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The Tectonic History of the Mýto – Tisovec Fault (Western Carpathians)

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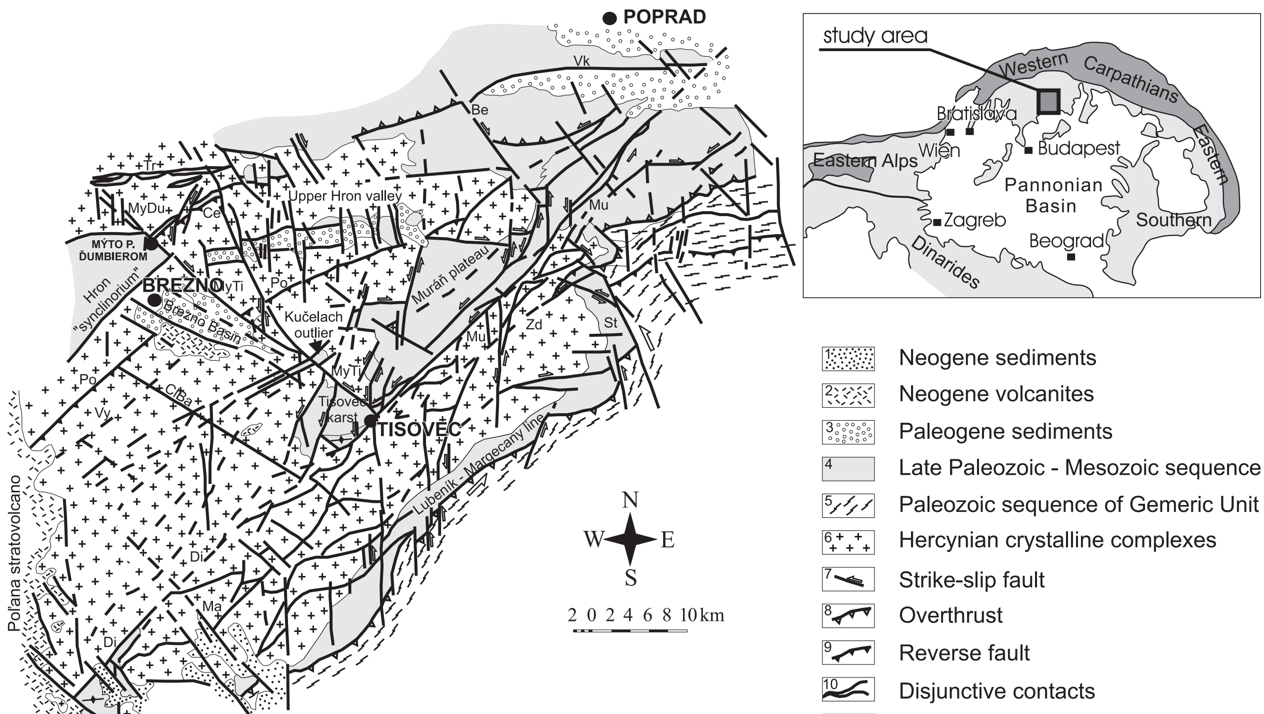
The Mýto-Tisovec fault has been first described as the Mýto fault by Zoubek (1935), according the village Mýto pod Ďumbierom in his vicinity. The name Mýto-Tisovec fault (Marko 1993a) used herein unambiguously defines the southern studied segment (in between Mýto pod Ďumbierom and Tisovec) of this important NW-SE striking disslocation (Fig. 1).

Methods

As the research approach to solve the topic, combination of field mesostructural observations and map-scale structures analysis has been applied. Structural research has been focussed to investigation of brittle deformations related to paleostress field studied along the map trace of the Mýto-Tisovec fault. Area of



■ **Fig. 1.** Structural-tectonic map of the northwestern Veporic area (Marko 1993b). Coded names of faults and shear zones: Be – Benkovo fault, Ce – Čertovica shear zone, CiBa – Čierny Balog f., Di – Divín f., Ma – Málinec f., Mu – Muráň f., MyDu – Mýto-Dúbrava f., MyTi – Mýto-Tisovec f., Po – Pohorelá s. z., St – Štítnik f., Tr – Trangoška f., Vk – Vikartovce f., Vy – Vydrovo f., Zd – Zdychava s. z.

the Mýto-Tisovec fault zone has been regarded as a one structural domain, allowing combination of faults from different localities for paleostress analysis (direct inversion method, Angelier 1984).

Results

NW-SE striking Mýto-Tisovec map-scale brittle fault distinctively affects internal zones of the Western Carpathians. It cuts and evidently offsets Meso-Alpine tectonic units and structures and represents the zone of important geophysical anomalies as well. Using methods of structural analysis, complex tectonic evolution of this long living fault has been restored. Six successive fault-slip related regional paleostress events, controlling the activity of the Mýto-Tisovec fault has been distinguished. The oldest recognized paleostress event, with NNE-SSW maximum principal stress axis operated after the Late Cretaceous and before the Middle Eocene. Orientation of the Miocene maximum principal stress axis clockwisely rotated from NW-SE in the Early Miocene to the NE-SW direction in the Middle Miocene and E-W direction in the Late Miocene - Pliocene. NNW-SSE trending compression has been estimated for the Quaternary stress field. Correspondingly three periods of Miocene tensional paleostress events with NE-SW, NW-SE and N-S orientation of minimum principal stress axis has been restored as well. The Mýto-Tisovec fault kinematically fluctuated in the changing paleostress field. However, the most evident structural records are related to the dominant dextral strike-slip regime. Dextral transtensional tectonic regime was responsible also for opening of narrow and deep depositional depression – Brezno Basin, related to the Mýto-Tisovec fault, where the Late Eocene – Early Miocene sediments of the Central Carpathian Paleogene Basin (CCPB) fill have been deposited and later preserved.

Restored evolution of the Neogene – Quaternary paleostress field submitted herein fits well with paleostress evolution of the ALCAPA junction area (Nemčok et al. 1989, Csontos et al. 1991, Marko et al. 1995, Fodor 1995). In spite of this similarity, no blok rotations (well known from ALCAPA junction area) has been taken into account in geodynamic model of the Mýto-Tisovec fault area evolution. It has been decided due to the lack of paleomagnetic data from the northwestern Veporic, even a few zero paleomeridian rotations were measured in Jurassic rocks (Kruczyk et al. 1992) in the similar terrane – the area of the Vysoké Tatry Mts.

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