samples ranging from CAI4 to CAI6 was then quantified by measurement of intensities of the red, green and blue colour components from selected surface areas of unpolished conodont elements (cf. Helsen et al., 1995). Results from statistical processing of the red, green and blue components (particularly histogram shapes and mean, median and mode values) showed results largely comparable with those obtained from image analysis of polished conodont sections (Helsen et al., 1995).

CAI5 to CAI6 values were measured in the northern part of the Drahany Upland (Konice-Mladeč area), Hranice area and southern part of the Nízký Jeseník Mts. Values from CAI4.5 to CAI5 are typical of the central part of the Drahany Upland, whereas values from CAI4 to CAI4.5 are confined to its southern part. The CAI indices show a general regional trend, which coincides with the thermal maturation trend obtained from paleothermometry of dispersed organic matter. In several cases, the high CAI5.5 to CAI6 values indicate possible pressure induced alteration (Epstein et al., 1979) and/or effect of hydrothermal fluid circulation (Rejebian et al. 1987) in relatively narrow deformation zones associated with mylonitisation.

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The Sudetic Marginal Fault, SW Poland: a Reactivated Sinistral-Normal Fault

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The Sudetic Marginal Fault (SMF) in SW Poland, nearly 300 km long, marks the boundary between the Sudetes and Fore-Sudetic Block. The fault is considered to have been active in the Late Oligocene and reactivated later on, although it probably originated already during the Variscan orogeny. Quaternary activity of this structure has been a matter of debate. Some researchers suggested Quaternary uplift of the footwall ranging from 20–30 m to 60–80 m (Zeuner, 1928; Dyjor, 1993; Migoń, 1993) and even 80–100 m (Krzyszkowski, 1991), a large portion of it having been due to glacioisostatic rebound after the Saalian glaciation. Faulting of Quaternary terraces, rectilinearity of the fault scarp (e.g., Krzyszkowski et al., 1995), possible seismotectonic deformations within Pleistocene alluvial fans (Mastalerz and Wojewoda, 1993), as well as historical seismicity (Pagaczewski, 1972), and contemporaneous, GPS-detected mobility (e.g., Kontny, 2003), all testify to recent activity of this zone. We have analysed the southeastern, nearly 100-km-long, portion of this fault between Złotoryja in the NW and Złoty Stok in the SE (cf. Badura et al., 2003). This portion of SMF has been subdivided into 7 segments showing slightly different orientation (N28°W to N50°W), geological setting, length (6.4–17.8 km), height of the fault and fault-line scarp (40 m to 300 m), as well as the values of morphometric parametres of small catchment areas of streams that dissect the scarp. The latter parametres, particularly those characterising the elongation, relief, and average slope of individual catchment areas, together with abnormally small values of the valley floor width to valley height ratios, and mountain front sinuosity indices which are indicative of nearly rectilinear trace of the mountain front, allow us to conclude about Quaternary uplift tendencies of the SMF footwall in the Sowie Mts. segment. These observations appear to confirm earlier views on the normal character of faulting along the SMF. However, data collected near Zlotoryja by Mastalerz and Wojewoda (1993), the pattern of young drainage deflection in the medial and SE portions of the studied fault segment, very well visible on digital elevation models, and – to a certain extent – the results of repeated GPS campaigns (e.g., Kontny, 2003), would point to the presence of sinistral component of young motions, as well. This conclusion is also compatible with the geometry of faults active in Neogene and Quaternary times in that area, being indicative of N110-120°E orientated sigma-1, and N20-30°E orientated sigma-3 of the fault-related stress field. The strongly uplifted Sowie Mts. segment represents a restraining bend of the SMF. We conclude, therefore, that the SMF represents a possibly Oligocene normal fault that has been reactivated in Late Neogene and Quaternary times as a sinistral-normal fault.

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The Quantitative Link between Fold Geometry, Mineral Fabric and Mechanical Anisotropy: as Exemplified by the Deformation of Amphibolites Across a Regional Metamorphic Gradient

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This work shows the lateral variations in fold geometry affecting an amphibolite unit of constant mineralogical composition showing increasing metamorphic grade from east to west. A systematic decrease in the mechanical anisotropy of the folded fabric is observed with increase in metamorphic grade. These variations are represented by changing fold shapes interpreted as: 1) medium amplification associated with low post buckle flattening in the lowest grade zone, 2) high amplification coupled with medium post buckle flattening in the intermediate grade zone and, 3) passive amplification dominated by intense post buckle flattening in the highest grade zone. Quantitative microstructural study shows contrasting deformational mechanisms associated with folding. This is manifested by: 1) brittle dominated deformation of amphibole forming stress supporting network with a high competence contrast to plagioclase in lowest grade zone, 2) ductile dominated heterogeneous deformation of an interconnected weak layer structure with low competence contrast in the intermediate zone, 3) homogeneous deformation of a stress supporting framework with low competence contrast in the highest grade zone. The difference in the folding style between the garnet and staurolite zones is associated with the lateral variations in microstructure of the amphibolites inherited from a pre-folding metamorphic zonation and with different deformation micromechanisms in hinge zones. However, the change in fold style between the garnet and staurolite zones, and the sillimanite zone is controlled by the recrystallization associated with an important syn-folding heat input from an adjacent granite intrusion.

Petrology of Lamprophyres Occuring in the Northern Part of the Ditrău (Ditró) Alkaline Massif (Jolotca Creek Basin), Romania

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Introduction

The Ditro Alkaline Massif (DAM) is one of the most diverse and compound geological formations of the Eastern Carpathians. In the past decades numerous scientific essays were published on the complex geological interpretation of the massif, while the origin of lamprophyre dykes intersecting the different rock-types (granitoids, syenitoids, hornblendites) of DAM and