

# Geotechnical Site Characterization in a Landslide Study in a Dam and Detection of Possible Cavities

A landslide in an area of a dam has happened affecting part of the existing main road corresponding to Pamplona – Cúcuta. It is important to know the possible presence of cavities in the area and saturated zones. The local geology corresponds mainly to Cretaceous sediments with the presence of clays and fine-grained sediments as well as to massive layers of limestone and marl. A 2D Resistivity Imaging study has been carried out to evaluate a problem of landslide in this area and the possible presence of cavities. SuperSting R8 RES/IP instrument with 56 passive electrodes at 5 meters spacing with Gradient array for data acquisition and EarthImager 2D software were used for data processing and inverse modeling. A large cavity below the dam has been found as indicated in the 2D Resistivity Imaging section with high resistivity values. Areas with saturated fine-grained sediments associated with low resistivity values have been correlated in the field.



**Objective:** Determine through 2D Electrical Resistivity Tomography, a landslide in a Dam which affects part of the existing main road corresponding to the Pamplona – Cúcuta and the detection of possible cavities .

**Survey site:** Municipio Vélez, Departamento de Santander, Colombia.

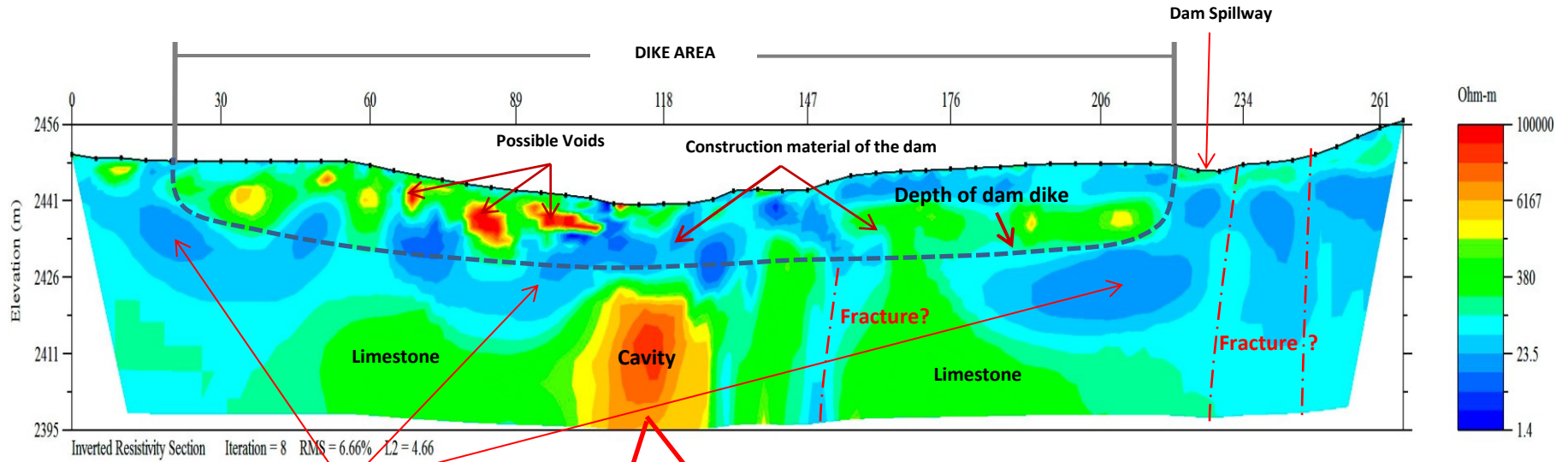
**Instrument:** SuperSting R8/IP/SP, 56 electrodes at 5 m. spacing, using Gradient array.

**Software:** Inversion of data using EarthImager 2D inversion software.

**Unit:** Meter and Ohm-m.

Data courtesy of

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Saturated fine-grained sediments

