



Application of GPR within an artificial water catchment in NE Germany

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Ground penetrating radar (GPR) studies, which are integrated in a project of the Collaborative Research Center of the German Research Foundation (DFG SFB-TRR 38) 'Structures and processes of the initial ecosystem development phase in an artificial water catchment' have been carried out in order to survey the subsurface. The experimental catchment 'Hühnerwasser' is built up by mechanically deposited sediments reconstructing an initially emerged landscape. In order to monitor its geomorphological as well as ecofunctional evolution with time it is essential to incorporate comprehensive geophysical applications dealing with geomorphology and sedimentology of both surface as well as shallow subsurface. GPR was applied with adequate resolution to detect the primary deposition structures within the technogenically bedded sediments. By means of this evaluation subsurface structures can be interpreted with regards to their relevance in controlling soil water movement, slope hydrology, redox interactions, root distribution etc. Furthermore, alterations of these primary structures resulting from bio- and pedoturbation processes can be monitored. GPR was also applied because the survey needs to adapt to the special requirements of the SFB-project as the catchment system should only underlie 'natural' conditions and therefore not be altered by any implementations in the course of field investigation. Consequently, intrusive methods such as drillings or profiles are to be omitted. Methods of geophysical prospection hence constitute an indispensable tool in investigation of subsurface composition.