Neogene Calcareous Nannofossil Assemblages of Major Condensed Sections in the Deepwater Niger Delta Sequences

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Calcareous nannofossils, a once neglected microfossil group for oil exploration biostratigraphic work, has emerged as an indispensable tool in the marine onshore and offshore Niger Delta chronostratigraphic interpretation and correlation work. Niger Delta basin's calcareous nannofossils, like those in other basins worldwide, have similar assemblages characteristic of some major condensed sections. Certain events like the acme events of Discoaster pentaradiatus, D. quinqueramus, D. berggrenii, and D. deflandrei have been found respectively associated with the 5.0 Ma, 6.0 Ma, 7.4 Ma and 15.9 Ma Maximum Flooding Surfaces. Notable criteria for easy recognition of some condensed sections include ratio of Sphenolithus abies and S. moriformis. Moreover the downhole abundance increase of Helicosphaera ampliaperta characterizes the 16.0 Ma condensed section while over 80% of the 19.4 Ma condensed section's nannofossil population consists of Coccolithus pelagicus, C. miopelagicus and Cyclicargolithus floridanus. Inferences on some condensed sections' ages / zones are facilitated even when the nominal taxon is absent especially in some onshore sequences where observed condensed sections' relicts lack age diagnostic species. The recorded nannofossil assemblage characterization of many wells' sequences significantly assists minor and major seal detection while the attendant refinement permits correlations of thin reservoirs, seals, and caprocks within and across Niger Delta fields.