

PLEISTOCENE FLUVIAL TERRACES OF THE SVRATKA RIVER – FACIES AND PROVENANCE STUDY

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The middle course of the Svatka river flows through the geologically and geomorphologically complex area around the city of Brno. This area underwent a dynamic development during the Quaternary. Terrace system along the river course developed, witnessing the alternating incision and deposition phases during the last 1 Ma. The Quaternary uplift of the area can be deduced from the incision record of the river system. Sea level changes are assumed to have played negligible role (distance to the coastline, low river gradient).

Three successive river terraces (Pleistocene) were studied within the terrace staircase, the highest of which is about 60 m and the lowest about 15 m above the present river. Preservation of the river deposits is mostly fragmentary. The middle terrace (ca. 40 m above the present river) is the best preserved one (with largest lateral extent and thickness). The terrace sediments are composed of fluvial gravels and sands. Architectural components within the

outcrops were defined and include: 1) basal, thalweg-fill deposits, 2) crudely stratified gravely barform deposits, and 3) inclined gravely and sandy barform deposits. Results of facies study reveal deposition in high-energy rivers.

Preserved fluvial deposits provide important sedimentary archive witnessing the condition within both provenance and depositional area during the Pleistocene. Provenance studies are based on the petrography of the pebbles and cobbles, heavy mineral assemblages and results of microprobe analyses of selected minerals (garnet, tourmaline, rutile, spinel). Varying role of distant (crystalline rocks of Moravicum, Svatka and Polička Crystalline Units) and local (Neogene deposits of the Carpathian Foredeep, Permian deposits of the Boskovic Furrow, Devonian conglomerates/"Old Red facies" and magmatic rocks of the Brno Massif) sources can be followed within the terrace system and the possible evolution of the source area interpreted.