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### **DC/IP Monitoring of Injected CO<sub>2</sub> in a Shallow Aquifer**

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Contamination of potable groundwater by leaking CO<sub>2</sub> is a potential risk of carbon sequestration. With the help of a field experiment, we investigate if DC resistivity and IP measurements can detect and image dissolved CO<sub>2</sub> in a shallow aquifer. For this purpose, we injected CO<sub>2</sub> at a depth of 5 and 10 m and monitored its migration using 320 electrodes on a 126 m × 20 m surface grid. In addition to the DC resistivity, we collected the full IP decay curves for all measurements.

We invert the DC resistivity data in 3D and image the geochemical changes induced by the dissolved CO<sub>2</sub> as a decrease in electrical resistivity for 120 days. The full IP decay curves for the main profile are inverted in 2D, in terms of Cole-Cole parameters, showing a signature of the CO<sub>2</sub> on the  $m_0$  parameter.

Water electrical conductivity (EC) sampling using 68 sensors in 31 wells was carried out during the entire experiment. The sampling allows for very good verification of the ERT results. Water EC and DC/IP results generally agree very well, with the water sampling showing some fine scale variations that cannot be resolved by the ERT.