

Underground Storage Impact

As part of a research project financed by the European Energy Programme for Recover, the IDAEA Barcelone laboratory of CSIC conducted a study on the CO₂ underground capture and storage impact.

The aim is the quantification of the structural modifications induced by a fluid injection into a fractured rock sample.

Customer's needs

The IDAEA team needs to simulate the reaction of a natural reservoir and evaluate its behavior following its contact with the greenhouse gas.

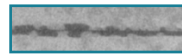
The team wants to study the fracture evolution by comparing the structure of the sample before and after the injection in order to characterize the interactions between the fluid and the rock.

Voxaya's analysis

Fracture (dissolution)

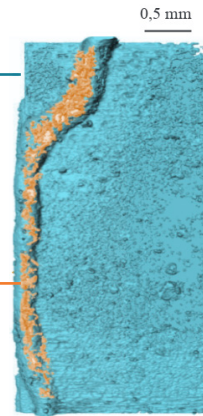
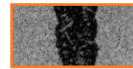
Porosity : Increase of 7%

Fracture aperture: 21 - 175 μm



Gypsum (precipitation)

4% into the wormhole



Customer's benefits

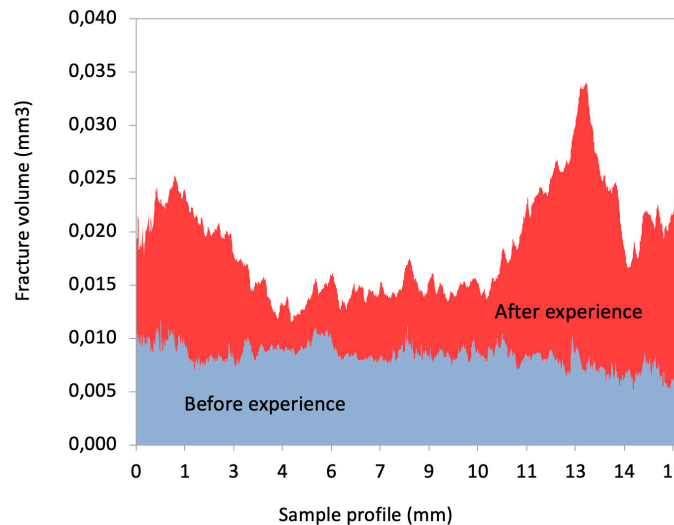
Faster results

Analysis of several fracture phases simultaneously with a non destructive solution.

Statistical and visual analysis

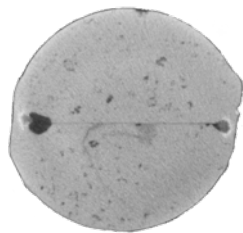
Location of the different structural changes (fracture dissolution and gypsum precipitation).

Fracture profile evolution



Discovery

Discovery of a phase that remained unidentified by laboratory analysis.



2D transverse fracture image

3D raw data image (3 scans to represent the fracture)

