Interpretation of aerogeophysical anomalies of southwestern Tanzania

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Abstract
This study deals with the interpretation of aeromagnetic data covering an approximate area of 50 000 km2 lying between 8°S to 9°30′S and 32°E to 35°E, Southwest Tanzania. The magnetic anomaly maps presented as contour maps, greytone maps, and stacked profile maps show distinct zones which match the geological units of the basement rocks. The study of magnetic lineaments has shown two prominent trends, one trending NW-SE and the second in the NE-SW. These lineaments have trends that coincide with those of structures in the rift system. Interpretation of digitized data using spectral analysis methods gave spectral depths ranging from 0.50 km to a maximum of 18 km. The shallow spectral depths were interpreted as the depths to the top of magnetic bodies. The application of singular value decomposition method in the automatic optimization of magnetic anomalies using prism, dyke and slope models was studied. The method was then used in the interpretation of prominent anomalies observed in the study area. -from Author