Interpretações Paleoecológicas e Bioestratigráfícas do Testemunho MC 58 (Holoceno/Pleistoceno da Bacia de Santos) com base em Nanofósseis Calcários

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Resumo

Foi realizada uma análise qualitativa e quantitativa dos nanofósseis calcários do testemunho MC 58, coletado na Bacia de Santos, no oceano Atlântico sudeste, na base do talude continental, a uma profundidade de 4.015 m . A coleta foi realizada pelo navio Knorr durante o cruzeiro 159-5, em cooperação com o LAGEMAR-UFF e o testemunho cedido gentilmente à equipe de micropaleontólogos do Laboratório de Micropaleontologia/UFRJ para estudo.

0 testemunho estudado mede 50cm e é constituído por uma lama plástica, cujo grau de compactação aumenta do meio para o fundo. A sucessão das associações de nanofósseis calcários foi descrita e estudada para interpretar a bioestratigrafia e paleoecologia do sedimento.

A análise consistiu na identificação das espécies, incluindo formas guias, c na quantificação dos indivíduos, visando a determinação de Abundância Relativa e Diversidade. Este procedimento permitiu também o reconhecimento da biozona acme *Emiliania huxleyi* do intervalo Pleistoceno/Holoceno. Também foi determinada a relação entre as espécies *Rhabdosphaera clavigera/Coccolithus pelagicus,* indicadoras de paleotemperatura, o que permitiu inferir a possível presença de massas de águas quentes na região estudada durante o intervalo citado.

Palavras-chave: Nanofósseis calcários, Bioestratigrafia, Paleoceanografia, Paleoecologia.

Abstract

A qualitative and quantitative analysis of nannofossils flora from de core MC 58 was realized. This fossil material was collected by the researeh team of the Woods Hole Oceanographic Institution (WHOI), in cooperation with LAGEMAR-UFF, on the board of the R. V. Knorr, during the cruise 159-5 and kindly donated to the researeh team of Federal University of Rio de Janeiro.

The superficial core measures 50cm and is constituted of a plastic mud. The core presents differences in compactation of the mud material, with increased from the middle to the bottom. A total of 12 samples were collected through the core at vertical intervals of 3 cm, from 11 cm. to 47cm. The core top was not sampled because of the unconsolidated, mixed character of the sediment.

The studied core. is located in a relatively small sedimentary sub-basin limited by continental slope (West), the São Paulo Plateau (North), the Rio Grande Rise (East) and by a basement structural high (South), which also separates the Santos and Pelotas basins (GOMES et al. *1993). These features costitute morphological obstacles that influence both the oceanic circulation and the sedimentation in this sub-basin.*

The main thermohaline currents influencing the Southwestern Atlantic, after HOGG et al. *(1996) are: the Antarctic Intermediate. Water (AA1W, 700-1100m depht), the North Atlantic Deep Water (NADW, 2000-3000m depth), and the Antarctic Bottom Water (AABW, 3500-4300m depth). In this area the surface water masses correspond to the Subtropical-Subantartic Convergence Zone (BOLTOVSKOY, 1981).*

The nannofossils associations sucessions were identified and studied to interpret the. sediment paleoecology and biostratigraphy. They are of low diversity associations with a high number of individuais (up to 2.000). Twenty species were identified: Calcidiscus leptoporus, Ceratolithus cristatus, Ceratolithus telesmus. Ceratolithus simplex, Coccolithus pelagicus, Emiliania huxleyi, Florisphaera profunda, "large gephyrocapsa"', "small gephyrocapsa", Gephyrocapsa oceanica, Gephyrocapsa omega, Helicosphaera carteri, Helicosphaera hyalina, Helieosphaera wallich, Rhabdosphaera clavigera, Scapholithus fossilis, Thoracosphaera saxea, Umbellosphaera irregularis and Umbellosphaera tenuis.

The Relative Abundance of species was determined after JEREMIAM (1996). The more. abundant species are Emiliania huxleyi *(abundant),* Florisphaera profunda *(abundant),* Calcidiscus leptoporus *(common),* Rhabdosphaera clavigera *(common). A biostratigraphical interval was recognized,* Emiliania hyxleyi *acme zone (GARTNER, 1977), between II to 44cm of the core. This is an Pleistocene/Holocene zone characterized by the abundance of* Emiliania huxleyi, *an eurytopic species uniformily distributed in all oceanic basins (ROTH, 1994).*

A warm temperature is assigned for the water mass deduced by Rhabdosphaera clavigera/Coccolithus pelagicus *relation. The species* Rhabdosphaera clavigera *abounds in water temperature above 18.3"C and indicates tropical waters. It is common in the studied core. The species* Coccolithus pelagicus *is abundant in water temperature about 7.2°C, indicating cold waters (ROTH, op cit.), it is rare in the studied core. Other warm waters species present in the core are* Gephirocapsa oceanica *(rare),* Umbilicosphaera sibogae *(rare),* Helicosphaera carteri *(occasional) and* Umbellosphaera tenuis *(rare).*

Key-words: *Calcareous nannofossils, Biostratigraphy, Paleoceanography, Paleoecology.*