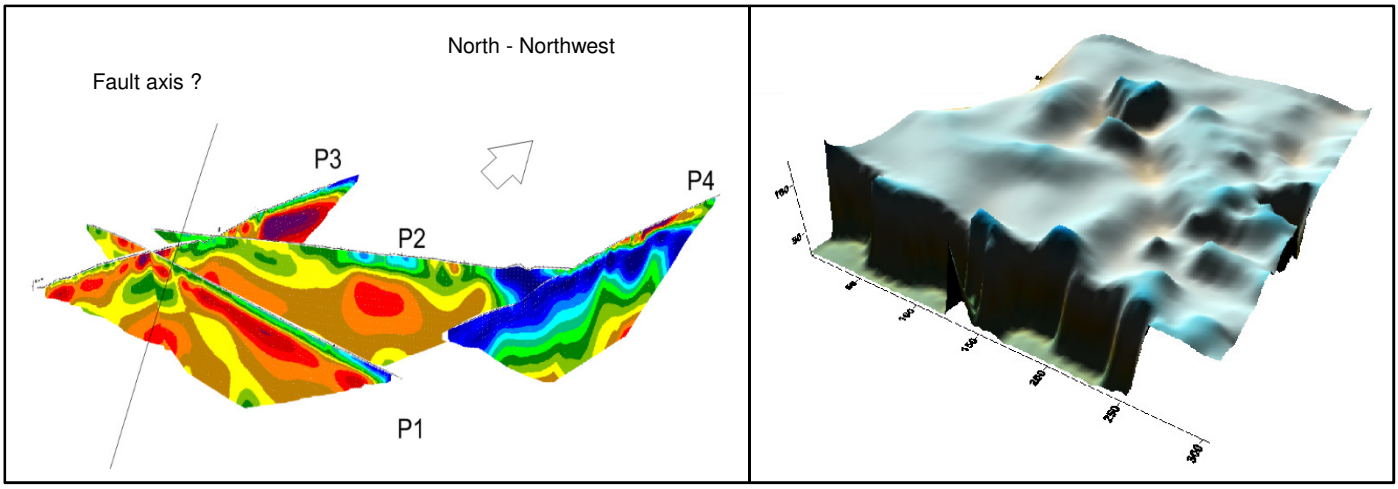
ELECTRICAL RESISTIVITY TOMOGRAPHY

AGAP Approval of Quality: Continuous Electrical Current
ASTM Standard D6431-99



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The method of electrical resistivity tomography (ERT) allows an exploration of the subsoil based on the measurement of electrical resistivity of the investigated fields.

Applications

- The applications of this method can be variable due to the different configurations that can be implemented (small or large depth of investigation, 2D or 3D device, etc.)
- The investigation depth, which can range from a few metres to a hundred metres, opens the range of application from the field of geotechnical engineering (location of faults or shallow cavities over large areas) to the hydrogeological or mining sectors (location of aquifers, volume calculations, etc.)

The measuring device comprises an array of sensors regularly distributed along a measurement cable. The injection of an electric current and the measurement of the difference in potential along the device allows a pseudo-section of apparent resistivity to be established. An inversion software then enables a model of the geoelectric section of the ground to be established.

The results obtained are presented in the form of a pseudo-section of electrical resistivity, showing the variations in lithology. Correlated with borehole investigations, this method provides accurate information on the lithology and structure of the ground over large areas, or along long lines.

Legend

1. Assembly of 2D electrical tomography (geological survey) and image of the top of a geological layer (limit of altered limestone/healthy limestone) by 3D electrical prospecting

2 et 3. Measuring equipment

Key figures

- Depth of investigation ranging from a few metres to over 150m
- High density of measures
- 2D or 3D measurement devices

SDG Equipment

- Light equipment
- Cable with regularly spaced multielectrodes
- Data acquisition centre
- Battery powered