Geophysical Research Abstracts, Vol. 7, 05042, 2005 SRef-ID: 1607-7962/gra/EGU05-A-05042 © European Geosciences Union 2005



## Modeling of nutrient concentrations in a lowland river

D. Kneis, A. Bronstert

Potsdam University, Institute of Geoecology (dkneis@rz.uni-potsdam.de)

The application of eco-hydrological catchment models for the assessment of nutrient emissions from river basins under variable management is a common practice. With the implementation of the European Water Framework Directive (WFD) it has become more important to focus on the quality of individual water bodies. However, the representation of individual water bodies in catchment models is often poor. This is especially true for regulated rivers and river lake systems with their specific hydraulic characteristics and a unique behavior with respect to nutrient retention. In order to bridge this gap, a simple and robust nutrient transport model was developed by the joint research project 'Management Options for the Havel River Basin'. The model called TRAM was applied to a typical stretch of the river Havel (northeast Germany) to simulate concentrations of total phosphorus and nitrogen depending on external loading from adjacent watersheds. It is adapted to lowland river systems with low water surface slope and shallow interconnected lakes. The coupling with catchment models as well as parametrization and visualization are facilitated by GIS. The contribution will present basic concepts of the TRAM model and results of its first application. The focus will be on the pros and cons of the model approaches and the quantification of N and P retention in the river section under investigation. Furthermore the results of a WFD-oriented impact analysis will be presented, giving insight into the relation between catchment management and nutrient concentrations in the river.