

## **Spectral Re-Evaluation of the Magnetic Basement Depth over Yola Arm of Upper Benue Trough Nigeria Using Aeromagnetic Data**

**Authors :** Emberga Terhemb Opara Alexander, Selemo Alexander, Onyekwuru Samuel

**Abstract :** The aeromagnetic data have been used to re-evaluate parts of the Upper Benue Trough Nigeria using spectral analysis technique in order to appraise the mineral accumulation potential of the area. The regional field was separated with a first order polynomial using polyfit program. The residual data was subdivided into 24 spectral blocks using OASIS MONTAJ software program. Two prominent magnetic depth source layers were identified. The deeper source depth values obtained ranges from 1.56km to 2.92km with an average depth of 2.37km as the magnetic basement depth while for the shallower sources, the depth values ranges from -1.17km to 0.98km with an average depth of 0.55km. The shallow depth source is attributed to the volcanic rocks that intruded the sedimentary formation and this could possibly be responsible for the mineralization found in parts of the study area.

**Keywords :** spectral analysis, Upper Benue Trough, magnetic basement depth, aeromagnetic

**Conference Title :** ICEGG 2015 : International Conference on Engineering Geology and Geophysics

**Conference Location :** Venice, Italy

**Conference Dates :** November 09-10, 2015