



Hydrogeological characterization and first CO₂ injection experiment in the Heletz sands Reservoir, Heletz (Israel)

Jacob Bensabat (1), Auli Niemi (2), Chin-Fu Tsang (2), Prabhakar Sharma (2), Jesus Carrera (3), Martin Sauter (4), Alexandru Tatomir (4), Iulia Ghergut (4), Philippe Pezard (5), and Katriona Edlman (6)

(1) EWRE Ltd., Environmental & Water Resources Engineering Ltd., Haifa, Israel (jbensabat@ewre.com, +972-4-8387621), (2) Department of Earth Sciences, Uppsala University, Uppsala, Sweden., (3) Consejo Superior de Investigaciones Científicas, Barcelona, Spain., (4) Department of applied Geology, Goettingen University, Goettingen, Germany., (5) CNRS-Montpellier, France, (6) School of Geosciences Edinburgh University, Scotland.

One the major components of the EU-FP7 funded MUSTANG project is to conduct a highly controlled series of CO₂ injection experiments, aimed at determining field values of key CO₂ trapping mechanisms such as dissolution and residual trapping and to establish a comprehensive and consistent dataset for model validation. Progress achieved in Heletz includes the completion of the instrumentation of the injection well and the installation of the CO₂ injection kit and the accompanying facilities on site, the conduction of hydraulic and tracer tests for the characterization of the hydro-geological properties of the reservoir and the starting of the first single well CO₂ injection experiment.

This paper presents the results of the hydraulic tests and water sampling, which have allowed refining our understanding of the reservoir hydrogeological behavior. This includes: 1) information on the chemical composition of the formation water; 2) a more representative estimation of the hydraulic conductivity and of the anisotropy; and 3) a relatively high content of suspended solids, which require and adequate abstraction policy. Additionally, it provides preliminary information on the monitoring of the single CO₂ injection experiment.