International Journal of Applied and
Natural Sciences (IJANS)
ISSN(P): 2319-4014; ISSN(E): 2319-4022
Vol. 5, Issue 3, Apr - May 2016; 127-140

International Academy of Science,
Engineering and Technology
Connecting Researchers; Nurturing Innovations

CRUSTAL STRUCTURE FROM GRAVITY AND MAGNETIC ANOMALIES IN THE CENTRAL PART OF THE K-G BASIN, INDIA

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ABSTRACT

The gravity and magnetic data along three profiles across the central part of the K-G basin of India have been collected and the data is interpreted for crustal structure depths. The first profile is taken from Bhogapuram to Kottakolidihi covering a distance of 100 km and the second starts from Bommuluruand ends at Chinnakarmeda covering a distance of 90 km and the third is from Tadikondato Chinakolla covering a distance of 95 km. The gravity lows and highs have clearly indicated various sub-basins and ridges. The density logs from ONGC, Chennai, show that the density contrast decreases with depth in the sedimentary basin, and hence, the gravity profiles are interpreted using variable density contrast with depth. From the Bouguer gravity anomaly, the residual anomaly is constructed by graphical method correlating with well data, subsurface geology and seismic information. The residual anomaly profiles are interpreted using polygon model. The maximum depths to the Khondalitic basement are obtained as 7.29 km, 5.76 km and 3.65 km for the first, second and third profiles respectively. The regional anomaly is interpreted as Moho rise towards coast. The aeromagnetic anomaly profiles are also interpreted for charnockite basement below the Khondalitic group of rocks using prismatic models.

KEYWORDS: Charnockite Basement, Gravity, Khondalite Basement, Variable Density Contrast, Magnetic. K-G Basin