

## CLAY MINERALOGY AND GEOCHEMISTRY OF EARLY JURASSIC SEDIMENTARY ROCKS FROM THE MOEZIAN PLATFORM, NORTH BULGARIA

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Clay minerals in Early Jurassic sequences of shales, siltstones and sandstones deposited in non-marine, transitional and shallow marine environments have been studied by X-ray diffraction, electron microscopy and chemical analyses to elucidate paleogeographic reconstructions of the area. The inferred model presents an example of the relationship between clay minerals and the environment of deposition and subsequent diagenetic modifications.

The inherited clay mineral composition of the fine-grained sediments reflects the influence of climate, relief, source rocks and depositional processes. Inhomogeneous clay mineral assemblages, comprising abundant kaolinite and varying proportions of illite, I-S, chlorite and vermiculite, characterize fine-grained sediments from the non-marine and transitional environments. In shallow marine depositional environments clay mineral assemblages are more uniform, dominated by illite+I-S with minor kaolinite and chlorite.

The principle diagenetic process affecting fine-grained sedimentary rocks was the smectite – illite transformation. In sandstones, the authigenic formation of kaolinite, chlorite and illite appears to have been primarily determined by the environment of deposition.