

Early Miocene quantitative calcareous nannofossil biostratigraphy from the tropical Atlantic

Waheed A. Albasrawi

Saudi Aramco–Dhahran 31311, Saudi Arabia; Waheed.basrawi@aramco.com

David K. Watkins

University of Nebraska - Lincoln, Department of Earth and Atmospheric Sciences, Lincoln, NE, USA; dwatkins1@unl.edu

A quantitative analysis of calcareous nannofossils was conducted on lower Miocene sediments from Ocean Drilling Program Hole 959A on the West African margin. Combined with data from previous investigations of the lower Miocene from the tropical Atlantic, this research identifies and tests the viability of markers used in current zonation schemes, identifies alternative markers for age boundaries, and examines statistically the most probable order of events in the lower Miocene with the use of the ranking and scaling method (RASC).

In Hole 959A, all major calcareous nannofossil zones and subzonal boundaries from CN1 to CN4 were identified, except for the boundary between Subzones CN1a and CN1b, using primary and secondary markers from the Okada and Bukry zonation (1980). All age boundaries were identified or closely estimated using the established calcareous nannoplankton markers from the Chattian to Langhian Stages.

The resulting list of events that was obtained from Hole 959A, along with events from seven other sites, was biostratigraphically examined using RASC. A well threshold of 4 was selected as an appropriate control parameter, which resulted in 22 events in the optimum sequence, 13 of which had a low standard deviation. Furthermore, interpolation of ages of events with the use of an age-depth model for Hole 959A was examined. The extracted ages provided a reasonable preliminary age estimate of secondary events.

References

- Okada, H. & Bukry, D. 1980. Supplementary modification and introduction of code numbers to the low-latitude coccolith biostratigraphic zonation (Bukry, 1973; 1975). *Marine Micropaleontology*, 5(3): 321–325.