Stratigraphy of the Lower-Middle Coniacian core section (NW-part of the Bohemian Cretaceous Basin): deciphering T-R history and linking offshore to proximal deposits

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Integrated stratigraphic research focused on the Lower–Middle Coniacian interval recorded by the borehole 4650_A Skalice, NW-part of the Bohemian Cretaceous Basin (BCB). It comprises a c. 175 m thick, predominantly fine-grained sequence bracketed by sandstones deposited in deltaic environment (ULIČNÝ et al., 2009). Two basic lithofacies were distinguished: 1) unconfined beds of calcareous mudstones to siltstones, locally with sand admixture; 2) turbidites (as interpreted by ČECH et al., 1987) represented by heterolithic facies, an irregular alteration of mudstones and thin beds of sandstones, and by isolated upward-fining sandstone bed – Žandov Sandstone.

Biostratigraphy was employed to resolve stratigraphic subdivision of the monotonous fine-grained succession due to absence of lithostratigraphic markers. Lower Coniacian strata were determined by inoceramids *Cremnoceramus walterdorfensis hannovrensis (Cwh)* and *C. crassus inconstans (Cci)* ca. 20 m above the top of underlying Turonian–Coniacian sandstones. Concerning nannofossils, a quantitative rise of *Marthasterites furcatus* was observed below the occurrences of *Cwh* and the appearance of transitional forms *Quadrum-Micula* was recorded above *Cci*. Top of the *Cci* zone marks the boundary of genetic sequences CON 1 and 2. Timespan of CON 2 sequence is defined by the extent of the *C. crassus crassus (Ccc)* zone that corresponds to the upper part of Rohatce Mb. (silicified limestones) in the axial part of the BCB. The scarce presence of the nannofossil *Micula staurophora*, UC10 zone, was recorded between the last occurrence (LO) of *Ccc* and the FO of *Inoceramus frechi* and indicates the base of Middle Coniacian. Geochemical proxies acquired by XRF core scanning – Si/Al, Ti/Al, Zr/Al – are lithology-dependent, and within fine-grained rocks reflect subtle variations in siliciclastic input. Local increase of Ti/Al and Zr/Al may reflect elevated heavy mineral content. Overall, elevated values represent a signal of distal turbidites in deltaic bottomsets. Periodic action of high-energy currents transporting clastic material from proximal setting is evidenced by abundant shell debris and relative scarcity of nannofossils due to dissolution and mechanical damage. Intensity of weathering and erosion in the source area can be estimated from proportions of clay minerals and K/Al ratio.

In the next phase, biostratigraphic data will be linked to geochemical proxies to explain the dynamics of the depositional environment in time, and supplemented by C/O stable istope data and Sr isotope curves for inter-basinal correlation.

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