ABSTRACT

This diploma thesis deals with the study of sedimentary marine rocks of the Třenice Formation in the western part of the Prague Basin, which belongs to Teplá–Barrandian area. The aim of this work is to assemble a depositional model of the Třenice Formation.

Sedimentary processes and environments of the Třenice Formation and its close overlying succession (lower parts of the Mílina and Klabava formations) were reconstructed based on facies, facies architecture and paleocurrent analyses.The determination of clastic material sources were based on petrologic characterisics of sedimentary rocks and heavy minerals analyses.

Five main facies associations, which represent different sedimentary processes and environments were defined according lithology and bedforms geometry:

1) Facies association of polymictic conglomerates. It is interpreted as transgressive sediments.
2) Facies association of volcanic conglomerates. It is interpreted as a sedimentary record of pyroclastic debris flows, which moved from the subaerial Upper Cambrian complexes into marine environment.
3) Facies association of lithic sandstones. It is interpreted as a system of subaquatic dunes and tempestites deposited below fairwater wave base.
4) Facies association of tuffitic sandstones. It represents a sedimentary record of pyroclastic turbidity flows. This facies association could be derived from pyroclastic debris flows of the facies association of volcanic conglomerates.
5) Facies association of siltstone and cherts with sandstone intercalations, which occurs in overlying Mílina and Klabava formations. It is interpreted as product of sedimentation in conditions with lower energy, when sediment supply was reduced. It may be a record of distal tempestites, too.

Based on interpretations of sedimentary processes, environments and paleocurrent analyses, the general model of sedimetary environment of Třenice Formation in western part of Prague Basin was developed. The proposed model displays tide dominated shelf with sedimentation of subaquatic dunes and

tempestites in marine embayment and influenced by episodic pyroclastic gravity flows from volcanic elevations.

Heavy minerals analyses and petrologic features of sedimentary rocks make evidences for three main sources of clastic material:

1) The Upper Cambrian volcanic rocks (Křivoklát-Rokycany Complex and Strašice Complex)
2) Undrelaying stratigraphic sedimentary units (Upper Proterozoic and Cambrian).
3) Not more closely specified area built by metamorphic rocks area.

Low diversified benthic communites with domination of linguliformean brachiopods prevail in sediments of Třenice Formation. Only a more diversified community with trilobites, bryozoan-like fossils and echinoderms has been recorded in Ouzký neat Holoubkov.