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OLIGOCENE BLACK SHALE DEPOSITION OF THE PARATETHYAN REALM (TRANSYLVANIA AND THE EASTERN CARPATHIANS)

🕒 11:15 AM - 11:30 AM

Abstract

At around 34 Ma, the palaeogeography of the Tethyan Realm changed due to the isolation of the Paratethys Realm from the Mediterranean. This modification is coeval with a climate change from an Eocene Greenhouse to an Oligocene Icehouse. In the Paratethys Realm, the sedimentation regime shifted from an Upper Eocene oxic sedimentation to a Lower Oligocene anoxic one. In both studied Romanian areas, i.e. Transylvania and the Eastern Carpathians, the Eocene turbidites sedimentation, composed of green and red shales interbedded with dm-thick sandstones, was replaced in the Lower Oligocene by hemipelagic sediments, i.e., bituminous marlstones and black radiolarites, followed by black shales. These rocks represent the main oil source rocks in the Eastern Carpathians. In the Upper Oligocene, the hemipelagites are replaced by turbidites, consisting of massive quartzous sandstones and cm-thick black shales and marlstones, regarded as the main reservoir rocks of the Eastern Carpathians. In the Transylvanian area, the Upper Eocene deposits (mainly part of a carbonate platform) are replaced by Lower Oligocene bituminous sediments; as their spatial development is very reduced, comparing with the Eastern Carpathians, their economic potential, as hydrocarbon source rocks, is lower. The change in the sedimentation across the Eocene-Oligocene boundary interval is accompanied by isotope $\delta^{13}C$ and $\delta^{18}O$ fluctuations. Their excursions show similarities with the global trend, but recorded also regional differences. To summarize, the change in the sedimentary regime at the Eocene-Oligocene boundary in the studied area is due to global factors, such as climate deterioration, from a warm and humid climate to a cooler and possibly arid one, and also regional factors, i.e., the isolation of the Paratethys and the regional tectonics.

Biography

Senior Researcher and Research Director at the Institute of Marine Geology and Geo-ecology and Professor at the Doctoral School of Geology, University of Bucharest. Specialized in micropalaeontology (nannofossils and calcareous dinoflagellates) and sedimentology. Over 200 published papers in the aforementioned topics.

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