Western Succession architecture:

validation using potential-field modelling

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Introduction

- forward and inverse modelling
- overview of Western Succession potential-field datasets
- conclusions

Potential-field modelling

Process

1. construct geological model
2. assign physical properties
3. compute model anomaly
4. compare modelled and observed anomalies
5. adjust model

Constraints

- solution not unique
- distinct rock properties
- bulk property values
- computational power

Potential-field modelling

Geology

Porsche 911 Turbo S

- Engine: 3.6 L, 6 cyl., turbo
- Top speed: 307 km/h
- RRP: AU$350K

Models

Overview

Worms

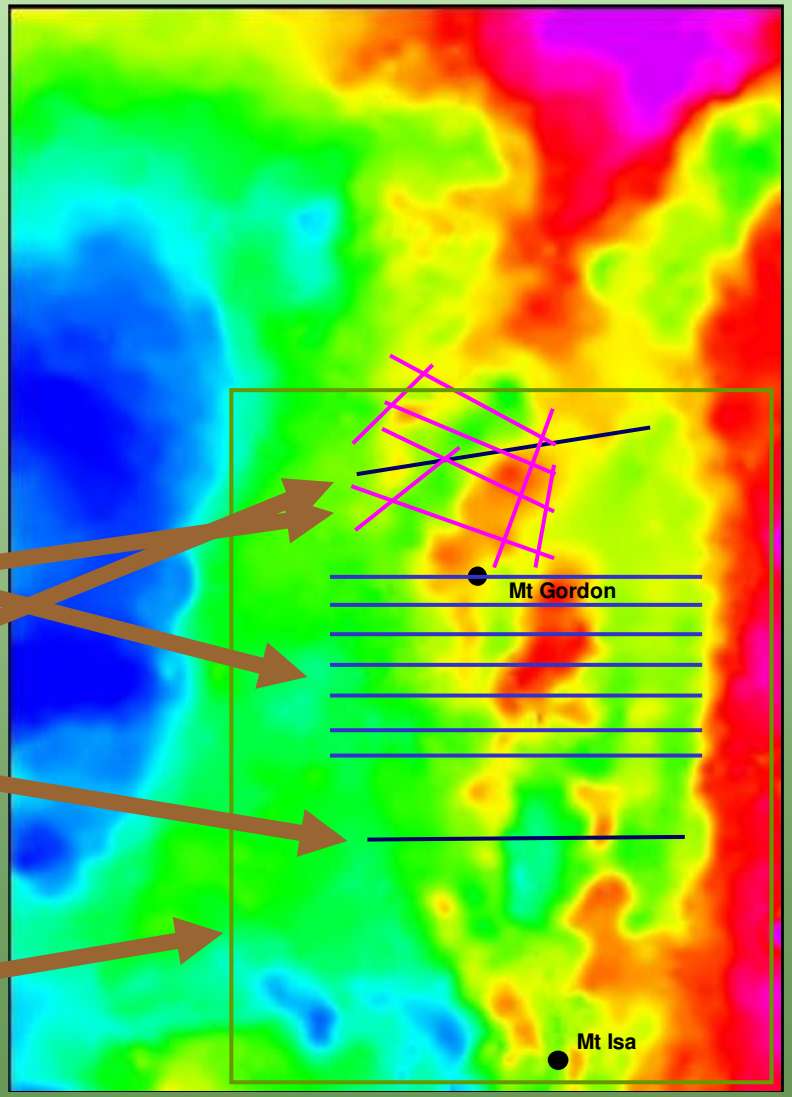
- magnetic
- gravity

Forward modelling

- regional
- Mt Oxide
- Fiery Creek

Inverse modelling

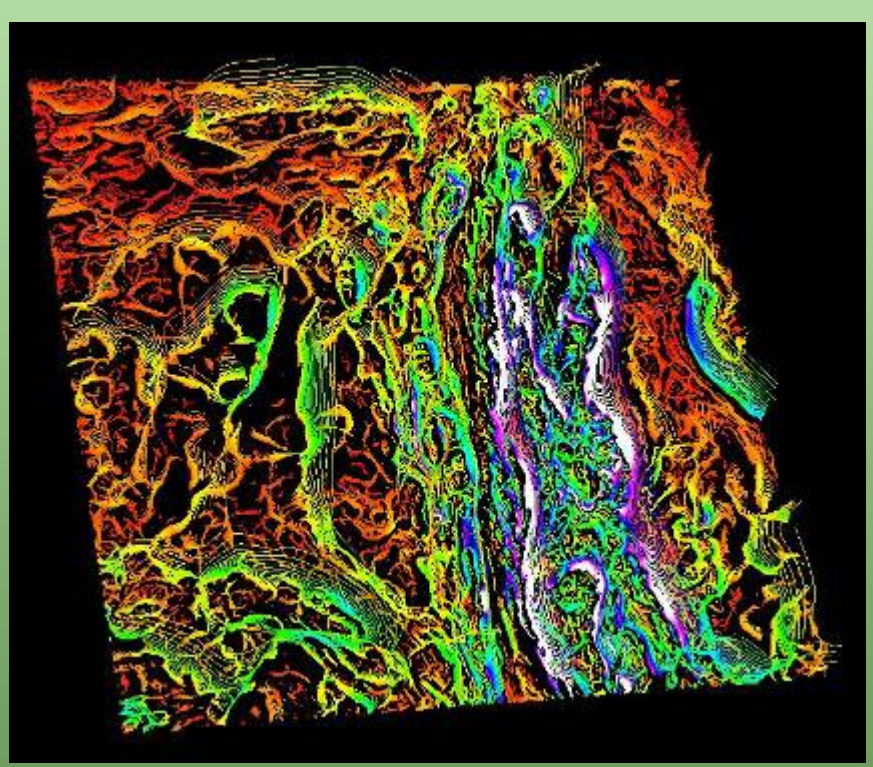
- regional



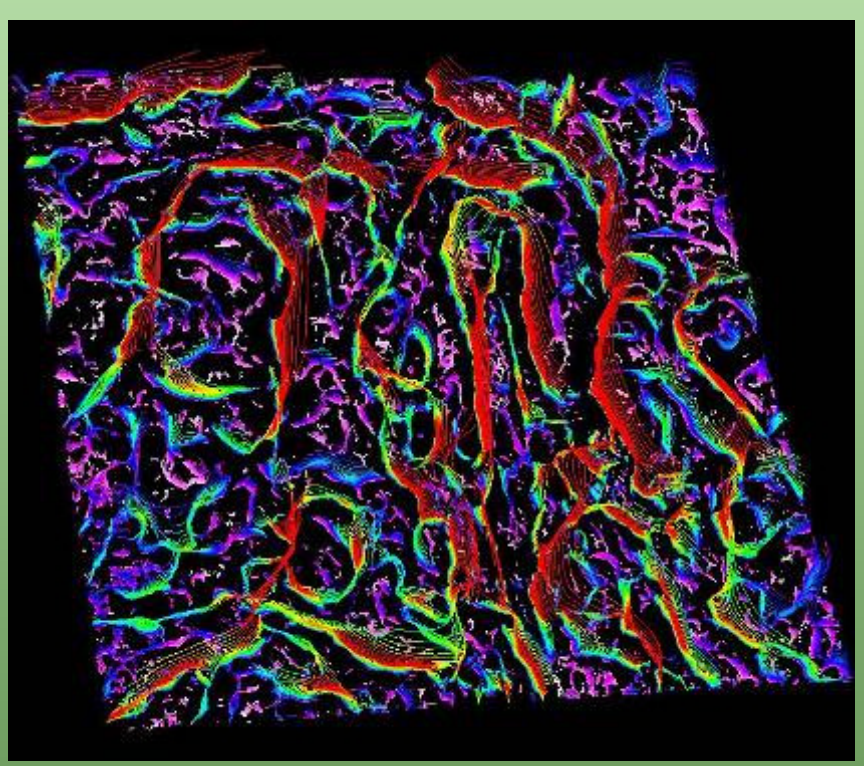
Worm datasets

pmd*CRC

Magnetic

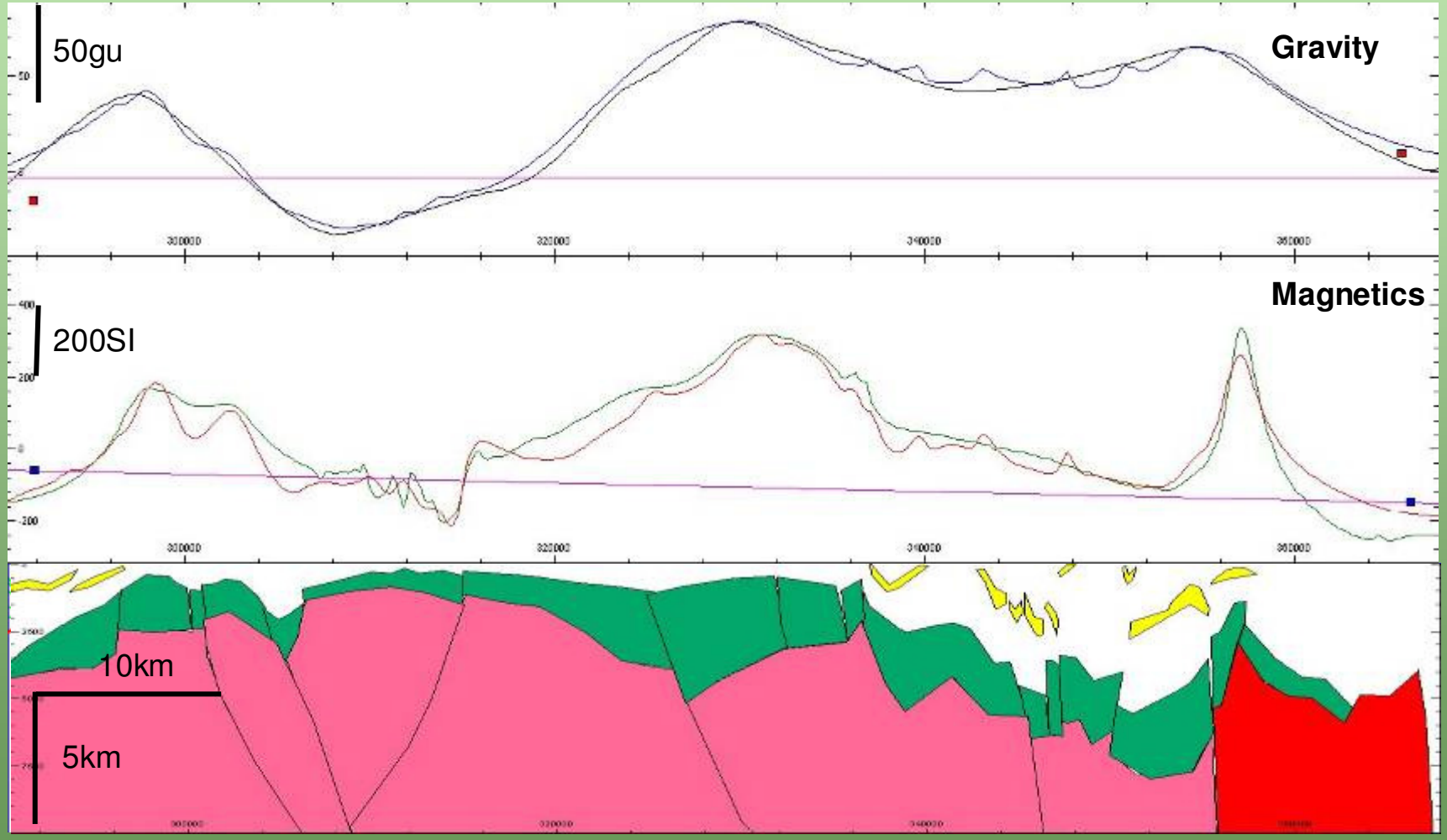


Gravity



Forward modelling

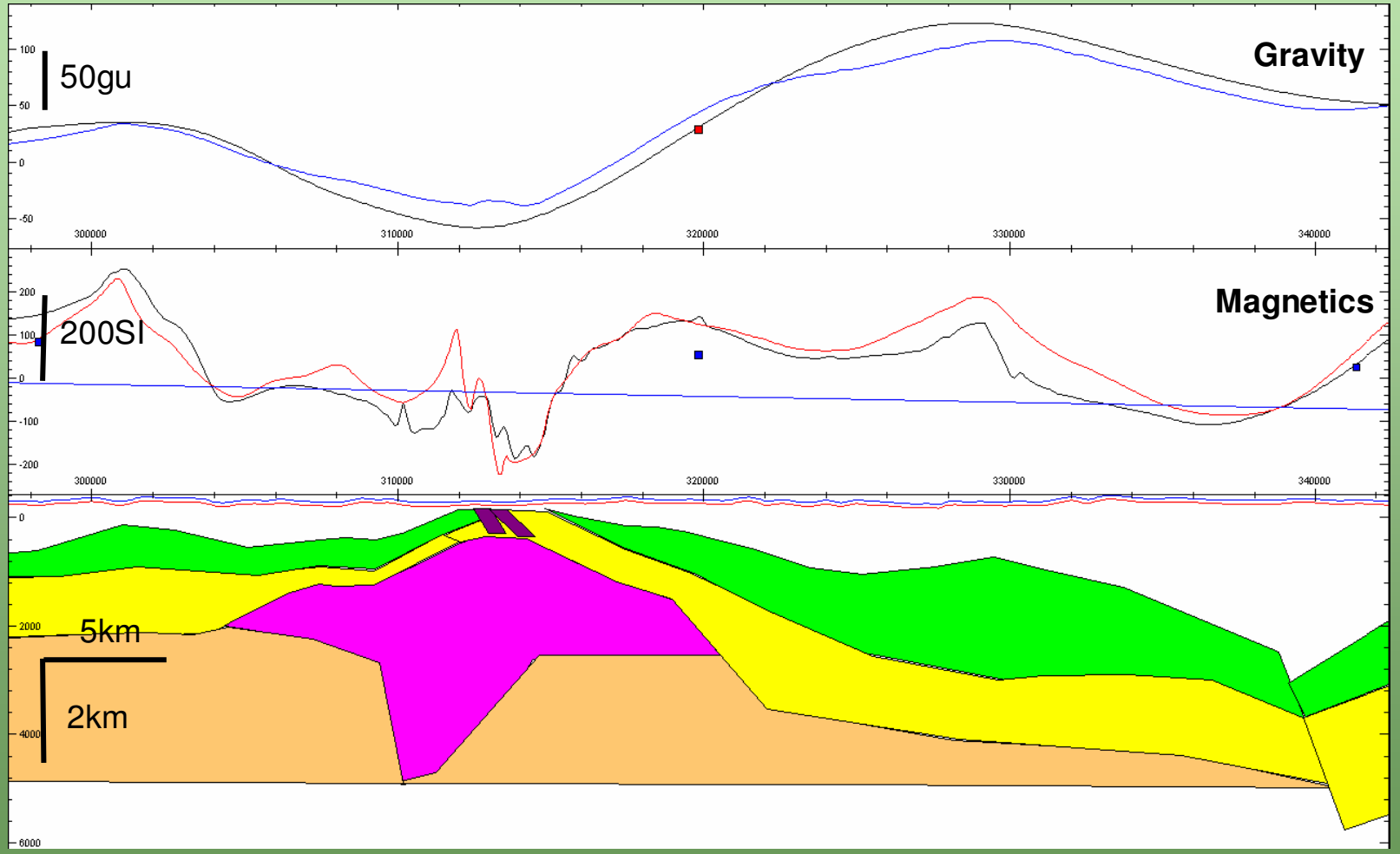
Fiery Creek



V/H ≈ 1.5

Forward modelling

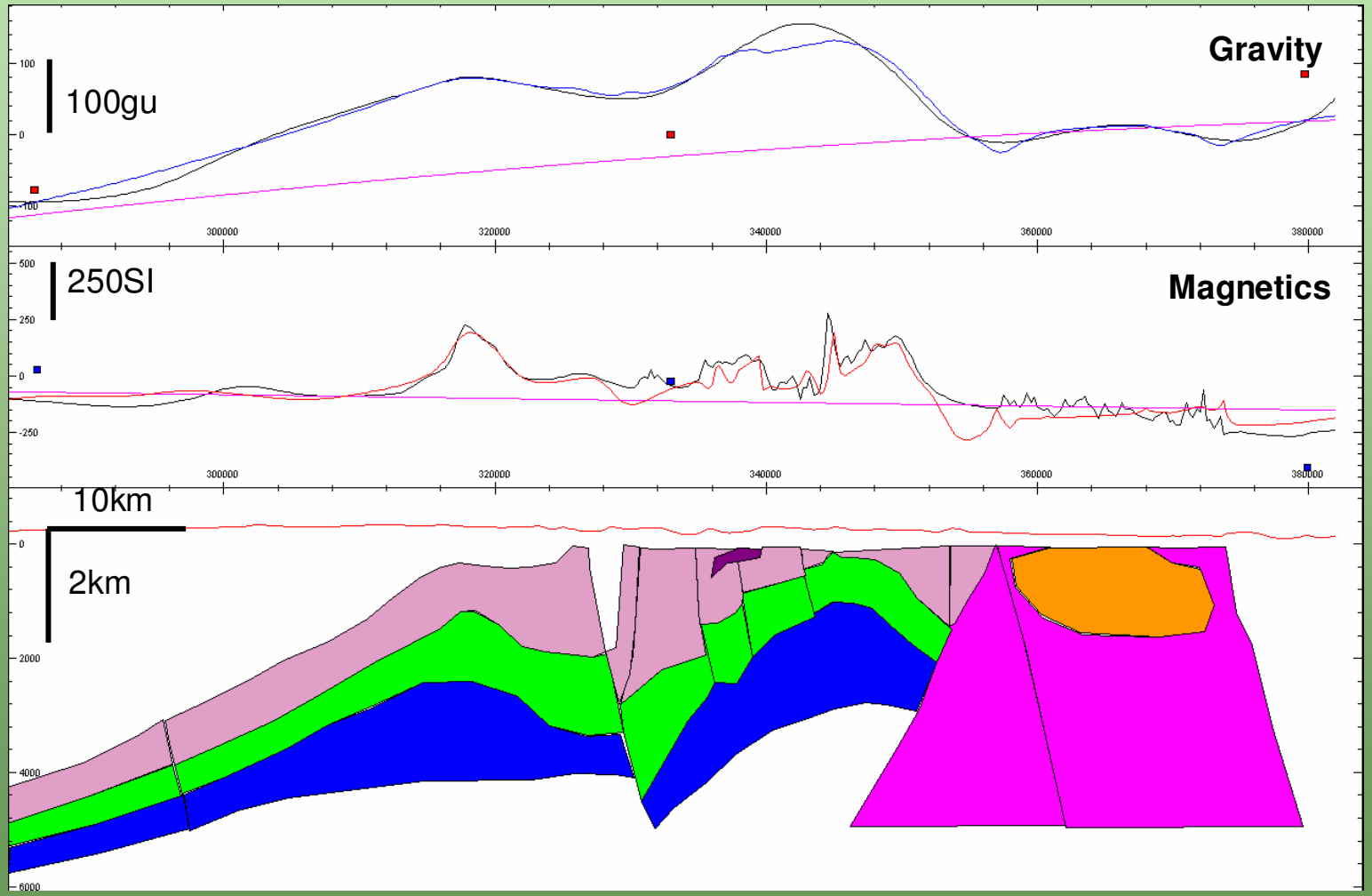
Mount Oxide



V/H ≈ 2

Forward modelling

Regional



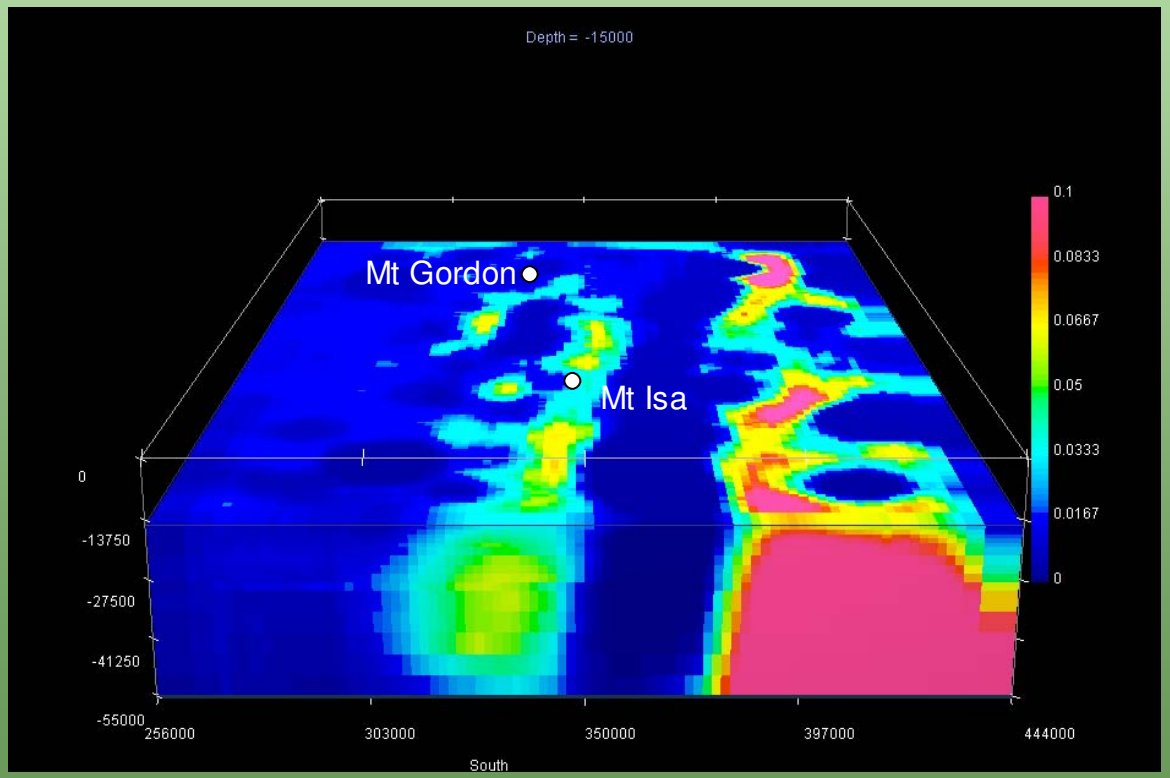
V/H ≈ 4

Inverse modelling

Regional

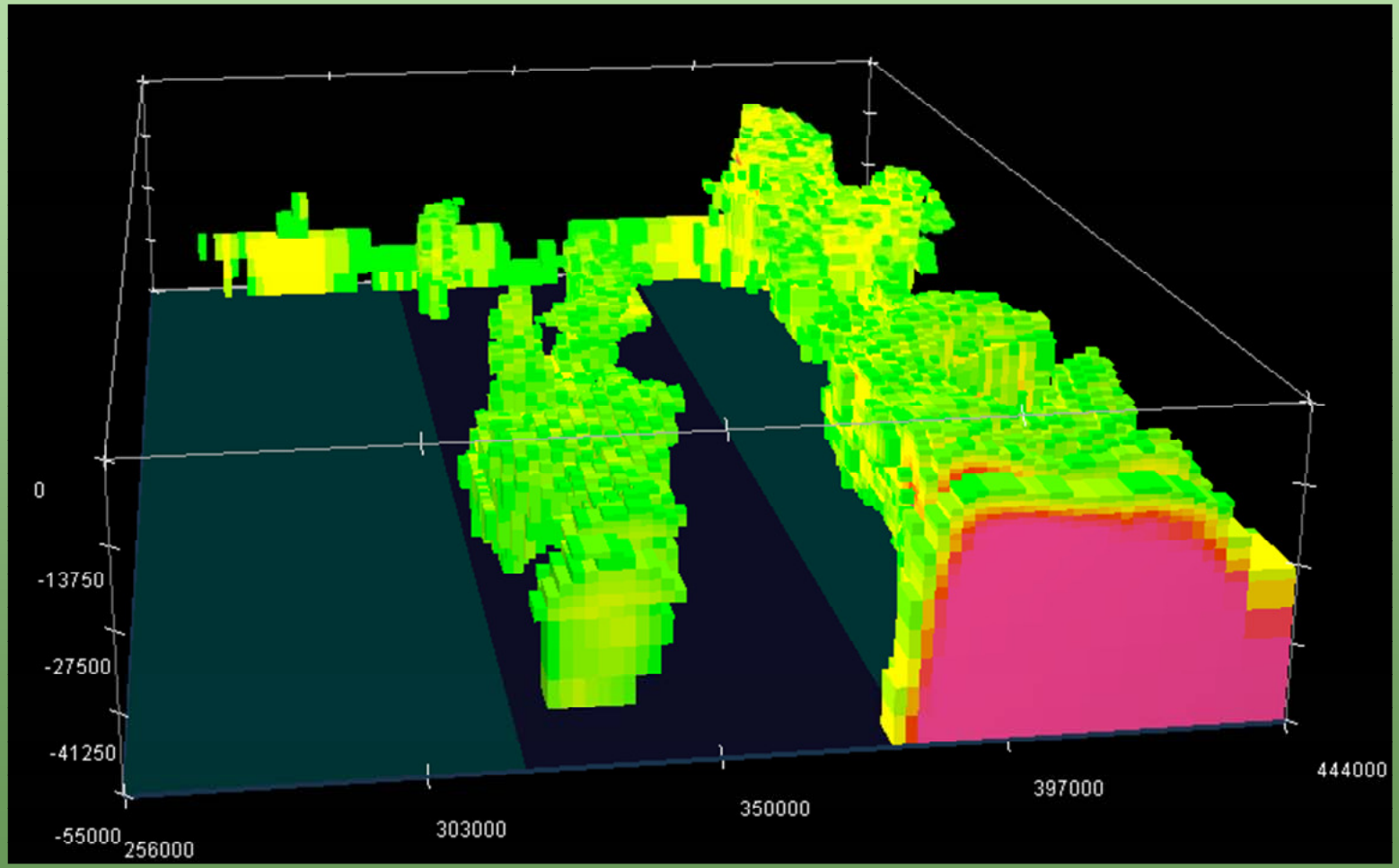
- unconstrained magnetic
- 160x260x20 km model
- 2x2x1 km cells

Final model



Inverse modelling

Regional



Conclusions

- potential-field modelling has provided information on ECV structure
- other units difficult to constrain due to physical property similarities
- suggests shallow basement
- 3D methods provide continuity in third dimension for building isosurfaces