Abstract

The Bohemian Cretaceous Basin was a sediment accumulation, which was deposited as an integral part of the central European epicontinental sea during the Late Cretaceous sea level highstand. It acted as a marine strait and was suited for preserving both nearshore coarse-clastic successions and hemipelagic deposits, allowing for the study of interplay between tectonics, eustatic sea level and paleoceanographic conditions. While the north-western part of the basin was extensively studied in the recent years, little information has yet been collected about the coeval along-shore environments. This thesis is aimed at bringing a new insight into these fine-grained deposits through a detailed lithological, multiproxy and time-series analysis investigation of the Late Turonian record in the Bch-1 drill core, Běchary, Czech Republic. The secular onset of carbonate-rich hemipelagic sedimentation coeval to the base of Teplice Formation is characterised by increased micrite content and changes in geochemical proxies, which are interpreted as changes in the pathway of clay distribution and silt source proximity, combined with elevated bioproductivity. Three orders of statistically significant variability were identified by time-series analysis of selected geophysical properties, two of which are carrying the Milankovitch frequencies and one quasi-periodic millennial signal. The millennial scale cyclicity is the most pronounced of the three and is characterised by early diagenetic enhancement of a primary sedimentary signal. The two other cyclicities are ascribed to precession and eccentricity forcing, on account of their regularity and a good agreement of calculated, orbitally tuned sedimentation rates to an independent sedimentation rate model. The origin of the cyclicity is discussed in respect to changes in circulation and sediment dispersion, revealing the role of tidal and climatic forcing and explaining possible roles that it could have played during the time of deposition.