



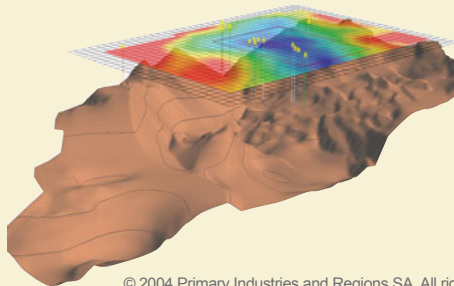
Mira Geoscience
...modelling the earth

Gravity & Magnetic Interpretation Consulting Services

A comprehensive geophysical interpretation team

Summary

Gravity & magnetic data are best interpreted in three dimensions, tightly integrated with other geoscience information. At Mira Geoscience, our experienced team of geoscientists provides state-of-the-art services to maximize the value of your gravity & magnetic data sets for the mining industry.



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Gravity & magnetic data collected from the air, on the ground, and down-hole can be modelled in 3D with rock density and magnetic susceptibility constraints as well as other geoscience information. These efforts can help identify valuable and well-constrained drill targets to reduce exploration drilling risk.

We process and model gravity & magnetic data using advanced inversion software, including those from UBC-GIF (GRAV3D, MAG3D), VP Suite, grid processing, 3D-GIS querying, visualization and interpretation of drill targets are performed within their geological context using GOCAD® Mining Suite.

Increase interpretational value by taking your gravity and magnetic data to the third dimension with constrained inversions.

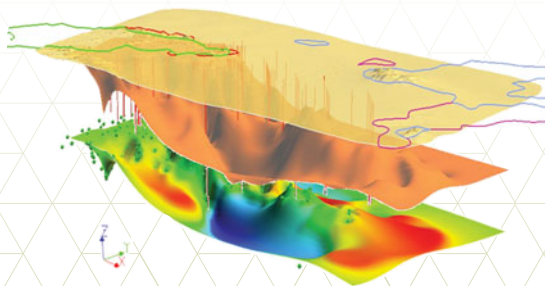
Geophysical inversion can be performed either with or without constraining geoscience information. Constraints range from simple assumptions, conceptual models, or maps to detailed information obtained from outcrop samples, drillhole physical rock property measurements, geological logs, structural measurements, and 3D geological models.

More advanced geologically-constrained inversions can also be performed. For these types of inversions, the shape and physical property (density or magnetic susceptibility) of each rock unit can change during inversion, but its geological (or topological) integrity is preserved. This approach offers considerable flexibility during interpretation.

Constrained inversions create models consistent with multiple sources of data and offer better definition of the earth in proximity to and away from the constraining information.

Constrained inversions also provide a means for validation of the 3D geological model and permit a quantitative analysis of any discrepancies found.

Subsurface geology is quantitatively related to gravity and magnetic data through physical rock properties (i.e. density and magnetic susceptibility). Physical properties are analyzed in relation to available geology, including lithology, alteration, and mineralization prior to modelling. Physical property analysis is used with modelling for providing appropriate inversion constraints at the correct scale of investigation and for quantitatively interpreting inversion results within the geological exploration context.



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Key Services

Principal gravity & magnetic services

- » Data quality control and error analysis
- » Unconstrained or constrained inversion modelling
- » Interpretation of results within the geological context
- » Drill target selection from integrated exploration data sets
- » Experienced team, well-versed in the application of gravity & magnetic methods to different exploration environments

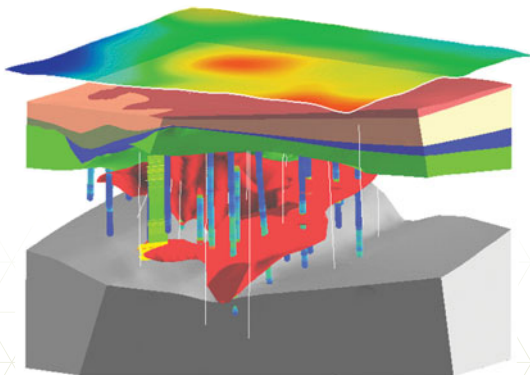
Modelling at different stages of exploration

- » Large-scale regional inversions for target identification and ranking
- » Local exploration using basic constraining information
- » Detailed follow-up inversions integrated with all available physical property and geological information
- » Constrained delineation modelling with drillhole geological logs combined with density and magnetic susceptibility measurements
- » 3D inversion of historical data for property evaluation

Data sources

- » Gravity and magnetic (airborne and ground)
- » Gradiometry
- » Down-hole magnetic
- » Density and magnetic susceptibility measurements
- » Geological maps, logs, structural measurements, and interpretation for inversion constraints

3D Common Earth Model with 3D-GIS maximizes exploration value of gravity & magnetic data



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Exploration application examples

- » Geothermal exploration – geologic structure
- » Massive Sulphide and Ni-Cu-PGE exploration – dense and magnetic ore bodies
- » Porphyry exploration – zones of magnetite destruction and density contrast between intrusive and country rocks
- » Iron Oxide Copper-Gold exploration – density and magnetic contrasts between alteration zones
- » Iron formation (BIF) targeting and delineation in highly magnetic environments
- » Kimberlite geometry and internal structure modelling for volume estimation or delineation drilling
- » Depth to basement for sedimentary basins
- » Uranium exploration – silicification/desilicification
- » Hydrocarbon potential

3D-GIS analysis services

We use GOCAD® Mining Suite as the platform for processing, analysis, modelling and interpretation of gravity & magnetic data. A key component of our services is the visualization and quantitative integration of geophysics, geochemistry, and geology. All pertinent exploration information is quantitatively represented in a consistent 3D framework. We work with you in applying true 3D-GIS functionality to generate targets based upon your exploration criteria.

We provide gravity & magnetic results in common 3D formats and a Geoscience ANALYST workspace for easy communication of results and ideas. We will host meetings for project review, interpretation, or investment purposes in real 3D stereo projection through our CYVIZ Viz3D system.



Mira Geoscience

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