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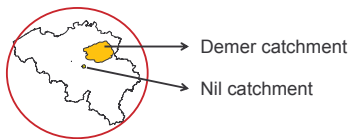
Objectives

The aim of the study is :

- to model the transfer of pesticides to the river at the catchment-scale
- to model the transformation of pesticides in surface water

Study area

- location



Nijl-catchment

- small basin
- area: 32 km²
- length: 14 km
- well documented

Demer-catchment

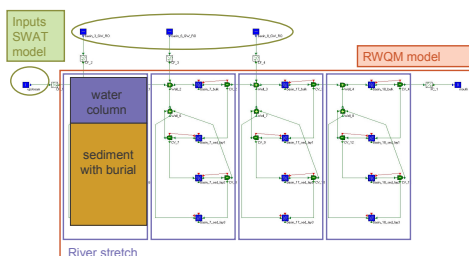
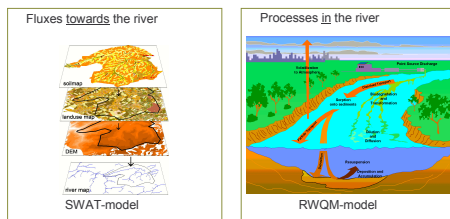
- large basin
- area: 2130 km²
- length: 85 km
- also fruit orchards (drift)

Monitoring

- 2004: Nijl: upstream and at the mouth, from 15 March – 15 June
- 2005: Demer: 3 upstream rivers and at the mouth: 15 May – 27 June
- composite water samples: 50 ml taken every 15 min. and mixed over 8 hours
- analysis of pesticides in solution and bound to suspended solids: atrazine, carbendazim, chloridazon, diuron, isoproturon, lenacil, simazine

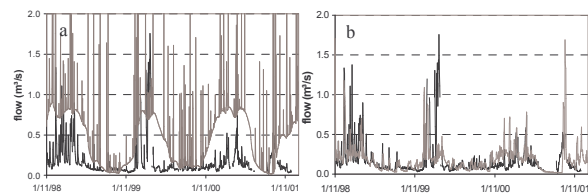


Modelling at the catchment-scale



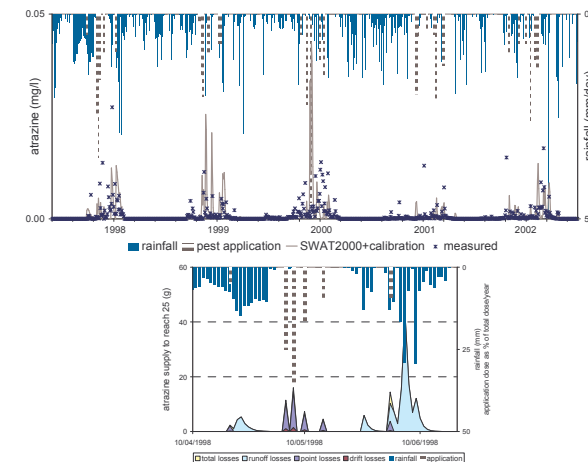
Results and Discussion

Hydrodynamics (SWAT)



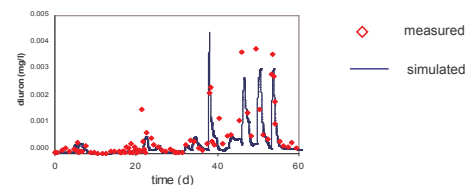
-> dynamic system, driven by rainfall/run-off (run-off parameters are most sensitive)

Pesticide transfer from agricultural fields to surface water (SWAT)



-> most important sources are point and run-off sources, drift is of minor importance

Pesticide behaviour in the river



-> importance of in-river processes is limited for the case studied

Lessons learned

- Water flow and pesticide behaviour at the catchment-scale could be modelled adequately using SWAT
- Run-off is dominating river water flow in this case
- Point sources are important
- Drift is relatively unimportant
- Attenuation in the river is more important for larger rivers