

## **Contribution of Gravimetric and Magnetic Data for Making 3D Modelling of the Geological Structures and Formations in Eastern Morocco**

**A. Abdelouafi<sup>1</sup>, L. Ait Brahim<sup>1</sup>, B. Tadili<sup>2</sup>, A. Manar<sup>3</sup>, and A. Bouaza<sup>1</sup>**

<sup>1</sup> Dpt. des Sciences de la Terre, Univ. Mohammed V, Rabat, Marruecos

<sup>2</sup> Dpt. de Physique du Globe, Institut Scientifique, Agdal, Rabat, Marruecos

<sup>3</sup> Dpt. de Mathématiques et Informatique, Univ. Mohammed V, Rabat, Marruecos

Brute measurements of the gravimetric partner (4264 stations with a step of 1 km) covering the maps to the 1/50 000 of kariat Arkmane, Trifa, Zaio, Saidia, Berkan, Ahfir, Al Ayoun, Sidi Bou houria, Beni Oukil, Mestigmer, Metroh, Jerada and Oujda; realised by company LERICI in favour to the Ministry for Energy and the Mines, firstly, allowed us to elaborate a database of an Excel table format (coordinated, value of G, etc).

Then, to obtain the values of the Bouguer anomaly, some corrections (of Bouguer, free air of latitude etc.) were applied to the measured values of gravity. Using the software Geosoft we could obtain maps of the vertical gradient, the residual and the prolongation upwards, from the Bouguer anomaly.

Interpretation of these anomalies (positive and negative) allowed us to specify the layout and the extension of someone tectonic accident and to delimit the principal formations and geological structures of the area of study. This work is going to complete those realized by Van Den Bosch (1971) Kattach and al.. (2004) and Vanié and al. (2005).

Modelling from the residual of the total magnetic field and the Bouguer anomaly allow us to determine geometry and extension of the various geological formations in Eastern Morocco.

Keywords: Gravimetry; Magnetic data; 3D modelling; Morocco