

Abstract

This PhD thesis is a commentary to the attached publications. The thesis deals with two microfossil groups Ostracoda and Foraminifera in the Upper Cretaceous of the Bohemian Cretaceous Basin. Contribution of these microfossils for biostratigraphy and application in palaeoenvironmental reconstruction with the modern approach is the main goal of this work. Basic ecology, biogeography and previous work in the Bohemian Cretaceous Basin is included. Studied fossil sites, methods, microfossil preservation and data evaluation are described below. Obtained palaeontological, geochemical and lithological data are interpreted in the context with available data from studied fossil sites.

Ostracoda assemblage from Úpohlavy fossil site is correlated with the Ostracoda assemblage from Great Britain. The similarity of the Ostracoda taxa suggests a possible communication of compared areas. Thanks to this work, biostratigraphy occurrence of six Ostracoda species (*Cytherelloidea stricta*, *Nemoceratina (Pariceratina) montuosa*, *Cythereis ornatissima ornatissima*, *Phodeucythere cuneiformis*, *Pterygocythereis robusta* a *Bairdoppilata litorea*) is extended to Upper Turonian. Taxonomical changes in studied ostracoda assemblage expressed by PSH hypothesis (Platycopid Signal Hypothesis) support previous palaeoenvironmental reconstruction based on macrofauna with cooling and boreal water shift during the Hyphantoceras event.

The studied interval of the Bch-1 (Běčary – a central part of the Bohemian Cretaceous Basin) drill core shows Upper Turonian sedimentary sequence, where two benthic foraminifera biozones, previously valid for the Bohemian Cretaceous Basin, were distinguished: *Tritaxia tricarinata* assemblage zone and *Gaudryinella concina* range zone. Detailed geochemical data from studied drill core show exceptionally well preserved precessional paced cyclicity record. This record is based on Si/Al ratio and it is interpreted as seasonal changes. The main goal of this work was the determination of foraminiferal assemblage reaction to the interpreted cyclicity. Multidimensional statistical analysis helps to distinguished three foraminiferal assemblages (clusters). The cluster alteration is related to seasonal changes, the rainfall intensity, terrigenous input, nutrient content and salinity changes. Seasonal maxima are in the correlation with low abundance of cluster *Lenticulina* sp. – agglutinated benthos. In the lower part of the studied interval during seasonal minima is in dominance cluster *Cibicides* – *Gyroidinoides* – spiral globular plankton. In the upper part of the studied interval during seasonal minima is in dominance *Gavelinella* – *Praebulimina* sp.– spiral keeled and biserial

plankton. This alternation is probably caused by longer term seasonal changes or by changes in nutrient content. Lower foraminiferal diversity and lower P/B ratio deduce intensive rainfalls, higher clastic input and salinity changes during seasonal maxima.

The Svinary fossil site represents terminal sedimentation in the Bohemian Cretaceous Basin. The benthic foraminiferal zone *Stenseoeina granulata* – *Eponides whitei* was observed in this locality, this zone belongs to Coniacian of the Bohemian Cretaceous Basin. Foraminiferal assemblage shows different life strategies (K-strategy and r-strategy) of planktonic foraminifera. The possible explanation for the coexistence of these different foraminiferal groups is different depth preference, water column stratification or seasonal effect.