

Turbiditic sedimentary fill of the Central-Carpathian Paleogene Basin

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The Central-Carpathian Paleogene Basin (CCP Basin), located south of the Carpathian Klippen Belt, is elongated, tectonically confined basin with prevailing turbiditic sedimentary fill. The basin fill records a delicate interplay between the tectonics, eustasy and climate governing deposition style and position of depocenters in time. Location of the basin in the buffer zone between the Carpathians and the North-European Platform suggest an important role of tectonics during its evolution, which often overprints effects of global eustasy and climate. Investigation of the basin east of the Tatra Mts. points to its complex tectono-sedimentary history.

Filling of the basin commences with subaerial deposition in the Paleocene and Early Eocene which is recorded by fluvial and slope deposits hugging the northern slopes of pre-Tertiary units generally located south of the basin. It suggests uplifted massifs of Gemericum and Veporicum during the Paleogene. The Paleocene – early Eocene evolution at the northern margin of the basin is still not clear, however, sedimentary contact between the Paleocene, Early and Middle Eocene deposits and rocks of Mesozoic Haligovce Unit in the Pieniny Klippen Belt realm (Potfaj and Rakús in Janočko et al. 2001; Köhler and Buček 2000; also see Gross et al. 1993) may suggest similar history at the northern margin of the CCP Basin.

The first marine incursion into the basin occurred in the Middle Eocene. It is recorded by shallow-marine deposits containing foraminifera fauna and nanoplankton. The Middle Eocene deposits were found in several boreholes in the Polish part of the basin (e.g. Olszewska and Wieczorek). In the eastern, Slovakian part of the basin the Middle Eocene deposits were found near Ždiar on the northern slopes of the Tatra Mts., in the surroundings of Lipany (Buček 2001) and in the easternmost part of the basin near Humenné (S. Buček pers. commun. 2000). Distribution of the Middle Eocene deposits points to marine incursion from the area of present-day Klippen Belt. Subaerial and shallow-marine deposition prevailed until the later part of the Middle Eocene. At the end of the Middle Eocene accommodation space increased resulting in prevailing mudstone deposition as recorded in the Šambron – Kamenica zone. The mudstones are overlain by several turbidite systems evolving at the end of the Middle Eocene (NP16) and suggesting fall of relative sea level.

At the beginning of the Late Eocene turbidite deposition switched off in the Šambron – Kamenica zone and passed into basin widespread mudstone deposition. This is recorded in Kamenica and Ždiar areas and in the Polish part of the basin. At the end of the Late Eocene thick, massive sandstones (Spišská Magura) and chaotic breccias (Vítov breccias) were deposited suggesting fall of relative sea level. This was followed by subsequent sea level rise recording by mudstone deposition almost in the whole area of the eastern part of the basin. Already in the Early Oligocene channel-and-levee turbidite systems originated and their activity continued until the Late Oligocene. The deposition in the basin terminated by thick sandstone and conglomerate packages suggesting fall of relative sea level.

References

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Strontium Chemostratigraphy of Carbonate Sediments – Pilot Study of Silurian and Devonian Brachiopods from the Prague Basin

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The widespread and largely uninterrupted carbonate sedimentation in Late Silurian–Middle Devonian times, wealth of fossils, as well as two centuries of detailed palaeontologic research

made Prague Basin an archetypal terrain with several internationally recognized stratotypes. Unfortunately relatively little attention has been paid to chemostratigraphy, with Sr isotopic