■ **Fig. 1.** Paleogeography of the Outer Carpathian basins during Paleocene and distribution of carbonate platforms. BG – Bucovinian-Getic, Co – Cornohora, Porkulec, Audia, Teleajen, Cr – Czorsztyn ridge, Du – Dukla, FC – Fore-Magura ridge (cordillera), Fm – Fore-Magura basin, Gr – Grybów, Mg – Magura, Mn – Manin, Si – Silesian basin, SK – Skole, SC – Silesian Cordillera, SS – Sub-Silesian ridge, Sz – Szolniok, Tc – Taracau, Zl – Zlatna.

but their convergence lead to the collision of intervening terranes leading to the formation of the Alpine-Carpathian orogenic system. Through the Miocene tectonic movements caused final folding of the basins fill and created several imbricate nappes which generally reflect the basin margin configurations after the Cretaceous reorganization and Paleogene development of the carpathian accretionary prosm (Oszczypko et al 2003). The Sub-Silesian ridge deposits were partially included into the Su-Silesian nappe, the ridge's basement rocks and part of its depositional form olistostromes and exotic pebbles within Menilitic-Krosno flysch. The largest olistostromes were found in the vicinity of Andrychów and are known as Andrychów Klippes (see remarks above about Andrychów ridge). The Fore-Magura and Silesian ridges were destroyed totally and are known only from olistolites and exotic pebbles in the Outer Carpathian flysch. They destruction is related to the advance of the accretionary prism (Oszczypko et al 2003, Golonka et al 2004). This prism obliquely overridden the ridges leading to the origin of the Menilitic-Krosno basin. The Malcov Formation was deposited in the smaller piggy-back subbasin. During overthrusting the outer, marginal part of the advanced nappes was uplifted whereas in the inner part sedimentation persisted in the remnant basin. From that, uplifted part of the nappes big olistolites glided down into the adjacent, more distal basins. The nappes became detached from the basement and were thrust northward in the west and eastward onto the North European platform with its Miocene cover. Overthrusting movements migrated along the Carpathians from the west towards the east. The Outer Carpathian allochtonous rocks, as result of Miocene tectonic movements, have been overthrust onto the platform for a distance of 50 to more than 100 km.

This research kas been financially supported by KBN grants (6P04D 032 21 and 3P04D 020 22)

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Mesozoic Plate Tectonics of the Inner Carpathians – Rotational Approach

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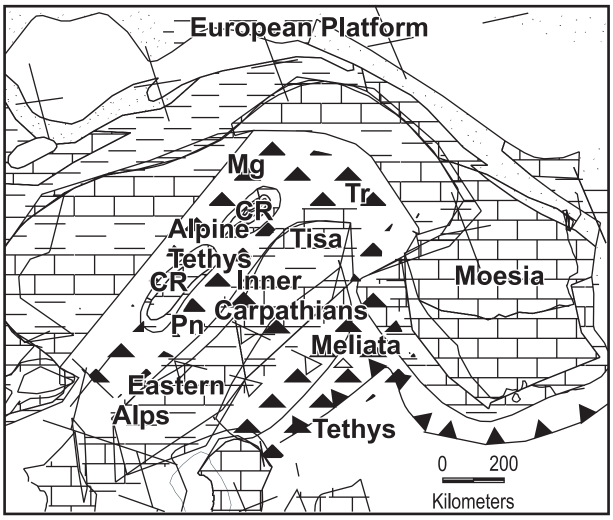
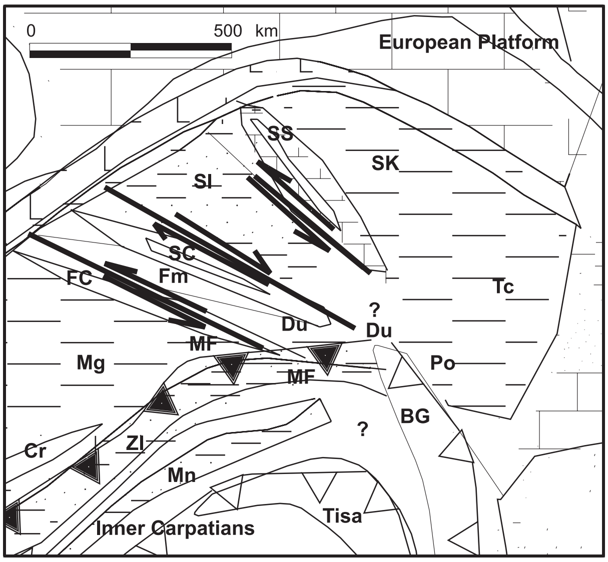
The paleomagnetic suggest significant couterclockwise rotations of the Inner Carpathian terrane during the Miocene (Márton et al. 1996, 1999, 2000). Palinspastic reconstructions require to take this movemant into serious consideration and move the terrane back to its original position. The pre-Neogene position after clockwise rotation from the present day location will significantly



■ **Fig. 1.** Paleogeography of the Carpathian relam during Middle Jurassic. Cr = Czorsztyn ridge, Mg = Magura Bsian, Pn = Pieniny.



■ **Fig. 2.** Paleogeography of the Outer Carpathian basins and adjacent Inner Carppathians and Tisa terarnes during Late Cretaceous. BG = Bucovinian-Getic, Po = Porkulec, Cornohora, Audia, Teleajen, Cr = Czorsztyn ridge, Du = Dukla, FC = Fore-Magura ridge (cordillera), Fm = Fore-Magura basin, Mg = Magura, Mn = Manin, MF = Marmarosh Flysch zone, Si = Silesian basin, SK = Skole, SC = Silesian ridge (cordillera), SS = Sub-Silesian ridge, Tc – Taracau, Zl = Zlatna.

change the vergence of Inner Carpathian thrust from nothwastward into northeastward. This change will help to solve many tectonic problems and explain the series of Mesozoic events.

The Eastern Alps. Inner Carpathians and Tisa Terranes formed the marginal platform of Western and Central Europe during the Triassic time (Golonka et al 2000, 2003, Golonka 2004). The Mesozoic rifting events caused the origin of oceanic type basins like along the northern margin of the Tethys. The separation of Eurasia from Gondwana resulted in the formation of the Alpine Tethys (fig. 1) as a continuation of the Central Atlantic Ocean and as a part of the Pangean breakup tectonic system. The Inner Carpathian plate was detached from the Eurasian margin by this Alpine Tethys (Penninic-Pieniny) realm. It was also dissected by the rift system. The deeper water sediments, like radiolarites, were deposit in these rifts, while shallower water carbonate sedimentation prevailed in the uplifted areas. Major plate reorganization happened during the Tithonian time. The new Atlantic spreading entered the area between the New Foundland shelf and Iberia. The Jurassic Pangean break-up system in Alpine Tethys, Central Europe and North Sea area was abandoned. The subduction developed along the Alpine Tethys margin. The rotation of Africa and the spreading in the Eastern Mediterranean caused the Apulian plate to converge with Europe. The Alpine Tethys was gradually closed. The compressional deformation of the Inner Carpathians during Late Cretaceous led to development of nappes in the Inner Carpathian realm. This nappe formation was coused by the events in the Eastern Carpathians. During Jurassic time the Bucovinian-Getic terrane rifted away form the European Platform moving in the southestward direction. The Inner Carpathia, Tisa and Bucovinian-Getic terrane converged duting Cretaceus time. Collision started at Albian time and concluded by Late Cretaceous (fig. 2). Inner Carpathian nappes with mainly northeastward vergence developed as a result of this collision.

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