The late- to post-collisional Teplice Rhyolite, Central-European Variscides (German-Czech border): Unraveling processes and evolution of A-type granitic melts

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The Teplice Rhyolite records the main eruptive stage of the Altenberg-Teplice Caldera in the eastern Erzgebirge (Germany and Czech Republic). Its deposition was followed by emplacement of porphyritic microgranites as ring dykes and Sn-rich granitic intrusions. This complex is product of the late- to post-tectonic magmatism of the Late Paleozoic Variscan orogeny.

Traditionally, the geochemical evolution of the Teplice Rhyolite had been based on investigations exclusively at the Mi-4 borehole (Mikulov, Czech Republic). Here, a vertical reverse chemical zoning of Sr, Zr, and Rb concentrations in crystal-rich ignimbrites was explained by a step-by-step deflation of a stratified magma chamber [1]. Therefore, the volcanic unit had long been considered as a simple succession of zoned ignimbrites.

However, recent studies suggest that its diverse facies reflect different magmatic histories in the evolution of its northern and southern sectors. Overall, the extrusive units chiefly comprise crystal-poor to crystal-rich ignimbrites, lava-dome complexes, and lava flows. Hence, further petrological research is needed involving all these lithologies.

In this work, the genesis and evolution of the entire spectrum of rocks from the Teplice Rhyolite were investigated by means of whole-rock chemistry, mineral chemistry, and Sr-Nd-Pb isotope data. Moreover, the results were compared to data from the "associated" A-type porphyritic microgranites in order to assess a genetic link between them. This study aims to help elucidate petrological cycles in high-silica magmatic systems with A-type signatures by using the Teplice Rhyolite as a case study.

[1] Breiter *et al.* (2001) Geolines **13**, 17-22.