



## **Anoxic sedimentation and environmental change in the Lower Cretaceous in the Outer Western Carpathians (palynological and Corg proxies)**

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Early Cretaceous oceanic sediments of Silesian Unit (Flysch Belt) were studied palynologically and for Corg content to finding a degree of anoxia. Sedimentation is characterised by a considerable thickness of dark grey, prevailingly pelitic deposits. Studied deposits begin near the Tithonian/Berriasian boundary and pass through the whole of Lower Cretaceous to the lowermost Cenomanian. With reference to the monotonousness of the Lower Cretaceous deposits and their poor exposure, the thickness of them can be merely estimated at even 1500 m. In places, layers of sand turbidities (sandy limestones in the Berriassian and Lower Valanginian) usually interrupt the pelitic sequence of strata.

The quantitative composition of dinocyst assemblages reflects a gradual deepening of the sedimentary space from the Berriasian till the Cenomanian that is, however, also a reflection of the rising sea level in the upper part of the Lower Cretaceous (according to the 2<sup>nd</sup> order eustatic curve). In the lower part (Berriasian to Early Hauterivian) dinocysts characterizing the shallow-water environment with variable salinity dominate. They represent the redeposition of shallow-water material into the deeper parts of the basin. Towards the overlying beds, neritic species increase in number (*Achomosphaera*, *Oligosphaeridium*, *Spiniferites*) and especially deep-sea (oceanic) dinocysts (*Pterodinium*). The Corg content increased in the uppermost Valanginian (max. 5,76%; ?OAE). The quantitative composition of dinocysts of the uppermost Barremian and the Early Aptian is characteristic of the deeper shelf environment. In the Albian, it is already the case of sedimentation in a basinal sedimentary environment (oceanic dinocysts are present here as an autochthonous element) with the re-

deposition of material supplied from littoral to deeper shelf areas. In the uppermost Albian, a sudden increase in the portion of peridinioid dinocysts occurred reflecting the eutrofization of surface waters, and probably their cooling as well.

The quantitative compositions of palynomorphs are also interesting. As far as the composition of palynomorph assemblages is concerned, sporomorphs play a more important role in the period from the Late Valanginian to the Early Aptian. This is proved by an increased supply of terrestrial material. The composition of Early Barremian palynomorphs of the Silesian Unit is characterised by a presence of prasinophytes (those indicate decreased surface water salinity). In the other parts, sporomorphs represent only a negligible part of palynomorph assemblages. The Corg increase in the Upper Barremian (max. 2,9%; ?OAE), Upper Aptian (max. 3,7%; OAE1a – “Selli Event”) and uppermost Albian (max. 2,94%; OAE1c).

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