

Py₁₆ Spe₄ Gr₂ in rim. The second one displays reversed Ca evolution with the composition Alm₇₁ Py₁₂ Spe₁₃ Gr₂ in core and Alm₇₂ Py₁₃ Spe₁₂ Gr₃ in rim.

The P-T conditions estimated from the sillimanite zone: metapelite garnet-biotite thermometry (Williams and Grambling 1990) indicate temperatures between 606–623 °C and garnet-plagioclase-aluminium silicate-quartz (GASP) geobarometry (Koziol and Newton 1988) shows pressures of 4–5 kbar. These data, however, were very likely reequilibrated during cooling. The peak temperature based on the mineral association (Grt-Bi-Sill) was higher by 30–80 °C at the pressure of 5 kbar. The couple garnet-biotite from the staurolite zone indicates temperatures between 483–474 °C at pressures of 4 kbar.

Metamorphic zoning in the PCU is a product of at least two metamorphic events. The Barrovian metamorphism under conditions of the amphibolite and epidote amphibolite facies was locally overprinted by contact metamorphism.

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Rhyolite Related to Panafrican Granite in the Brno Massif (Czech Republic)

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The Brno massif is Cadomian, mostly magmatic unit situated at the eastern margin of the Bohemian Massif. It is formed by East and West granodiorite areas, which are tectonically separated by the Central Basic Belt. Whereas eastern part of the Brno massif is built by I-type granodiorites and tonalites, the granites, granodiorites, tonalites and diorites of the western part are more akin S-type. The Central Basic Belt consists of the (meta-) basalt subbelt in the east and the diorite one in the west (Zapletal 1928).

Rocks of the Brno massif are cut by rhyolitic subvolcanic dykes, whose thicknesses typically range from first tens of cms up to tens of metres. A well-known example of these dykes is exposed in the old Želešice quarry. Remarkable spatial and textural relations were found here between the rhyolites and S-type granites in rare stocks which intruded hornblende of the diorite belt. The rhyolites are calc-alkaline with clear affinity to a continental source (e.g., high K, Rb, strongly fractionated REE

patterns and distinctly negative initial ε_{Na} values - Ch. Pin, pers. comm.). The matrix is aphanitic, quartz and feldspars are common phenocrysts, biotite and amphibole are rare. Contamination of rhyolites is indicated by xenoliths of, and abundance of xenocrysts derived from, the mafic wall rocks.

There are no significant changes in chemical composition between rhyolites and granites. Variation diagrams point to a similar character of magmatic source as well as subsequent differentiation. Textural evolution from the hypautomorphic, equigranular granite to porphyritic rhyolite with sector zoning in feldspars and brecciated rocks indicates crystallisation of granitic magma during rapid pressure drop at high crustal levels.

References

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Comparison of Magnetometric and Geometric Methods of Strain Analysis of Culmian Conglomerates and Graywackes, Dražanská Vrchovina Upland

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The Dražanská vrchovina Upland in the easternmost part of the Rheno-Hercynian Zone is built up of the Lower Carboniferous flysch represented by conglomerates, graywackes, siltstones and shales. Pebbles from the polymict Luleč and Račice conglomerates (located in the SE part) and the Kořenec conglomerates

(located in the westernmost part) were used as strain markers for the geometric strain analysis. Anisotropy of magnetic susceptibility (AMS) was measured on samples from the graywacke matrix of the conglomerates. The magnetometric and geometric methods of strain analysis were compared.