

## ABSTRACT:

Diploma thesis deals with geological, petrological and geochemical studies of neovolcanic rocks of the SW part of the Most Basin in the area of Tušimice power plant open pit. There are two lava flows affected by coal mining in northern part of the mine. Petrological and geochemical studies with K-Ar dating relatively recent rocks in mostly weatherworn volcanic rocks showed, that they can be classified as Ti-rich basaltic rocks without olivine (tephrites), which belong to the main volcanic phase in the evolution of the Eger graben. It was evidenced geologically and with K-Ar dating, that studied rocks were separated from underlying beds by hiatus which caused erosion of volcanic rocks as well as crystalline bedrock. Major and trace elements composition of co-magmatic volcanics showed that rocks were derived from two slightly different sources of upper mantle. Composition of two samples indicates the formation from low degree of partial melting strongly metasomatic asthenospheric mantle. Chemical features of volcanic rocks show that mantle source was comparable to recent OIB basalts. Last sample arose from less metasomatized and depth distinguished mantle which was affected by higher level of partial melting. Melts from which crystallized both rocks were minimally affected by assimilation or contamination. Extension of lithosphere in Alp forefield and output of mantle diapir facilitated the output of oligocene magma in the beginning of main volcanic phase of the Eger rift evolution. Increased subsidence enabled deposition of few hundred meters thick sequence of overlying coal-bearing sediments.

Key words: Most Basin, oligocene, miocene, volcanic rocks, geology, petrology, geochemistry