important influence on the paleoenvironment of the East Slovakian Basin. Definition of main tectonic events is based on structural and sedimentological observations. The eustatic oscillations are reflected in the coastal onlaps and changes in shallow water environment. The sea level rise or fall were defined by paleocological study of foraminiferal associations in the offshore environment. The correlation of constructed curves for the environment paleodepth and coastal onlap with global reference curves shows some discrepancies, caused mainly by tectonic events during the basinal development.

In contradiction to the Early Miocene global sea level rise the, Eggenburgian paleoenvironment of the East Slovakian Basin changed from the deep water high-energy to the shallow water high-energy due to collisional tectonics, followed by an uplift and hiatus during the Ottangian. The Karpatian transgression can be correlated with global coastal onlap, but the intra Karpatian sea level oscillations were tectonically controlled in contradiction to the Badenian ones, and were caused by the global sea level rise in the Lower Badenian and by a global sea level fall at the end of the Middle Badenian. The Upper Badenian transgression and coastal onlap are the last well observed global events in the sedimentary record of the East Slovakian Basin. The Sarmatian gradual shallowing, or local sea level fall was mainly controlled by synsedimentary tectonics during the basin development.

Nappe tectonics and source areas of the Magura Flysch

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The Magura Flysch area is situated at the contact of the Bohemian Massif and the West Carpathians. The data from this area include results from a number of deep boreholes (up more 6 km deep) and an extensive complex of geophysical measurements. The analysis of frequency characteristics of seismic and gravity data will bring the data about composition of density balanced cross-sections of the upper layer of the crust along selected seismic profiles and tracing of tectonic elements. The impact of the thrusting of the Alpine nappes on the deformation of the crystalline complexes and their sedimentary cover will be studied. Geochemical investigation of rocks is focused on those compounds which give the best evidence of the sedimentary environments and postdepositional alterations under increased temperature and pressure. Organic matter and clay minerals are the most sensitive indicators of these factors. The sedimentological research will include taxonomic detailed research of selected leading and index species and testing their stratigraphic range using planktonic foraminifers and ammonofossils. Thanathocenosis of the foraminifers will especially be used for the dating of the paleoenographic events and for the correlation of the sedimentary areas of the Flysch Belt units. Conglomerate layers of the Magura Flysch contain locally abundant granitoid pebbles. The ages of three granite pebbles were roughly constrained using chemical monazite dating. The ages fit to the Devonian–Carboniferous boundary. The age and geochemistry of the granite pebbles from the Magura Flysch are similar to the Variscan I/S transitional granites of the Western Carpathians. Several hundreds of microprobe analyses of detrital garnets were evaluated. Generally, great similarity among detrital garnet assemblages of the Upper Viséan graywackes (Moravo–Silesian Culm) and of the Paleogene sandstones was observed. A synthesis of new data in a geodynamic model of evolution of the Magura nappe will include the mechanism of basin opening and filling, orogenesis and formation of nappe structures.

Evolution of the Pieniny Klippen Belt Basin — some evidence from subsidence analysis

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The Pieniny Klippen Belt (PKB) is developed as a narrow zone and separates two major structural parts of the Carpathian range: the Inner and Outer Carpathians. It corresponds structurally to one of the main discontinuity lines within the Earth’s crust in the Carpathians, along which the Moho surface suddenly dips northwards.

PKB is composed of strongly deformed Mesozoic and Palaeogene rocks. The Mesozoic rocks include various types of limestones, radiolarites, shales and siliciclastic turbidites, deposited in a separate (Alpine–Carpathian) branch of the Northern Tethys. The Pieniny Klippen Belt Basin (PKBB) is characterised in the palinspastic reconstruction by latitu-
dinal facial zones (called successions) and those, in turn correspond to ridges and troughs in the basin.

Several synthetic pre-orogenic 1-D sections of individual zones of the PKBB were reconstructed basing on the Polish part of the PKB. The profiles represent Czorsztyn-, Czerteżek-, Niedzica- and Branisko-Pieniny successions, and cover Pliensbachian—Early Campanian basin history. There was subsidence analysis technique applied for analysing pre-orogenic history of tectonic vertical movements of the basin original basement, what included quantitative balancing of thicknesses, absolute ages, bathymetry and lithological data for individual cross-sections. The most important parameter with the major control on results was bathymetry, estimated on the base of lithofacial analysis, CCD and ACD or faunistic indicators.

The results show relatively slow subsidence for Pliensbachian—Bajocian, accelerated during the Bathonian. The Callovian—Oxfordian are characterised by very rapid subsidence, what might be attributed to a tectonic event taking place across the basin. The subsidence is interpreted to result from extension or transtension. The second option is supported by high rate of subsidence, its short live span and sudden extinction, and the lack of thermal cooling.

By the end of Oxfordian rapid uplift started and lasted until Berriasian, ceasing with time, being interpreted as a result of major modification of stress regime (possibly to transpressional). For the Branisko and Pieniny successions another scenario is possible, depending on estimations of the CCD level at this time. In general, the uplift is followed by Early Cretaceous major hiatuses across the PKBB.

During Albian—Cenomanian time slow subsidence reneued, and since the Turonian started to increase in rate, creating a compressional type of curve. The Late Cretaceous subsidence is coeval with the Turonian folding of the Inner Carpathians to the south of PKBB, thus might be referred to flexural bending of their foreland.

Paleomagnetism and low-field susceptibility of flysch rocks from the Rożnów area of Silesian nappe

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Paleomagnetic study of flysch units of the fragment of Silesian Nappe in the central part of outer Western Carpathian Mts (Poland) has been undertaken to examine the possible rotations of the nappe (or its parts) on the regional and the local scale. The 10 localities chosen near the Rożnów Lake represent sedimentary strata of the continuous time span: from the Upper Cretaceous to the Oligocene. The analysis of anisotropy of magnetic susceptibility revealed that it depends mainly on the matrix minerals, as the axes of $K_{\text{max}}$ (after bedding correction) cluster perpendicularly to the bedding plane and the axes of $K_{\text{min}}$ (abc) indicate the distribution close to the regional paleocurrent direction (from the west to the east) — for each locality.

The small clockwise and counterclockwise rotations of the successive thrusts of Silesian Nappe (in which lie the studied outcrops) have been observed on both sides of the long, sinistral fault Witowice–Czchów, thanks the comparison of azimuths of $K_{\text{max}}$ with the regional direction of paleotransport (W–E). The primary NRM direction (after conducting the thermal or AF demagnetization) has not been preserved in the studied rocks due to the deep mineralogical changes of magnetic minerals, probably by weathering processes.

The recent component of RM of ChRM type arose after the last orogenic phase of this part of Outer Carpathian Mts, i.e. after the Late Miocene. The mean direction of RM before tectonic correction (calculated for the all studied localities) and with the mentioned small corrections connected with anticipated rotations along the fault — (D = 348°, I = 62°) has the best statistical parameters. The same mean direction of RM calculated after bedding correction has much more worse statistical parameters. The RM (abc) still differs around 20° from the expected, recent direction of RM for this part of Europe in the time span from 0 to 7 Ma ago (D = 7°, I = 63°). Probably, among the observed mainly recent directions (lying in the I quarter of the net) a part of them belongs to the artefacts (and has the magnetic declinations in the IV quarter).

The farther study should be concentrated on those rocks which could preserve the primary directions of RM and on the enrichment of the collection to improve the statistics of obtained data.

Structural evolution of the Carpathian Foredeep from the Neogene till Recent (mesostructural analysis)

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Mesostructures visible in the outcrops in the western (Nida Trough) and the eastern (the sulphur open-pit Ma-

chów near Tarnobrzeg) parts of Carpathian Foredeep were studied. During the Neogene three tectonic phases have been distinguished in the Carpathian Foredeep area, corresponding with the late stage of Late Alpine evolution (tectogenesis) of the Carpathians. These phases were as follows: the