

PhD project at the Hydrology Research Group

SCHEPP, CLAUDIA

The dynamics of Matter Fluxes in Small Catchments and their Relevance for Nitrogen Supply in an Agriculturally Used Inland Valley Wetland in Uganda

Keywords: soil nitrate dynamics, nitrate transport, interflow, Birch effect, Uganda, inland valley wetlands

This PhD-research project focusses on the dynamics of nitrate mineralisation and transport into an agriculturally used inland valley wetland in central Uganda. It is embedded in the GlobE research project “Wetlands in East Africa- Reconciling Future Food Production with Environmental Protection”.

Limited availability of fertilizers in subsistence agriculture makes a comprehensive process based management of nutrients a substantial matter. This thesis aims to investigate the contribution of the surrounding valley slopes to the nutrient pool of an inland valley wetland at different spatial and temporal scales. In a first step nitrate concentration in the soil solution and in the interflow is measured at the plot scale during the transition periods between rainy and dry seasons to account for the so called “Birch-effect”. The results are then related to land use as well as soil properties and environmental conditions. Afterwards upscaling will be done using numerical modelling in order to account for the contribution of the entire catchment. The results are the basis for future agronomical management decisions regarding the conservation of soil resources while increasing the agricultural production for small holder famers.



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