

How active is recent tectonics in the central Balkans: Evidence from the Serbian Carpatho-Balkanides

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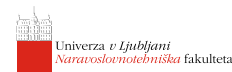
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Since the Late Cretaceous, after closure of the Neotethys ocean, tectonic processes in the central Balkan Peninsula were mainly controlled by the mutual interaction of the Adriatic and the Eurasian plates, and tectonic units in-between. Most of the tectonic structures that have been active during Cenozoic times were inherited from previous tectonic stages under different tectonic regimes.

Tectonic activity within the Carpatho-Balkan orogen in eastern Serbia since Miocene is conditioned by the existence of the rigid Moesian promontory east of the research area, which limited thrusting of the Carpatho-Balkan units. Rather than that, further compression and complex rotations around the Moesian promontory have been accommodated by the formation of the large strike-slip fault systems (e.g. Cerna-Jiu fault, Timok

fault), that accommodated up to 100 km of cumulative displacement. According to earthquake focal mechanisms, faults belonging to these fault systems are still active.

In this contribution we present new data about the youngest and recently active faults in the area of the Carpatho-Balkanides in eastern Serbia, based on the studies of fault kinematics, seismicity and earthquake focal mechanisms, as well as tectonic geomorphological studies in karst caves. Results show that the research area is primarily characterized by strike-slip tectonics, which most likely results from far-field stress generated by the Adria-push mechanism. However, the stress field is highly heterogeneous, with local areas of transtension and transpression that have also been important in controlling the recent fault kinematics in this part of the Carpatho-Balkanides.