

# **Interpretation of Total Field Aeromagnetic Data over Kainji South East Area.**

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**Abstract:**

The total field aeromagnetic data over Kainji South - East have been studied to delineate the basement structural features in the form of profile sections and isobaths maps. Geological appraisal of the area indicates that the main lithological unit is a sedimentary unit generally grouped as the Bida sandstone overlying the basement complex.

Several methods of aeromagnetic total field interpretation have been described in the literature. In this work, the Smellie's (1967) approximation method using elementary magnetic sources with its specialization to low magnetic latitude Barker (1975) and the Peters (1949) slope method have been utilized to determine the depths of the main magnetic units in the area. A number of the anomalies in this area were also modeled with two dimensional prismatic bodies (Vacquier et al, 1951) to determine structural regularity, estimates of susceptibilities and depths to magnetic sources. Depth results obtained show remarkable agreement in all techniques used.

The results show that the thickness of the sedimentary cover in this part of the middle Niger basin ranges between 1.0 to 2.90km. The main trend in basement relief in this area is Southwest - Northeast.

**Keywords:** Aeromagnetic data

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