

# Mio-Pliocene Geodynamics and its Stratigraphic Consequences in the Area of Avala Mt. (Belgrade, Serbia)

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Дигитални репозиторијум Рударско-геолошког факултета Универзитета у Београду омогућава приступ издањима Факултета и радовима запослених доступним у слободном приступу. - Претрага репозиторијума доступна је на [www.dr.rgf.bg.ac.rs](http://www.dr.rgf.bg.ac.rs)

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ysis revealed statistically significant signals with 14.2 m and 2.1–3.3 m wavelength. These signals correspond to the 100-kyr eccentricity and precession cycles, respectively. Our results allowed calculation of the average sedimentation rate. The average sedimentation rate was estimated as 11.4–14.2 cm/kyr for the Taman Konkian. The duration of the Konkian can be estimated as 0.2–0.25 Myr without taking into account the sedimentation rate for the carbonate layers.

Based on the obtained results we can suggest that the change from normal to reversed polarity in the lower part of the Eastern Paratethys Konkian (MOLOSTOVSKY & CHRAMOV, 1997; GREBENYUK, 2004) relates to the Chron C5AAn/C5Ar.3r boundary. The duration of the Konkian can be estimated as 0.35–0.45 Myr.

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## MIO-PLIOCENE GEODYNAMICS AND ITS STRATIGRAPHIC CONSEQUENCES IN THE AREA OF AVALA MT. (BELGRADE, SERBIA)

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In recent years, thanks to numerous infrastructural works and construction of the local roads, new outcrops and sections near Avala Mt. have been discovered. Especially, on the left bank of the Rakovica stream, a new large outcrops have been studied. For example, a completely new, long section (> 150 meters) of the Lower Sarmatian sand, silty clay, sandstone and marly limestone is observed for the first time. In addition, the coarse-grained clastics from the basal part of Miocene which indicates well-known the Middle Miocene Badenian transgression are noticed. They lie over the reddish fluvial facies of the undivided Lower Miocene. Besides, a lot of new

data are obtained from the previously known stratigraphic units (Pannonian and Pontian, sensu Stevanović). Based on litho- and biostratigraphic analysis and measurement of basic structural elements of each units throughout the area, the obtained data were correlated with the results of two earlier drilled wells (KGK-13 and KGK-14) in the Rakovica stream valley (KNEŽEVIĆ, 1989). The resulting stratigraphic data are interpreted in the context of Neoalpine geodynamics and revealed a complex tectonic structure with pronounced block structures. In the studied area, during the Neoalpine tectonics the significant differential movement (uplift/downthrown) was present that have shaped today's relief of the area (MAROVIĆ et al., 2007). The Torlak hill represents horst structure with a core of Mesozoic rocks and wings made of Badenian and Sarmatian sediments (EREMIJA, 1977; STEVANOVIĆ, 1970). Downstream of the Avala – Belgrade road, in the middle course of the Rakovica stream, near to the Rakovica village, there is a small tectonic trough, which is a branch of a large the Beli potok trough which is filled with sediments of the upper Miocene (Pannonian and Pontian) and partly the part of middle Miocene -Sarmatian.

The Torlak horst and the Beli potok trough structures are separated by the fault zone known as the Rakovica fault. These geological structures are noted for their large vertical movements along that fault line, at some places more than 200 meters. For example, in the KGK 14 well, just below the Pontian sand, the Pannonian marl on the absolute height of less than 100 meters was discovered. However, only a few hundred meters away in the northeast direction, at the foot of the Torlak hill, same Pannonian marl are found on surface at an altitude of about 210 meters. At the same time, at top of the Torlak hill, Badenian sediments are present on the surface at altitudes of around 336 meters. Tectonic movements have been occurred during the Late Miocene and Pliocene and probably in the older Pleistocene. Due to the mentioned vertical movements along the block structures, a composite hilly relief with dominant the Torlak hill and the Beli potok valley was formed.

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