

A high resolution study of middle Eocene radiolarian bioevents from the equatorial Atlantic Ocean (ODP Site 1260, Leg 207)

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A quantitative radiolarian faunal study was conducted throughout the middle Eocene interval recovered from ODP Site 1260 (Leg 207), drilled on Demerara Rise, a submarine plateau off the coast of Surinam. Paleomagnetic studies establish that the site was situated at the time at $\sim 1^\circ$ N. The Middle Eocene sequence of site 1260 is made of nannofossil chalk rich in biogenic silica and contains abundant, diverse and well preserved radiolarians. As a high-resolution astronomical timescale exists for the Middle Eocene interval of site 1260, orbitally tuned ages were used to date each studied sample.

The studied material covers a 91.72m thick sequence ranging between 43.77 and 39.83 Ma; it encompasses a transient episode of global warming known as the Middle Eocene Climate Optimum (MECO) that took place between 40.40 and 40.02 Ma. We studied the stratigraphic distribution of 125 radiolarian species, including some rare and sparsely recorded, and we recognized 60 radiolarian events (first and last occurrences, and evolutionary transitions) throughout the studied interval, each one of them dated precisely based on the astronomical timescale available for the site. Our results suggest that radiolarian assemblages crossed the MECO without any major faunal turnover.

In order to evaluate the synchronicity or diachroneity of radiolarian events worldwide, all radiolarian events, including the biozonal datum levels, were dated for site 1260 and compared with the radiolarian record available from several other mid-latitude sites of the North and South Atlantic, as well as some equatorial sites of the Pacific Ocean. Most of these events were found to be substantially diachronous both throughout the Atlantic Ocean and between the equatorial realm of the Atlantic and Pacific oceans.

Mots-Clés : radiolaria, bioevents, diachronism, global warming