

## **ANALYSIS OF SOLUTE TRANSPORT USING ELECTRICAL RESISTIVITY TOMOGRAPHY: A FIELD-SCALE TRACER EXPERIMENT**

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A field-scale tracer experiment was conducted in a heterogeneous aquifer at Krauthausen, Germany, using a NaBr solution. The spatial and temporal evolution of the solute plume, as driven by natural hydraulic gradients, was monitored by multi-level sampling in several observation wells. In addition, the experiment was accompanied by electrical resistivity tomography (ERT), in order to investigate the suitability of such methods for the non-invasive assessment of solute transport at the field scale. ERT measurements focused on two inter-borehole image planes, where, based on its specific electrical signature, the temporal breakthrough of the tracer plume was monitored. Calibration of observed electrical effects using borehole concentration measurements allows conversion of ERT results to spatially continuous images of subsurface tracer concentration at selected time intervals. Quantitative analysis of the resultant set of pixel breakthrough curves provides access to additional properties characterising solute transport and their variability across the inter-borehole image planes.