



Revealing unexposed sources of potential field anomalies at Outokumpu ore province

Juha Korhonen (1), Hanna Leväniemi (1), and Ilmo Kukkonen (2)

(1) Geologian tutkimuskeskus, Espoo, Finland (juha.korhonen@gtk.fi), (2) Helsinki University, Helsinki, Finland

Prospecting at Outokumpu Cu-ore province, Central Fennoscandian Shield has led to discoveries of several deposits within Outokumpu type association rocks, close to bedrock surface. Reflection seismic studies have indicated that this association may be present in different deep locations down to a depth of several kilometers. A new combined analysis of all available geodata is under way to produce a CEM-model of uppermost crust in the vicinity of the province. In addition to direct and inversion modeling the potential field studies include Fourier analyses of source depths and a comparison of anomaly change between 1980 and 2013 aeromagnetic surveys plus gravity anomalies to assist characterizing geological formations at depth by their remanent magnetization. Regional anomalies of potential fields are aimed to be defined by hierarchical CEM-models by magnetic and gravity anomaly grids of the Fennoscandian Shield and corresponding regional petrophysical data sets. The ultimate goal of the potential field interpretation is to contribute to recommendations for deep ore prospecting in a shield environment.