



An Easy Method for Interpretation of Gravity Anomalies Due to Vertical Finite Lines

İbrahim KARA and Nihan HOSKAN

Department of Geophysical Engineering, Faculty of Engineering,
Istanbul University, Avcılar, Turkey; e-mail: nihan@istanbul.edu.tr

Abstract

A new method is introduced to determine the top and bottom depth of a vertical line using gravity anomalies. For this, gravity at a distance x from the origin and horizontal derivative at that point are utilized. A numerical value is obtained dividing the gravity at point x by horizontal derivative. Then a new equation is obtained dividing the theoretical gravity equation by the derivative equation. In that equation, assigning various values to the depth and length of vertical line, several new numerical values are obtained. Among these values, a curve is obtained for the one that is closest to the first value from attending the depth and length values. The intersection point of these curves obtained by repeating this procedure several times for different points x yield the real depth and length values of the line. The method is tested on two synthetics and field examples. Successful results are obtained in both applications.

Key words: gravity anomaly, vertical finite line, depth and length curves.