

Abstract

Migori greenstone belt is one of the major mineral prospects in Kenya, major mining activities are currently conducted by the local artisans using open cast methods. In order to subject the prospect to industrial use, a good understanding of the geophysical features in the subsurface which are likely to control the distribution of minerals is necessary. In this study, a 2-D lithoprediction model of Nyabisawa-Bugumbe area was developed from geologically constrained inversion of gravity field data. The measured gravity field data were subjected to cleaning process to remove perturbations which were not of geophysical interest, and later enhanced by removing long wavelength anomalies which are as a result of regional trend. The density variations were then inverted for the geometrical parameters of the model. Gravity high trending NW-SE around Nyabisawa, Kirengo towards Nyambeche was delineated. The gravity high is bounded by two major faults along rivers Migori and Munyu. Integrating the 2-D inversion of gravity data and the geology of the area, the gravity field perturbation is associated with banded iron formations.