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Foraminiferal assemblages behavior at the Messinian-Pliocene boundary in Eastern Tunisia

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The microfaunal study of several boreholes drilled in Eastern Tunisia (western edge of the Mediterranean pelagian platform) has allowed the characterization of the Miocene-Pliocene boundary which has been previously well studied elsewhere in the Mediterranean basins but is still to be more understood within the Tunisian Mediterranean margin.
Analyses of vertical and lateral evolution of benthonic and planktonic foraminifera between five boreholes belonging to the Gulf of Hammamet (Eastern Tunisia) revealed three distinctive palaeo-ecological depositional environments.
- During the lower Messinian, benthonic foraminifera are abundant and show a great diversity in genus and species. They indicate marine settings with normal salinity and good oxygenation. Sub-reefal environment characterize this shallow water limestone platform;
- The Upper Messinian is characterized by a general extinction of foraminifera (only few euryhalin organisms remain at the base of these series). This event corresponds to the Messinian salinity crisis and to the accumulation of evaporites in the Mediterranean basins. In the offshore of Eastern Tunisia, gypsum and anhydrites are deposited in a lagoonal environment and had a negative effect on the biological life.
- During the Pliocene, limestones and clays overlay an erosional surface corresponding to the top of the Messinian deposits. This unconformity indicates the beginning of the Pliocene transgression which has led to a high diversity in planktonic and benthonic foraminifera. This new assemblage indicates open marine conditions.