

## Sandy-glauconitic horizons in Campanian-Maastrichtian succession in Southern Poland (Miechów Segment) as indicator of sea-level change- preliminary observations

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During Upper Cretaceous Miechów Segment was a marginal part of Polish-Danish Trough, which filling deposits were described “over regional” (eustatic changes) and global events (Subhercynian movement), which affected on sedimentary evolution of neighbouring area (Cracow-Silesia area and Sudetic area). The study of Upper Cretaceous deposits in Miechów Segment is a crucial key in understanding evolution of the whole south Poland and neighbouring area. Sandy-glauconitic horizons in Campanian and Maastrichtian succession of Miechów Segment were noticed by previous authors since 60’s (e.g. Rutkowski, 1965) and some of them were called as hardgrounds. In monotonous carbonate (siliceous limestones=opokas with marly intercalations) successions hardgrounds were treated as useful tools in chronostratigraphic correlation in local scale.

Sandy-glauconitic horizons usually indicate decreasing of sedimentation rate or non deposition events, which were usually connected with basin deepening. New interpretations indicate that such horizons can be connected with basin shallowing, rather than deepening. In Hancock (1993) interpretation hardgrounds indicate turn/ or inflection points from LST to HST on eustatic curve for NW Europe.

The main goal of the project was to determine the biostratigraphical position of studied horizons and correlate them with well-known eustatic cycles described in NW Europe.

In Miechów Segment seven sandy-glauconitic horizons were indicated (Fig. 1.). Each of them has different character, which manifest in variable composition of detritic quartz, glauconitic grains and phosphoritic nodules. Different group of fossils (sponge, echinoids, bivalves were also indicated.

Detailed biostratigraphic (based on inoceramid) revision of Campanian and Maastrichtian deposits in Miechów Segment revealed that some of recognized sandy-glauconitic horizons correlate with transgression/regression events determined in isochronous sections in Germany and France (Voigt *et al.*, 2012), England (Jarvis *et al.*, 2002), based on isotope  $\delta^{13}\text{C}$  excursion. Two

recognized horizons did not correlate with event which reflect on eustatic curve, and probably they are an effect of local tectonic movements (probably the Subhercynian phase).

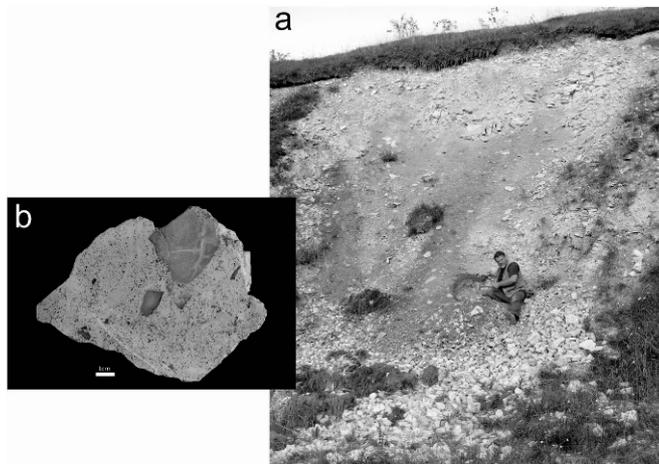


Fig. 1.: Jeżówka outcrop, where a Lower Campanian firmground were described (a) glauconitic clasts on which firmground developed in marly matrix from Jeżówka outcrop.

In the future, more detailed analysis of sandy-glauconitic horizons will be done. Analysis will include palaeontological, petrographical and isotopic ( $\delta^{13}\text{C}$ ) data collection, too. Such interdisciplinary research will help to understand the connection between glauconitic-sandy horizons occurrence and sea level change.

- Hancock, J (1993): Geol Soc London, Spec Publ, 70: 241–270  
Jarvis, I., Mabrouk, A., Moody, R.T.J., Cabera, S (2002): Paleogeogr Paleoclim Paleocol, 168: 311-336  
Rutkowski, J. (1965): Rocznik Polskiego Towarzystwa Geologicznego, 35/1: 3–53  
Voigt, S., Gale, A.S., Jung, C., Jenkyns, H.C (2012): Newslet Strat, 45/1: 25–53.