



## **Application and comparison of two different phosphate models (SWAT and MEPhos) - the Weiße Elster case study (Germany)**

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Two phosphate models varying in model complexity are applied to the mesoscale river basin of the Weiße Elster (5200 km<sup>2</sup>) and results are compared. The overall aim is to analyse the applicability of the models for heterogeneous river basins due to natural conditions and degree of urbanization. Aspects of scale, the varying model concepts and the different data requirements will be taken into account. The models to be compared are the physical model SWAT, developed at USDA and used at the Umweltforschungszentrum in its department for hydrological modelling on one hand and the empirical model MEPhos developed at the Research Centre Jülich (Programme group Systems Analysis and Technology Evaluation) on the other hand. SWAT allows quantification of both sediment-bound and solved phosphate inputs with a high temporal resolution. The spatial discretization is based on geo-referenced sub-basins, subdivided into hydrological response units. With MEPhos P-entries from eight different diffuse and point sources are modelled on a raster basis or plant related resp. The model routines for the quantification of diffuse P-entries via erosion, wash-off, groundwater outflow and drainage use geo-referenced phosphotopes as spatial units below the sub-basin level. The comparison will be based on mean annual results for the period 1998-2003 and differentiate between various spatial aggregation levels (sub-basins, HRU and phosphotopes resp.) as well as between single input pathways.