



## **A potential Italian CCS site: site characterization and monitoring of Sulcis Basin (Sardinia).**

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The Sulcis Basin is an area situated in SW Sardinia (Italy) and is a potential site for the implementation of CCS in Italy. In fact, in the last years many studies were conducted to characterize the area and to define the baseline.

The “Miliolitico” has been identified as the potential reservoir and is composed by fractured carbonate, while the “Produttivo Fm.”, a sequence of clay, coal and marl, is the caprock. Above the “Produttivo Fm.” there is a thick volcanic sequence (more than 800 m) that could be considered also a secondary caprock. In the area of Matzaccara, the “Miliolitico” is below an alluvial plain and it is estimates that could reach a depth of more than 800 m.

To characterize the reservoir-caprock system there were conducted an extensive structural-geological survey, and more in detail a fracture analysis on all the Formation at the outcrop. With regard to the faults, it has been examined their architecture, and in particular the conduit-barrier behaviors. Moreover, to evaluate the theoretical capacity of the potential reservoir, we built a Discrete Fracture Model, using the fracture data collected at outcrop. So, we estimate a secondary porosity of about 3%.

As regards to the definition of geochemical baseline, it has been conducted both discontinuous and continuous monitoring of CO<sub>2</sub> and other gases. More in details, there were carried out a regional and a detailed survey, measuring the concentration and the flux of CO<sub>2</sub>. in that manner, it has been possible to identify potential migration pathways along faults and to define the position of continuous monitoring station. We developed small, low-power consuming, low-cost pCO<sub>2</sub> “GasPro”, to measure the CO<sub>2</sub> both in soil and water.

In the next months, it is planned to extend the monitoring network and to inject a little quantity of CO<sub>2</sub> along a fault in the Matzaccara plain.