Geophysical Research Abstracts, Vol. 9, 02355, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-02355

Upper Cretaceous dinoflagellates and palaeonvironmental change of the Silesian basin (Outer Western Carpathians)

P. Skupien

Institute of Geological Engineering, VŠB-Technical Univerzity, 17. listopadu, Ostrava-Poruba, Czech Republic

The Upper Cretaceous sediments in the Silesian Units were studied palynologically. The Silesian Unit in the Cretaceous is characterised by flysch sedimentation in the following developments: the Godula development (basinal setting), the Baška development (frontal slope setting) and the Kelč development (continental slope setting). Variegated calcareous shales and marlstones are typical for Upper Cretaceous in the continental slope facies of the Silesian Unit. Dinoflagellate cyst assemblages (*Apteodinium spinosum, Atopodinium cretaceum, Odontochitina perforata, Palaeohystrichophora infusorioides, Trihyrodinium suspectum, Xenascus* sp.) from the grey intercalations indicate the Late Cenomanian to Late Turonian age. These correspondes with foraminiferal and calcareous nannofossils data. Assemblages of palynomorphs are represented by dinoflagellates, bisaccate pollen grains, spores and foraminifera linings. Nearshore dinoflagellates are dominant (*Circulodinium, Odontochitina, Xenascus*). Underlying gray spotted shales contain only dinoflagellates. Outer neritic taxa prevail (*Achomosphaera, Spiniferites, Pterodinium*). Stratigrafically significant are *Litosphaeridium siphoniphorum, Ovoidinium verrucosum* and *Palaeohystrichophora infusorioides.* This assemblage is uppermost Albian to Early Cenomanian age.

The basinal sedimentation in the Godula development is of a completely different character. It is a case of turbiditic non-calcareous sedimentation. In the lower part of the sequence of strata grey to green-grey claystones are present (Albian to Cenomanian); higher red claystones appear (CORB) that are accompanied by sandstones (Turonian to Santonian). Sedimentation has a character of transition from Lower Cre-

taceous anoxic sedimentation to Upper Cretaceous oxic one. The higher part of the Upper Cretaceous is represented by a markedly sandy flysch (Campanian). In the assemblages of palynomorphs, cysts of dinoflagellates are the most abundant; the negligible amount of acritarchs and bisaccate pollen grains can be observed. In the assemblages of dinocysts of the Albian, the types lived in offshore waters (genera *Achomosphaera* and *Spiniferites* up to 60%) prevail. The highest content of near-shore species (*Odontochitina* sp.) with pollen grains in the black bands of the Cenomanian suggests increased resedimentation from marginal parts of the basin and indicated eutrophic events. In the assemblages of dinoflagellates of grey Turonian to Santonian pelites deep-sea representatives prevail and simultaneously the genus *Surculosphaeridium* (above all *S. longifurcatum*, 38%) predominates. On the contrary, in the overlying sediments of the uppermost Santonian to Campanian, the representative of peridinioid cysts, *Palaeohystrichophora infusorioides* (up to 40%) predominates. Thus a P/G ratio (ratio of peridinioid to gonyaulacoid cysts) increases. This ratio is also high thanks to the presence of representatives of the genera *Chatangiella* and *Isabelidinium*. This might be a record of in situ primary productivity of oceanic waters due to upwelling. Lack of dinocysts and phytoclasts in the red and light-grey shales suggests highly aerobic environment resulting from very slow sedimentation rate and limited organic matter supply.

This work was supported by the Grant Agency of the Czech Republic (GAČR No. 205/05/0917).