GRAVITY AND MAGNETIC STUDY IN WADI SHALGHA, EAST OF ERBIL, NORTH IRAQ

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ABSTRACT

Gravity and magnetic surveys were carried out in Wadi Shalgha, east of Erbil, North Iraq to identify and delineate subsurface structures. The survey extends along 250 stations with spacing about one kilometer between each two adjacent stations.

Interpretations of Bouguer gravity anomaly combined with total magnetic field data revealed information about the general subsurface structures and their depths in the involved area. Different analytical approaches were applied to isolate and study the subsurface structures. Magnetic interpretation also showed negative regional anomaly zone within the basement that may be attributed to major movements affecting the whole area, and may affect the overburden sequence.

Tectonically, the studied area is situated in the Chamchamal – Butmah Subzone, which forms the northeastern marginal part of the Foothill Zone and it is structurally the highest part of the concerned zone, which may reaches about (7.5 – 8.5) Km depth. Applied interpretations for both methods concluded that the studied area is a zone of subsided area within the basement, along Wadi Shalghah and forming submerged structure, which characterizes this subzone. This structure may have been influenced by the last Alpine collision and final folding and thrusting since the Late Paleogene – Early Neogene.

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