

from the Bulletins of the ISC for teleseismic distances (these data in the theory of inversion that we use are similar to those of deep foci earthquakes or deep reflections). The employment of the data of points (a) and (b) enables detailing of the structure of lithosphere and asthenosphere and those of points (c) and (d) ensure specify the depth and the character of 410 and 670 km discontinuities. The new method provides common inversion of the main data (from Bulletins of ISC) and data of points (a)-(d) even in cases when crust and mantle contain low-velocity zones. The obtained 3-D P-velocity model of the mantle beneath Europe is considered.

Paleomagnetic constraints for paleogeographic position of Tatricum and Fatricum (Central West Carpathians) in the Late Mesozoic

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During last 10 years paleomagnetic data were obtained from the Mesozoic (Lower Jurassic - Lower Cretaceous) rocks in the Central West Carpathians of Poland and Slovakia (Kadziako-Hofmokr and Kruczyk, 1987, Kruczyk et al., 1992, Grabowski, 1995). The samples were taken from the Križna unit (Fatricum) of the Tatra Mts., Nižne Tatry, Choč Mts., Spičeka Magura and Mala Fatra and from the Cover unit (Tatricum) of the Tatra Mts. All characteristic directions are of normal polarity, they reveal predominantly clockwise rotated declinations (except the directions from the Mala Fatra) and inclinations corresponding to the expected values for the European Platform. It is very likely that these directions represent a remagnetization of Early Cretaceous age. These data differ significantly from the Middle Jurassic - Early Cretaceous paleomagnetic directions from the Apulian realm (Marton & Marton, 1983, Channel, 1992). Comparison of declinations and inclinations from the Central West Carpathians and Apulia suggest that an oceanic separation between them existed at least in the early Cretaceous. Similarly as the Northern Calcareous Alps, the Central West Carpathians did not participate in the counter-clockwise rotation of Apulia.

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Thermal effects of the exhumation of metamorphic core complex on syn-rift sediments - an example from the Rechnitz Window (Austria)

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The Rechnitz Window is situated at the Alpine/Pannonian border and represents the easternmost Penninic window of the Alps. During the Miocene the window was exhumed by tectonic denudation. The Austroalpine crystalline cover was removed by top-to-ENE normal faulting. This extension produced the Pannonian basin system where the earliest sediments of this depositional cycle were formed in Middle Miocene. The sediments of the syn-rift stage are mainly conglomerates, fanglomerates and sandstones with thin coal bands. A high level of the organic maturation (Sachsenhofer, 1991) indicates that the bottom of the sedimentary sequence suffered a post-depositional thermal overprint. Heating was able to anneal the fission tracks (FT) in the detrital apatite grains of the sediments. The 13.6 million years average of the FT ages expresses the termination of the period of an increased heat flow. The aim of the presented two-dimensional numerical thermal model is a quantitative qualification of possible thermal surface heat flow within the hanging wall during the exhumation of the Rechnitz Window along normal faults.

As the chosen initial conditions as well as the boundary conditions clearly influence the results of such a mathematical model only such parameter configurations were used, where the program records of the cooling history fit the actual thermochronological measured data of the footwall of the Rechnitz Window (Dunkl and Demény, in press). During the model calculations a chosen sample within the footwall was exhumed with various faulting velocities (2.5 - 11.5 mm/a) along normal faults with various dip angles (10° - 50°). After each time step the temperature and the location of the sample were recorded resulting in a calculated cooling curve of the footwall. All model calculations reveal a typical convex-concave cooling curve and suggest an Early Miocene rapid exhumation of 2mm/a of the footwall followed by slow exhumation