

Challenges and Insights: Sequence Stratigraphy of Pannonian Coals in the Drmno Depression, Serbia

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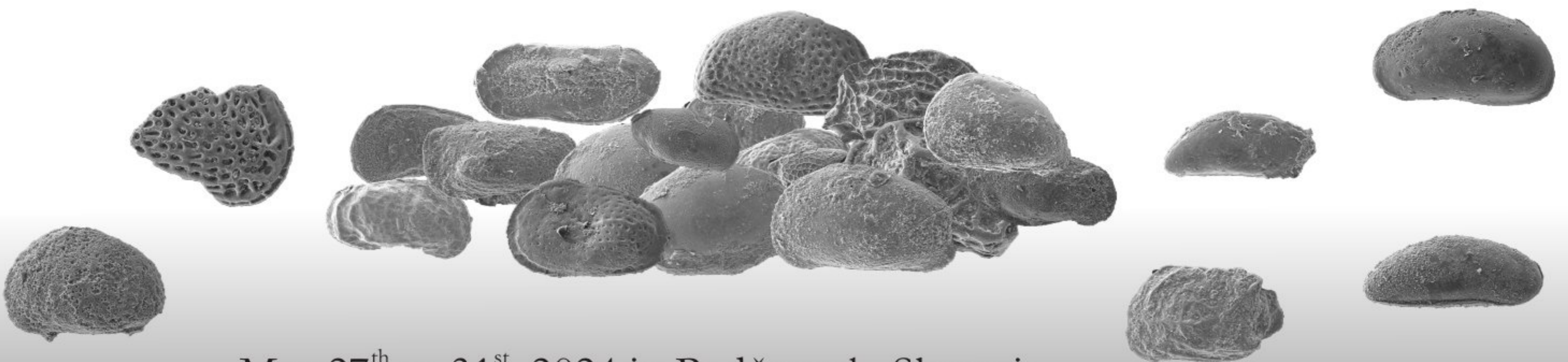
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ABSTRACT VOLUME



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The application of sequence stratigraphy on coal beds worldwide has significantly contributed to the understanding of coal deposits and their origin. On the southeastern edge of the Serbian part of the Pannonian basin, there is a system of peri-Pannonian basins characterized by the appearance of Upper Miocene coal seams in the siliciclastic fill, which provides an excellent opportunity for testing sequence stratigraphy in young coal basins. In this study, sequence stratigraphy was applied to coals in the Drmno Depression, which presents a challenge to traditional prospecting methods due to its lack of lateral continuity.

The deposition of siliciclastics was formed in the upper delta plain, which then transitioned into alluvial channels with segments of swamps where peat accumulated. The accumulation of peat and siliciclastics was cyclical, from the geometry of the layers, it is evident that the center of peat accumulation moved vertically, due to the inability of horizontal expansion as a result of the developed vegetation (Gradzinski et al., 2003).

Four sedimentological units were distinguished based on geophysical logging data, seismic profiles, and field

data. The sedimentation cycle of each unit commences with fine-grained siliciclastics of the upper delta plain, followed by coarse-grained siliciclastics of alluvial channels, and ends with the accumulation of peat and the formation of coal. The units located in the deeper parts of the basin were determined by using overlapping seismic data and geophysical logging data. However, only the upper part of the second unit was visible on the open section, so they are classified as assumed. On the other hand, the third and fourth units are located in shallower parts and were defined based on both well data and field data from open sections and are therefore classified as certain.

The age of the youngest sedimentological unit was determined by biostratigraphy, based on the different species of *Prosodacnomya bivalva*. The discovery of *Prosodacnomya carbonifera* in the southern region revealed an age of 7.5-8 million years (Radivojević et al., 2022), while the discovery of *Prosodacnomya elongata* in the northern part indicated an age of 7.2 million years (Radivojević et al., 2022).

References

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