

Geology and Tectonics of the NE Part of the Komjatice Depression

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The Komjatice Depression is the northeasternmost branch of the Danube Basin. Its geologic and tectonic evolution can be followed since the Middle Badenian. The sedimentary fill of the depression consists of the Neogene megacycle. Depositional environment passes from marine to brackish, kaspibrackish, lacustrine and swamp during the Miocene. The overlying Pliocene cycle is characterized by lacustrine, deltaic and fluvial deposition.

The general NE trend of the axial part of the depositional area was preserved during the entire evolution of the depression. The deposition was controlled by an NW–SE extension. The main control of depocentre development were the NE-striking Mojmírovce and Šurany Fault systems. Brittle faults are probably determined by extensional rejuvenation of the Veporicum Thrust plane (Čertovica line).

Geochemical Signature of Subduction-related Processes in Composition of Variscan Intrusive Rocks of the Bohemian Massif

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Variscan igneous activity in the Bohemian Massif produced a broad spectrum of magma types. Besides common granitic rocks there are volumetrically significant magmatic suites of predominantly Early Carboniferous age which comprise some mantle-derived mafic members and abundant intermediate plutonic rocks with significant amounts of mantle-derived components.

Except for highly potassic rocks, plutons of hornblende-bearing granitoids with mafic enclaves and spatially related mafic bodies are restricted almost entirely to a belt traversing the Bohemian Massif from ENE to WSW. This tortuous belt comprises the Klodzko – Złoty Stok Plutonic Complex in southern Poland, the so-called "tonalite dykes" and small massifs in NW Moravia to NE Bohemia, the Nasavrky Plutonic Complex and the most voluminous Central Bohemian Plutonic Complex (CBPC) with satellite bodies and dyke swarms. Perhaps also redwitzites in NE Bavaria can be counted to that zone.

These rocks correspond to the calc-alkaline (CA), high-K calc-alkaline (HK) and shoshonitic (SHO) suites. The K-rich shoshonitic and particularly ultrapotassic (UK) plutonic rocks are widespread at the peri-Moldanubian SE margin of the CBPC and also form separate plutons plus many small bodies within the Moldanubian block itself. Abundant UK dykes are exposed in the area of the CBPC and, less frequently, in other parts of the Bohemian Massif.

Compositional relations of CA to HK members of the CBPC (dated at 351 ± 11 to 346 ± 10 Ma, Holub et al. 1997b) with rocks of supra-subduction magmatic arcs have been already recognized by, e.g., Palivcová (1984), Holub et al. (1995, 1997a), and others. Mid-late Devonian CA orthogneisses are present in the roof of the CBPC (Košler et al. 1993).

All these rocks show distinct LILE enrichment relative to HFSE, high Th/Ta and other characteristics of subduction-related magmas. Compositionally similar CA to SHO magmas are produced in modern magmatic arcs above the downgoing slab in places where its upper surface lies about 100 to 150 km below the surface. The existence of mid-Devonian to Lower

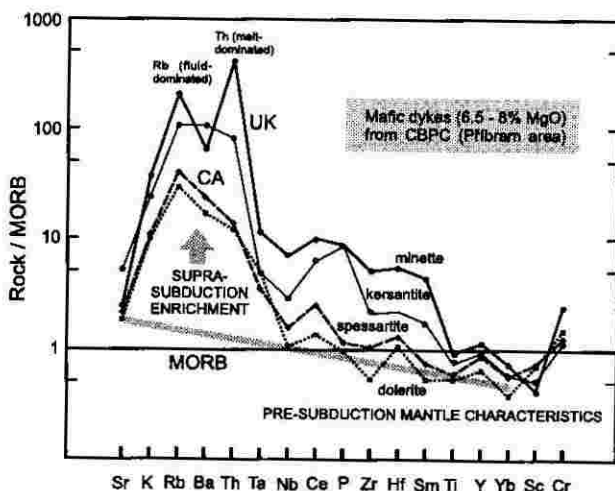


Fig. 1. Spidergram of MORB-normalized elemental abundances for calc-alkaline to ultrapotassic dyke rocks from the Příbram area, Central Bohemian Plutonic Complex. These Mg-rich primitive dykes display various degrees of the subduction-related enrichment in most of LILE elements plus Th.