Dinocyst stratigraphy of the Middle Miocene from Shagar-1 borehole, SW Gulf of Suez (Egypt)

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with 2 plates and 5 figures

Abstract. From the Kareem Formation subsurface section of Shagar-1 borehole, southwest Gulf of Suez, the dinoflagellate cyst content has been recovered. Key Middle Miocene dinocysts are calibrated with contemporaneous din-o-events available from the Egyptian Nile Delta area and worldwide as well. The inferred Middle Miocene age confirms that based on planktonic foraminifers in the same studied section. During the deposition of Kareem anhydrites (base, Rahmi Member) and clastics (top, Shagar Member) the site of deposition changed from lagoonal to open (shallow) marine respectively.

Introduction

The present analysis is interested in the palynological characterization of the Middle Miocene Kareem Formation from Shagar-1 borehole, southwest Gulf of Suez, Egypt (Fig. 1). The hole lies at the intersection of latitude 28° 09’ 07” N and longitude 33° 03’ 57” E. At this spot, the ground rises 515 feet above sea level. The borehole was drilled by the A.E.O. Operating Company in 1940. Detailed stratigraphic information are shown in figure 2. In general, palynological research works on the Egyptian Cenozoic successions are rather fragmentary and scarce. Published articles are mainly focussing on the study of dinoflagellate cysts from some Tertiary subsurface sections in the Nile Delta area (El-Bialy, 1988a,b,c, 1990a,b; El-Bialy et al., 1990). No formal dinocyst schemes have been given. The present work aims to introduce the dinostatigraphic analysis, as an important tool, to the geologic appraisal of the Gulf region. Luckily, the clastics of Shagar Member are, in the present Shagar-1 well, in its type section. Indeed, age dating of the Kareem Formation in the well has been controlled by planktonic foraminifers (Masoud, 1988).

Stratigraphy

The Miocene stratigraphy of the Gulf of Suez is of major importance for its oil potentialities. Oil bearing horizons are mostly restricted to Miocene rocks. The Kareem Formation, for example, carries Pay Zones IV–A and V of the Belayim land oil field. The Stratigraphic Sub-Committee of the National Committee of Geological Sciences (NCGS, 1974) published a