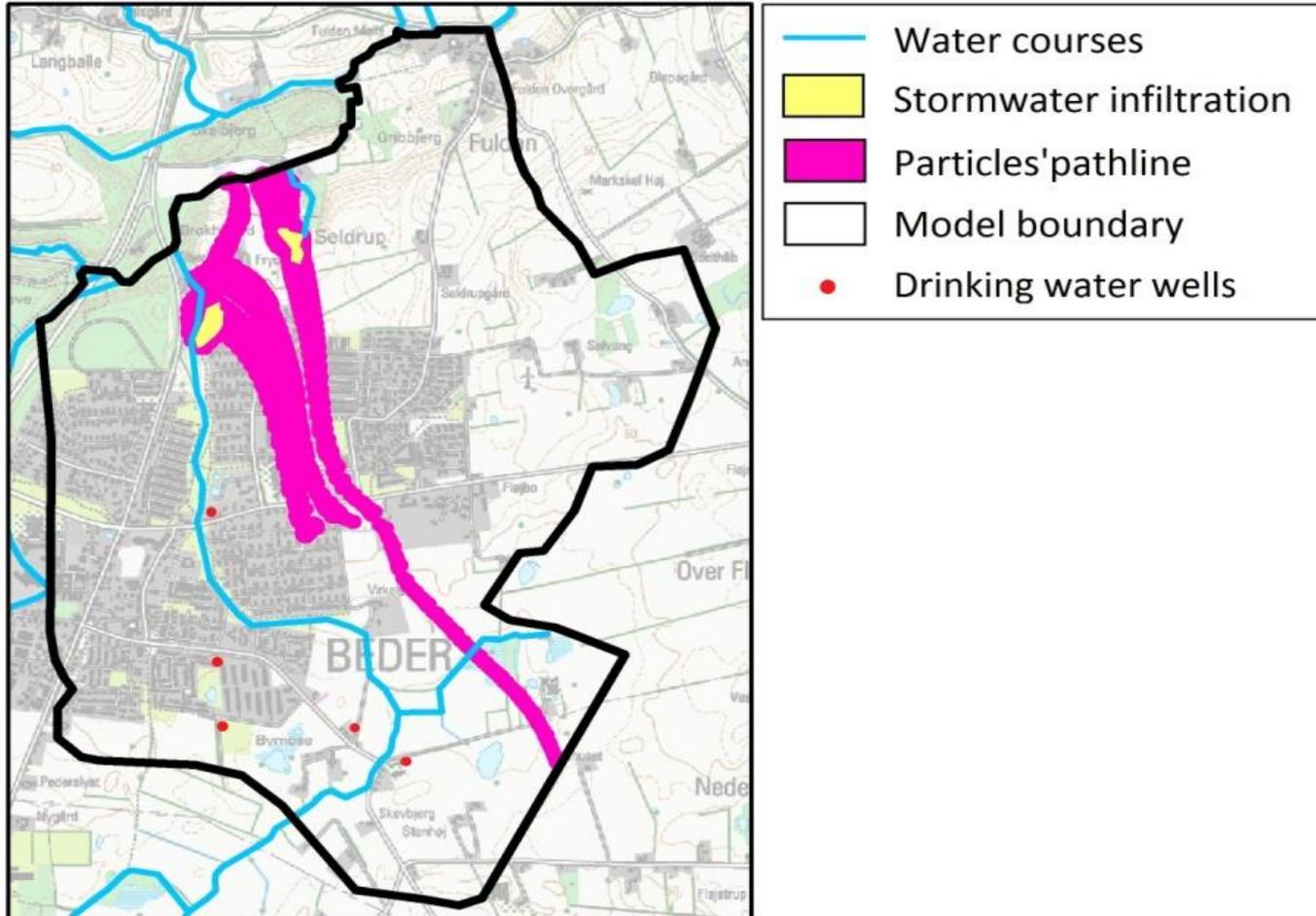
Results (2). Realistic scenario. Water balance

Infiltrated water: 67% to the stream; 16% to the primary aquifer



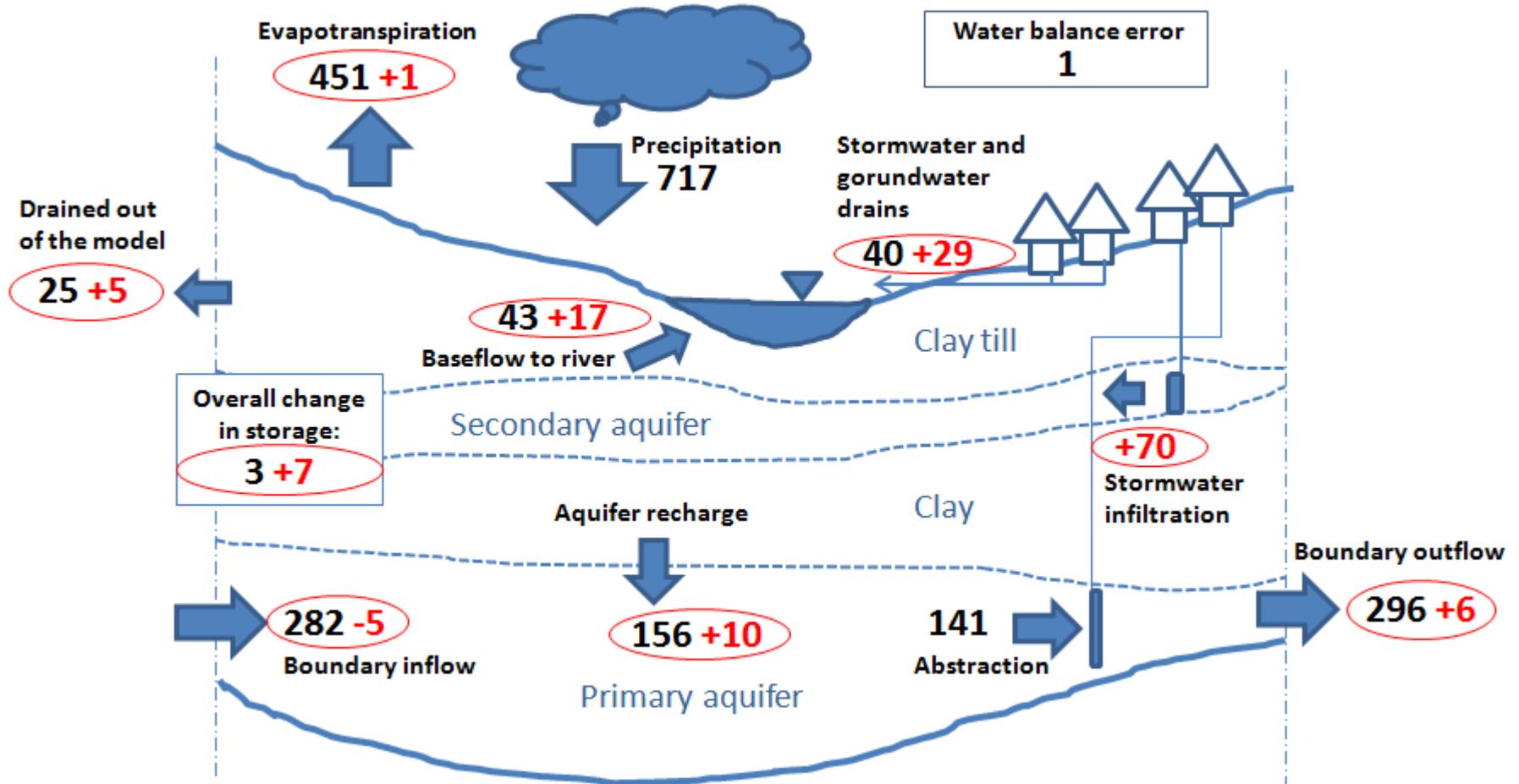
5 years average water balance

Results (2). Realistic scenario. Particle tracking



Results (2). Potential scenario. Water Balance

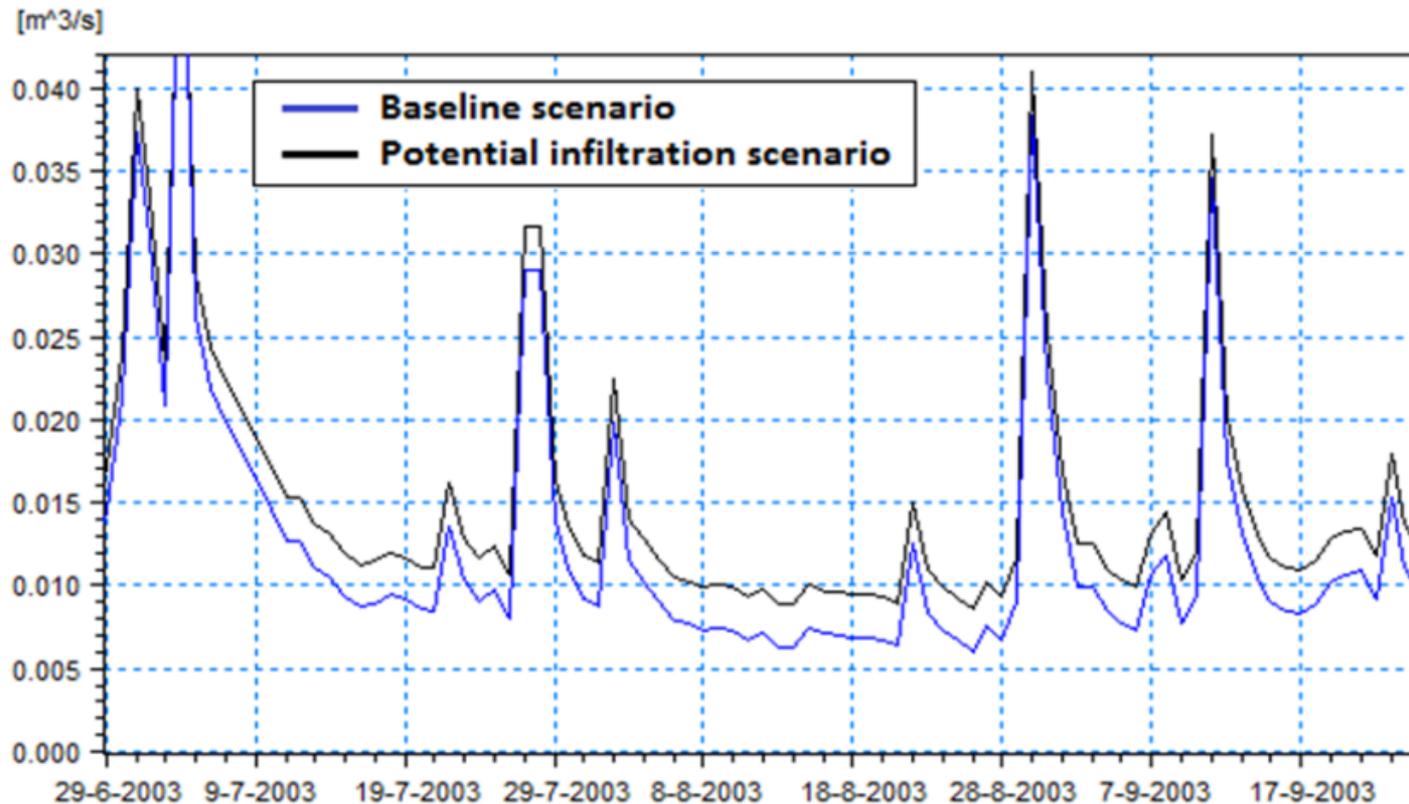
Infiltrated water: 65% to the stream; 14% to the primary aquifer



Results (2). Realistic scenario. Stream flow hydrograph

Summer 2003, the driest year after 2000

Hydrograph downstream Hovedgrøften



Up to 43% increase in low stream flow

Conclusions

Stormwater infiltration poses a risk to the primary aquifer.

The realistic infiltration scenario insignificantly affect the water balance and stream flow of Hovedgrøften.

Stormwater infiltration can contribute up to 43% of the stream flow during low stream flow periods.

65-67% of the infiltrated water reaches the river; 14-16% reaches the primary aquifer.

More widespread stormwater infiltration in the Giber Å catchment will likely contribute to streamflow during dry periods.

Thank you for your attention

Luca Locatelli
lulo@env.dtu.dk