

# Air-FTG<sup>®</sup> Gravity Gradiometry Forward Model for Iron Oxide Deposit (IOCG)

## Introduction

Magnetite and/or hematite breccia zones and veins which form pipes and tabular bodies hosted by continental volcanics and sediments and intrusive rocks. The deposits exhibit a wide range in their non-ferrous metal contents. They vary from Kiruna type monometallic (Fe ± P) to Olympic Dam type polymetallic (Fe ± Cu ± U ± Au ± REE).

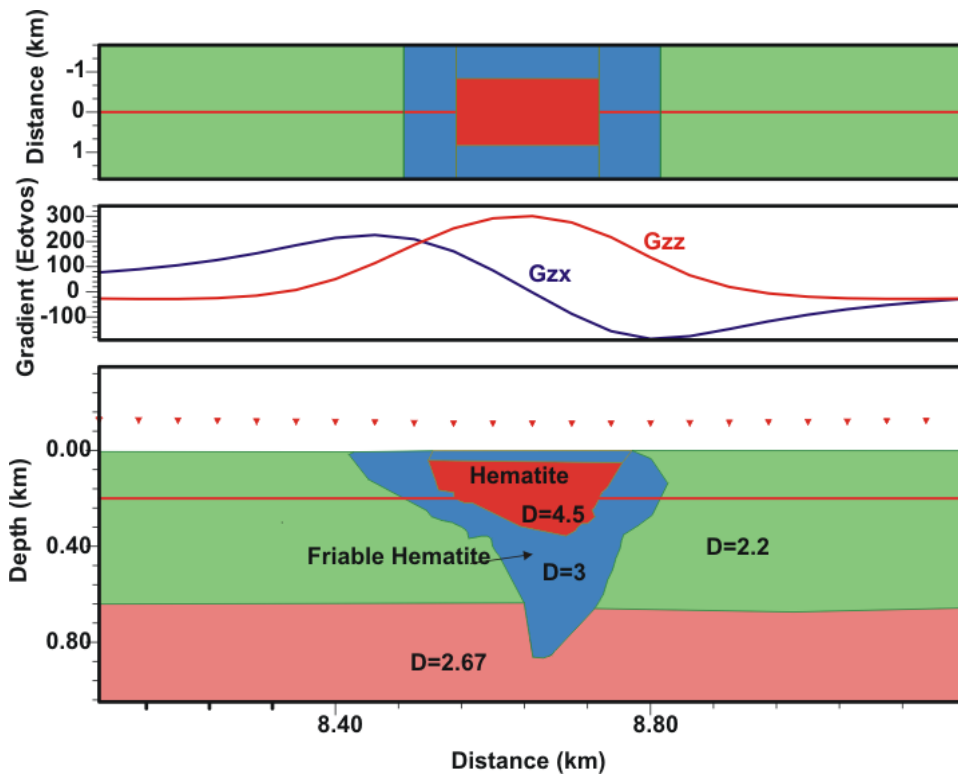


Fig.1. Gradient forward model for Iron oxide with all lithologies.

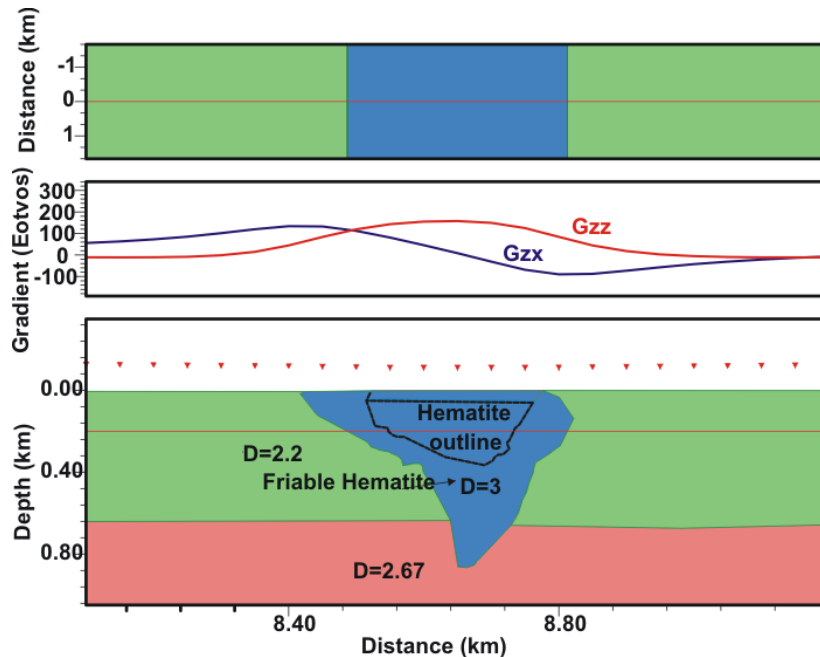


Fig.2. Gradient forward models for iron oxide with hematite ore removed.

Air-FTG<sup>®</sup> gradient response of the hematite ore is calculated by taking the difference in gradient signals between the two models.

$G_{ZZ1}$  = Total Gradient response with all lithologies

$G_{ZZ2}$  = Gradient response without hematite

Gradient response of the hematite =  $G_{ZZ1} - G_{ZZ2}$

Gradient is measured in Eotvos units

1Eotvos = 0.1mgal/km

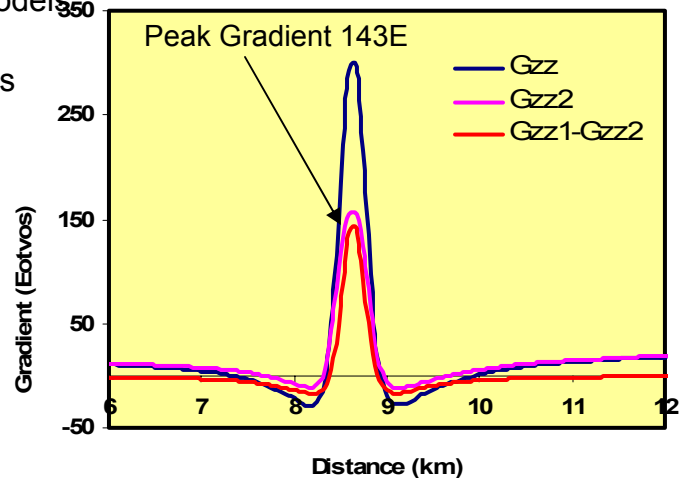


Fig. 3. Gradient determination curves

- IOGC deposits provide large density contrast with the surrounding host rocks; hence become good targets for Air-FTG<sup>®</sup>.
- A signal of 143 Eotvos from the massive hematite ore can easily be imaged using Air-FTG<sup>®</sup> system.



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