



Midget seismics in sandbox models

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Analogue sandbox simulation has been applied to study geological processes to provide qualitative and quantitative insights into specific geological problems. In nature, the structures, which are simulated in those sandbox models, are often inferred from seismic data. With the study introduced here, we want to combine the analogue sandbox simulation techniques with seismic physical modelling of the sandbox models. The long-term objectives of this approach are (1) imaging of seismic and seismological events of actively deforming and static 3D analogue models, and (2) assessment of the transferability of the model data to field data in order to improve field data acquisition and interpretation according to the addressed geological problem. In order to achieve these objectives, a new midget-seismic facility for laboratory use was designed and developed, comprising a seismic tank, a PC control unit including piezo-electric transducers, and a positioning system. The first experiments are aimed at studying the seismo-elastic properties of porous media to assess the possibilities and limits of seismic imaging of small-scale structures in sandbox models. Also, we have to compensate the differences in wave propagation between field experiments and our system setup to be able to compare both data records. Here, we will discuss the first laboratory set-up and initial models.