



1st paleomagnetic investigation of Nubia Sandstone at Kalabsha, south Western Desert of Egypt



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Abstract Two profiles have been sampled from the Nubia Sandstone at Aswan, south Western Desert: the 1st profile has been taken from Abu Aggag Formation and the 2nd one was from Sabaya Formation (23.25°N, 32.75°E). 136 oriented cores (from 9 sites) have been sampled. Abu Aggag Formation is of Late Cretaceous (Turonian) and Sabaya Formation is of early Cretaceous (Albian–Cenomanian). The studied rocks are subjected to rock magnetic measurements as well as demagnetization treatment. It has been found that hematite is the main magnetic mineral in both formations. Four profile sections from Abu Aggag Formation, yielded a magnetic component with $D = 352.7^\circ$, $I = 36.6^\circ$ with $\alpha_{95} = 5.2^\circ$ and the corresponding pole lies at Lat. = 82.8°N and Long. = 283.1°E. Five profile sections from Sabaya Formation, yielded a magnetic component with $D = 348.6^\circ$, $I = 33.3^\circ$ with $\alpha_{95} = 5.8^\circ$ and the corresponding pole lies at Lat. = 78.3°N and Long. = 280.4°E. The obtained paleopole for the two formations lies at Lat. = 80.5°N and Long. = 281.7°E. The obtained magnetic components are considered primary and the corresponding paleopole reflects the age of Nubia Sandstone when compared with the previously obtained Cretaceous poles for Egypt.

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1. Introduction

The term Nubia Sandstone as proposed by Russegger (1834) has been defined by “the sequence of clastic sediments rests over the hard basement rocks and covered by the upper

Cretaceous phosphate beds in Southern Egypt”. According to Klitzsch and Lejal-Nicol (1984), Klitzsch and Schrank (1987) and Klitzsch and Wycisk (1987); Sabaya Formation and Abu Aggag FM are members of Nubia Sandstone formations at Aswan area.

1.1. Abu Aggag Formation

Abu Aggag Formation overlies basement in the area between Qena and Abu Simbel, and is overlain by Timsah Formation. Basal conglomerates fill the irregular topography of the basement and grade upward into coarse-grained, cross-bedded sandstones with terapod trackways. The uppermost part of

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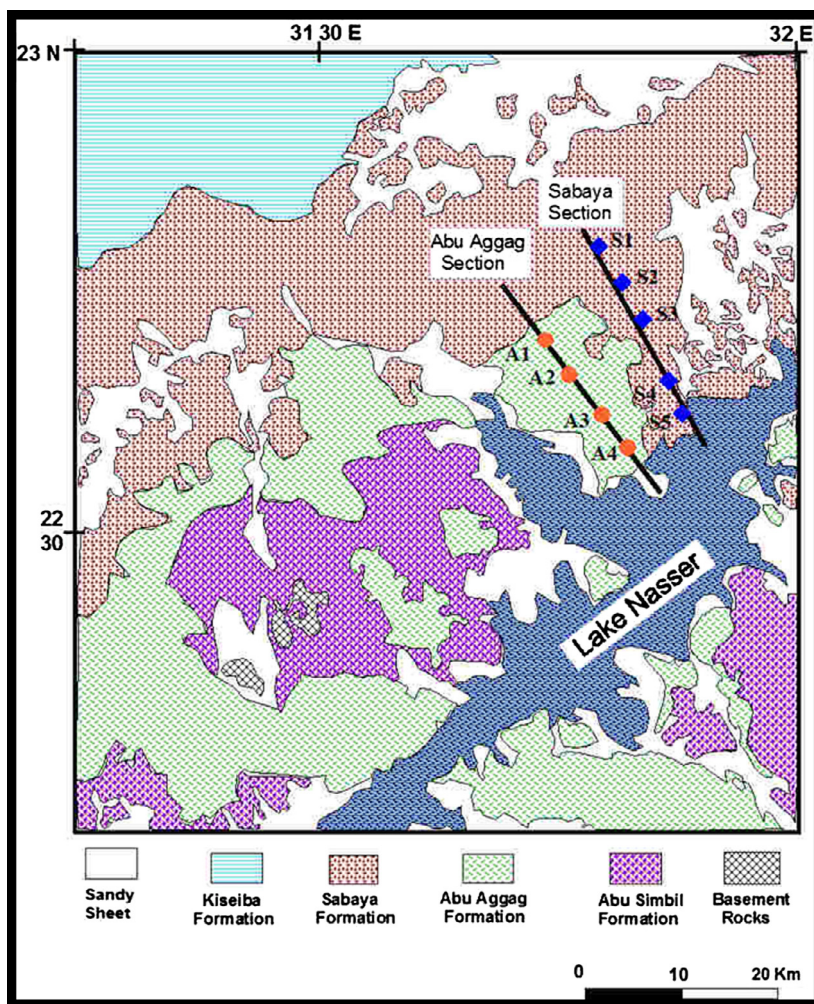


Figure 1 Location map of the study area with the sampling sites, the red circles from A1 to A4 represent the sampling sites of Abu Aggag Formation and the blue squares from S1 to S5 represent the sampling sites of Sabaya Formation.

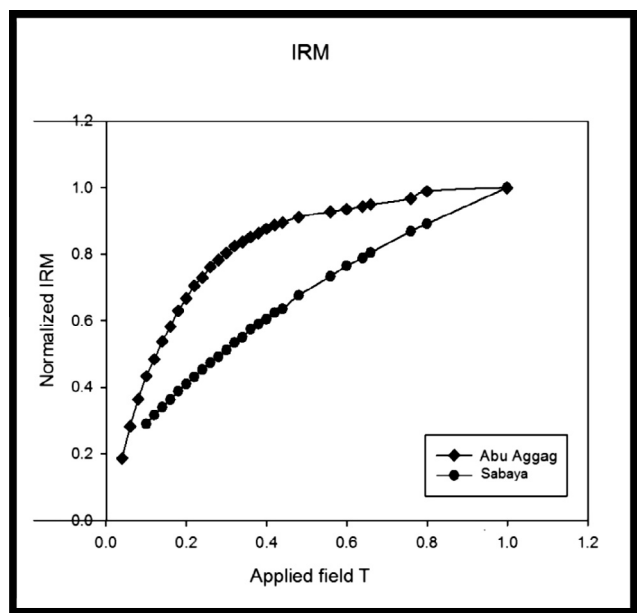


Figure 2 IRM curves for representative specimens from Abu Aggag and Sabaya Formations.

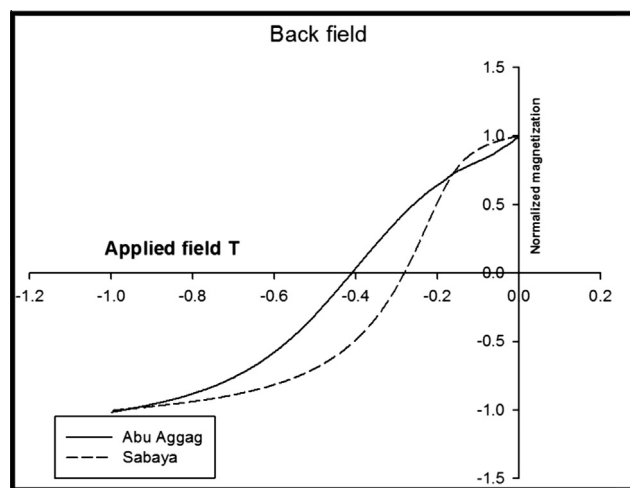


Figure 3 Back field curves for representative specimens from Abu Aggag and Sabaya Formations.

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