

What is ERT?

Understanding ERT

Electrical Resistivity Tomography

Electrical Resistivity Tomography (ERT) is **geophysical suvery**, and therefore, it ener-gizes the earth in order to get some information about it. The main product of ERT is the visualization of the subsurface structure, and it achieve this by injecting a known amount of direct current (DC) at strategic points throughout an entire surface and measuring the resulting voltage on each of them, thus being able to calculate its re-sistivity (actually an **apparent resistivity**). Finally, as in every tomography method, we solve the **inverse problem** for our data, obtaining a visual representation of who casued the resistivity that we measured.

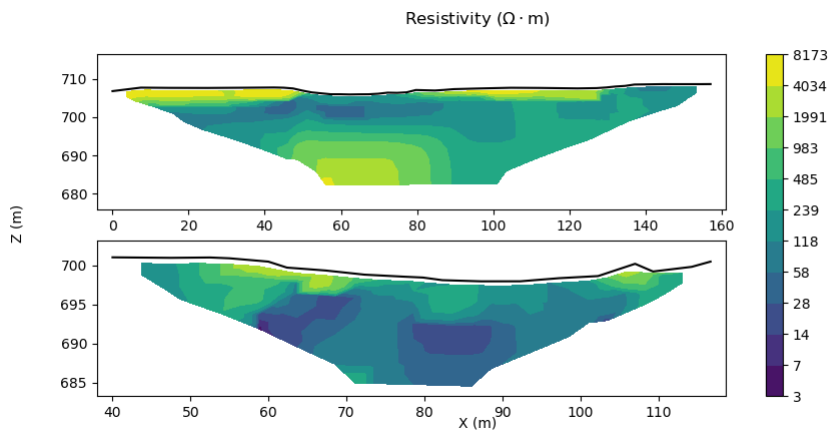


Figure 1: ERT plot from .xlsx data by [lhalloran/ERTplot](#).

ERT is applied as a non-invasive technique for geological or hydrological subsurface structure detection, to finding pollution leakages, and since the 1940s it's being used for mineral exploration¹.

This method demands simple equipment and provides good spatial resolution. The following document will discuss about some whys about ERT and its mathematical and physics principles.

Updating...

¹In the 1940s, Andrey Nikolayevich worked on solving the inverse problem for the not yet formalized ERT technique, managing to discover large deposits of copper without any help from computers.