

masses, which most probably occurred in the spring when coastal upwelling is most intense.

The onset of the occurrence of these events coincides with minimum seasonalities that are due to a continuous increase in winter temperatures during isotopic stages 8-6. Based on this evidence long term alternations in the return flow route between the cold and the warm water path are proposed. These changes are not controlled by the glacial/interglacial cycle, but rather suggest a threshold effect of oceanographic parameters. Major variations in the seasonality of the wind stress over the South Atlantic and Indian Ocean causing the reorganization of the current systems in the area of the Subtropical and Polar Front are expected to play an important role.

MARINE PALYNOLOGY IN THE NEOGENE NORTH ATLANTIC: A COMPARATIVE STUDY ON THE WESTERN AND EASTERN BASIN

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Samples of Neogene sediments of Site 603, Leg 93, and Site 552, Leg 81, were palynologically investigated on their content of organic microfossils. The described marine microfloras were correlated with palynostratigraphic investigations from other DSDP/ODP-Legs and compared with the stratigraphic syntheses of the leg reports.

Neogene stratigraphy of Site 603, Leg 93 could be highly refined on the use of dinoflagellate cysts. For the first time there is strong evidence for Early Miocene by the occurrence of dinoflagellate cysts with ranges from Paleogene to Early Miocene. The Early Miocene/Middle Miocene boundary is located between the LO of *C. cantharellum* (Early Miocene) and the FO of *L. truncatum* (Middle Miocene) at 594 mbsf. The boundary between Middle Miocene and Late Miocene is placed more precisely as in the cruise synthesis above the FO of *A. andalousiense* (575 mbsf). The Miocene/Pliocene boundary defined by the LO of *H. obscura*, *I. aquaeductum* and *P. golzowense* at 314 mbsf confirms the nannofossil boundary. Due to the drilling procedure, the Pliocene/Pleistocene boundary could not be investigated and Pleistocene dinoflagellate cysts were found only in the uppermost core.

Dinoflagellate cyst associations found in Neogene sediments of Site 552, Leg 81 differ clearly from the ones of Site 603, Leg 93. This reflects the different geographic and oceanographic situations of both locations during the last 25 Ma. While the nearby North American continental shelf takes strong influence on Site 603 during the Neogene, Site 552 reflects the consistent pelagic conditions at the Rockall Plateau during that time. This is documented not only by different contents of dinoflagellate cysts per g sediment, which are 100-200 times lower at Site 552 as at Site 603, but also by the high dominance of *N. labyrinthea*, a pelagic dinoflagellate cyst, in Rockall Plateau microfloras.

Dinoflagellate cyst stratigraphy confirms the results of the leg report of Leg 81. There is for the first time evidence for Middle Miocene with the occurrence of *L. truncatum* (FO 150,06 mbsf) by dinoflagellate cysts. Above 134 mbsf dinoflagellate cyst associations show a Late Miocene age for these sediments.