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# Heterogeneity of chemical and physical soil properties of an artificial catchment during initial soil formation

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The post-mining landscapes of the Lusatian lignite mining district in Eastern Germany offered the opportunity to construct an artificial catchment to study patterns and processes of ecosystem development from the point zero. The Transregional Collaborative Research Centre (SFB/TRR 38) investigates the structures and processes including their interactions within the 6 ha area of the artificial catchment 'Chicken Creek', which was left to primary succession.
Within this study processes of the initial pedogenesis of the sandy quaternary sediment of the catchment are investigated with respect to heterogeneity and dynamics of soil properties like leaching, decalcification, accumulation and formation of stable soil organic matter.
To get a first database to answer these questions and to characterize the initial conditions a geostatistical sampling was performed in August 2008. To capture structures certain areas were sampled by randomised selection of spatial higher resolution according to the geostatistical approach of nested sampling.
It was supposed that the first centimetres of the substrate surface play a main role in initial soil formation processes. Therefore, we focused our sampling design on the first three centimetres of the surface including the surface crust. At 192 sampling points disturbed and undisturbed samples of the surface soil were taken and all sampling points were documented photographically.
This contribution presents first results of soil characteristics in the artificial catchment 'Chicken Creek' and the heterogeneity of soil parameters like bulk density, soil skeleton content, pH, oxalate-extractable Fe and dithionite-soluble Fe, organic C and N contents and distribution of the natural stable C and N isotopes (13C; 15N).
To show dynamics in the development of soil properties in the initial phase of pedogenesis it is planned to repeat the sampling every two years.