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# Tectonometamorphic Evolution of the Svratka Crystalline Complex (NE Bohemian Massif): Evidence for Wrench-Dominated Tranpression along the NE Margin of the Variscan Orogenic Root

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Based on our structural and petrological data from the Svratka Crystalline Complex (SCC) in the northeastern part of the Variscan orogenic root (Bohemian Massif), we interpret tectonometamorphic processes during the later stages of the Variscan orogeny. The SCC is made up of high-grade migmatites, mica-schists, paragneisses and metagranites. The dominant regional fabric observed in these rocks is represented by ~NW-SE metamorphic foliation that dips at steep to moderate angles to the NE or SW. This foliation bears gently to moderately plunging NW or SE stretching lineation. The regional foliation is also roughly parallel to the contacts against the nearby geological units. Various stages of fabric development were recorded in microstructures of the coarse-grained and porphyric metagranites where two domains with different microstructures and finite strain patterns were recognized: (i) Low-strain domain (Vysoký kopec) is characterized by prolate finite strain ellipsoid, slightly fractured quartz aggregates retaining their magmatic shape, initial stages of K-feldspar recrystallization where the lattice preferred orientation (LPO) of new grains is homogenous and discordant to the regional fabric, and total recrystallization of biotite and muscovite. (ii) High-strain domain (Rabuňka) recorded oblate finite strain and is characterized by complete recrystallization and micro-scale deformation of all mineral phases with compositional banding, mechanical twinning and albite exsolution lamellae. LPO of the recrystalized aggregates is in this domain sub-parallel to the regional fabric. Furthermore, our petrological study from the micaschists indicates that that the SCC reached maximum PT conditions of 9 kbar and 670 °C. However, the regional fabric rather reflects the retrograde metamorphic conditions of 6 kbar at 640 °C.

Therefore, we argue that the regional fabric along the NE margin of the orogenic root recorded dextral wrench–dominated transpression at mid-crustal level. This study is supported by projects of Czech Geological Survey (CGS6328 and CGS6352) and by MSM 0021622412.