

Precambrian basement mapping from interpretation of aeromagnetic data in northwest of Côte d'Ivoire

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The regional aeromagnetic map of Seguela, in the northwest of Côte d'Ivoire have been digitized and processed to provide new geological and structural information about the study area. Firstly, some filters such as reduction to equator, upward continuations, first derivatives and analytic signal have been carried out to locate and delineate the formation boundaries and the geological contacts. There is a good correlation between the most magnetic anomalies and some geological outcrops within the study area. Structural interpretation allowed to identify several faults oriented EW and NE-SW. But other structural directions such as NNW-SSE, WNW-ESE, NW-SE and NNE-SSW have been indicated as well. Secondly, the basement depths for rocks as granites, amphibole biotite bearing-granites, granodiorites, migmatites, gneisses and greenstones, have been estimated using Euler deconvolution. The results obtained show depth ranging from 100 m to 1070 m. This depth estimation has been used to realize a basement topography model. Thus, this study on aeromagnetic data interpretation is used as an aid to geological mapping in Precambrian field and may give some basic element for mineral exploration.

Keywords: aeromagnetic, geological mapping, processing, Precambrian, Côte d'Ivoire