MIGRATION, PRECIPITATION AND AGEING OF HEAVY METALS UNDER CHANGING REDOX ENVIRONMENTS IN A SHALLOW AQUIFER OF THE ODERBRUCH (NE GERMANY)

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The region of the Oderbruch is located in NE Germany at the bor-der to Poland about 60 km south of the Oder river estuary. It is the biggest river polder area in Germany (~ 800km2). The groundwater surface within the polder lies some meters below the water level of the adjectend Oder river. Hence river water infiltrates, spreading laterally and probably vertically into the polder aquifer. Along the laterally flow of the groundwater a redox zonation can be ob-served. Sequential extractions of heavy metals were carried out to improve the understanding of the mobility and remobilization be-haviour under changing redox conditions. Two transects with up to seven 2 wells were drilled to examine the development from the anaerobic aquifer to the drainage sink. To be able to distinguish between old an fresh precipitation and their mineral stability labo-ratory experiments were done with radioactive labelled heavy metals. Columns represented the reduced aquifer. They were connected with a sink under aerobic atmosphere, were the heavy metal precipitation occurred. Sequential leaching was done after several hours and month to investigate the mineral stability. It could be shown that the various flow regimes had their own schemes of sequential extraction patterns. The percentage within the 6 different extraction steps can be distributed to the specific redox environments. Using the radiotracer technique the ageing of the precipitates could be determined qualitatively and quantita-tively.