



Pre-Alpine evolution of the coastal Mecklenburg Bay (North German Basin) – high-resolution seismic analysis

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The pre-Alpine structural and geological evolution in the northern part of the North German Basin have been revealed on the basis of a very dense reflection seismic profile grid. The study area is situated in the coastal Mecklenburg Bay (Germany) in the southwestern Baltic Sea. A series of high-resolution maps from the central part of the North German Basin to the northern basin margin in the Grimmen High area show the evolution from the base Zechstein to the Lower Jurassic. We present a map of basement faults affecting the pre-Zechstein. The pre-Alpine structural evolution of the region has been determined by means of digital mapping of post-Permian key horizons traced on the processed seismic time sections. The geological evolution of the North German Basin can be separated into four distinct periods in the Rerik study area. During Late Permian and Early Triassic evaporites and clastics were deposited. Salt movement was initiated after the deposition of the Muschelkalk of the Middle Triassic. In the following, the salt pillows, which were previously unmapped in the area, are responsible for the creation of smaller subsidence centers and angular unconformities in Keuper of the Late Triassic, especially in the vicinity of the fault-bounded Grimmen High. In this area, partly Lower Jurassic sediments overlie the Keuper in an unconformity. The change from extensional to compressional in the regional stress field remobilized the salt, leading to a major unconformity marked at the Base Late Cretaceous.

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