Abstract

This work was made in the frame of the International Master Course of the Horizon 2020 ENOS project and in cooperation with Horizon 2020 CLEANKER project, as a basic part of Italian CCUS scenario (task 7.2 work package 7).

The investigated area is located in the Northern Italy in the Lombardia Region. The ViDEPI database allowed to define the caprock-reservoir system. The caprock has been identified in the Santerno Clay Formation, while the reservoir in the Sergnano gravel Formation.

3D geological model of the storage site has been reconstructed. In particular, using Petrel software (Schlumberger), the top and bottom surfaces of the reservoir have been determined and petrophysical properties have been populated in the model. The structure is a stratigraphic trap, potentially closed from two sides (N−NE), where the reservoir is declined.

The aim of the project was to estimate the CO_2 storage capacity of the structure. Two approaches have been used: optimistic and conservative. The average optimistic capacity is 24.8 Mt, while the conservative one is 9.91 Mt.

Furthermore, different scenarios for the three cement plants have been considered, evaluating also the possible CO_2 transport. The most attractive could be the two-plants scenario (Vernasca and Calusco), as the Malossa storage site will be enough for 18 years and injection and monitoring infrastructure could be shared. In addition to that, the vicinity of the CO_2 source to the storage site is favourable point for reducing the costs.