Basin, one of the extensional sub-basins of the Ohře Rift (Eger Graben) basin system in North Bohemia (Czech Republic). The Bílina Delta is interpreted as a fluvial-dominated, mouth-bar – type delta, with distributaries terminated by friction-dominated mouth bars, mostly of Gilbert-type profile (Uličný et al., 2000). The receiving basin was a shallow lake, not more than several metres deep, which formed on a subsiding part of a mire and was surrounded by actively growing peat during most of the time of deltaic sedimentation. The deltaic system overlies the main lignite seam and is in turn overlain by lacustrine clay succession.

This deltaic depositional system is relatively small (c. 5 km across), and is excellently exposed in complete thickness of c. 250 m, and new cross-sections are being continuously provided by ongoing excavation in the Bilina open-cast mine. Reflection-seismic data (2-D) were used to: i) confirm results of field studies, ii) provide more precise information about 3-D geometry of the depositional system and spatial / temporal relations to surrounding environments. Archive reflection seismic profiles 21/81, 22/81 and 68/83 acquired in early 1980 (Jihlavec and Novák, 1986) were reprocessed and reinterpreted.

Several phases of progradation of deltaic bodies occurred over the lifetime of the Bílina Delta system (probably significantly shorter than 1 My), interrupted by major flooding episodes (Dvořák and Mach, 1999; Uličný et al., 2000). Significant part of accommodation, however, was created by compaction of the underlying peat, and, during later phases of the delta evolution, also by compaction and migration of lacustrine and prodelta clays deposited above the main seam. This depositional pattern led to migration of the depositional system towards places with high compactional potential, and so resulted in shingle-like architecture of the Bílina Delta sedimentary record, well perceptible on exposures and reflection-seismic profile.

The reflection-seismic data show onlap of lacustrine strata on the topmost surface of deltaic deposits, suggesting a gradual submergence of the delta. Accommodation space for deposition of the lacustrine sediments was initially created by compaction of the peat accumulations around the deltaic system. The final drowning of the Bílina delta system coincides with an increase in tectonic subsidence rate that resulted in basinwide expansion of lacustrine environment recorded also elsewhere in the Ohře Rift.

The deltaic deposits recorded a large number of changes in accommodation, at a variety of time scales and of varying orders of magnitude. The large-scale stratigraphic geometries reflect an interplay of tectonic subsidence and compaction of peat. We assume that fault activity in the extensional tectonic setting triggered: i) the onset of clastic deposition on top of the peat, by providing initial accommodation, ii) creating the clastic input pathway, and iii) final drowning of the Bílina Delta system. However, the dynamics of accommodation during the subsequent evolution of the lacustrine delta system was governed largely by the interplay of sediment input and compaction. Although problems with chronostratigraphic dating of the non-marine Most Basin infill prevent accurate quantitative estimates of rates of individual processes involved, a qualitative comparison shows that compaction of peat in this setting was a significantly faster component of accommodation than tectonic subsidence. Also, the rheological behaviour of peat changed the surface expression of brittle basement structures and thus exerted a major control on stratigraphic geometries.

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Succession of Lava Flows of Úhošť Hill in Relation to the History of Magma Reservoir

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A detailed study of petrology, geochemistry and volcanology was made at the locality of Úhošť near Kadaň on the NE margin of the Doupovské hory volcanic complex (Rapprich, 2003). Doupovské hory volcanic complex belongs to the Central European alkaline volcanic suite and its genesis is associated with the Eger Graben (Kopecký, 1987). The Doupovské hory

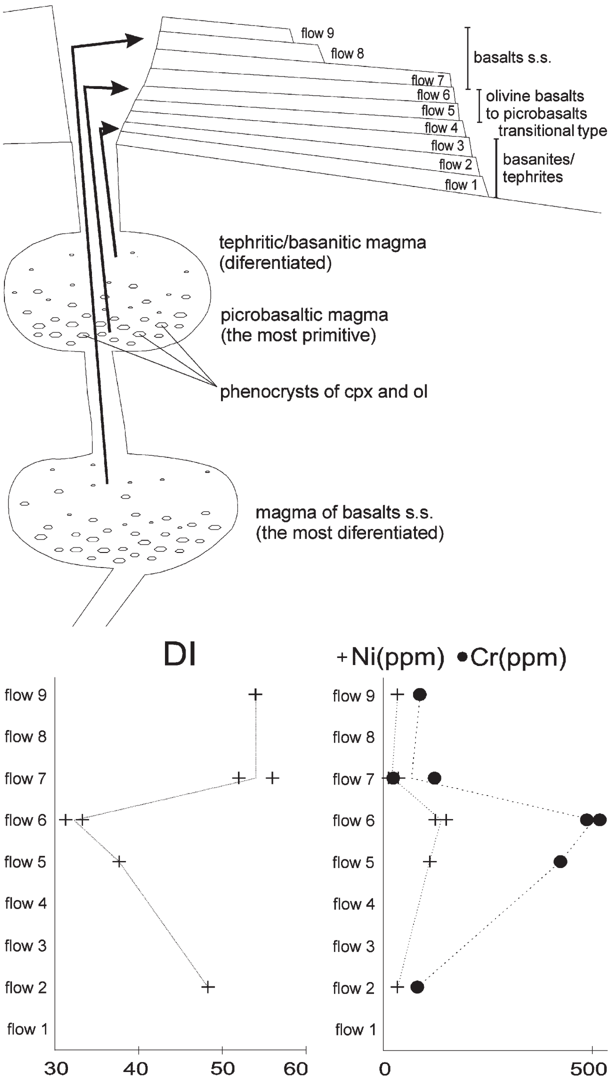

Fig. 1. Supposed system of magma reservoir of Úhošť Hill and its relation to the succession of lava flows.

volcanic complex is currently divided into two lithostratigraphic units (formations): lower – predominantly explosive, and upper – predominantly effusive (Hradecký, 1997; Hradecký in Hradecký et al., 2000; Hradecký and Rapprich, 2002). Úhošť Hill belongs to the upper formation. The locality of Úhošť Hill was formerly presented as a typical example of a "stratovolcano type" of the Doupovské hory volcanic complex (Zartner, 1938; Kopecký, 1987; Krutský, 1992). Beds of clastic material between compact lavas are now interpreted as autoclastic facies of lava flows (Hradecký in Hradecký et al., 2000; Rapprich, 2003). The linear-shaped feeder of the Úhošť lavas is believed to be situated in the Donínský potok valley and is currently represented by an erosional relict of the chimney breccia with xenoliths of crystalline rocks exceeding 1 m in diameter. At Úhošť, nine lava flows were distinguished and grouped into three petrographic groups: tephrites/basanites, olivine basalts to picrobasalts and basalts *s.s.* (the groups are presented chronologically from the oldest to the youngest). The values of diferentiation index (DI) were counted for all analysed rocks. An increase in DI value correspons to a decrease in Cr, Ni, Mg# and CaO and to an increase in Al_2O_3 and $Na_2O + K_2O$. Based on these values, it was possible to constitute the hierarchy of differentiation in the studied rocks. The most primitive magmas (picrobasalts) erupted over more differentiated (tephrites/basanites). The most evolved magmas are the youngest. This fact can be explained by the possible existence of a two-level magma reservoir. In the shallower part, the magma was zoned due to crystallization of olivine and clinopyroxene and their deposition on the bottom of the chamber. With the onset of volcanic activity, the magma chamber was being depleted from the top to the bottom, where phenocrysts of olivine and clinopyroxene were accumulated (the tephrites/basanites are fine-grained to glassy while the picrobasalts are coarse-grained and rich in phenocrysts). The tephrite/basanite and picrobasalt magma was later supplied by more differentiated basalts *s.s.* from a deeper level of the reservoir. This succession and model of genesis were described for the locality of Úhošť and cannot be extrapolated for the whole Doupovské hory volcanic complex.

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