Geophysical Research Abstracts
Vol. 19, EGU2017-7745, 2017
EGU General Assembly 2017

Dinoflagellate cyst biostratigraphy of the Upper Cretaceous succession in the sub-Arctic region

Wiesława Radmacher (1), Jarosław Tyszka (1), Gunn Mangerud (2), and Martin Pearce (3)

(1) ING PAN – Institute of Geological Sciences, Polish Academy of Sciences, Research Centre in Cracow, Senacka 1, 31-002 Krakow, Poland, (2) Department of Earth Science, University of Bergen, Postbox 7800, NO-5020 Bergen, Norway, (3) Evolution Applied Limited, Burford Road, Lechlade, Gloucestershire GL7 3QQ, United Kingdom

The study provides a solid basis for the first palynostratigraphic zonation of the Upper Cretaceous sub-Arctic succession. Dinoflagellate cysts from the unique composite section, combining samples from the shallow stratigraphic core 6711/4-U-1 and core-samples from well 6707/10-1 in the Norwegian Sea, were studied and compared to palynological data from the south-western Barents Sea, wells 7119/12-1, 7119/9-1, 7120/7-3, 7120/5-1 and 7121/5-1. Dinoflagellate cysts diagnostic for late Maastrichtian that are missing in the Barents Sea are recorded in both sections in the Norwegian Sea. This adds new valuable data from the time interval often represented by a significant regional hiatus in the area. Seven new and three previously recognised zones are identified, based on top and base occurrence of selected age diagnostic taxa. In addition, one Abundance Subzone is introduced. The biostratigraphic zonation includes: the intra late Albian to intra early Cenomanian Subtilisphaera kalaalliti Interval Zone sensu Nøhr-Hansen (1993); the intra early Cenomanian to intra late Cenomanian Palaeohystrichophora infusorioides–Palaeohystrichophora palaeoinfusa Interval Zone sensu Radmacher et al. (2014); the intra Turonian to ?intra early Coniacian Heterosphaeridium difficile Interval Zone sensu Nøhr-Hansen (2012); the ?intra early Coniacian to late Santonian Dinopterygium alatum Interval Zone sensu Radmacher et al. (2014); the ?early Campanian Palaeoglenodinium cretaceum Interval Zone sensu Radmacher et al. (2014); the intra Campanian Hystrichosphaeridium dowlingii–Heterosphaeridium spp. Interval Zone sensu Radmacher et al. (2015); the intra late Campanian Chatangiella bondarenkoi Interval Zone sensu Radmacher et al. (2014) encompassing the Heterosphaeridium bellii Abundance Subzone; the early Maastrichtian Cerodinium diebelii Interval Zone sensu Nøhr-Hansen (1996) and the intra late Maastrichtian Wodehouseia spinata Range Zone sensu Nøhr-Hansen (1996). The Heterosphaeridium bellii is a newly described species important for biostratigraphical and palaeoenvironmental interpretations. Comparison of the recorded dinoflagellate cyst events with the published data from adjacent areas, such as west and east Greenland, North Sea, offshore eastern Canada and northern Siberia allows for sub-Arctic interregional correlations. This research was partially supported by EEA Financial Mechanism and Norwegian Financial Mechanism and the Research Council of Norway.