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Miocene 3rd Order Cycles Reflected in Basins of the Western Carpathians

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Neogene paleogeography of the Western Carpathian region, as a combination of aquatic and continental environments, was influenced besides the geodynamic factors also by the regional manifestations of global sea-level changes.

Interaction of sea-level changes and tectonics had an important influence on the paleogeography and thereby also on the paleoenvironment of the Western Carpathian basins, which formed the northern bays of the Central Paratethys epicontinental sea in the Miocene (Kováč et al. 1998). The depth and the shape of the basins were predominantly controlled by the main tectonic events. Relative eustatic changes reflected in coastal onlaps were followed mostly by the rise of water paleodepth in the offshore environment. The correlation of the constructed curves for the coastal onlap and estimated paleodepth with the global reference curves (Haq et al. 1988; Haq 1991) shows some discrepancies, because the relative sea-level changes in the Western Carpathian basins have been considerably shaped apart from eustacy, also by local tectonic events and thus they are neither always identical with the defined global cycles, nor with each others, found in different basins of the region (Kováč and Hudáčková 1997; Kováč and Zlinská 1998; Kováč et al. 1999b) On the other hand, we are able to date many biostratigraphically and paleoecologically important paleogeographic events in the studied region, as well as to correlate them with the events in the Central Paratethys and the Mediterranean area.

In the following those relative 3rd order sea-level cycles will be described that can be traced by means of seismostratigraphy, sedimentology and paleoecology in the Western Carpathian during the Miocene (Kováč et al. 1999a). These cycles are marked by symbols from CPC 1 to CPC 6 (3rd order relative sea-level cycles in the Carpathian-Pannonian region).

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