

## Calcareous Nannoplanktons and Foraminifera Study of a Northern Red Sea Outcrop, Saudi Arabia

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### ABSTRACT

An integrated study of disaggregated micropaleontology and calcareous nannoplankton has been conducted for the first time on the Maqna outcrops of the Red Sea Basin near Al-Bada'a village, Saudi Arabia. In subsurface, the Maqna Group is of Middle Miocene age and includes the Jabal Kibrit and Kial formations. In outcrop, the group shows at least 6 depositional cycles composed of anhydrite ledges separated by carbonate beds that become thicker from bottom to top (10 to 60 m) and dip towards the North East. Each carbonate cycle was sampled at the base, middle and top, below the weathered surface section. Most layers were barren of microfauna and nannoflora except for layers 3 and 5, where rich assemblages of planktonic foraminifera and common Early –Middle Miocene nannofossils were recovered. The results of analyses were integrated in order to test the presence of key Miocene fossil markers compared with the global zonation. In addition, the study investigates the possibility of subdividing the Maqna Group outcrop into Kial and Jabal Kibrit formations using foraminifera and nannofossil zones. Kial Formation is typically associated with the upper part of both foraminifera zone N9b as previously reported by Hughes (1995) which is equivalent to nannozone CN4 as indicated by Okada & Bukry zonation (1980). In addition, Jabal Kibrit Formation is associated with the lower part of foraminifera zone N9a and nannozone CN3. Scanning Electron Microscope (SEM) and microscopic analysis of fossil groups and their relative abundances were compared to infer variations in paleoenvironments. References: Hughes, G.W. and J. Filatoff. 1995. New Biostratigraphic Constraints on Saudi Arabian Red Sea Pre- and Syn-Rift Sequences. In M.I. Al-Husseini (Ed.), Middle East Petroleum Geosciences, Geo '94, Gulf PetroLink, Bahrain, v. 2, p. 517-528. 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, 321-325.