

cycles (Haq et al., 1987). We also specify positive correlations between eustatism, upwelling and Oxygen Minimum Zone (OMZ).

We propose to: 1) elaborate the theoretical model for semi-quantification of OMZ intensity. This **new methodology** is based on actual works about ostracode shell variability (Tolderer-Farmer, 1985; Abe, 1988; Peypouquet et al., 1988). According to Peypouquet's polymorphism concept, reticulation and spinosity analysis reflect carbonate and oxygen saturation at the water-sediment interface. We have modeled the ostracode response to five OMZ intensity levels in relationship with upwelling.

2) apply this new methodology to some selected ostracode species from the section until the Upper Santonian to Upper Maastrichtian. We are attempting to evaluate the evolution of the OMZ intensity in relation with coastal, wide-spread paleo-upwelling.

3) show positive correlations with paleoproductivity increase, OMZ widespread and eustatic cyclicity.

4) a paleoclimatical interpretation.

BIOGEOCHEMICAL CYCLE OF BARIUM IN THE SOUTH ATLANTIC

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High concentrations of barium characterize deep-sea sediments underlying zones of higher biological productivity. The geochemical cycle of barium seems to be controlled by biomass. For a better understanding of the barium/barite signal as a productivity indicator surface samples and sediment cores from the South Atlantic were investigated.

Based on barium measurements of surface sediment samples accumulation rates of barite have been calculated within different oceanographic zones in the South Atlantic. High accumulation of barium was found in the Antarctic Zone south of the Polar Front. North of the polar front barium accumulation rates decrease rapidly. The maximum accumulation rate of barium and aluminium were found in sediments of the diatom ooze belt.

Sediment cores were taken on a transect crossing the polar frontal Zone (43°S to 52°S). Barium concentrations were normalized to the concentrations of aluminium as a component of terrigenous input. The Ba/Al-values range from 2000×10^{-4} south of the polar front to 250×10^{-4} north of the polar frontal Zone. Interglacial times are characterized by high Ba/Al-ratio whereas the ratio decreases during glacial times. Higher barium flux during interglacial times was interpreted by higher export productivity.

IMAGING THE PHYSICAL PROPERTIES OF DEEP SEA SEDIMENTS BY FULL WAVEFORM TRANSMISSION SEISMOGRAMS ACROSS GRAVITY CORES

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A high-resolution ultrasonic P-wave logging system has been developed to image the variability of physical properties in deep sea sediment cores. In contrast to conventional P-wave logging systems, as for instance the P-wave logger used onboard ODP cruises, full waveform transmission seismograms are recorded parallel to the bedding plane in 1 to 3 cm depth intervals. They show