

**OLIGOCENE BRAARUDOSPHAERA-CHALK IN THE SOUTH ATLANTIC OCEAN, ITS ORIGIN AND POSSIBLE RELATION WITH THE OPENNING OF THE DRAKE PASSAGE**

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The stratigraphic marker known as “Blue Marker” in Campos Basin, southeastern Brazilian margin, or as “Braarudosphaera-chalk” in the South Atlantic Ocean is an acme zone of braarudosphaerids (nannoplankton Prymnesiophyta, Braarudosphaeraceae) of early Oligocene. Along the Brazilian margin this marker occurs below a layer of pelagic shale that is in sharp contact with basinal turbiditic sands on top. Towards the Oligocene upper slope, the shales were eroded and the turbiditic sands are now on top of the chalk. At the shelf, shallow water carbonates were deposited coeval with the acme. The braarudosphaerids paleobiology allow them to be regarded as opportunistic eurytopic organisms blooming in eutrophic environments. The acme can be associated to catastrophic events where collapse of the trophic structure results in unbalance between the productivity of autotrophic organisms and heterotrophic consumption. This enables the export of algal organic matter from the photic zone to the bottom sediments, and this is assumed as the main generator of stratigraphic markers consisting of phytoplankton acme zones. In sedimentary sequences subject to eustatic fluctuations, the record of bloom events is most frequent in deposits of the transgressive phase. The stratigraphic position of this Oligocene marker along the South Atlantic Margin where the deposition of the chinks were followed by the deposition of pelagic shales suggests a “normal” succession of a transgressive and high sea level system tracts of a eustatic curve. After that, a major erosive event occurred along the entire Brazilian margin, and probably along the South Atlantic as documented by a pronounced unconformity. Major turbiditic bodies were deposited on top of this erosive surface. Lithologic and biostratigraphic evidences suggest the “Blue Marker” possibly represents an acme layer formed during a transgressive event during the Oligocene caused by melting of Antarctic ice. The unconformity above it may reflect the role of strong deep water circulation caused by the opening of the Drake Passage associated with a younger glacial cycle in Antarctica.