

Trace Elements in the Interpretation of Depositional and Paleogeographical Reconstruction.

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The theoretical aspects of geochemistry of trace elements and their ability for migration in the different forms depending on the chemical parameters of the depositional environment are discussed. The general factors controlling elements distribution and their ratios' variations in siliciclastic rocks from different facies of sedimentary basins are considered. Applicability of the trace elements for the interpretation of conditions of sedimentation and paleogeographical reconstruction is illustrated on the example of Vendian and Lower Cambrian sediments. The concentrations of 13 trace elements were determined in 900 samples of siliciclastic rocks from 65 drillcores and outcrops located in the north-western margin part of the East-European Craton. These deposits were formed during cyclically repeated transgressive and regressive phases of sedimentary cycles and presented by sediments from tidal to inner shelf facies. Contrast differences in the spatial distribution of chemical elements and their ratios' variations in deposits of different facies and different stages of evolution of sedimentary basins were established. The deposits of coastal facies formed in the initial stage of transgression are characterised by increasing of Ti, Zr and Co. In the deposits of deeper facies the accumulation of Mn, Cu and Pb is observed. In the sediments formed during transgression's maximum the enrichment by Pb, Cu, Mn, V and Cr is revealed. The ratios of V/Mn, Ni/Mn, Cr/Mn, Ti/Mn and Zr/Mn increase in the sediments accumulated during initial and regressive phases of sedimentary cycles. The obtained data may be used for interpretation of the depositional environment and stratification of studied sediments.