

RMS - Reservoir Management and Seismicity: Progress Reports

B. Müller*, A. Schöner***, F. Schilling**, M. Westerhaus**, K. Zippelt**, C. Lempp***,
T. Röckel****, C. Scheffzük*

*Landesforschungszentrum Geothermie Karlsruhe, **Karlsruher Institut für Technologie,
Universität Halle, *Piewak & Partner GmbH, Bayreuth

Abstract

With a sequence of posters, the DGMK project 776 (Reservoir Management and Seismicity) will demonstrate the results of 2 years of project activities. The project aims to investigate and understand the seismicity around the Söhlingen gas field. The goal of the proposed project is the quantitative and qualitative assessment of relevant factors as prerequisite for mitigation of production-induced seismicity by improvements in reservoir management using temporal and spatial control of reservoir pressures. Within the project the following approaches in different work packages have been used and first results will be presented: 1) Deduction of relationships between reservoir size, production rate, state of stress, pressure changes, subsidence and onset of seismicity based on experience in France, the Netherlands and the Altmark. 2) Test whether geodetic observations in Northern Germany can successfully record potential subsidence above gas reservoirs to provide information about compaction processes at the reservoir levels. 3) Investigation of geomechanical reservoir parameters on laboratory scale and stress-strain-conditions associated with pore pressure changes and 4) Using a deterministic approach we intend to estimate the maximum earthquake magnitude of induced seismicity resulting from compaction effects, stress changes in the reservoir and the size of fault planes which potentially are reactivated.