



## **3D Seismic Imaging of a Geological Storage of CO<sub>2</sub> Site: Hontomín (Spain)**

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A 3D seismic reflection survey was acquired in the summer of 2010 over the Hontomín CO<sub>2</sub> storage site (Spain), with the aim of imaging its internal structure and to provide a 3D seismic baseline model prior to CO<sub>2</sub> injection. The 36 km<sup>2</sup> survey utilised 25 m source and receiver point spacing and 5000 shotpoints recorded with mixed source (Vibroseis and explosives). The target reservoir is a saline aquifer located at approximately 1450 m, within Lower Jurassic carbonates (Lias). The main seal is formed by inter-layered marls and marly limestones of Early to Middle Jurassic age (Dogger and Lias). The relatively complex geology and the rough topography strongly influenced the selection of parameters for the data processing. Static corrections and post stack migration were shown to be the most important processes affecting the quality of the final image. The match between the differing source wavelets is also studied here. The resulting 3D image provides information of all the relevant geological features of the storage site, including position and shape of the main underground formations. The target structure is an asymmetric dome. The steepest flank of the structure was selected as the optimum location for CO<sub>2</sub> injection, where the updip migration of the plume is anticipated. A major strike slip fault (the South fault), crossing the study area W-E, has been mapped through the whole seismic volume. The injection position and the expected migration plume are located to the north of this main fault and away from its influence.