

**Electrical Resistivity Tomography (ERT) as a tool for the assessment of karst features
in carbonate aquifers.
Abstract n°2042**

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KEYWORDS: electrical resistivity tomography, fault zone, groundwater flows, karst

In the Mediterranean Basin, most of the groundwater resources are located in carbonate aquifers. In the Montpellier area, southern France, several regional faults affecting these carbonate reservoirs control the location of the main flow paths and thus the groundwater flow. These faults zones are characterized by a strong anisotropy of permeability, sometimes induced by an offset between compartments on both sides of the fault. Fluid flow generally occurs preferentially in the fault-parallel direction. Fractures located in the damaged zone of these faults, partly responsible for this anisotropy, are also at the origin of karst features development. Thus, to identify the main permeability components of such fault zones, it is essential to identify - (i) the structure of the damaged zone+ - (ii) the fault offset and, - (iii) the presence of karst features and their geometry. A methodology based on Electrical Resistivity Tomography (ERT) was thus proposed with this purpose. It allowed - (i) to highlight en-echelon fracturing in the studied fault-zones+ - (ii) to identify the presence of karst feature and - (iii) to precise their geometry. Though the fault was a priori considered as a conduit-barrier, we demonstrated that groundwater flow across the fault probably occurs due to the en echelon offset of the fractures and that karst features preferentially located along bedding planes control most of the flow.

