Rocks of the KZS display high LILE/HFSE elemental ratios and also the high Th/Ta ratios are typical for igneous rocks derived from sources geochemically modified in the supra-subduction environment at destructive plate margins. However, as the mantle may retain the "subduction signature" after cessation of subduction, derivation of the K-rich mantle magmas may not be contemporaneous with active subduction in the area.

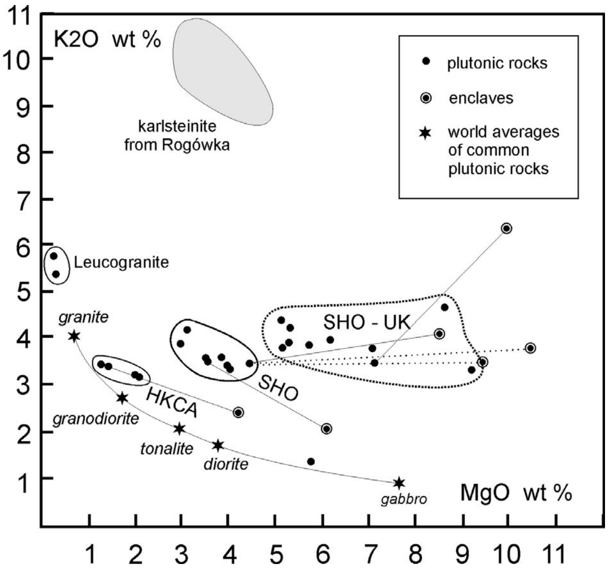

Fig. 1. The K_2O versus MgO plot for rocks of the Klodzko – Zloty Stok massif and the Niemcza Zone. Averages of common plutonic rocks are from Le Maitre (1976).

The compositional diversity and significant differences in incompatible elemental ratios between members of individual compositional groups from the KZS cannot be ascribed to increasing degree of enrichment superimposed on a common mantle lithology, or to decreasing melting degrees. Geochemical characteristics and variability of K-rich magmas can be due to distinctive sources within the heterogeneous subcontinental lithospheric mantle with complex history.

An extreme composition has to be considered for source of the peralkaline dyke rock of karlsteinite composition intruding the SHO plutonites at Rogówka.

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Generalized Angelier-Mechler's/Arthaud's Method

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During last 20 years, numerical methods of paleostress reconstructions were very well developed, but progress in graphical methods was nearly stopped, however modern computers enable good graphical presentation of data. Merit of graphical methods is illustrative relation between data and results. Two basic graphical methods include right dihedra method (Angelier and Mechler 1977) and M-plane method (Arthaud 1969). These two methods are the two marginal cases of general inverse method based on one-fault inverse analysis.

Using fault coordinate system, where *l*-axis is striae lineation, *n*-axis is normal to fault plane and *m*-axis complete right-

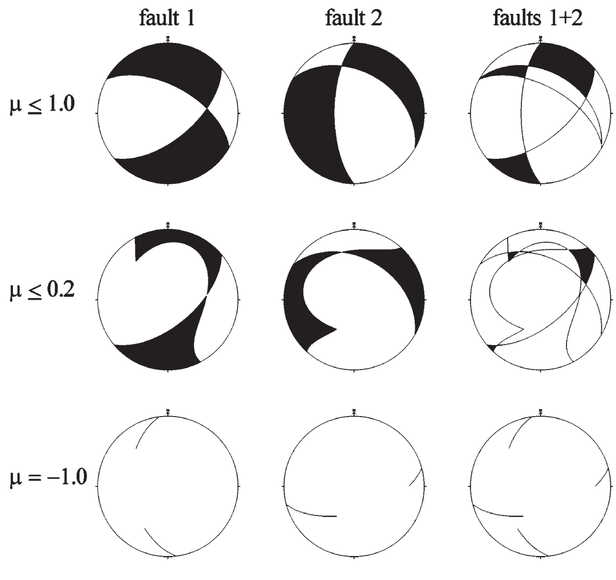

Fig. 1. Equal-area plots for different methods of σ_1-determination based on one-fault inversion: Angelier-Mechler's method ($\mu \leq 1$), descripted method (variable μ, e.g. $\mu \leq 0.2$), Arthaud's method ($\mu = -1$, no solution in this case).

hand orthogonal system *lmn*, it is easy to derive equation for Lode parameter $\mu = (2\sigma_2 - \sigma_1 - \sigma_3)/(\sigma_1 - \sigma_3)$ in dependence on direction of σ_1 and σ_3 respectively. This function limits field of possible σ_1-directions with decreasing of μ_{max} (Fig. 2a) and

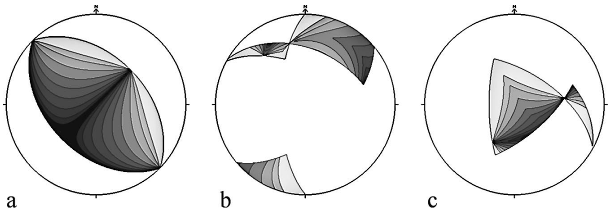

Fig. 2. Equal-area plots of distribution σ_1 and σ_3 showing field reduction in dependence on μ_{min} and μ_{max}: a – one fault, σ_1-plot with μ_{min} isolines; b – σ_1-plot of μ_{min} for two faults from Fig. 1; c – σ_3-plot of μ_{max} for the same faults. Isolines of μ: –1.0, –0.9, –0.8, –0.6, –0.3, 0, 0.3, 0.6, 0.8, 0.9, 1.0.

σ_3-field with increasing of μ_{min}. The field of σ_1 is equivalent to right dihedra quadrant for $\mu \leq 1$ as one extreme and is reduced to part of M-plane for $\mu = -1$ as the second extreme (Fig. 1). Base on this idea we can make equal-area plot for fields of σ_1 and σ_3 with isolines of μ (Fig. 2b, c). With these plots we can determine upper and lower limits of μ (μ_{max}, μ_{min}), and corresponding fields of σ_1 and σ_3 respectively.

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A Record of Oceanic and Continental Stages in Evolution of the Sudetic Ophiolites – New Evidence from Stable Isotope Composition of Silicate Minerals.

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Hydrogen and oxygen isotope ratios in mafic and ultramafic rocks of Ślęża (Sl) and Nowa Ruda (NR) ophiolites complexes (N margin of Bohemian Massif, Sudetes Mts., SW Poland), have been analysed. This was done to assess the role of ocean floor metamorphism and continental processes in the evolution these two ophiolites.

These ophiolites belong to the mafic-ultramafic massifs surrounding the significantly older Precambrian Sowie Mts. gneissic block (SM). The NR ophiolite is situated at the SW margin of the SM. Its northern part is composed of variable petrologic types of altered gabbro (metagabbro) and the southern, subvolcanic part, consist of metadiabases and altered pillow lava. The northern and southern parts are divided by the Słupiec cataclastic zone. The Ślęża ophiolite represents almost complete ophiolite sequence composed of: Gogołów-Jordanów (G-J) serpentinite massif (ultramafic member), Ślęża Mt. gabbro (mafic, plutonic member) and Wieżyca Hill (WH) metadiabases and amphibolites (volcanic member). The ophiolite is in overturned position and the pillow lava and sedimentary members have not been found. The Sl ultramafics contact on S to the N border of SM, and all the Sl members contact on N and NW to the SE border of slightly younger Variscan Strzegom-Sobótka (S-S) granite massif. Comparison of mesostructural features of the ophiolite to such features of other Sudetic units of known age, suggests that the emplacement of these ophiolites took place during Variscan orogenesis (continental collision with NE-SW suture zone). Sm-Nd age determination of the mafic member confirmed that thesis. The Sm-Nd age of the mafic member of Sl is 353 ± 21 Ma and that of NR is 351 ± 16 Ma.

Structural evolution of rocks is not necessary accompanied by formation of new minerals however, apparently may result in a redistribution of isotope ratios in the deformed primary minerals. Thus, isotope analysis may be a good tool to reconstruct geological condition of structural evolution of rocks. Mesostructural observations in Sl revealed presence of the primary magmatic lamination S_0 and metamorphic and/or tectonic foliations S_1, S_2, S_3 and S_4. Moreover, 6 systems of slickensides have been observed. In case of the sheeted dykes member (amphibolites) the S_0 may be considered as sequence of rhythmic variations of the structure, parallel to the margins of the dykes. In lower members of the ophiolite the S_0 is a dark and light lamination. In the metagabbro the leucocratic laminae are composed predominantly of feldspars and products of their hydrothermal decomposition. The melanocratic laminae are composed mostly of diallage and uralitic hornblende. In the ultramafic cumulates the light laminae consist mostly of chlorites, tremolite and primary calcite, and the dark ones are relics of pyroxenes and amphiboles. In the tectonites (serpentinites) the S_0 exists in presence of flat sectors composed predominantly of pyroxene relics, and the overlying spaces are filled mostly with olivine and products of its decomposition.

The S_1, in general, is parallel to S_0, but sometimes one can observe centimetre-scale intrafoliation folds F_1 formed during the D_1 deformation. Despite that in the outcrop-scale the F_2