

VTEM discoveries of massive sulphide deposits in northern Oman

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About Mawarid Mining



- Subsidiary of MB Holding Company, privately-owned Omani company with multi-sector interests
- Established as first private sector mining company in Oman in 1997
- Focus on copper-rich VMS deposits
- Economic resources discovered at Shinas and Hatta deposits, mining commenced in 2007
- Ongoing exploration in Oman
- Commitment to best-practice environmental and safety standards

Mawarid Mining locations

Copper operations office in Sohar

Copper exploration licenses Block 1, Block 2, Ghuzayn (total 742km²)

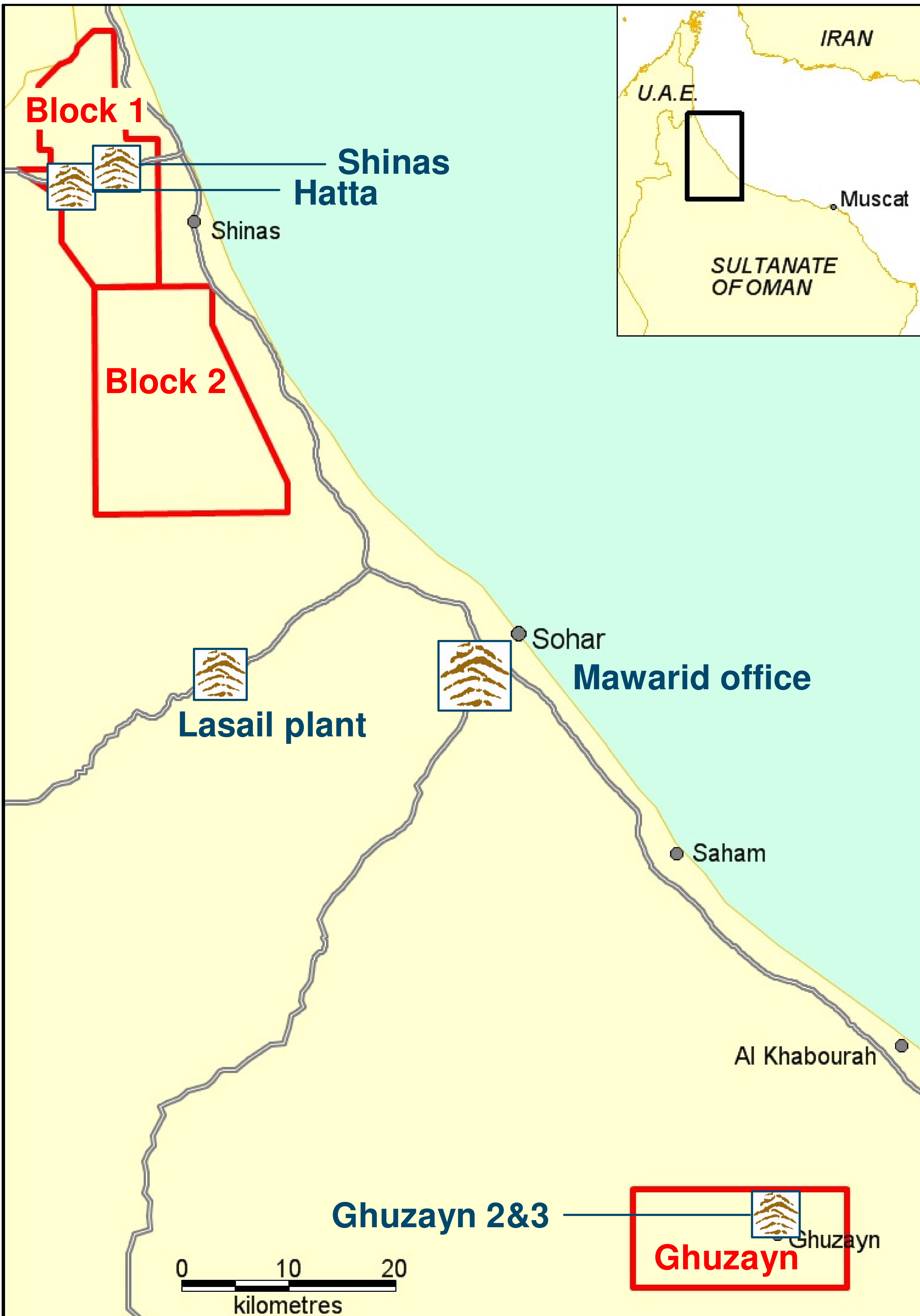
Situation at end 2008:

Production from mines at Shinas and Hatta, reserves to be exhausted by end 2010

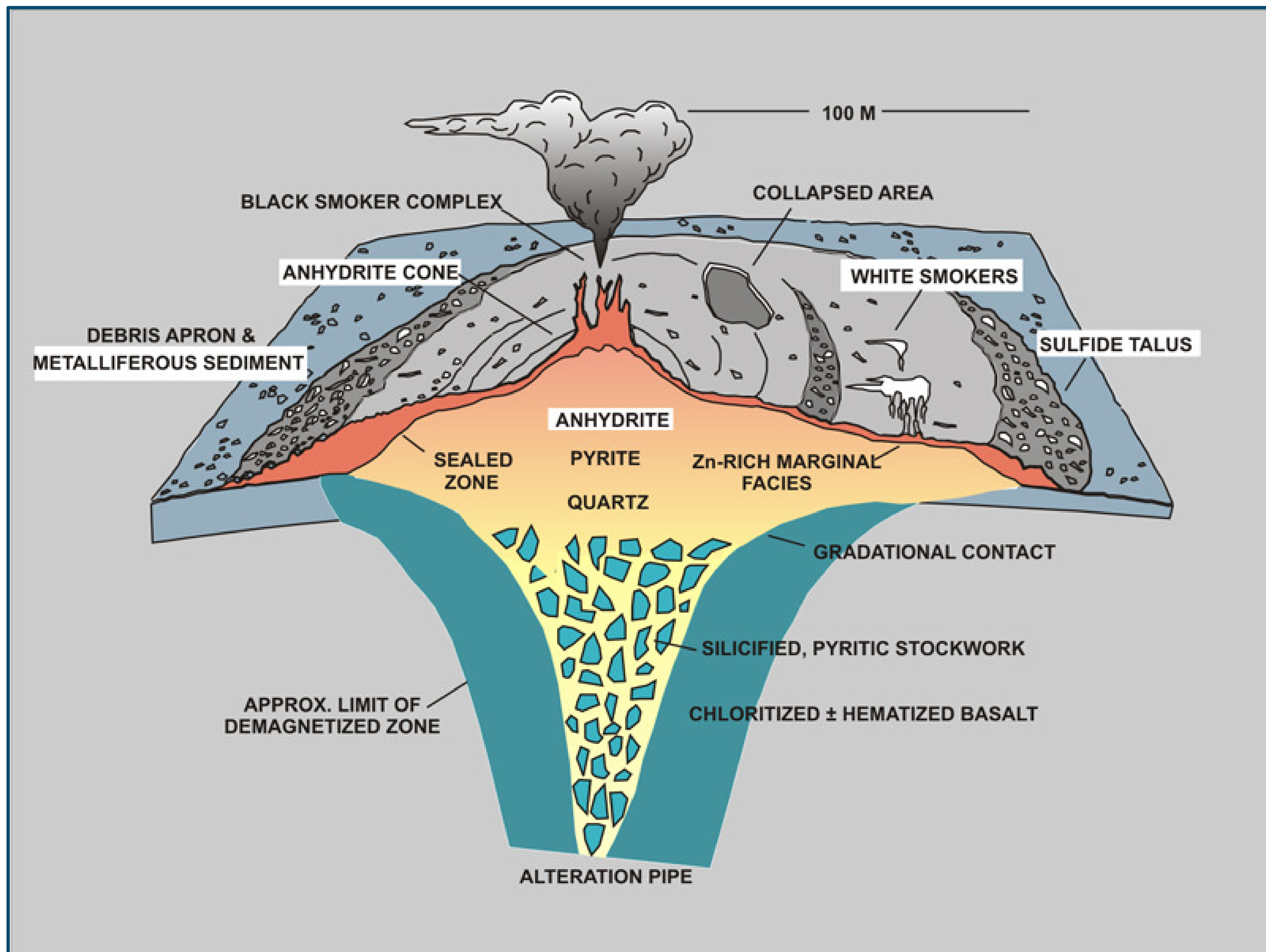
Resources at Ghuzayn 2 and 3, but not open-pittable

Owner-operated 1Mtpa concentrator at Lasail

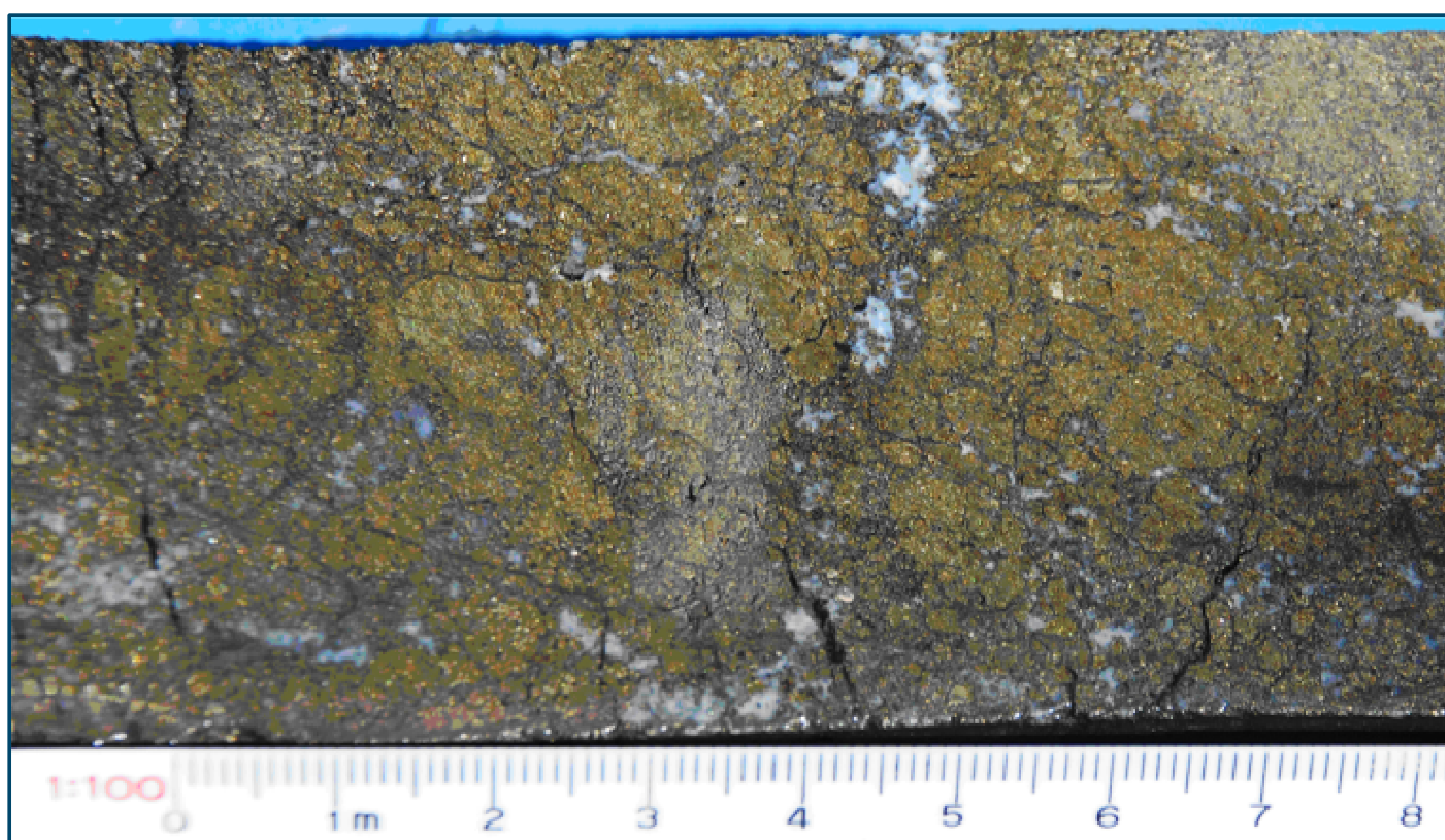
New open-pit reserves required



Mineralisation targets



- Mafic-hosted Cu ± Au VMS deposits (Cyprus-type)
- Generally small size (100m to 500m strike length, <1-10 Mt ore), but can be high grade (1.5 – 4.5% Cu)
- Surface to 200m deep targets viable
- 2-80m thick massive sulphide overlies stockwork with disseminated sulphides
- Mineralogy: pyrite dominant, Cu mostly chalcopyrite
- Overburden generally non-conductive and prospective volcanics do not contain other conductive lithologies
- Ideal targets for EM

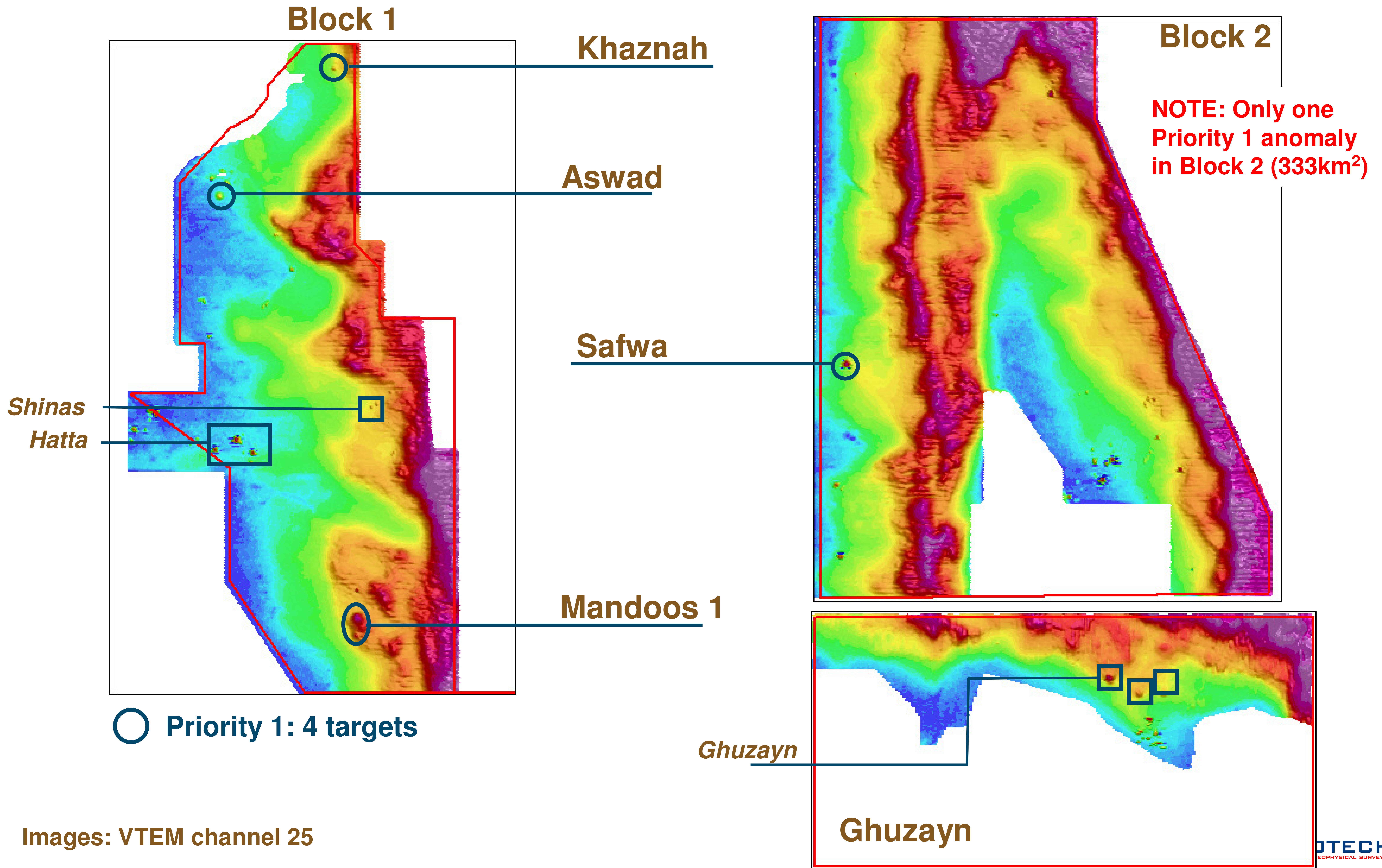


VTEM survey parameters



- 100m line spacing
- Line direction perpendicular to strike
- Survey covered prospective volcanics outcropping and under gravel cover
- Air Walser AS-350B 'Lama' helicopter platform
- Transmitter loop diameter 26 m
- Receiver loop diameter 1.2 m
- Base frequency 25 Hz
- Dipole moment 625000 NIA
- Survey conducted February-March 2009 (Oman winter, best weather conditions)
- Main challenge: obtaining permits to operate in a country with no private helicopter charter firms

VTEM Results



Mandoos anomalies



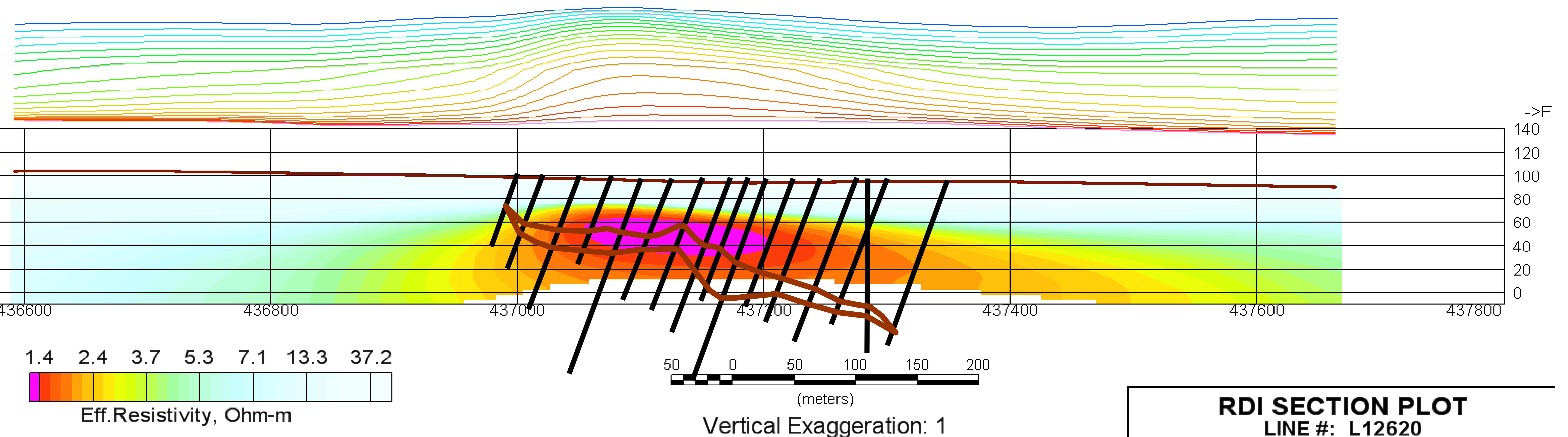
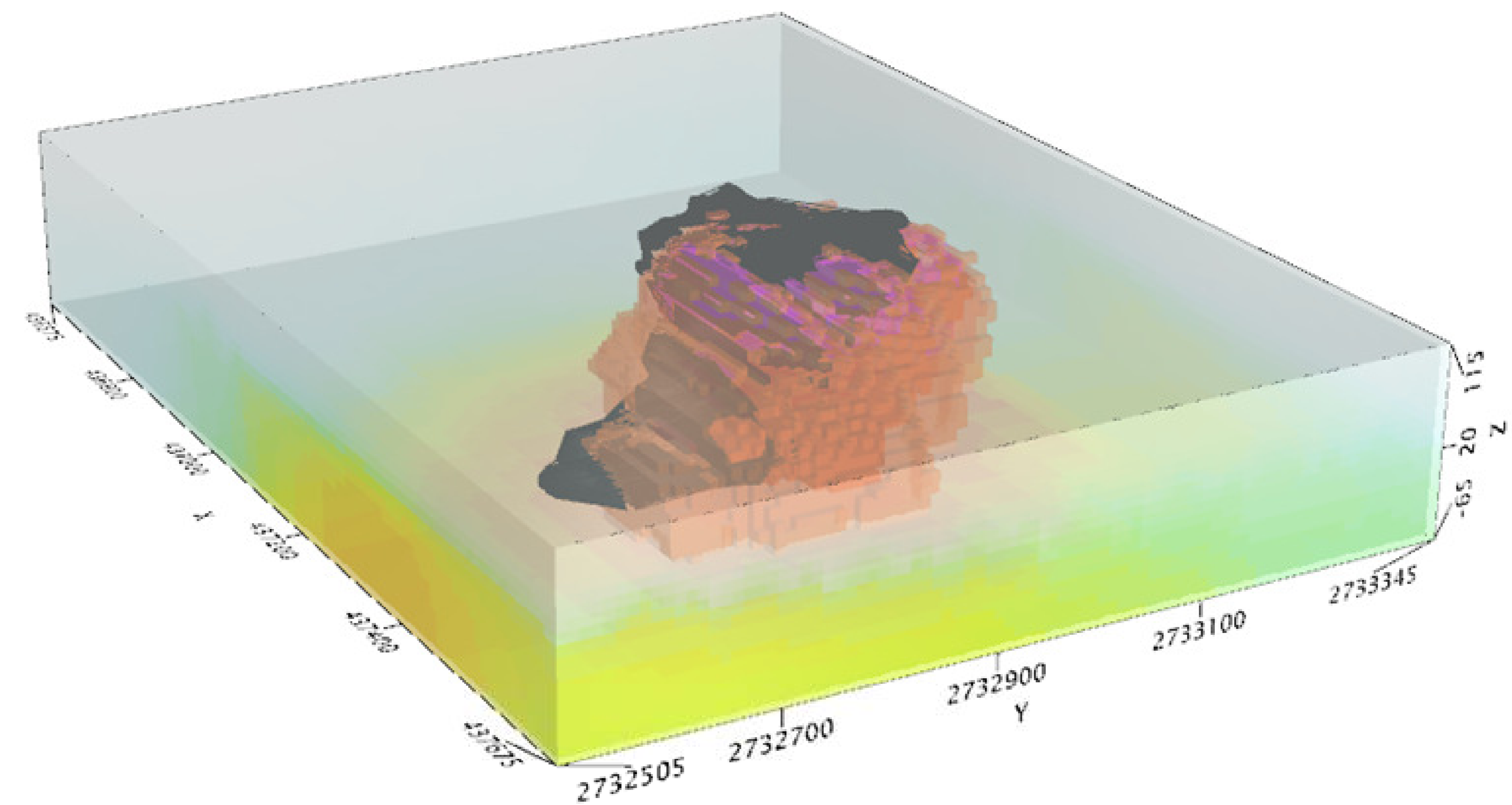
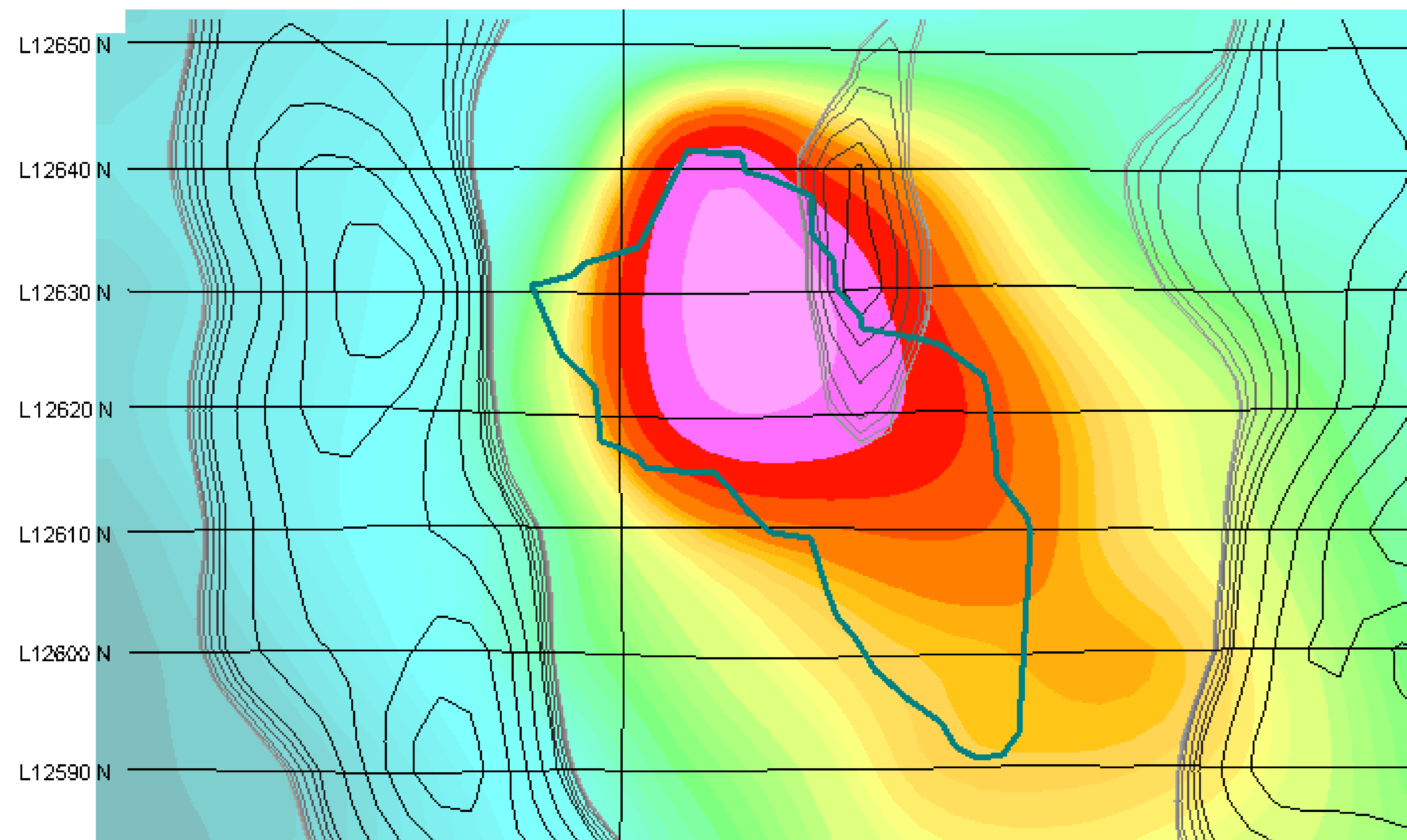
Mandoos discovery drill hole MD001
20th April 2009
16m @ 2.36% Cu

- Mandoos 1 response on multiple lines
- Mandoos 2 and 3 anomalies cluster around Mandoos 1
- First drill hole intersected 16m massive sulphide with 2.3% Cu from 25m depth
- Drilling of other anomalies in Mandoos cluster intersected massive sulphides, but Cu grades low.

Mandoos 1 anomaly

Bfield 2ms off-time response colour grid, vertical derivative of TMI contours, plan outline of massive sulphide body

Voxel of Resistivity Depth Images with 3d sulphide body model (black) based on drilling



RDI SECTION PLOT
LINE #: L12620

Safwa anomaly



**Safwa discovery drill hole SA001 20th
May 2009
52m @ 2.4% Cu**

- Safwa response on 2 lines
- One line gave strongest response of all priority 1 anomalies in the survey
- First drill hole intersected 52m massive sulphide with 2.4% Cu from 20m depth

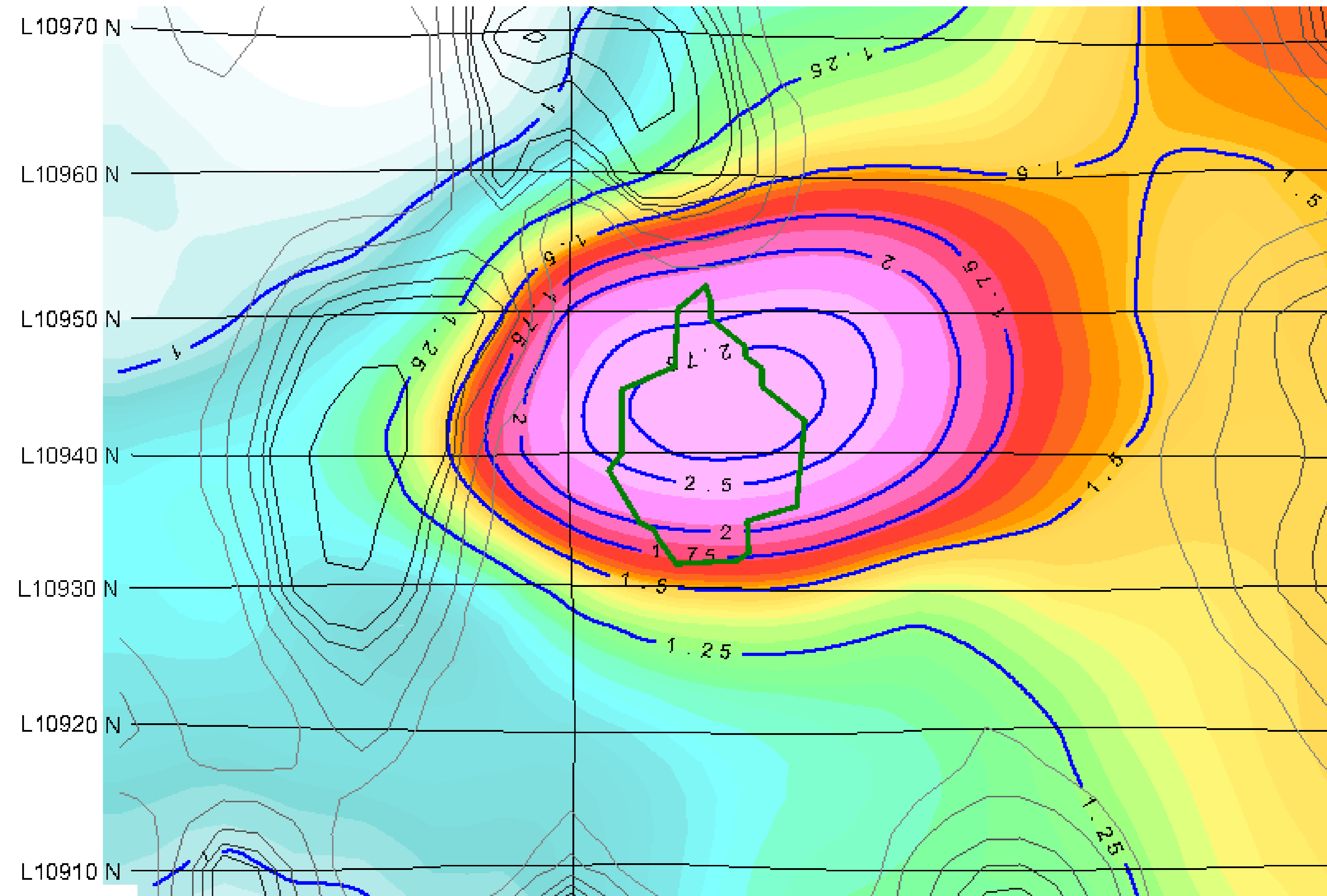


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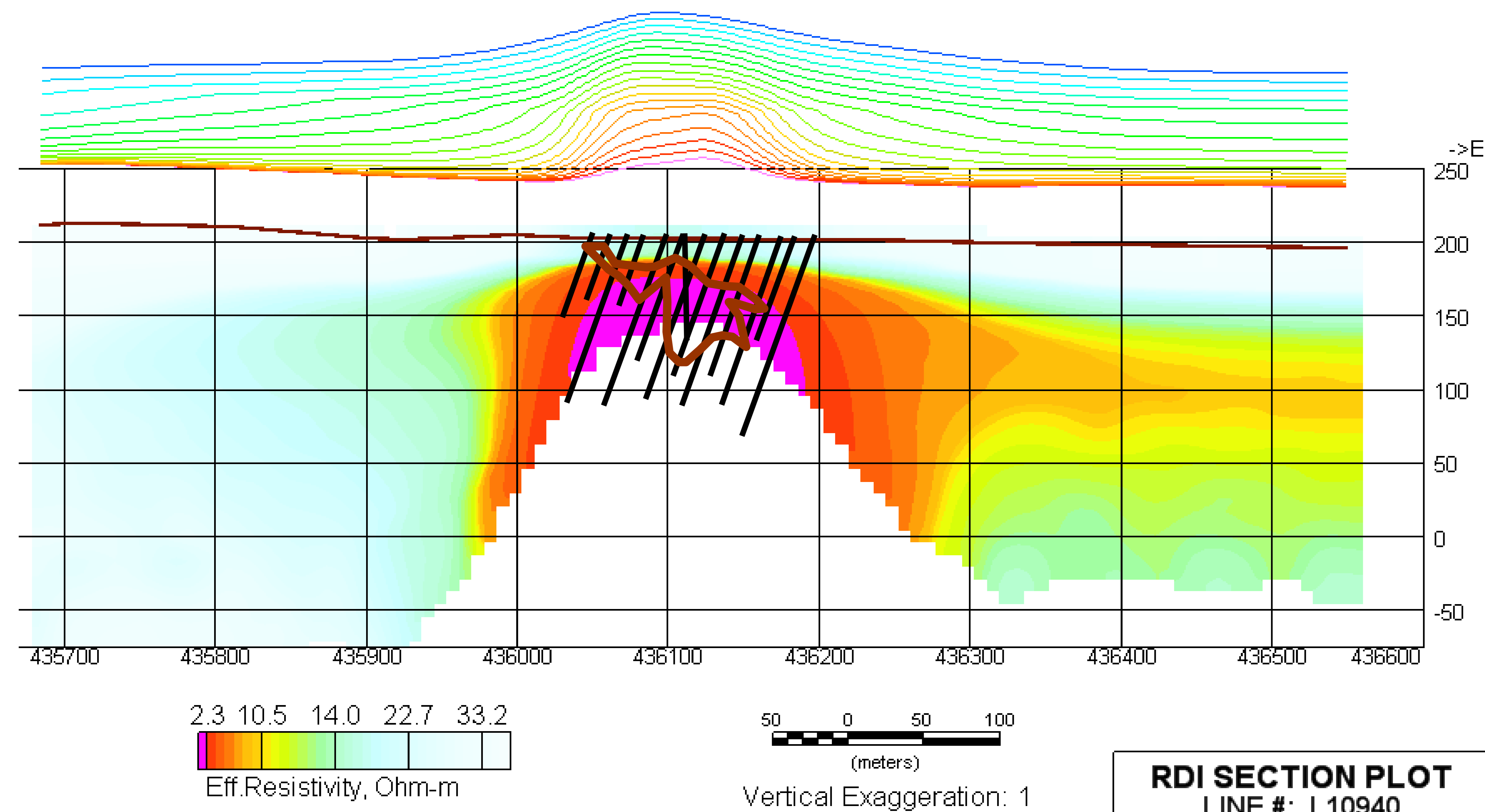
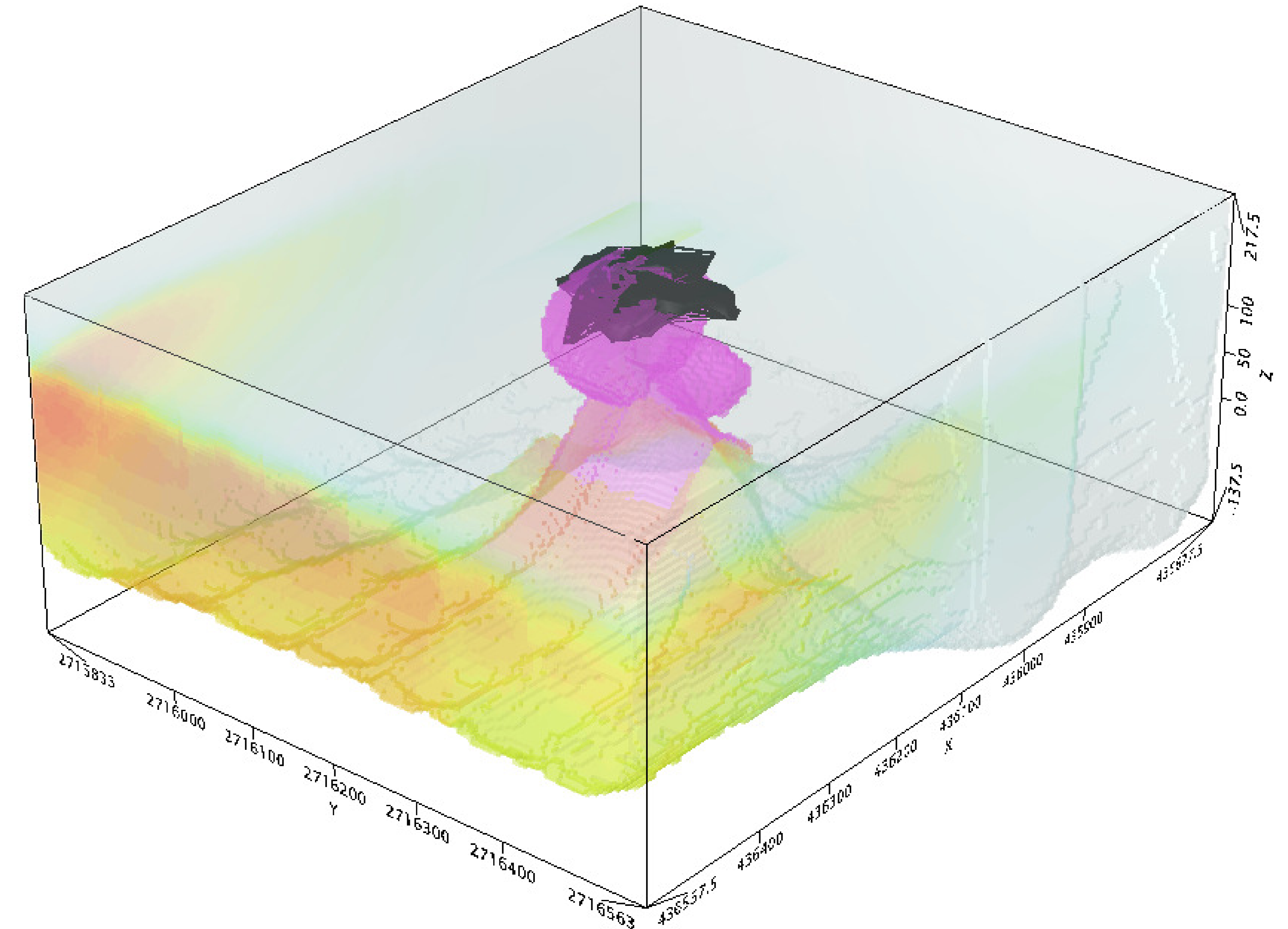
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Safwa anomaly

EM TAU map (msec, blue contours), vertical derivative of TMI anomaly contours, contour (green) of massive sulphide body



3d voxel of Resistivity Depth Images with 3d sulphide body model (black) based on drilling



Aswad anomaly

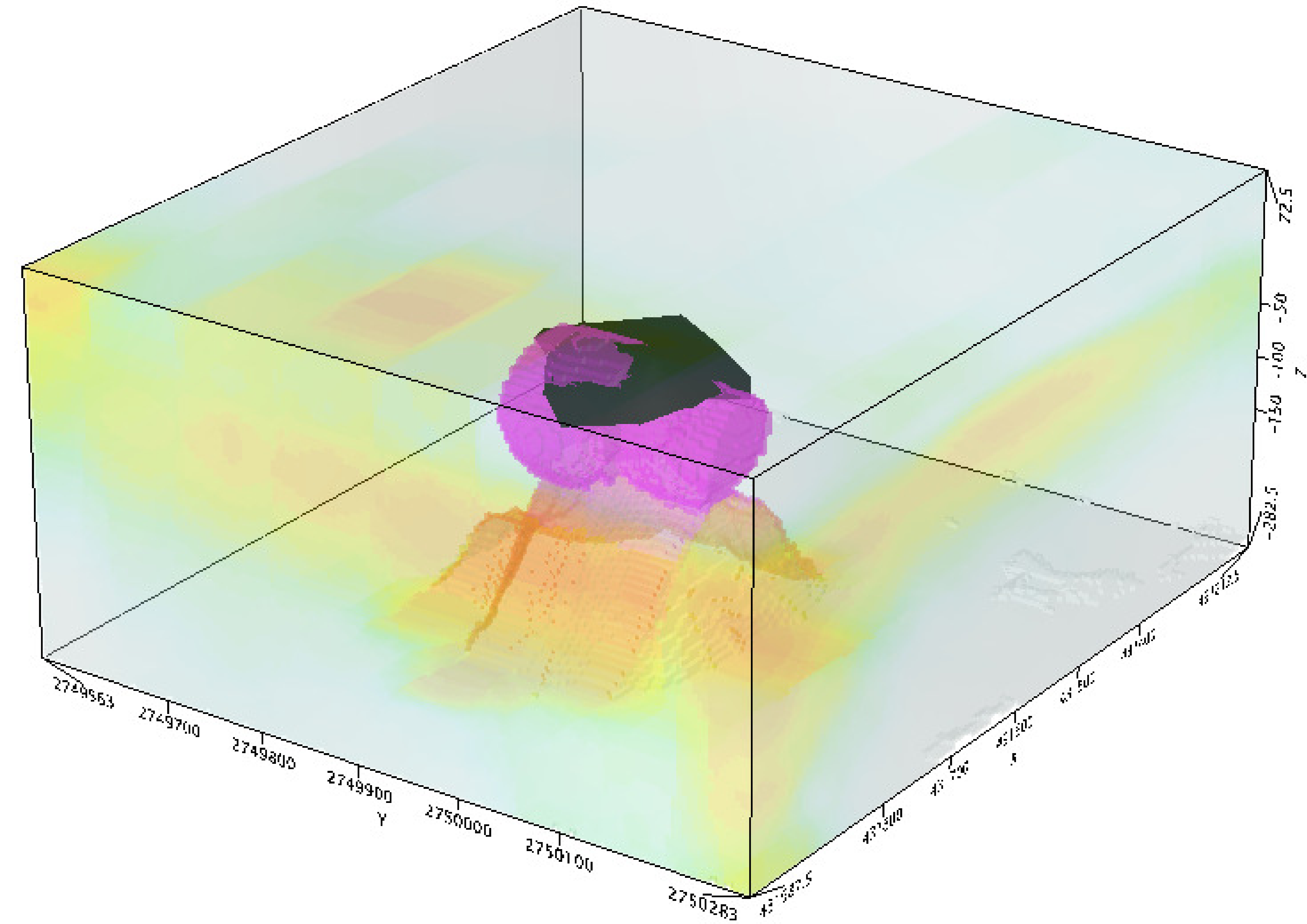
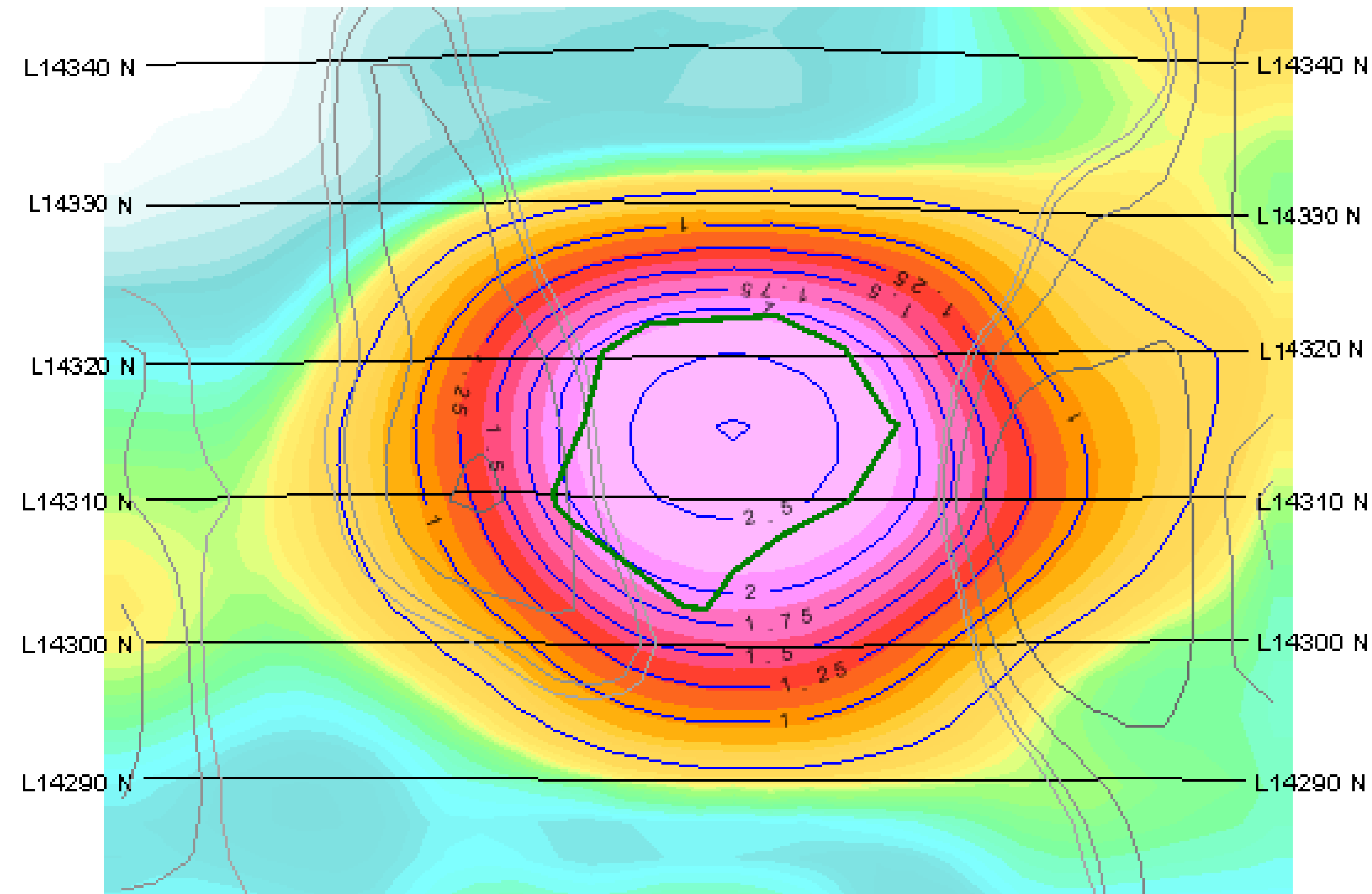


- Response on 2 Lines
- Initial modeling indicated depth to conductor about 150m
- First drill hole intersected 27.7m massive sulphide with 1.9% Cu from 112m depth

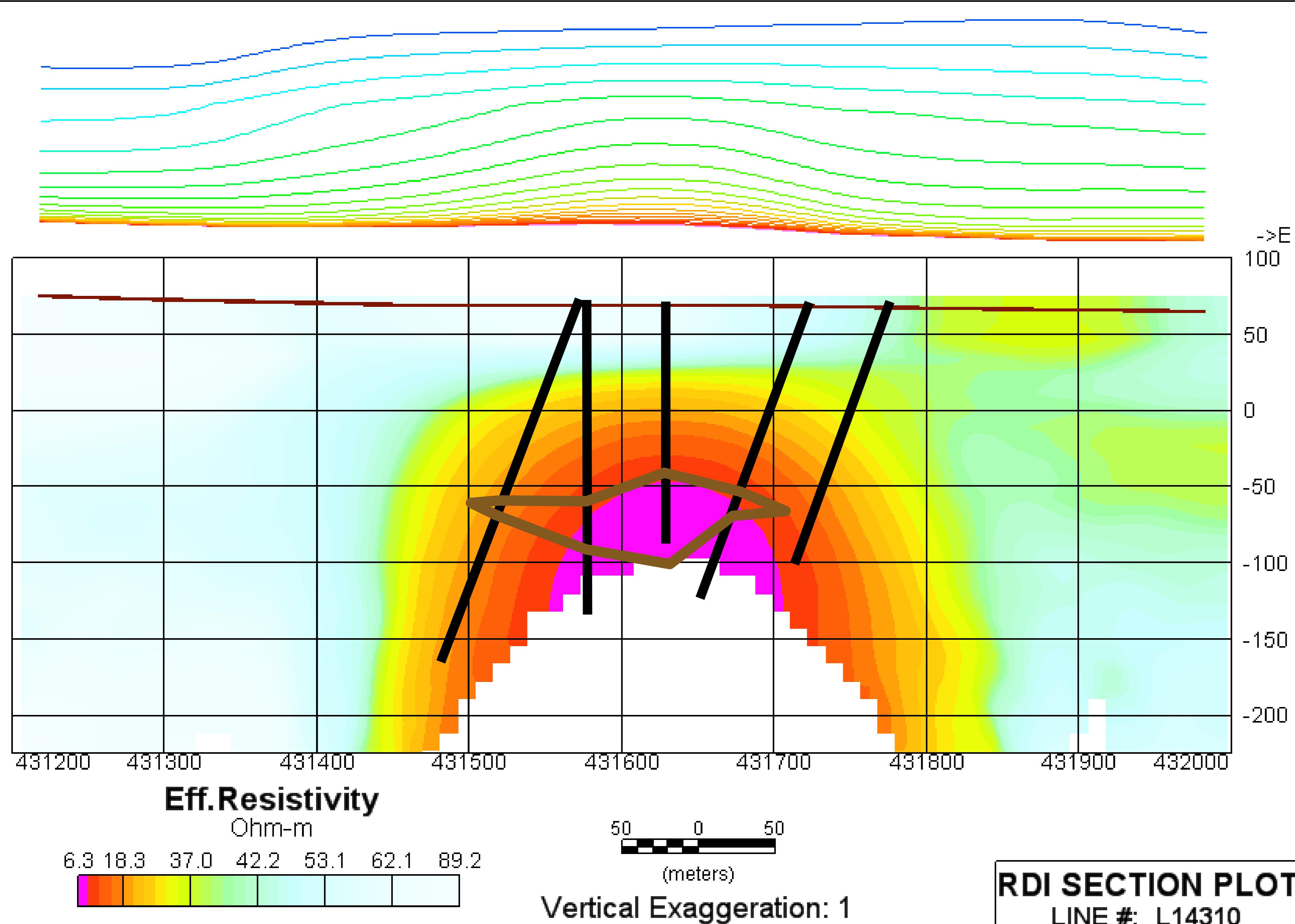
Aswad discovery drill hole AS001 27th March 2010. Best intercept 27.7m @ 1.94 % Cu

Aswad anomaly

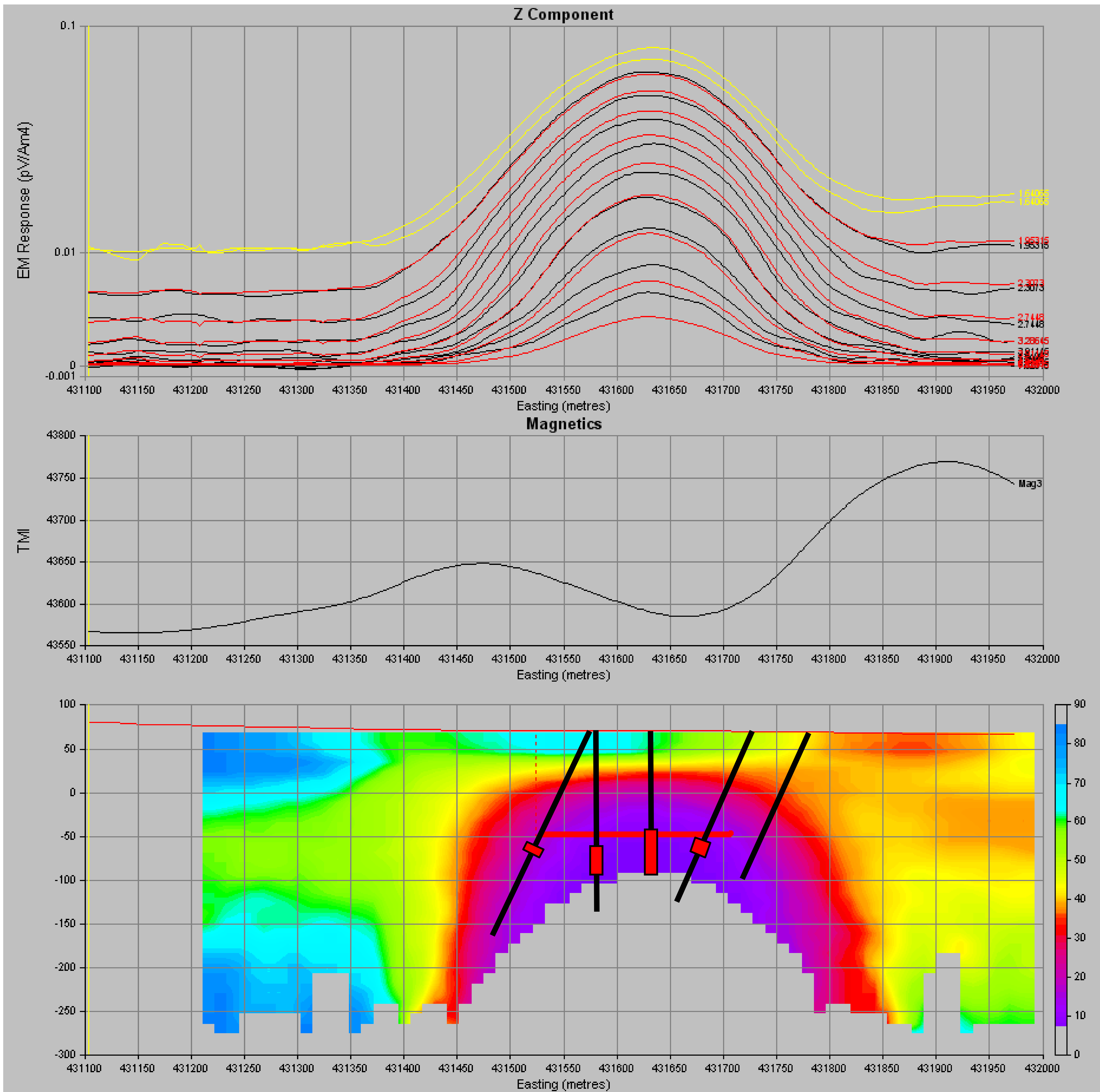
EM TAU map (msec, blue contours) over discovery, vertical derivative of TMI anomaly contours, contour (green) of massive sulphide body



3d voxel of Resistivity Depth Images with 3d sulphide body model (black) based on drilling



Aswad anomaly



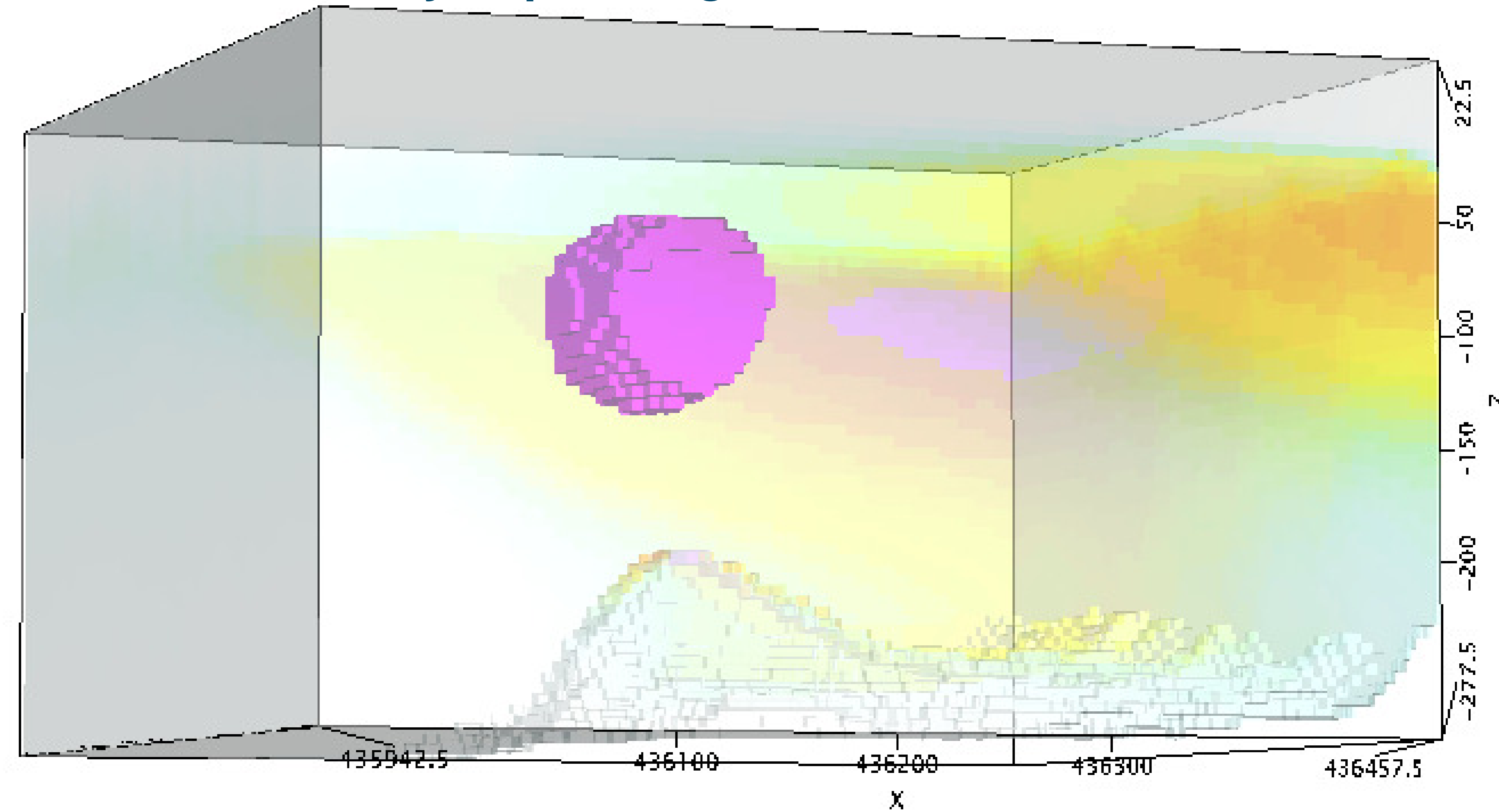
Results of EMIT Maxwell Plate modeling of Aswad anomaly with overburden simulation

Khaznah anomaly

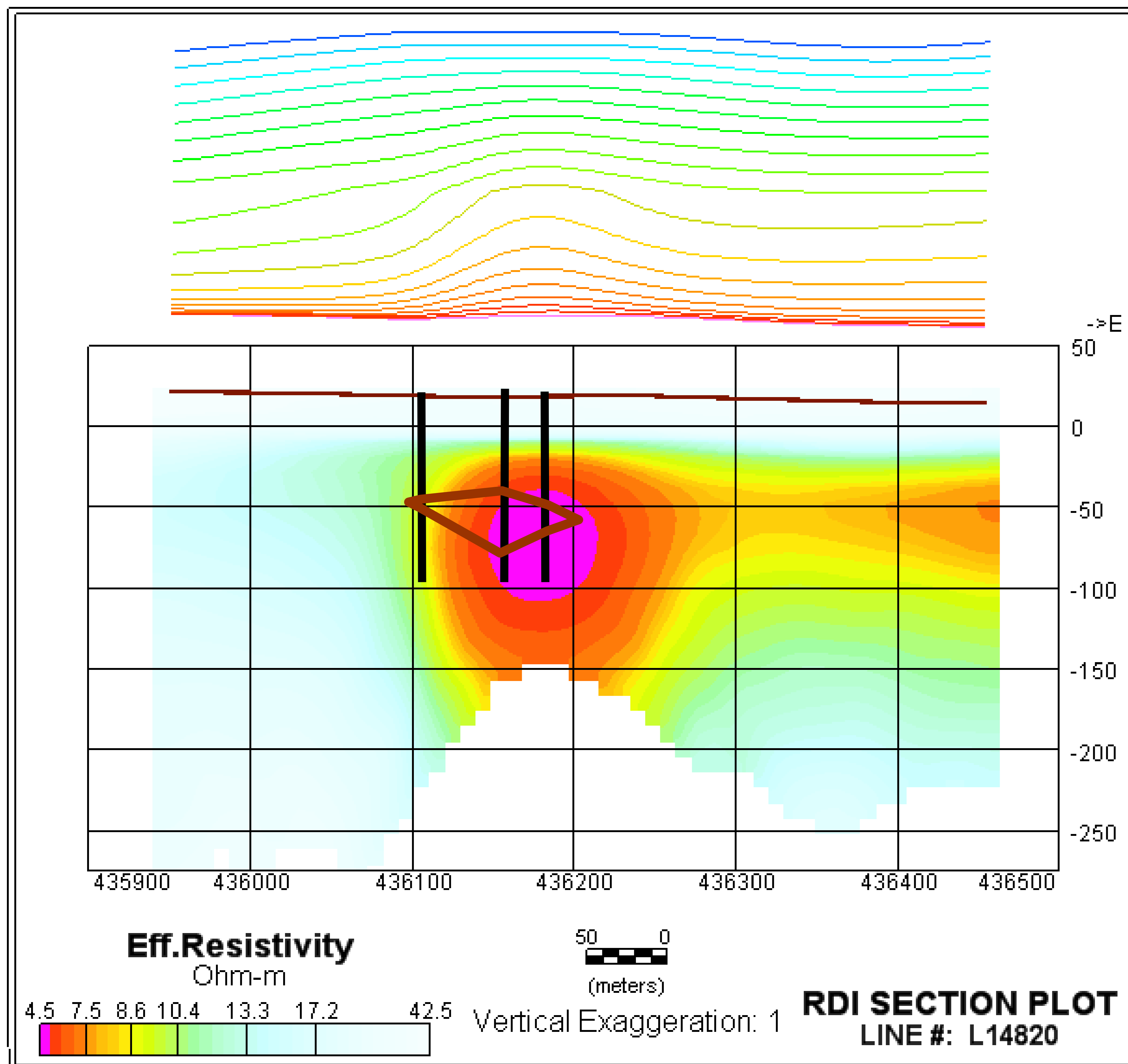
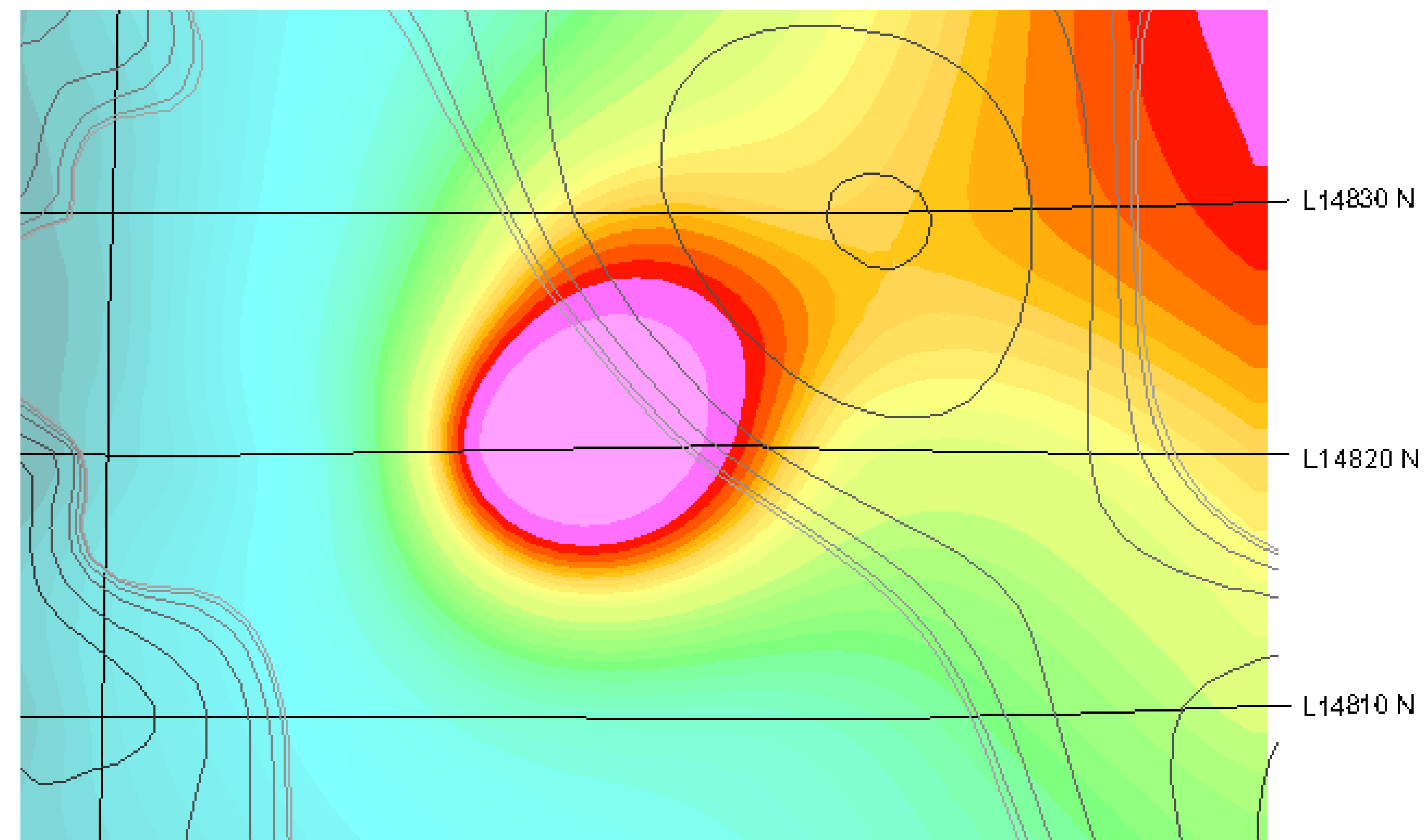
- Response on 2 lines
- Preliminary Maxwell modelling indicated conductor at about 70m depth
- First drill hole intersected 16m massive sulphide from 74m depth with 0.8% Cu

Khaznah anomaly

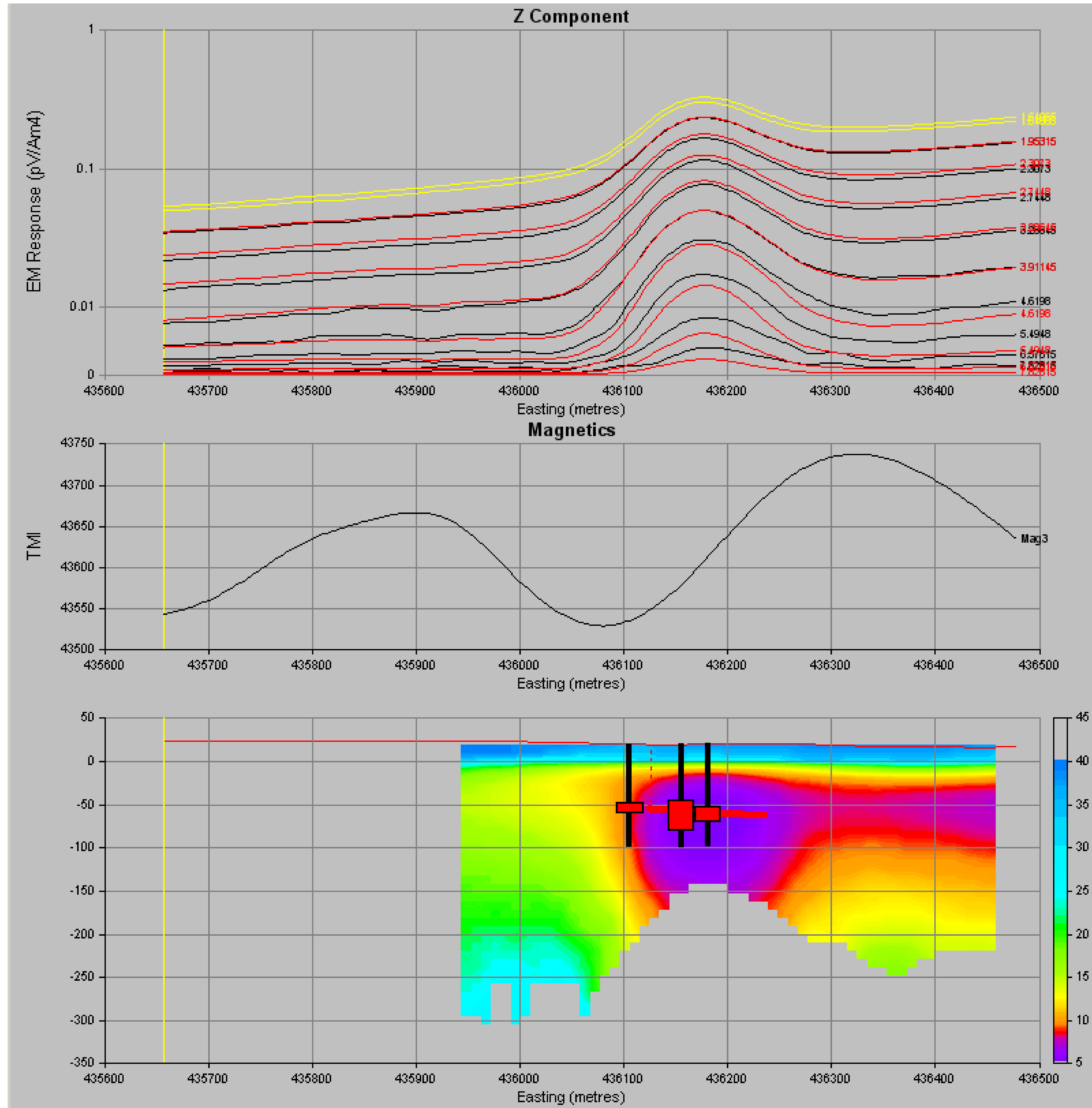
3d voxel of Resistivity Depth Images



Bfield 2ms off-time response colour grid, vertical derivative of TMI anomaly contours



Khaznah anomaly



Results of EMIT Maxwell Plate modeling of Khaznah anomaly with overburden simulation

Final results



Mawarid geophysicist Steve Boucher marks SA001 drill site, 18th May 2009



Mining pre-strip at Safwa, 30th Oct 2010

- Safwa – approx 1.7Mt @ 2.4% Cu
- Mandoos – approx 7Mt @ 1.5% Cu

- Aswad – approx 2.5 Mt @ 2% Cu
- Khaznah – approx 350kt @ 1% Cu

Conclusions

- VTEM survey at 100m line spacing successfully detected 4 massive sulphide bodies in areas of no outcrop
- Data of sufficient resolution to give drill targets without need for ground follow-up
- Minimal processing required for priority 1 anomalies: drilling could commence immediately after data delivery
- Modelling of deeper anomalies gave depths within 10's of metres of actual
- Turnaround from VTEM survey to definition of mining reserves about 6 months at Safwa
- VTEM survey added >11 Mt of ore to resource inventory, extended open pit mining operations by 4 years and enabled development of life-of-mine plan for Mawarid Oman Copper Business

Acknowledgements

- Mawarid Mining and MB Holding Group management for allowing results to be presented
- Steve Boucher (former Senior Geophysicist for Mawarid) for his initial work in defining and modelling drill targets from VTEM data
- Mawarid Exploration team
- Mawarid administration and support staff
- Alexander Prikhodko from Geotech for interpretation of anomaly data