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Soil moisture assessment within a retention ditch and a deep loosened soil using 2D electrical imaging

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The case study shows the application of electrical resistivity tomography to determine the moisture distribution within a retention ditch and a deep loosened soil. This method enables a minimal-invasive two-dimensional investigation of the subsurface using multi-electrode arrays. Results of the 2D electrical imaging show a higher moisture content of the deep loosened soil as compared to the conventionally machined soil. In the investigated retention ditch the water level was detectable in most cases and could be modelled adequately using the direct measurement values from the gauges. Benefits and limitations of the applied methods within this case study are illustrated and future potential for integrative research in soil science and soil hydrology using time-lapse measurements are discussed.