

Nannofossil biostratigraphy of Miocene sections in two wells from the Gulf of Suez, Egypt

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Calcareous nannofossils were studied in Miocene sediments (Early-Middle Miocene) of two wells (Gulf of Suez, Egypt). One of them is located in the extreme northern part of the Gulf of Suez (Darag 17-1A), at a latitude of 29°30', and the second one (GS 148-1) is at a latitude of 29° (in the center of the Gulf of Suez). In the two studied sections, the abundance fluctuations of some nannofossil marker-species proved to be a very useful tool for correlation. However, the index species of calcareous nannofossils is not abundant, but common to few and continuous in the subsurface wells of the Miocene of the Gulf of Suez. The quantity of index species was determined by means of quantitative methods in order to test the reliability of biohorizons used in the recent literature dealing with a Mediterranean Neogene Nannoplankton Zonation (MNN1-6) (Fornaciari & Rio, 1996; Fornaciari *et al.*, 1996). Some problems linked to stratigraphical boundaries through the Miocene are discussed, as well as some peculiarities of the Mediterranean calcareous nannofossil assemblages.

In the Middle Miocene sediments of the uppermost Rudeis, Kareem and Belayim Formations, calcareous nannofossils were not recorded in the northern part of the Gulf of Suez (Darag 17-1A) well, while they were deposited in the GS (148-1) well, which is located relatively southwards. The partial absence of the uppermost Rudeis, Kareem and Belayim nannofloral assemblages from the extreme northern part of the Gulf of Suez (Darag 17-1A) well, including zones MNN4, MNN5 and MNN6a, may be due to unfavorable environmental conditions that prevailed at the end of the deposition of the upper Rudeis Formation. This absence may also be related to tectonic movements, which caused an unconformity within the Rudeis Formation, likely related to an uplift of the northern part of the Gulf of Suez area. Due to the presence of most common helicoliths in the assemblage, the uppermost part of the Darag 17-1A well was referred to shallower-water, near-shore conditions. Moreover, the extremely thin Kareem section, and the lack of thick evaporites, in the northern part of the Gulf of Suez Darag 17-1A well, indicates a period of no subsidence and low deposition in the Middle Miocene.