

## **DISTRIBUTED SEDIMENT AND PHOSPHORUS TRANSPORT MODELING IN MEDIUM SIZED CATCHMENTS IN CENTRAL GERMANY**

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Current research suggests that strategies to control sediment and P loss from nonpoint sources should focus on the spatially and temporally dynamic areas within the catchment. Therefore nonpoint source models, especially in humid climatic regions, should consider variable hydrologically active source areas. These models should also be able to consider runoff generation by saturated overland flow as well as Horton overland flow. A combination of the hydrological model WaSIM-ETH and the erosion and P-transport model AGNPS was chosen for this study. The models were run in the WaSIM runoff generation mode (Topmodel and Green a. Ampt approach) and the SCS curve number mode to assess the effect of these different runoff calculation procedures on the computed total P yield. Two medium sized catchments in the lower Hessian uplands of Germany were selected for the present investigation. The results show that both runoff procedures compute reasonable results for the simulation of runoff volume for single runoff events at the catchment outlet. The spatial distribution of runoff and P yield producing areas within the catchment showed large differences according to the runoff generation method. The more physically based model approach computed a much more realistic distribution of water and P yield producing areas. These areas are concentrated near the stream in the case of high antecedent soil moisture conditions. In contrast the SCS curve number method produces more evenly distributed runoff and P yield areas regardless the antecedent soil moisture conditions.