

Title: Depth to the Bottom of Magnetic Sources: An Overview

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Abstract:

Temperature at which ferro-magnetic minerals loses its magnetic property is referred to as Curie isotherm Temperature and the corresponding depth within the Earth's Crust is often referred to as Curie Isotherm Depth (CID). As Magnetite with a Curie temperature of 580°C is believed to be the dominant magnetic mineral in the deep crust within the continental region, it is reasonable to assume that mapping this Depth will help delineate the CID. Mapping of CID can be accomplished from aeromagnetic data collected over large regions by estimating depth to the bottom of the magnetic sources (DBMS) using different techniques. If the DBMS correlates with an inferred velocity or density boundary it is likely to reflect a petrological change otherwise it may be interpreted as representing CID. Methods for estimating the DBMS are divided depending on the assumption of random uncorrelated or correlated distribution of sources. Based on this assumptions, different methodologies viz. Spectral peak, Centroid, modified centroid, De fractal, etc. has been developed for estimating the depth to the top & bottom of the magnetic sources from aeromagnetic data. An overview of these methods along with case study will be presented.