



Mira Geoscience

...modelling the earth

GOCAD® Mining Suite

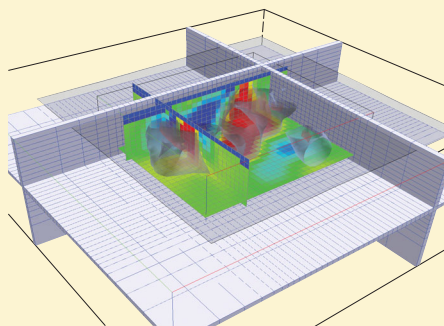
Potential Fields Module

Earth modelling and 3D-GIS solutions for mineral exploration

Summary

The GOCAD Mining Suite Potential Fields Module gets more for its users out of their inversion work by providing them with rigorously quantitative interpretation of potential fields data within a 3D earth modelling context. Modelling and inversion workflows for gravity and magnetic data use geological models, structural and petrophysical constraints, as well as traditional filtering and interpretation tools, within an exceptional 3D visualization environment. The module works seamlessly with Fullagar Geophysics' VPmg and UBC-GIF's MAG3D and GRAV3D codes.

GOCAD Mining Suite Potential Fields Module is an extension of Paradigm™ GOCAD, the world's most sophisticated geological modelling platform, adapted specifically for the mining industry with mining modules available exclusively from Mira Geoscience.



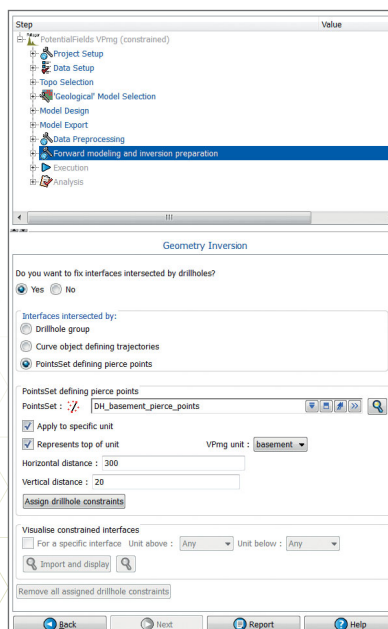
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A unique module that makes use of all the geological constraint options offered by advanced inversion tools

- » Provides greater interpretational value by establishing, under full user control, the constraints implicit in 3D earth models
- » Defines physical rock property distributions, drillhole data and 3D structural models as constraints for the inversion process
- » Communicates the geological and petrophysical models as well as drilling constraints to inversions
- » Integrates GOCAD 3D earth models and industry leading inversion platforms
- » Ensures results are interpreted consistently with other information through advanced 3D visualization of multi-disciplinary data
- » Enables import and export of data from and to a wide range of Geosoft, VPmg and UBC-GIF file formats
- » Includes industry-standard potential fields data gridding, filtering and depth-to-source estimation tools
- » Supports GRAV3D and MAG3D forward modelling and inversion using the Potential Fields UBC workflow

New workflow: Fullagar Geophysics' VPmg

- » Provides the user an efficient interface for validating and updating 3D geological models through forward modelling and inversion



Key Features

1D (along line) filtering

- » Low-pass and high-pass
- » Vertical derivatives
- » Upward and downward continuation

2D (grid) filtering

- » Low-pass and high-pass
- » Reduction to pole
- » Vertical and horizontal derivatives
- » Upward and downward continuation
- » Depth-to-source estimation

Gravity data conversions

- » Convert Bouguer to Free Air
- » Convert Free Air to Bouguer

Trend removal

- » First, second and third order polynomial trend removal on point and gridded data

Potential fields VPmg workflow

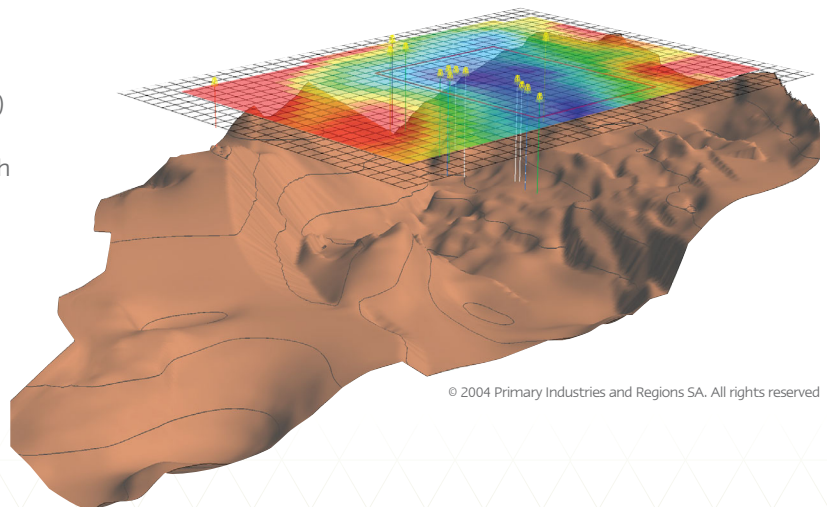
- » Streamlines use of Fullagar Geophysics' VPmg software
- » Guides the user through data and model preparation for a variety of geologically based and unconstrained inversion styles
- » Provides a variety of inversion options
 - + Optimise starting model (homogeneous) density/susceptibility
 - + Directly update geological model through geometry inversion.
 - + Fully 3D (or apparent) density/susceptibility inversion
 - + Geobody inversion
- » Simplifies assignment of constraints, e.g. drillhole geological or petrophysical constraints, lithology based constraints (property bounds, active or inactive units)

Potential fields UBC workflow

- » Connects with UBC-GIF MAG3D and GRAV3D
- » Data pre-processing (gridding and filtering) and preparation
- » Volume discretization
- » Model design (padding)
- » Automatic export of models and data to inversion algorithms
- » Core model extraction
- » Predicted data import and residual computation and data misfits
- » Interactive iso-surface generation
- » Automatic report generation

Workflow benefits

- » Increased productivity
- » Internal quality and consistency checks
- » Ease of use
- » Sensible default settings for new users
- » Repeatability
- » Knowledge transfer
- » Simplifies file management
- » Audit trail via automatic workflow report generation



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