

# **LATE EOCENE THROUGH LATE OLIGOCENE BIOSTRATIGRAPHY AND STABLE OXYGEN/CARBON ISOTOPES OF FORAMINIFERA FROM LOBURG 1/90 BOREHOLE (EASTERN GERMANY)**

1SCHUDACK, M.E., 2NUGLISCH, K. and 3MACKENSEN, A.1Institute of Palaeontology, Free University, Berlin, Germany; 2Halle/Saale, Germany; 3Alfred Wegener Institute, Bremerhaven, Germany.

Loburg 1/90 borehole in the eastern part of Germany has exposed 170 m of Late Eocene through Late Oligocene sediments. These represent the shallow seas near the southeastern coast of the former North Sea basin. Lithostratigraphic units are Upper Schönewald Formation (oldest), Rupel Transgression horizon, Lower, Middle and Upper Rupel Formation, and Chatt Formation (youngest).

The sediments have yielded extremely rich and diverse faunas of foraminifera, with a considerable faunal change between the Schönewald and Rupel Formations, traditionally considered to be equivalent with the Eocene/Oligocene boundary. However, careful biostratigraphic interpretation of the faunal associations and correlations with other Mid-European sections and the nannoplankton zonation scheme have now yielded evidence for a younger age of the faunal change, i.e. within or above NP 22, which implies an Eocene/Oligocene boundary within the Upper Schönewald Formation.

Stable oxygen and carbon isotopes were measured in benthic foraminifera of the genus *Cibicides* from 120 samples throughout the whole section. Delta 18O values increase within the Upper Schönewald Formation, i.e. within nannoplankton zones NP21 to NP22 by about 1 ‰. This documents the well-known global increase close to the Eocene/Oligocene boundary and probably reflects the build-up of the east-Antarctic ice shield. An additional increase by about 0.8 ‰ in benthic delta 18O values between Schönewald and Rupel Formations during NP22 up to NP23, however, documents a regional cooling of the bottom water masses of about 3° C and/or increasing salinities during the Rupel transgression.