

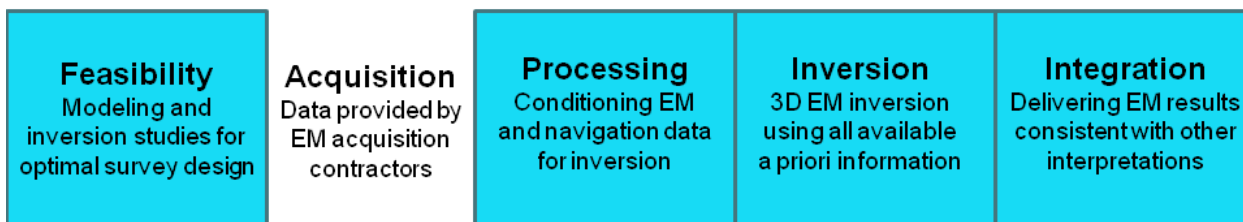
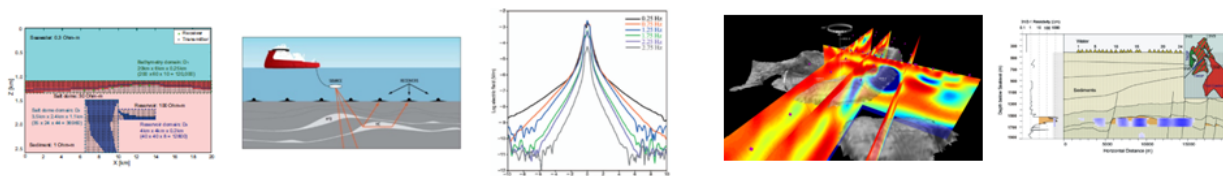


www.technoimaging.com

Q3-2011 Newsletter

Introducing TechnoImaging

Founded in 2005 by Professor Michael S. Zhdanov as a spin-off from the University of Utah, TechnoImaging is an independent Salt Lake City-based company which provides commercial software products, consulting and internet-hosted interpretation services, research and development, and project management for all non-seismic geophysical methods relevant to oil and gas exploration and production.



TechnoImaging is continually investing in research and development so as to deliver the most advanced and comprehensive 3D quantitative interpretation solutions to all subsurface characterization problems.

TechnoImaging provides independent analysis, evaluation and quality control of non-seismic geophysical data (including marine, land, airborne and borehole)

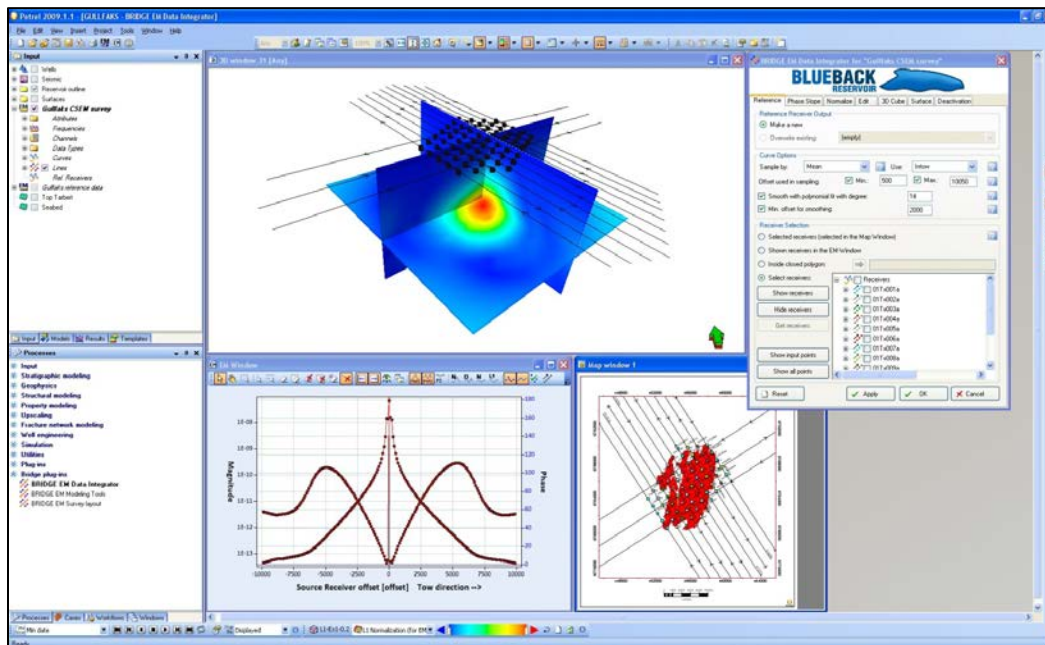
Visit TechnoImaging at booth 3236 at the SEG in San Antonio!

BRIDGE with EMVision® – A plug-in for Petrel*

Blueback Reservoir and TechnoImaging are now licensing the Petrel* plug-in BRIDGE with TechnoImaging's EMVision® 3D CSEM modelling. This enables Petrel users to simulate CSEM data, and independently QC other 3D inversions.

Visit either Blueback Reservoir (booth 3308) or TechnoImaging (booth 3236) at the upcoming SEG for a demonstration of BRIDGE with EMVision®!

Alternatively, contact [Blueback Reservoir](#) for a free demonstration license of BRIDGE with EMVision®!



BRIDGE with EMVision® is a Petrel* plug-in for analysis and interpretation of CSEM data, including 3D modelling.

3D towed streamer electromagnetic inversion

TechnoImaging has developed the only 3D inversion for towed streamer electromagnetic data **in both frequency domain and time domain**. We will commercially offer a 3D towed EM inversion service from early 2012.

Visit us at the SEG (booth 3236) or attend our presentation in the Marine EM session on Wednesday 21 September in Room 210A:

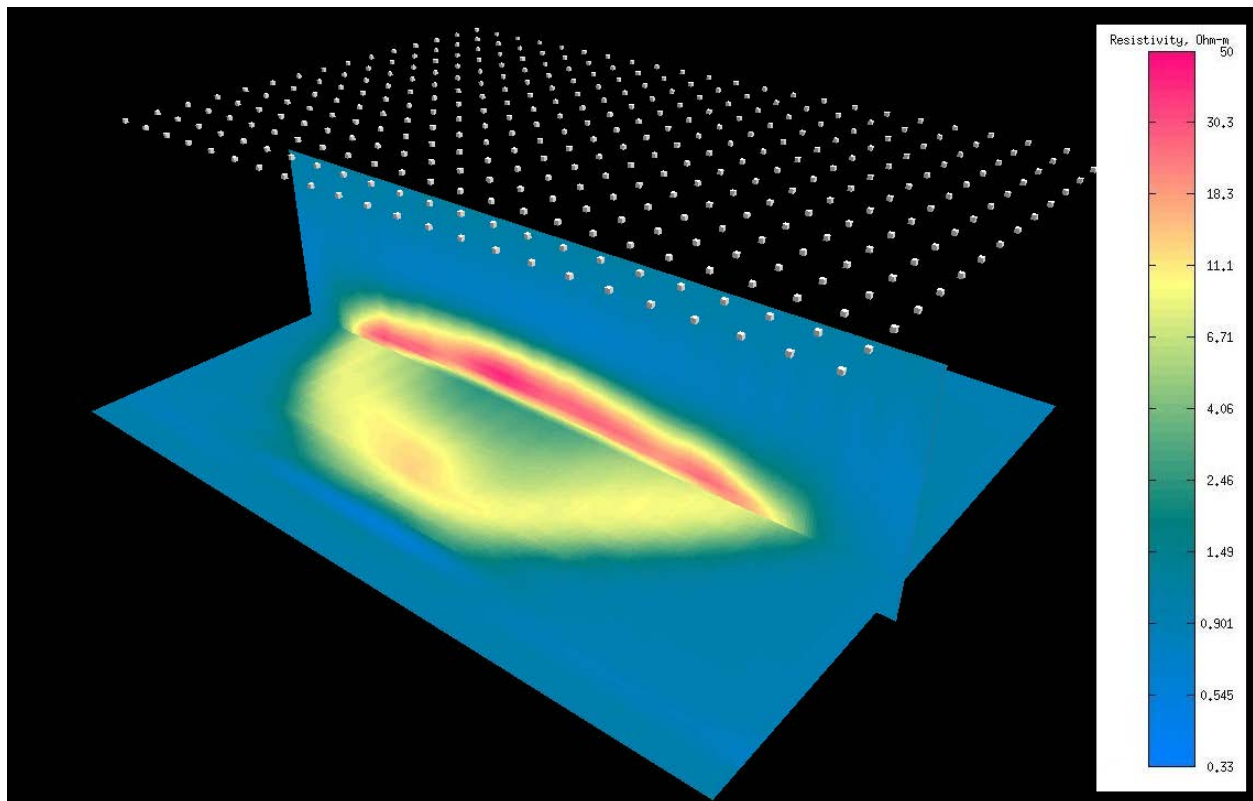
9:20 am – Presentation EM 2.3

3D inversion of towed streamer EM data: A model study of the Harding field and comparison to 3D CSEM inversion – Michael Zhdanov, Bruce Hobbs (PGS), Masashi Endo, Leif Cox, Noel Black, Alexander Gribenko, Martin Cuma, Glenn Wilson, and Ed Morris (PGS)

Mega-cell 3D migration & inversion of marine CSEM data

TechnoImaging offers an independent large-scale 3D migration and inversion service and quality control for multi-line marine controlled source electromagnetic (CSEM) surveys in either frequency domain or time domain – we are able to invert 3D CSEM surveys to mega-cell 3D conductivity models with anisotropy and inhomogeneous background conductivity. We are also able to jointly invert both CSEM and MT data.

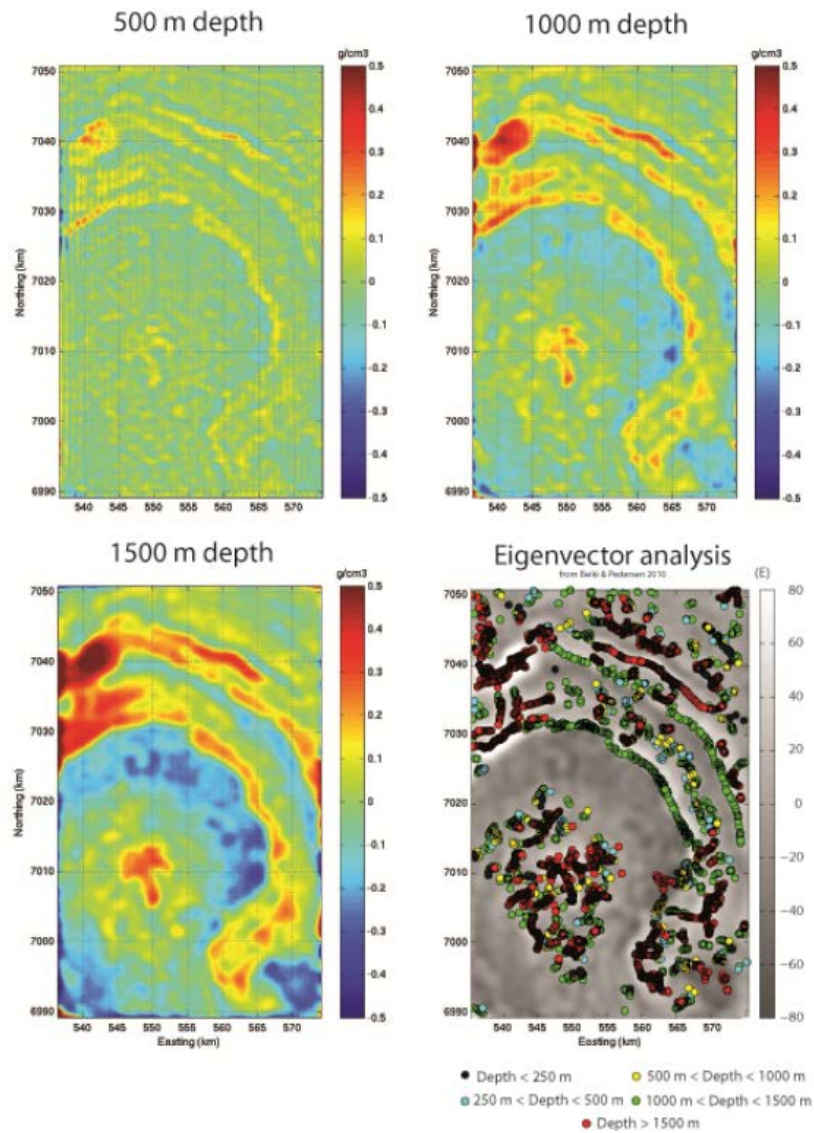
Our recent publication in [Geophysical Prospecting](#) describes our proprietary focusing regularization that recovers sharper and higher conductivity contrasts than traditional “smooth” regularization.



3D resistivity image of the Shtokman gas field obtained from the iterative 3D migration using the minimum vertical support stabilizer. For further details, we refer you to Zhdanov et al. (First Break, 2010).

Breaking the billion cell barrier Giga-cell 3D potential field inversion

TechnoImaging offers the only massively parallel 3D inversion for gravity, gravity gradiometry, magnetics, and magnetic gradiometry data. Our software is unprecedented in the unlimited scale of both survey and model that can be inverted – we are now routinely inverting entire surveys to mega- and giga-cell 3D density models. For continental-scale 3D inversions, we have developed our 3D inversion in spherical coordinates.



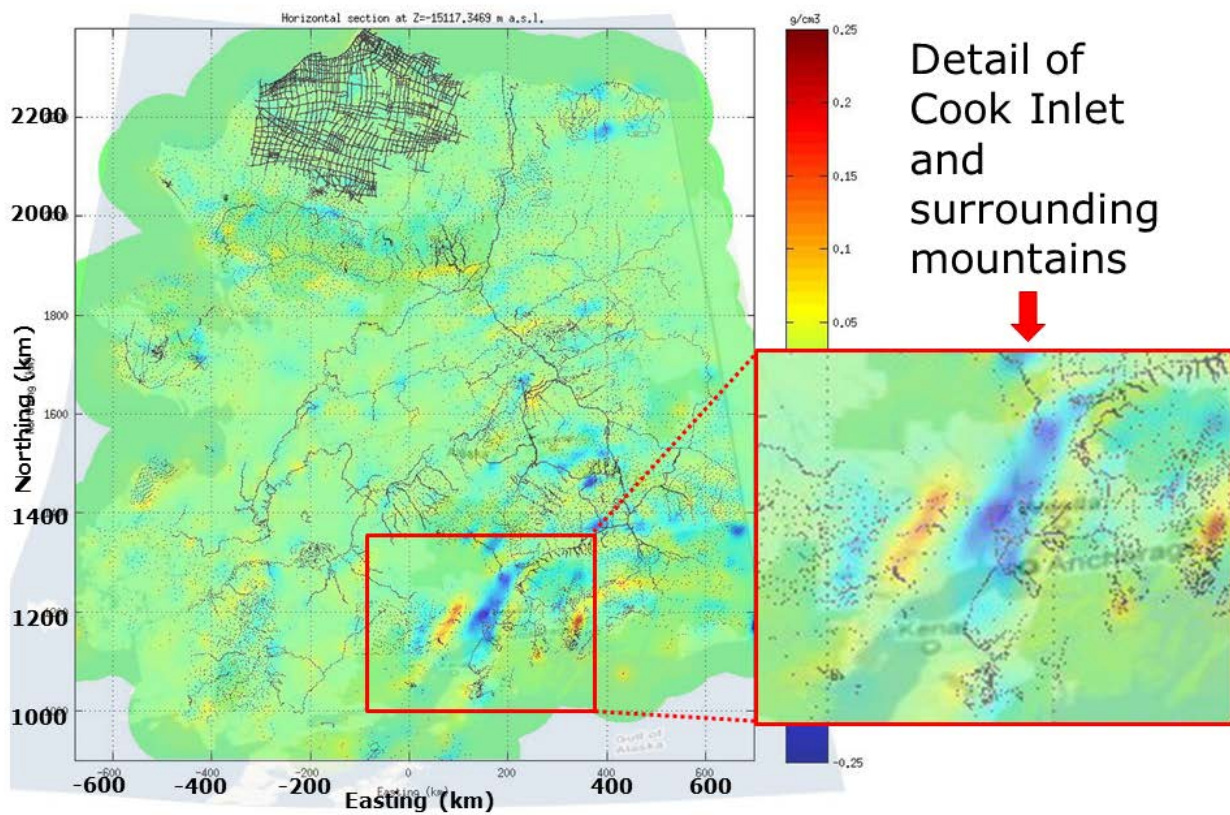
Horizontal cross sections of the 3D inversion of FALCON airborne gravity gradiometry data from Vredefort, South Africa, for 500 m, 1000 m, and 1500 m depth, with comparison to eigenvector analysis. The 3D density model was discretised to over 350 million 25 m cubic cells. Further details are described in [Wilson et al., 2011, Massively parallel 3D inversion of gravity and gravity gradiometry data, Preview.](#)

Non-exclusive 3D inversion products

TechnoImaging is developing a suite of non-exclusive 3D inversion products based on open file data.

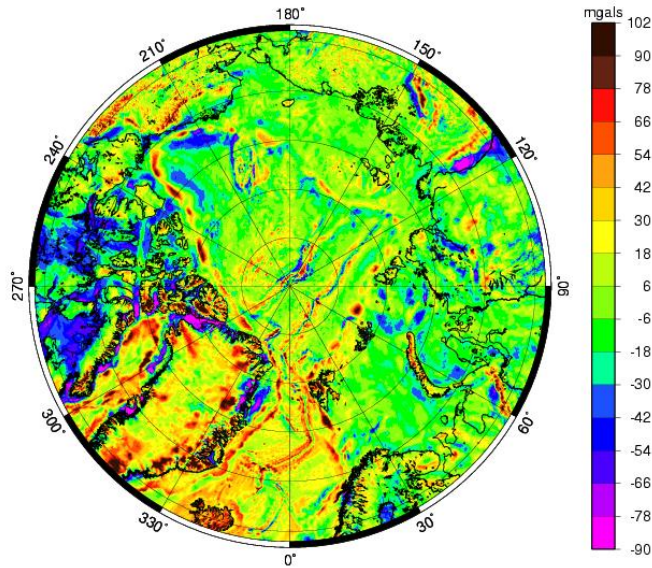
At present, we have the following 3D models available for licensing:

Alaska: A suite of 3D density models to depths of 50 km, 100 km, and 150 km, discretised to 500 m horizontal resolution, recovered from 3D inversion of 90,000 stations of USGS complete Bouguer gravity data.



Horizontal cross section at 15 km depth from the 3D density model of Alaska, discretised to 500 m horizontal resolution and depth of 150 km. This model is part of a model suite available for licensing on a non-exclusive basis.

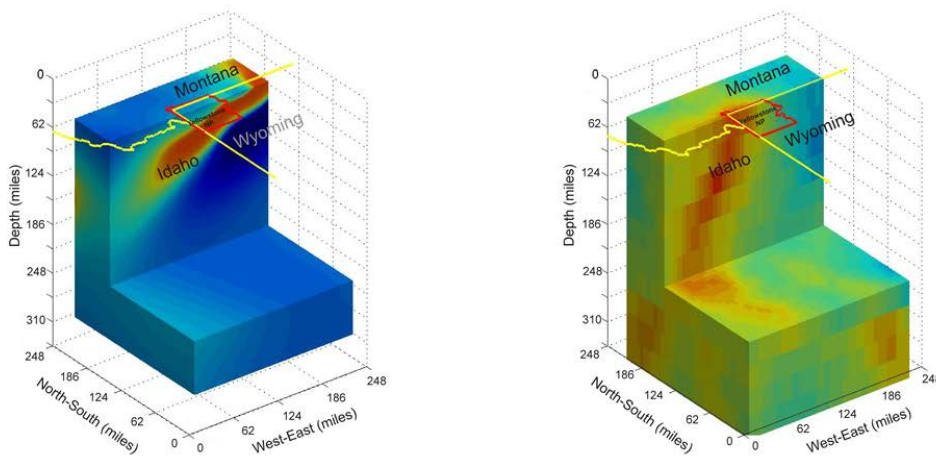
Arctic: We are now soliciting expressions of interest for the licensing of 3D density models for the Arctic which we are planning to develop in late 2011.



The entire Arctic free air gravity map is to be inverted to a 3D density model in late 2011 for release in 2012.

Mega-cell 3D inversion of magnetotelluric (MT) data

TechnoImaging offers large-scale 3D inversion for magnetotelluric (MT) surveys – we are now routinely inverting regional-scale MT surveys to mega-cell 3D conductivity models. Our recent 3D inversion of EarthScope MT data from Yellowstone National Park has recently been featured on BBC and National Geographic.



Comparison of 3D MT inversion and 3D seismic tomography over Yellowstone National Park.
See Zhdanov et al. (Geophysical Research Letters, 2011) for further details.

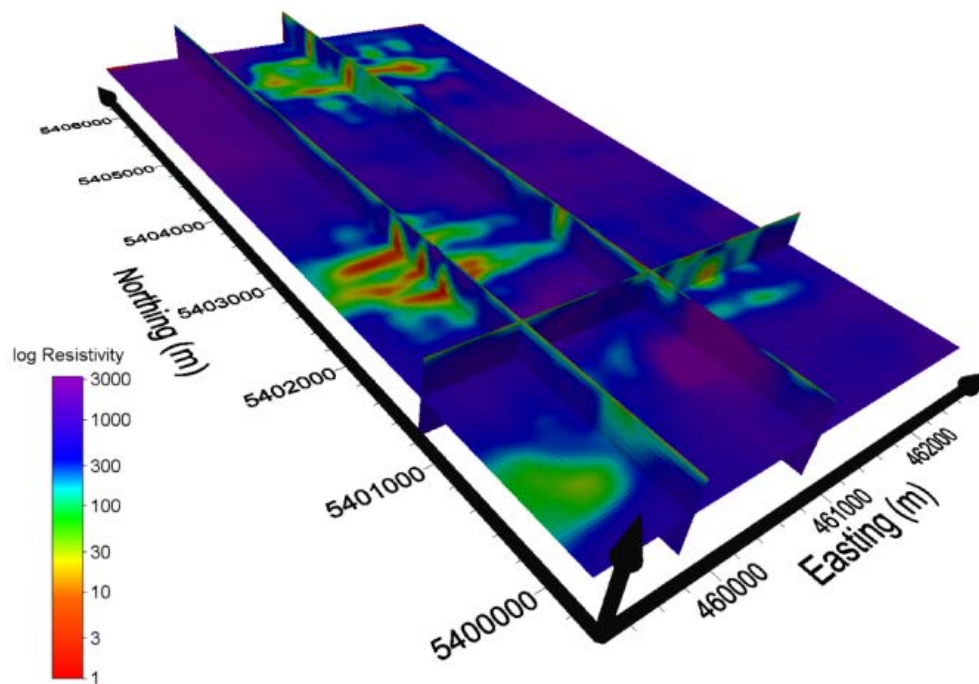
Mega-cell 3D airborne electromagnetic inversion

Airborne electromagnetic (AEM) surveys may be used for near-surface characterization of oil and gas fields, environmental monitoring, and oil sands delineation.

TechnoImaging offers the **only** 3D inversion for entire AEM surveys for **any frequency domain or time domain** AEM system using a unique moving footprint approach. We are now routinely inverting entire AEM surveys up to several thousand line km in size to 3D conductivity models with up to tens of millions of cells.

Our 3D inversion can be applied to any AEM system, including DIGHEM, RESOLVE, GEOTEM, MEGATEM, TEMPEST, SPECTREM, VTEM, AEROTEM, and HELITEM.

TechnoImaging also provides 3D inversion for entire ZTEM and AirMt surveys.



3D joint inversion of inline and vertical MEGATEM II dB/dt data from the Reid-Mahaffy test site, Ontario.

Web-hosted cluster computing services

TechnoImaging offers web-hosted cluster computing services for access to TechnoImaging's software or for hosting client's proprietary software. Clients have secure access to TechnoImaging's cluster resources, including:

- Mega-cell 3D modeling and inversion for multi-line marine CSEM surveys in either frequency-domain or time-domain
- Mega-cell 3D MT modeling and inversion
- Giga-cell 3D modeling and inversion for any potential field, including gravity, gravity gradiometry, magnetics, and magnetic gradiometry

Contract R&D

TechnoImaging offers contract R&D services and custom software solutions for:

- Marine electromagnetics
- Borehole-to-surface electromagnetics
- Induction well logging
- Land electromagnetics
- Potential fields
- Induced polarization
- Airborne electromagnetics

Contact us – or visit us at booth 3236 at the SEG – to discuss our contract R&D services.

Upcoming Events

TechnoImaging will be represented at the following events this year:

- [GeoSynthesis](#), Cape Town, 28 August – 2 September 2011

3D inversion of full tensor magnetic gradiometry data – Michael Zhdanov, Martin Cuma, Glenn Wilson, and Louis Polome (Spectrem Air)

Massively parallel 3D gravity gradiometry inversion – A case study from the Vredefort dome – Glenn Wilson, Martin Cuma, and Michael Zhdanov

- [SEG 81st Annual Meeting and Exhibition](#), San Antonio, 18-23 September 2011

Visit TechnoImaging at booth 3236 in the SEG's Exhibition Hall!

TechnoImaging staff co-authored ten presentations in the SEG's [technical program](#).

Contact

For further information on our 3D non-seismic interpretation products and services, please contact:

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