AIN SHAMS UNIVERSITY
FACULTY OF SCIENCE
GEOPHYSICAL DEPARTMENT

AIRBORNE GAMMA-RAY SPECTROMETRIC STUDY OVER GABAL MEATIQ, CENTRAL EASTERN DESERT OF EGYPT, CORROBORATED BY AEROMAGNETIC EVALUATION

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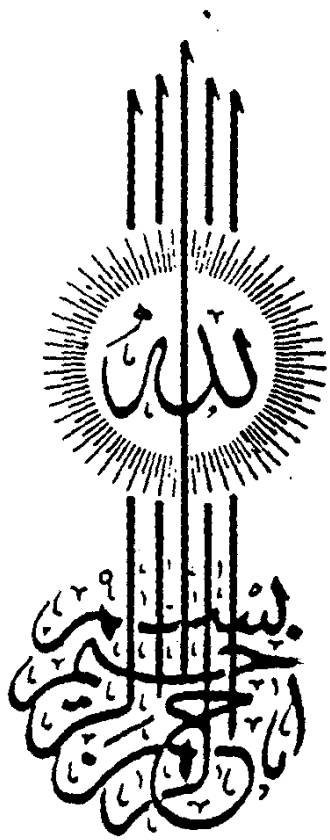

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ .

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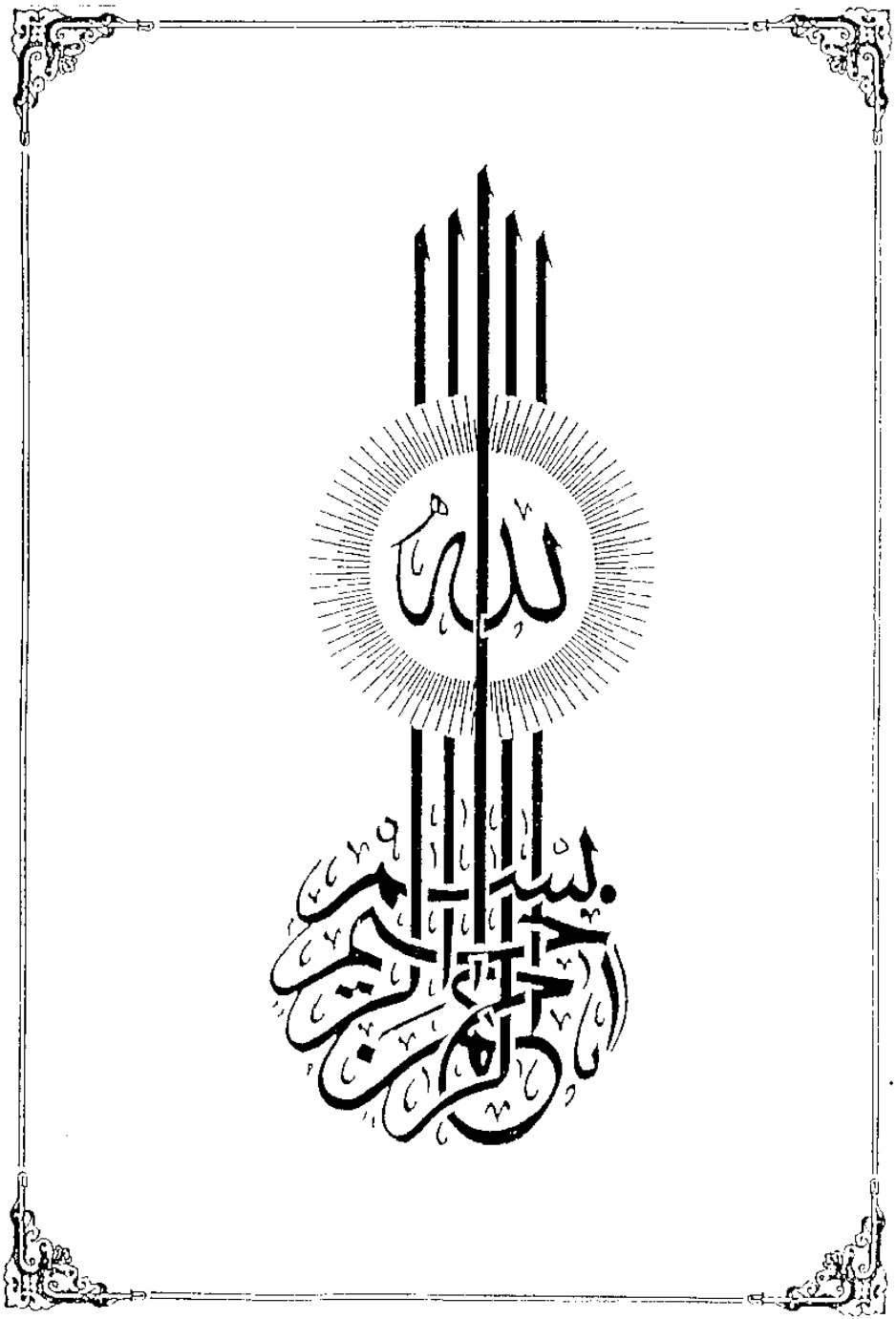

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CHAPTER I

INTRODUCTION AND PREVIOUS WORK

I.1 INTRODUCTION

Gabal Meatiq area is located in the Central Eastern Desert of Egypt ,northwest Qift-Al Quseir road. The area approximates 500 Km square and is located between lat. 26° and 26° 10′N and Long. 33° 40′ and 33° 55′ E (Fig. 1).

Topographically, the area is of high relief, where the highest elevation is represented by Gabal Meatiq (1112 m) to the west. Other many land marks exist in the area; the most important of which are Gabal Baanib (1033 m), Gabal Um Aradah (913 m) and Gabal Al-Murr (780 m).The area is dissected by various Wadis as: Abu Ziran and Um Saghir in the lower right corner of the study area, Um Aysh Al-Hamrah in the lower left corner , As-Sadamayn , Al-Faydiyah , Um Raykah and Abu Zahlija in the north of the study area and Um Uruq to the east.

An airborne geophysical survey for the study area was carried out by Aero Service Division, Western Geophysical Company of America in 1984. It involved an aeroradiometric survey as well as aeromagnetic survey. Both surveys were conducted along nearly parallel flight lines that were oriented in a NE-SW direction at an approximately 1.5 Km space interval , while the tie lines were flown in a NW-SE direction at 10 Km interval. A Varian V-85 proton precession magnetometer, mounted in a tail-stinger configuration, and a high-sensitivity 256-channel airborne gamma-ray spectrometric were the primary sensor elements in the Aero Service CODAS/AGRS 3000 F computer-based digital data acquisition system (Aero Service Report, 1984). Measurements were taken at nominal terrain clearance of 120 m.

The purpose of this study is to delineate the regional geology, structural framework and to define the radiometric anomalous zones of the study area using the aeromagnetic and aeroradiometric data as the main sources of information. In order to attain this goal, the following steps were carried out in the area under study: