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ABSTRACTS BOOK



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ABSTRACTS BOOK

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MIDDLE MIOCENE BADENIAN – SARMATIAN SEDIMENTARY SEQUENCE IN THE AREA OF DONJE OREŠJE (MEDVEDNICA MT., CROATIA)

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In a quarry of Donje Orešje in eastern part of the Medvednica Mt., a sedimentary succession is exposed, with Cretaceous deposits in the base, and transgressively deposited Middle Miocene sequence in the upper part (ŠIMUNIĆ et al., 1982, KOROLIJA et al., 1995). Research area was, during the Miocene, a part of the Pannonian Basin System within the Central Paratethys. Cretaceous deposits are represented with pelagic biomicrites. Planktonic foraminifera *Globotruncanita elevata* Brotzen is indicative for the Early Campanian. Temporary input of reef debris indicates several storm episodes (SREMAC et al., 2005). Date shell (*Lithophaga*) borings in Cretaceous limestone and sporadic occurrence of coastal conglomerates mark the transgressive Cretaceous/Miocene boundary.

Middle Miocene deposits consist of seven meters thick succession of thin bedded horizontally laminated calcite rich marls and fossiliferous mudstones with rare intercalations of algal grainstone. Sedimentary features exhibit only minor oscillations, with domination of carbonate component (between 50 to 90%). Horizontal lamination is more common in the upper part of the sequence. Preliminary research of microfauna has shown a continuous transition from the Late Badenian to the Early Sarmatian within the lithologically rather uniform sequence.

Basal Miocene horizon belongs to the *Bulimina-Bolivina* Zone and exhibits general deepening of the sedimentary basin from the inner-middle shelf (*Asterigerinata-Cibicidoides-Cassidulina* assemblages) to the outer shelf (*Bolivina-Cassidulina* assemblage). Percentage of planktonic foraminifera varies from layer to layer (2-85%), indicating the oscillations of the sea level during the Late Badenian.

Early Sarmatian *Anomalinoidea dividens* Zone is marked by low-diversity benthic foraminiferal assemblage, with domination of species *Anomalinoidea dividens* (ŁUCZKOWSKA) and index ostracod species *Cytheridea hungarica* (ZALÁNY). Significant amount of species *Bolivina dilatata* REUSS, *Cibicidoides pseudoungerianus* (D'ORBIGNY) and *Cassidulina laevigata* D'ORBIGNY point to the transitional (Badenian/Sarmatian) character of this horizon, still with normal salinity.

Further shallowing-upward process results with faunal change associated with *Elphidium reginum* Zone. Diverse species of the genus *Elphidium*, together with *Ammonia vienensis* (D'ORBIGNY) and still abundant *A. badenensis* occur within this horizon. Significant amount of brackish taxa points to the possible sea-level drop and input of fresh-water into the basin. Brackish ostracods, present in amount of up to 15%, mostly exhibit robust, highly calcified carpaces, indicating the shallower and more agitated environment, than in *Anomalinoidea dividens* Zone.

Uppermost part of the sequence comprises the microfauna typical for the Sarmatian *Elphidium hauerinum* Zone, with predominance of the zone fossil *E. hauerinum* (D'ORBIGNY), associated with *E. josephinum* (D'ORBIGNY) and *E. obtusum* (D'ORBIGNY). Within this assemblage a slight, but important increase of disoxic and infaunal taxa can be observed, indicating the slight deepening of the basin and/or increase of the organic matter content within the sediment.



Microfossils are crucial for positioning of the Badenian/Sarmatian boundary. Sarmatian microfossil assemblages point to the decrease of palaeoecological proxies (P/B ratio, number of species, diversity indices) and raise of oxygen level at the sea-bottom (higher values of BFOI) in comparison with Badenian assemblages. Lower percentage of planktonic taxa (1–16%), together with other proxies, point to the inner shelf environment during the Sarmatian in the research area.

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PONTIAN REGIOSTAGE OF THE EASTERN PARATETHYS AND CONNECTIONS WITH MEDITERRANEAN AT LATE MIOCENE

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The Pontian as regional stratigraphic subdivision was proposed by BARBOT DE MARNY (1869, see PONTIEN, 1989). Stratotype and lectostratotype of the Pontian are situated in Odessa Town and include lower Pontian (Novorossian Substage) only. Neostratotype is Kamishburun Profile southward from Kerch Town, where ANDRUSOV (1889, 1917) subdivided Pontian to Lower – Novorossian, and Upper – Bosphorian substages with *Congeria subrhomboidea* beds between its. Later these beds often were called as the Portaferian beds. But originally this term was proposed by STEVANOVIĆ (1951, see PONTIEN, 1989) for the Pannonian Basin of Serbia, which isn't correlatable with the Eastern Paratethys Pontian successions. What is why we prefer to use Andrusov' term.

Lower boundary of the Pontian is marked by appearance of specific brackish Paratethys endemics among mollusks, ostracods, dinocysts (*Caspidinium rugosum*, *Galeocysta etrusca*). Nevertheless, oceanic diatom flora and nannoplankton, appeared here at the Late Maeotian, continue to meet. This boundary was dated 6.1 Ma by paleomagnetic data (TRUBIKHIN, see PONTIEN, 1989; VASILIEV et al., 2011) and by diatoms and nannofossils records (RADIONOVA & GOLOVINA, 2012). In accordance with our data there is a close correlation of Maeotian/Pontian boundary in DSDP Hole 380A and in the Zhelezniy Rog Section: in both sections established