KMS Technologies

Innovating Solutions

KMS Cloud services

MT inversion

Product benefits

High-level interpretation services via CLOUD. Tie to Cloud-enable acquisition and real-time processing:

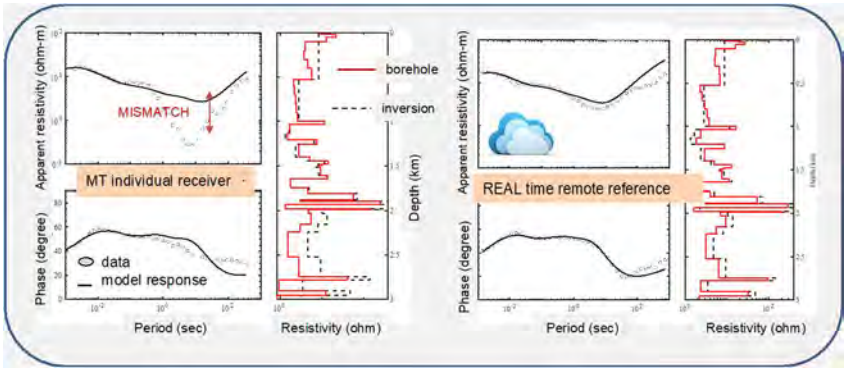
- Fast turn-around time – 24 hrs. to 72 hrs.
- No experts needed within the company - you get ours!
- Expert reviewed results
- NO startup cost, get full results for your survey from A to Z
- CLIENT saves 95% training time to provide high-level services

Product details

We provide full Magnetotelluric (MT) data inversion via the cloud:

- 1D inversion including robust processing
- 2D inversion
- 3D inversion

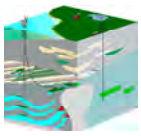
With years of combined expertise, our algorithms have been carefully developed to provide our clients high-level interpretation results, all done over KMS CLOUD. Our services performs forward and inverse modeling of MT data including: any combination of impedance tensor components; frequency domain inline E and broadside E; isotropic or anisotropic resistivity models.



Inversion of MT data at single site and real-time remote reference (> 200 miles distance)

Product features

- Data and models can be imported from ASCII files
- Well log data can be imported and upscaled to reduce number of layers
- Graphics are exported in PNG, PDF format
- Allows fixing resistivity and/or depth for inversion calculations
- Ridge regression or Occam's inversion can be calculated
- Bostick and Niblett inversions can be calculated from MT data
- Layered model, smooth model, equivalence analysis, or all three can be displayed in the same window
- Supports anisotropic models for MT applications



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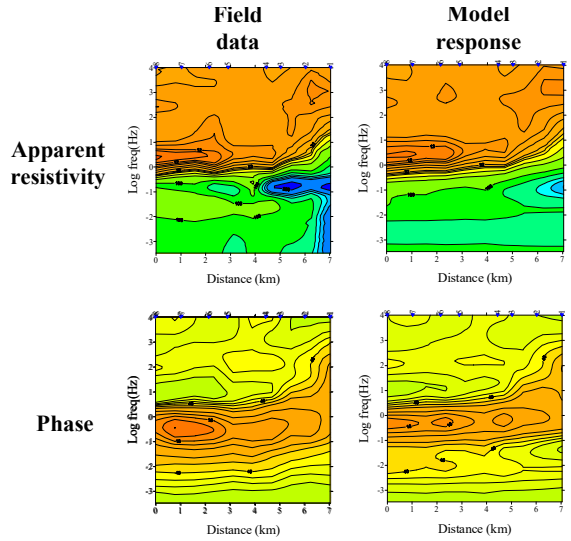
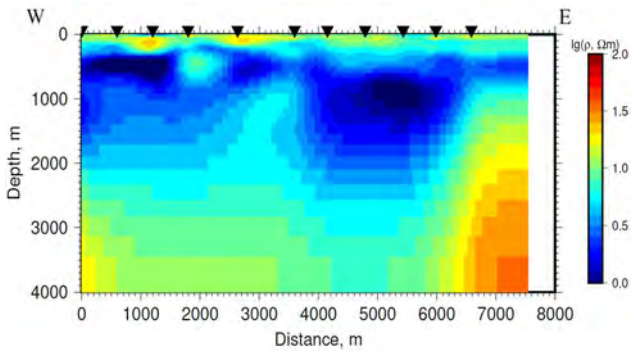
Product specifications

1D MT inversion is offered as Occam based or layered model; 2D implementation is based on Damped Least Squares inversion described in Cherevatova et al., 2018, with modifications by Engels & Pedersen, 2005, to allow for the inversion of the determinant of the impedance tensor. The 2D inversion results are smooth models.

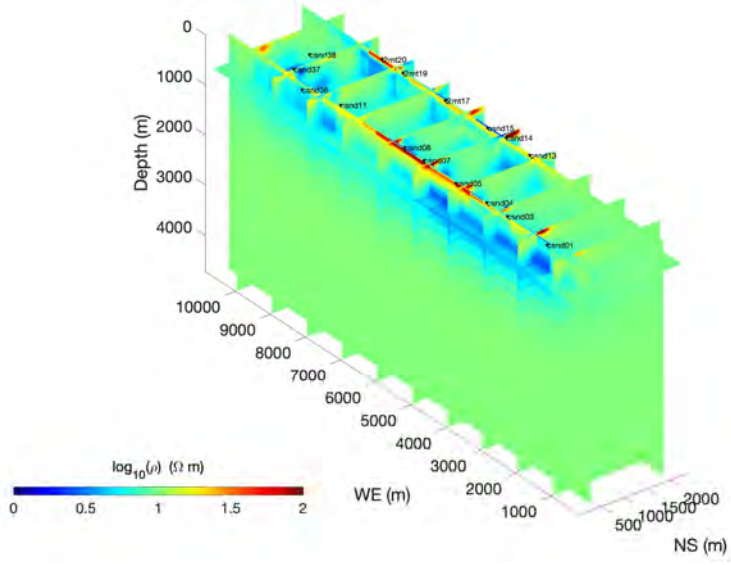
3D inversion in KMSProInv framework is implemented in a similar fashion as described by Egbert & Kelbert, 2012. 3D modelling is performed on either multi-resolution and staggered grid with no *a priori* constrains. Different input parameters can be tested such as: starting models, regularization (smoothing factors), model discretization, etc.



Apparent resistivity (top) and phase (bottom) for acquired field data (left) and 2D MT inverted model (right)



2D MT inversion resistivity profile



Example of 3D MT inverted data & resistivity model of complex data along two parallel profiles

References:

Cherevatova, M., Egbert, G. & Smirnov, M. Y., 2018, A multi-resolution approach to electromagnetic modelling, Geophysical Journal International, 214, 656–671.

Egbert, G. & Kelbert, A., 2012, Computational recipes for electromagnetic inverse problems, Geophysical Journal International, 189, 251–267.

Pedersen, L. B. & Engels, M., 2005, Routine 2D inversion of magnetotelluric data using the determinant of the impedance tensor, Geophysics, 70, G33–G41.

KMSProInv3D is only available through our 3D MT inversion services.
To order: contact info@KMSTechnologies.com for more information and get your customized quote today!