

Abstract

Šternberk-Horní Benešov belt (SHB) is built by Devonian and Lower Carboniferous rocks located between Culmian Eastern Jeseníky and Western Jeseníky nappes. As the SHB is located in the Low Jeseníky Mountains, it is a part of Rhenohercynian zone of European Variscides. The southern part of SHB is built by a volcanic complex of intrusive rocks, lavas and volcanoclastic rocks with intercalated beds of Stínava-Chabičov shales. Alkaline volcanism in Rhenohercynian zone was earlier interpreted as a result of extension in back-arc basin.

Structural measurements of this study proved, that volcanosedimentary succession (situated north eventually northward) of Šternberk) is a tectonic slice. This slice was dragged out on the base of the Culmian greywacke nappe during the Variscan orogeny. Firstly the slice was thrust northeastwards over the body of younger Culm greywacke. After that, the stack of nappes (including the Devonian volcanic rocks) was sheared in dextral transpressional regime. The field works also indicated, that the Devonian volcanic complex was tectonically separated from its stratigraphic footwall and hanging-wall.

Volcanic rocks gradually built an elevation, eventually reaching the sea level. Analysis of volcanic facies proved that the most of volcanoclastic rocks was deposited near the volcanic centre and could be transported down the slopes of the elevation in the form of hyperpycnite flows.

Primary geochemical and mineral composition of volcanic rocks was significantly changed by processes of spilitisation, carbonatisation and potassic metasomatism. Results of immobile trace elements (f. e. REE, HFSE) analysis characterize the volcanism of SHB as weakly to medium alkaline basalts produced by low degree melting of mantle enriched in incompatible elements in significant depth. Such volcanism is typical for the ocean islands and intra-continental rift environments, but it is not usually present (with rare exceptions) in the back-arc environment.