

Master thesis at the Research Group of Hydrogeology

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Evaluation of groundwater level measurements in wetland piezometers, Tanzania and Uganda

Keywords: Africa, groundwater level measurements, falling-head permeability tests, defective seals, piezometers, piezometric error, hydrogeology, Tanzania, Uganda, wetlands

The presented master thesis is focused on the evaluation of groundwater level measurements in piezometers in Tanzania and Uganda. It is examined, if the installed piezometers are properly sealed. Defective seals entail a hydraulic connection with preferential flow paths between the aquifer and overlying deposits. Consequently, measured groundwater levels would not correspond to actual groundwater levels and hence, groundwater level data could not be interpreted correctly. Furthermore, defective seals would influence the quality of hydrochemical data due to vertical mixing processes. Subsequently, the aim of the master thesis is to identify the processes related to improperly sealed piezometers using groundwater flow modeling. Additionally, recommendations regarding the interpretation of groundwater level data will be given and hydraulic conductivities of the aquifers will be determined.

To calculate the hydraulic conductivities falling-head permeability tests were conducted in the context of a PhD-thesis (Beuel, unpublished). Based on these tests it turned out, that some of the piezometers are maybe improperly sealed. Hence, further tests will be conducted in June and July 2016 in Tanzania. Numerical modeling of water flow during the tests will be conducted to understand the processes taking place.



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