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GEOPHYSICAL CONSULTING AND DATA COLLECTION SERVICES

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Quality Control for Airborne EM and Magnetics Surveys

While airborne EM surveys are very useful, they are also very expensive. It is in your best interest to have your survey monitored for quality by independent experts, who specialize in time-domain and frequency-domain EM data from various helicopter EM systems as well as fixed wing systems. In addition to daily monitoring of both the EM and magnetic data and ensuring the collection of highest quality data, we offer prompt delivery of compilations and maps with interim results delivered during the survey and final products within a few days of the final flights. We also offer the most accurate magnetic processing results based on detailed analyses of base station and survey data as well as the best aircraft compensation techniques for fixed wing aeromagnetics. It should be noted that most survey companies use a smoothing filter for compensation of aircraft effects rather than the properly derived mathematical functions. Proper compensation ensures that the fine features in your aeromagnetic data are properly derived. Additionally, if required, we can provide for the EM data: high-quality inversion sections and precise 3D modeling utilizing our advanced suite of algorithms. For the magnetic data, we can provide 3D modeling or inversion and an array of high-quality gradient products using our sophisticated gridding and Fourier techniques. Also, we can process your gradient data to properly de-rotate the data for aircraft orientations.

Ground TEM Data Acquisition, Processing and Interpretation

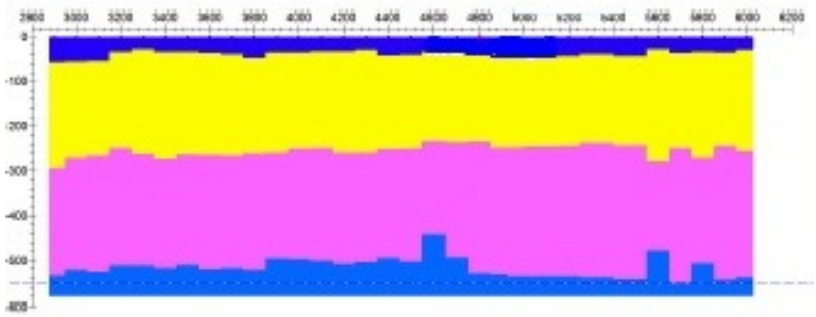
Our years of experience in TEM data interpretation and processing provide us with a unique insight into TEM survey techniques and instrument behavior, which simply means the provision of the best quality data with the highest resolution for our clients. This is combined with our ability to offer highly-accurate and comprehensive interpretation and modeling results for your data. We can collect ground data for you as well.

Specializing in wide-offset, deep TEM

for

Soft and Hard Rock environments!

Low mobilization/demobilization costs and efficient data acquisition!



Resistivity Section from One Wide-Offset Loop

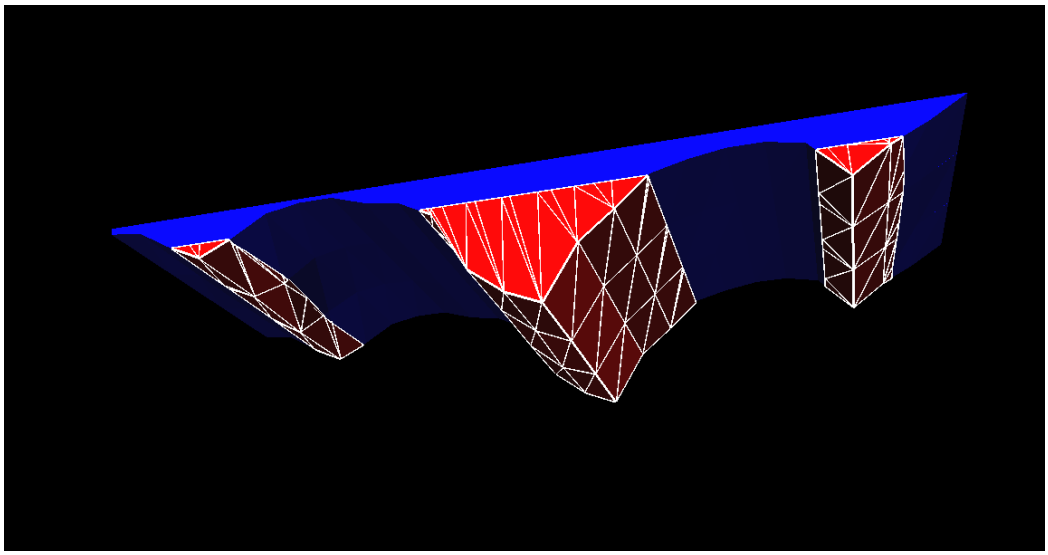
Ground Magnetics and Gravity Data Acquisition

We offer high-quality, high-resolution ground magnetic surveys using a GPS-linked Cesium or Proton magnetometer with a base station (Proton Magnetometer) as well as a second base station for more accurate base station corrections, if required. While, this may sound straightforward, many contractors do not provide knowledgeable operators who are able to properly distinguish between instrument malfunction and improper data sampling over smaller targets of interest. We also provide precise ground gravity surveys in conjunction with a partner company with over 20 years of experience in ground gravity. We have developed the most advanced commercial software to date for gravity corrections with extremely sophisticated techniques for terrain corrections even in the most mountainous terrains. We offer excellent magnetic or gravity processing as well as the one of the most enhanced inversion capabilities and the most accurate modeling capabilities currently available in the market. In the final product, you receive the very best in structural interpretation from your surveys along with highly accurate field and gradient maps.

Surface, Underground and Ground to Surface IP/Resistivity Data Acquisition, Processing and Interpretation

After extensive development to provide the very best in 3D modeling for IP and Resistivity data from complex surveys as well as inversion applications, we now offer data collection and interpretation for high-precision surface, underground and surface to surface surveys. Current excitation of weakly conducting structures offers improved ability to detect conductors and IP anomalies in shear and fracture zones. The ability to collect the right data and model accurately is critical in these procedures. We employ not only precise data collection procedures, but also precise modeling techniques to include all the effects of the anomalous structure, the source and the background rock. Most conventional forward and inversion modeling applications for both resistivity and IP solutions use only approximate techniques.

Don’t rely on smudgy, physically-inaccurate inversions!



Magnetic Model from Aeromagnetic Data

Services for Magnetotelluric and CSAMT Data

We are well known for MT data processing skills as well as the techniques developed by our Senior Geophysicist (R.W.Groom), which are now standard around the world. Our principal has extensive experience, carefully analyzing data from a wide range of instruments from around the world.

We offer careful quality control as well as monitoring of surveys to ensure that the highest quality of data is collected. Dimensionality analyses are all offered as part of our service and appropriate techniques are applied to solve "statics" in the data. A simple use of TEM or resistivity data does not correct for the range of 3D statics that can occur in your data. From there, we offer interpretation of impedance and tipper data as well as forward and inverse modeling capabilities.

In many situations, the natural field sources are not strong enough or regular enough to provide the ability to collect high-quality data. In these cases, CSAMT is sometimes utilized. However, the user of such data should realize that a 3D source is used and this 3D source is not the plane wave of MT. Traditionally, this has led to the use of the data in the so-called far field. There is no need to make this assumption in our products, as CSAMT is treated like any other controlled source technique and the source characteristics are utilized accurately in both forward and inverse techniques. Our ability to use such interpretation capabilities provides you with accurate structural models and allows for all your data to be used, no matter the distance, the frequency or the azimuth.

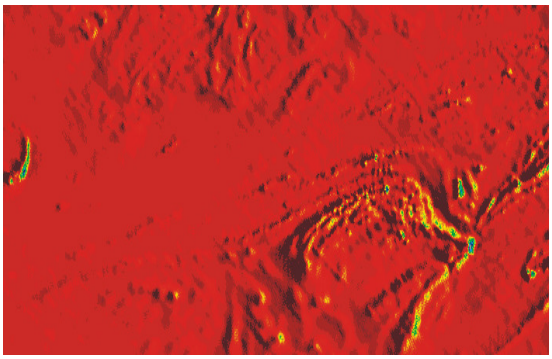
Survey Design and Contracting

We also offer survey design services to help you choose an appropriate survey for your exploration objectives while also providing quality control assistance during the entire process: From accurate modeling and inversion studies to finding an appropriate survey contractor as well as negotiating a suitable contract and then following through to ensure you receive careful data collection services and overseeing the delivery of final data products in a timely manner.

Airborne, Ground and Borehole data

Data processing and Data Deliverables

We can perform all the basic processing and quality control for your data and deliver the required data products as well as the final processed data and maps.



Airborne, Ground and Borehole

Processing Products

Magnetic and Gravity Corrections: With the use of our precise and unique algorithms, we can provide accurate and sophisticated data corrections including all of the basic data corrections as well as enhanced magnetic corrections for Ground, Airborne and Borehole surveys.

Mathematically Derived Gradient Map

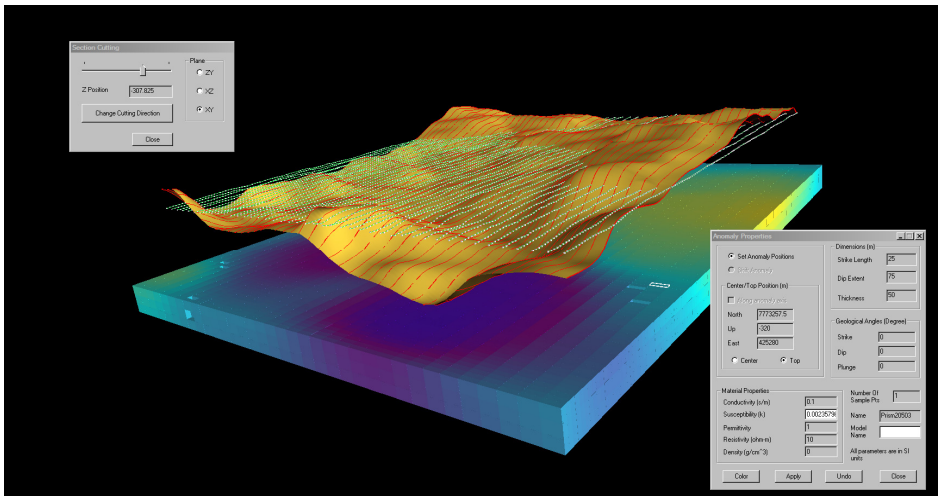
For gravity data, we offer all the basic corrections, including the topographic correction. However, our topographic corrections are done using state-of-the-art techniques that produce highly accurate results even over areas with significant topography, contrary to the traditional approach. Ground, Airborne, Borehole and Marine surveys.

Magnetic and Gravity Gradients: With the use of our specifically-designed and accurate algorithms, we derive processed derivatives from total field data that are virtually indistinguishable from measured gradients and often considerably more accurate.

Gridding: Extremely accurate, high resolution, local gridding techniques originally designed for satellite data, but now available for airborne geophysics. Gridding techniques preserve the high spatial accuracy of your data along survey or flight lines. *Why spend millions on a modern survey and use ancient tools for producing your maps?*

Airborne Magnetic Processing: The most versatile and adjustable aeromagnetic compensation software with a simplified de-rotation for your measured gradients. Our approach utilizes a robust algorithm with appropriate filtering, which ensures sensitivity to small-scale features, not usually possible using conventional compensation software.

Airborne EM Processing: Accurate decay analysis maps for all airborne TEM systems, accurate apparent resistivity and depth estimates for your airborne HEM data. The most accurate inversion techniques for your airborne TEM surveys.



Sliced 3D IP Resistivity Inversion

Inversion Products

Gravity and Magnetics: Three dimensional, detailed inversions including inversion of your gradient and vector data from either airborne or ground surveys or any combination. A range of rock property constraints including use of properties derived from borehole or ground samples.

Airborne Time-Domain: Extremely accurate, stacked, one-dimensional inversions for VTEM, MegaTEM, GeoTEM, HeliTEM, TEMPEST and AeroTEM systems

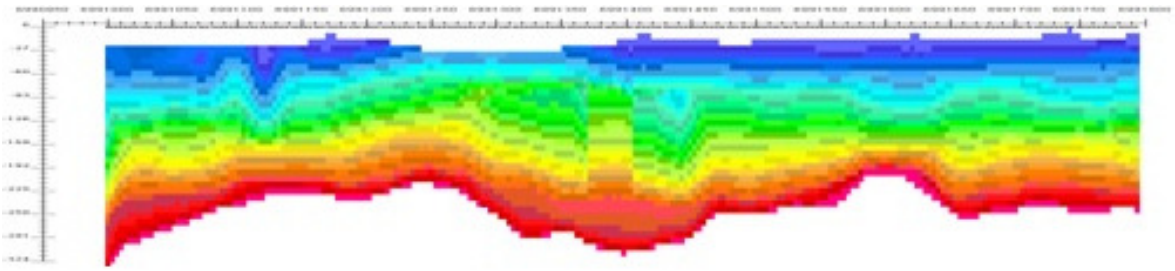
Airborne and Ground Frequency-Domain: Accurate, stacked, one-dimensional inversions or fast approximate conductivity-depth images. Our software is designed to handle data from towed helicopter systems such as DIGHEM, Resolve or Impulse, fixed-wing systems including GTK and SGFEM (Sanders Geophysics) as well as ground FEM systems including Max-Min, Geonics' EM-31/34/34R/38 and GEM2/GEM3 instruments.

Ground Time-Domain EM: Accurate one-dimensional inversions for either fixed or moving loop surveys. Ability to use both in-loop and out-of-loop data. Joint inversion of multiple offsets or multiple receiver orientations

Resistivity and IP: Detailed 1D and 3D constrained Resistivity Inversions using accurate electrode geometries. Remember, you cannot treat IP data as potential field data! We provide extremely accurate 3D IP models that take into account current interactions between structures as well as all IP interactions and EM effects.
Let our expertise and experience give you the INSIGHT you need!

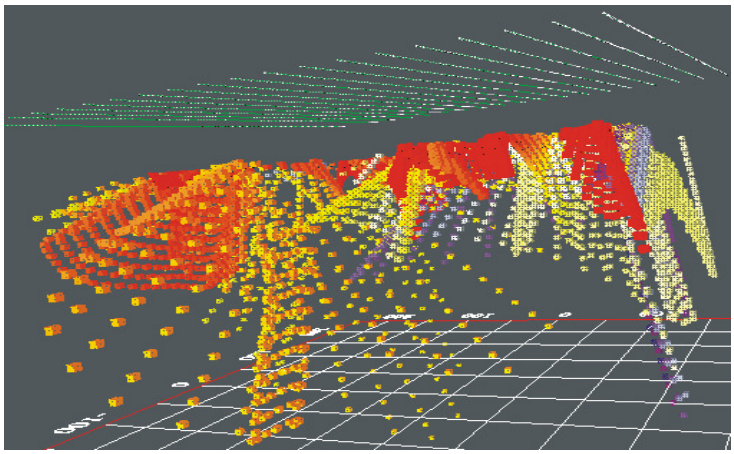
CSAMT: Accurate and detailed 1D and 3D inversions utilizing true 3D source geometry. Utilizes a novel approach that accurately handles data not just in the *far-field*, but also in the *near- field* and the intermediate zone (between the *near* and *far* fields).

Natural Fields: 3D MT, ZTEM and AFMAG inversions.
Ability to invert the tipper vector data along with impedance data for MT inversions.



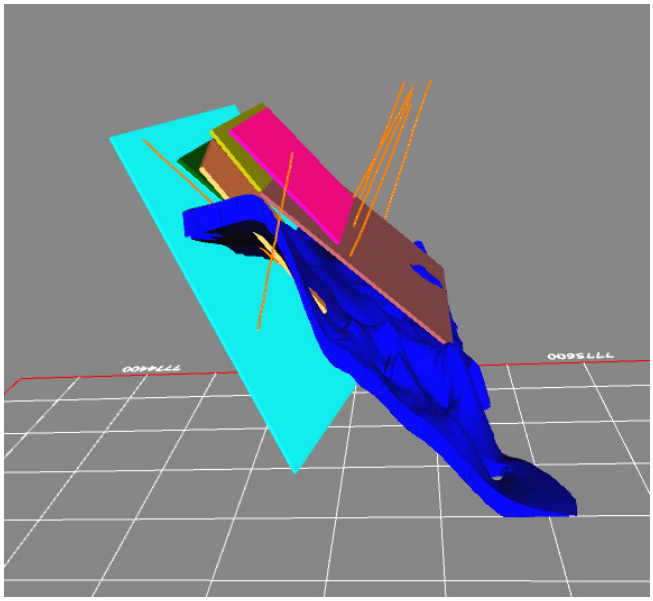
HEM Inversion

3D Extended Euler Depths: for Gravity or Magnetics using processed or measured derivatives from Ground or Airborne surveys. Post-processing and other tools available for target depth estimation.



3D Geophysical Models

Before you drill, why not build an accurate 3D model of the geology from your geophysics? Having spent a significant amount on your data, why not spend a little more to get the edge you need for best drilling results? Models are exportable to various formats including 3D .dxf (AutoCAD), .asc (Vulcan) and .str (Surpac) for easy integration with other modeling software.



EM, Magnetic, Gravity, Resistivity or IP

We provide integrated models for all of your data related to your exploration objectives.

Call or email our Sales Representative for a quote today!
Email: sales@petroseikon.com
Phone: 905-796-0324 (ask for Khorram)

www.petroseikon.com