



Towards a Neogene Palynostratigraphy of the High Northern Latitudes: A Magnetostratigraphic Calibration of Dinoflagellate Cyst Datums in ODP Hole 907A from the Iceland Sea

Michael Schreck, Jens Matthiessen, and Ruediger Stein

Alfred Wegener Institute for Polar and Marine Research, Department of Geosciences, D-27568 Bremerhaven, Germany
(Email: Michael.Schreck@awi.de)

In order to contribute to the improvement of biostratigraphic age control for the Neogene sequences in the High Northern Latitudes we examined palynomorphs from ODP Hole 907A at a 100 kyr resolution. Diverse and well-preserved dinoflagellate cyst and acritarch assemblages, comprising 42 genera and 154 species are recorded for the period from 16 - 2.5 Ma. The section investigated has a good magnetostratigraphic age control, thus allowing us to firmly calibrate our identified dinocyst events to the Astronomical Tuned Neogene Timescale. Comparison of these datums across the Norwegian-Greenland Sea, North Atlantic and adjacent basins revealed that most datums are useful to correlate sequences on a regional scale but a number of events are suitable for supra-regional correlation of sequences.

The Iceland Sea dinocyst record is characterized by a distinct down core increase of both dinocyst abundances and diversity clearly reflecting the general long-term cooling trend since the Middle Miocene. This long-term dinocyst evolution is punctuated by numerous short-term variations and we identified different assemblages and distinctive suites of acmes indicating considerable changes in the physical characteristics of surface water masses. The fairly rich Miocene flora diminishes in the Lower Pliocene and almost disappears in the Upper Pliocene, probably reflecting deterioration of the climate.