



Palaeoenvironmental evolution of the Dacian Basin during the Messinian Salinity Crisis

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The thick and continuous Late Miocene sedimentary sequences of the Focsani Depression in the Dacian Basin form an excellent opportunity to study the palaeoecological changes in the Eastern Paratethys during the time when the Mediterranean experienced its Messinian Salinity Crisis (MSC). We have established a high-resolution ostracod biochronology for the Maeotian-Pontian-Dacian interval by integrating biostratigraphic and palaeomagnetic data, allowing a detailed correlation to the Mediterranean MSC events. The ostracod and mollusc fossil associations from the Ramnicul Sarat section indicate that the late Maeotian depositional environment was characterised by shallow waters and littoral to fluvio-lacustrine sediments, the lower Pontian – following a marine ingression at the Maeotian-Pontian boundary – was relatively deeper but not below the photic zone (< 100 m). This interpretation of palaeoenvironmental change is furthermore confirmed by the ubiquitous sedimentary structures that are exposed in the 7 km thick sedimentary succession. We found no evidence that the onset of MSC evaporite deposition (at 5.96 Ma) was reflected in the Dacian Basin, but the main MSC sea-level dropdown, occurring during middle Pontian (Portaferian) times (at 5.6-5.5 Ma), resulted in the re-establishment of fluvio-lacustrine conditions in the Dacian Basin. This suggests that the water level in the Dacian Basin dropped less than 100 m during Mediterranean desiccation, which would be compatible with the presence of a shallow barrier, separating the Dacian Basin from the Euxinian Basin and/or Mediterranean.