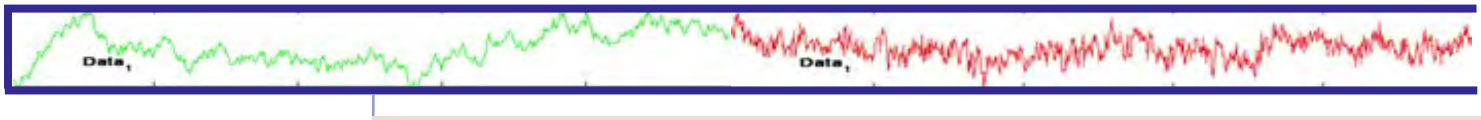
KMS Technologies
Innovating Solutions

KMS-200 Acquisition & Processing software



KMS-200 Acquisition & processing software

KMS-200

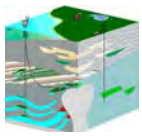
KMS-200 is the most comprehensive acquisition & monitoring with embedded processing software to accompany KMS-820 system. With 3 basic steps, we are visualizing data, response parameters (for MT: apparent resistivity & phase). The same strategy applies to CSEM and EM methods. Microseismic is handled to separation of data in SEGY files.

KMS-200 is easy to use with default workflows.

The scheduler allows multi-methods in the same receiver drop.

Software products

- **Acquisition software: KMS-200-ACQ**
  - Receiver acquisition control & monitor
  - Acquisition scheduler
  - Sensor calibration
- **Transmitter control & monitor software: KMS-200-TX**
  - Transmitter control & monitor
  - Pre-defined & customized transmitter waveform
  - Special transmitter safety feature
- **Basic robust MT processing software: KMS-200-P**
  - Robust MT processing
  - Standard MT processing workflow
- **Fast robust processing software: KMS-200-AP**
  - Fast robust processing
  - Adjustable processing parameter
  - Batch processing mode
  - Improved graphic display
- **1D MT inversion software: KMS-200-IX1D**
  - IX1D MT sounding inversion
  - Graphic display of apparent resistivity & impedance phase
- **2D MT inversion software: KMS-200-ZONDMT2D**
  - Zond 2D MT inversion
- **TEM processing software: KMS-200-tCSEM**
  - KMSPro tCSEM processing (lease only)



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Software features

- Single site, remote reference & **multi-remote reference** robust processing
- Available for all operating systems: **Windows** 32 and 64 bit, **MacOS** Sierra (High Sierra), **Linux**
- Time & frequency domain display
- Real-time acquisition & monitoring software
- Export to numerous industry standard formats including: EDI, VTK, SEGY, miniSEED, ASCII, BIN
- 1D inversion: Ultra-fast transformation based, IX1D Interpex Ltd (included), SVD based Occam inversion with numerous regularization options (optional)

Options:

- Magnetotelluric robust processing workflow (shown)
- CSEM acquisition & processing (Lotem) - KMSPro
- TFEM & Induced polarization (time domain)
- Magnetotelluric 2D inversion
- Magnetotelluric 3D inversion
- Others upon request

Acquisition software

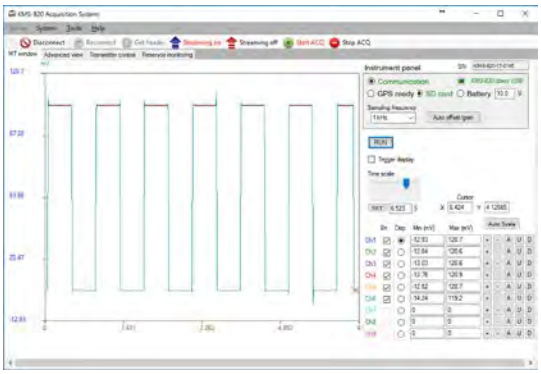
Acquisition control window

- Control both receiver & transmitter
- Customized acquisition scheduler
- Sensor Calibration function
- Quick-start windows for MT & CSEM

Transmitter control window

- Data saturation protection
- Work with 32 bit KMS-831 modules
- High speed Wi-Fi stream data to cloud
- Special CSEM safety feature

Monitoring receiver & transmitter



Receiver real-time monitoring

Transmitter real-time monitoring

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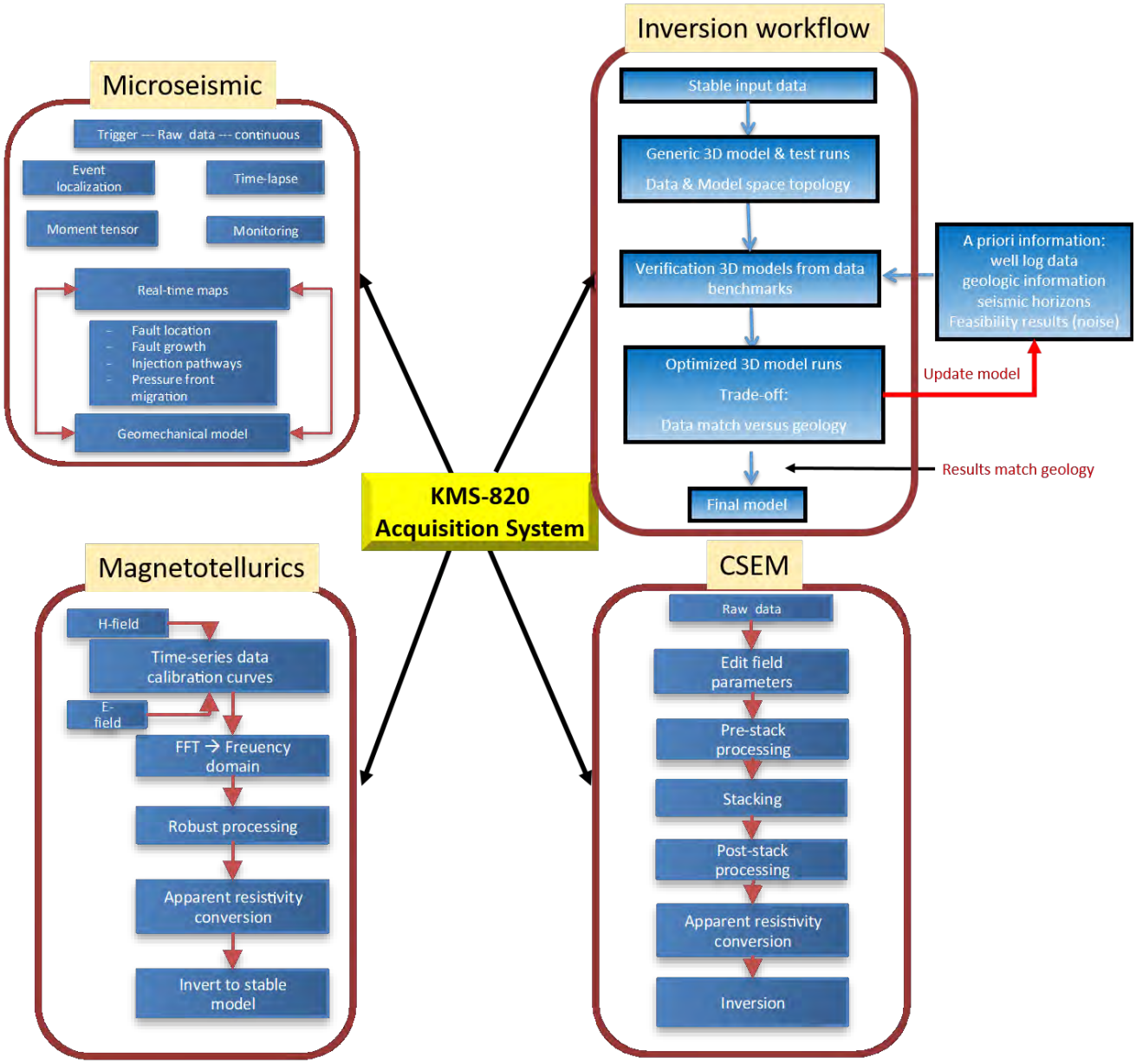
Transforming complexity to simplicity

The KMS-820 array data acquisition system has - from the ground up - been conceptualized as a next-generation, integrated data gathering unit. Today, this data integration has reached into the multi-physics domain. By combining the data acquisition of seismic and electromagnetic signals in a single unit we can take advantage of the strong synergy and complimentary nature of electromagnetic and microseismic data and enrich their interpretation.

Integrated acquisition of electromagnetic (EM) and microseismic data provides a unique tool to help reduce risk and improve productivity in reservoir monitoring. For example, in enhanced geothermal systems (EGS) microseismic monitoring allows for the imaging and visualization of active fracture networks within developing and producing EGS, while the EM response will differentiate the heated fluid flow regimes. This outlines the active and potential future commercial EGS areas.



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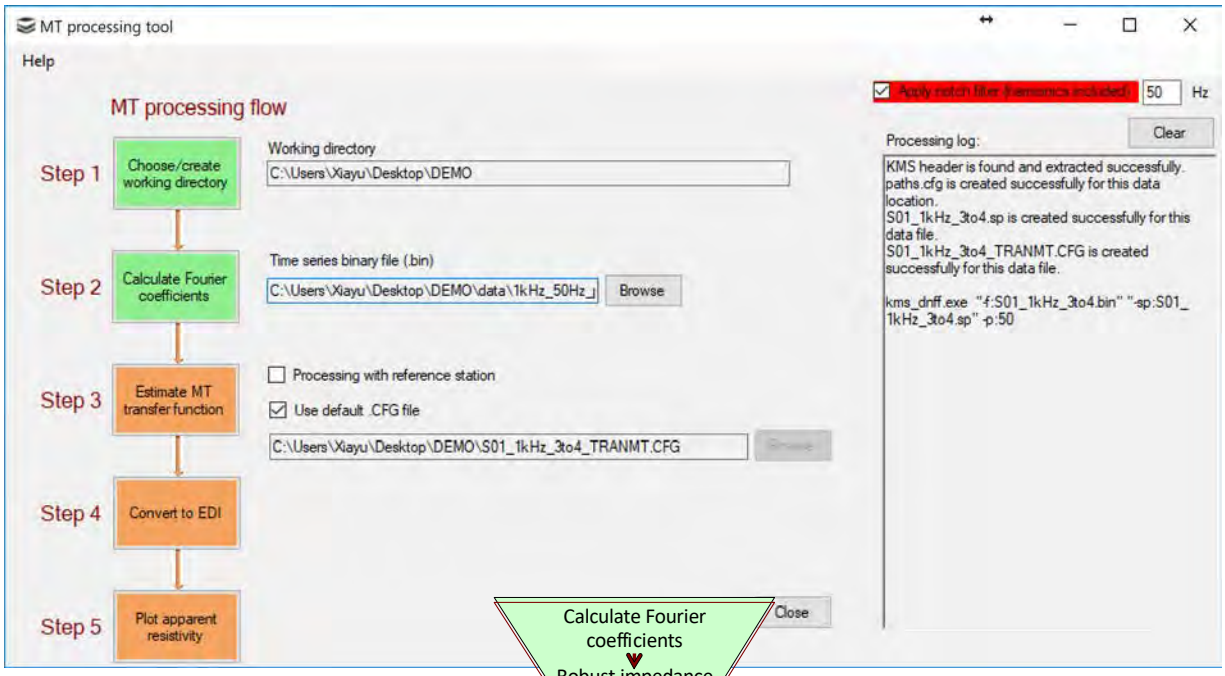
Basic robust MT processing

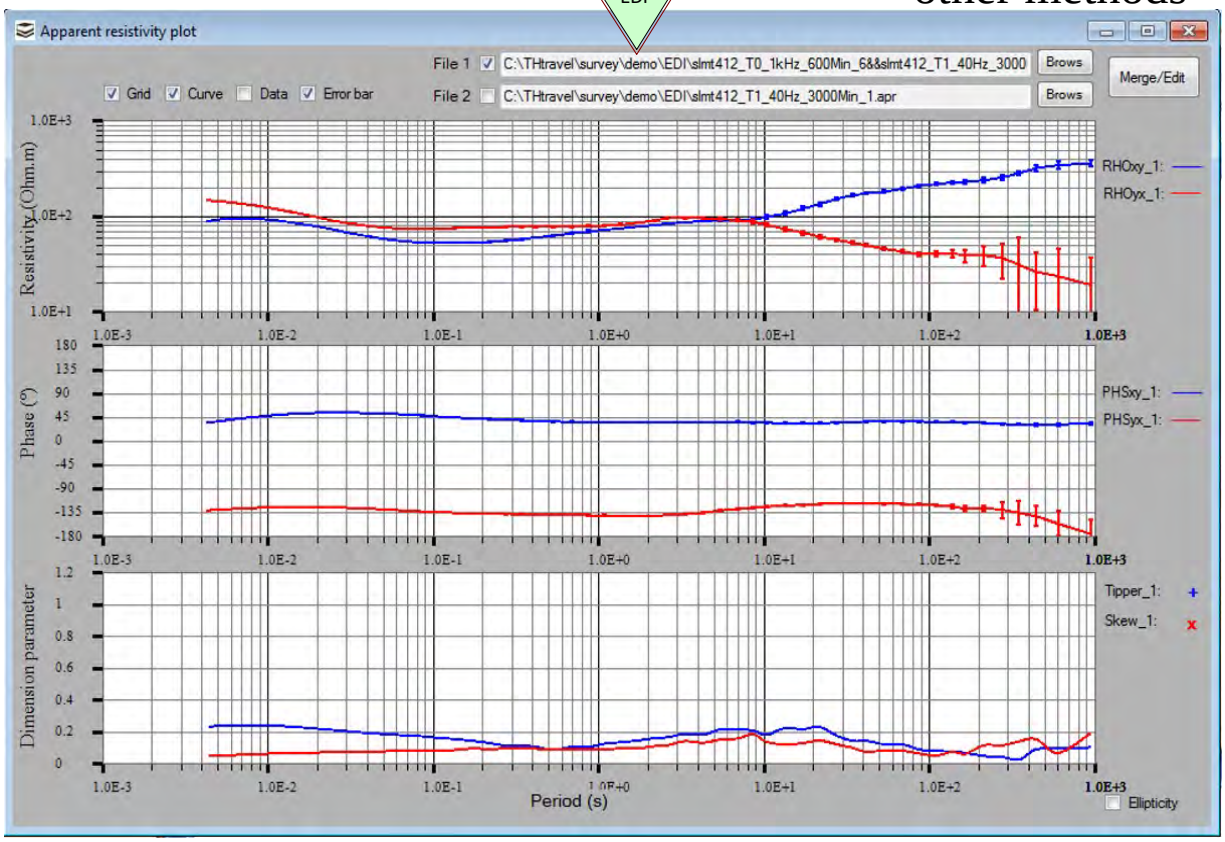


Calculate Fourier coefficients

Robust impedance Estimate

Output EDI

Similar workflow is used for other methods



References:

Egbert., G. D. (1986). Robust estimation of geomagnetic transfer functions. *Geophys. J. R. Astron. Soc.*, 87, 173-194.

Egbert, G. D. (1997). Robust multiple-station magnetotelluric data processing. *Geophys. J. Int.*, 130, 475-496.

Eisel, M. & G. D. Egbert (2001). On the stability of magnetotelluric transfer function estimates and the reliability of their variances. *Geophys. J. Int.*, 144, 65-82

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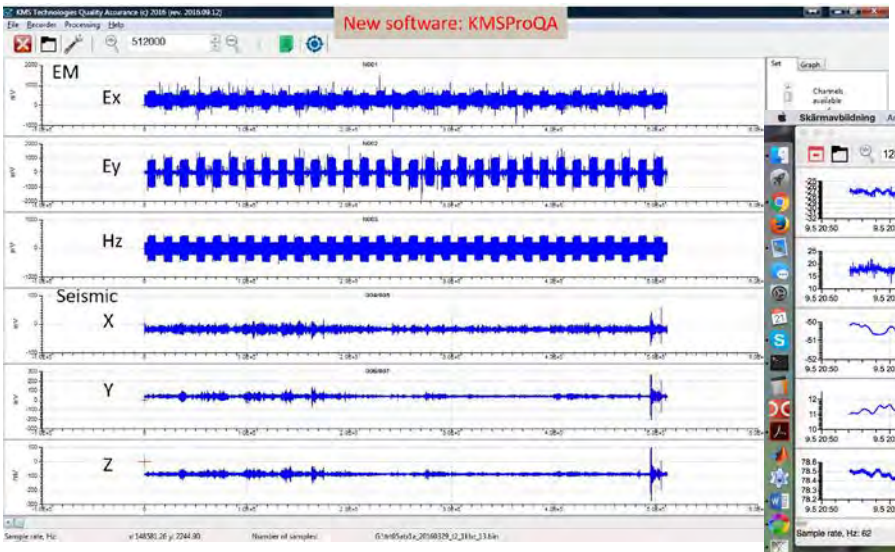
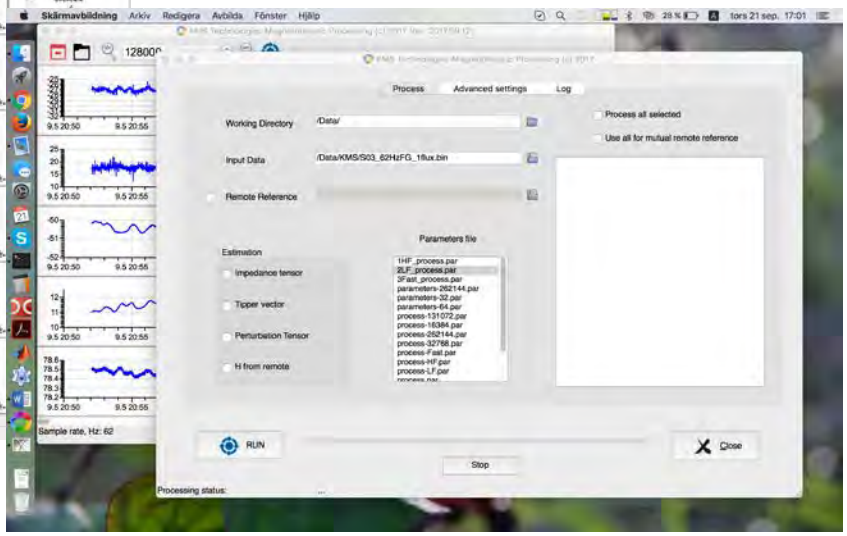
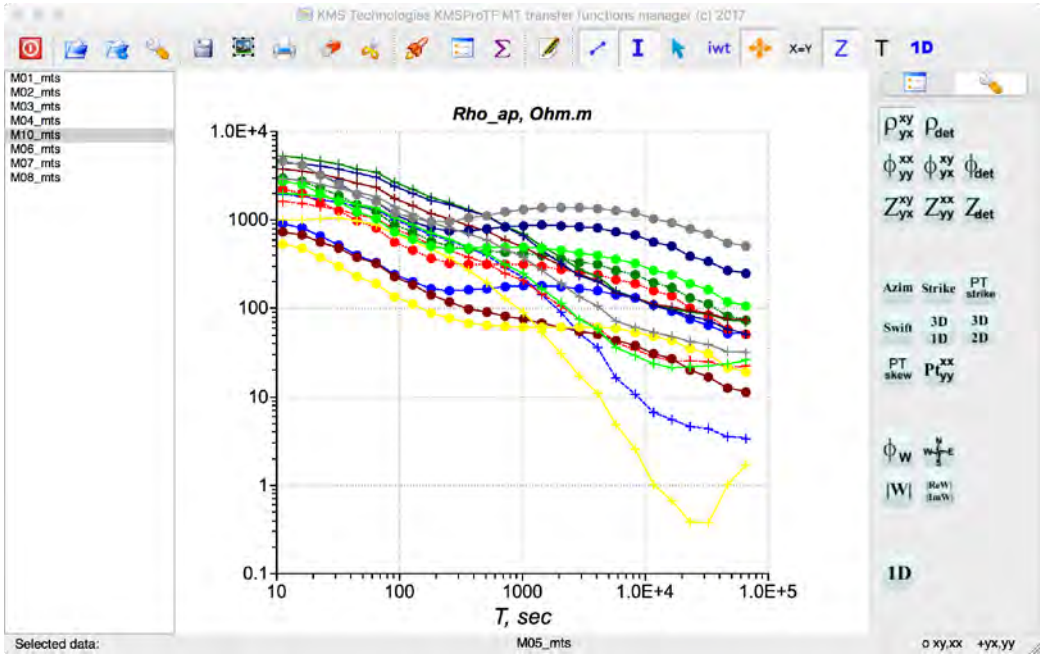
Advanced MT processing – KMSProMT



KMSProQA Time series



KMSProMT multi-remote reference processing



KMSProTF magnetotelluric transfer functions manager multi-remote reference apparent resistivity plots

References:

Smirnov, M. Yu. (2003). Magnetotelluric data processing with a robust statistical procedure having a high breakdown point. *Geophys. J. Int.*, 152, 1-7.

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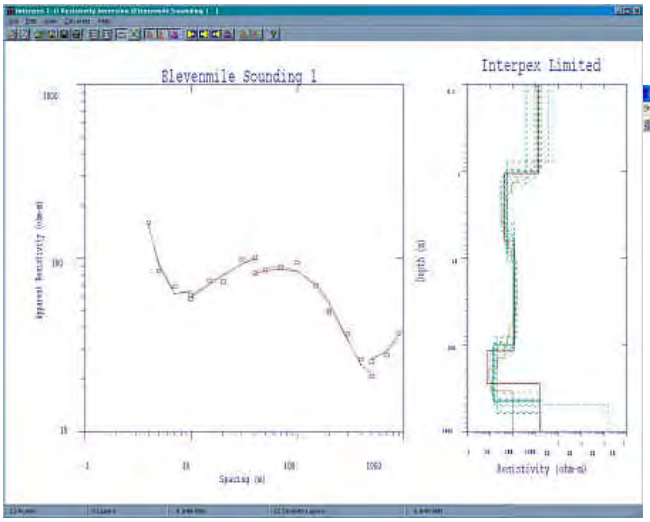
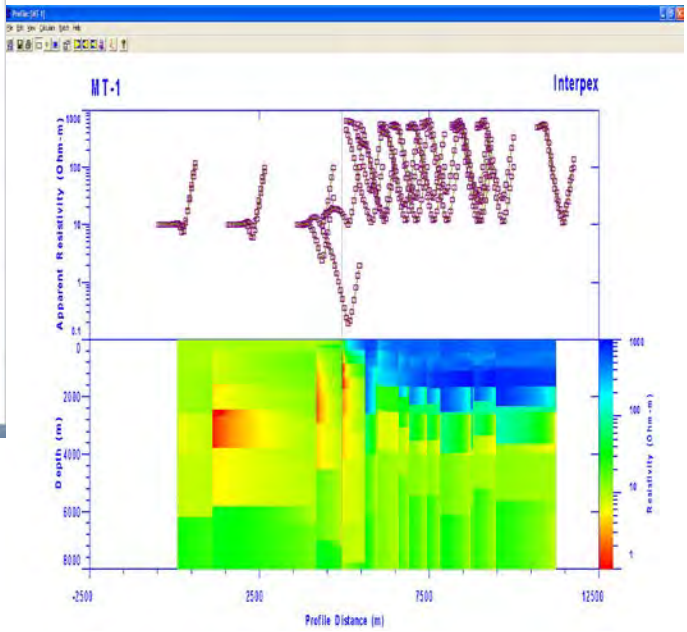
1D inversion - included

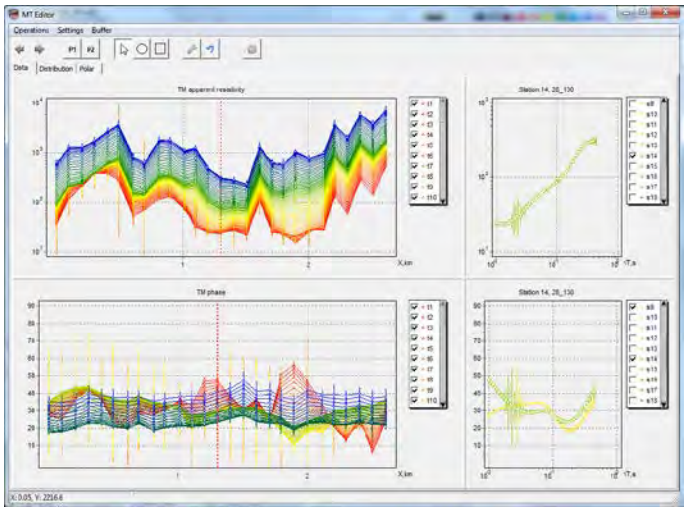


IX1D Sounding Window Graphics



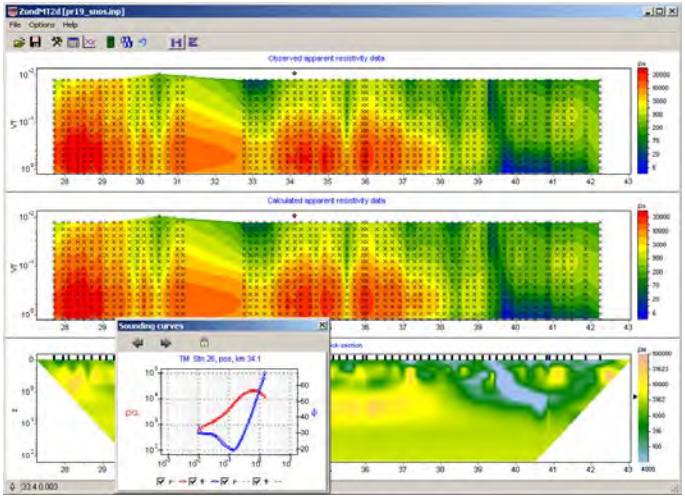
IX1D Display of MT Data with apparent resistivity data displayed as curves, synthetic displayed as lines and smooth model displayed as a colored section.

2D inversion 3rd party example



MT editor for data filtration, analysis and rotation

Resistivity 2D inversion in ZondMT2D



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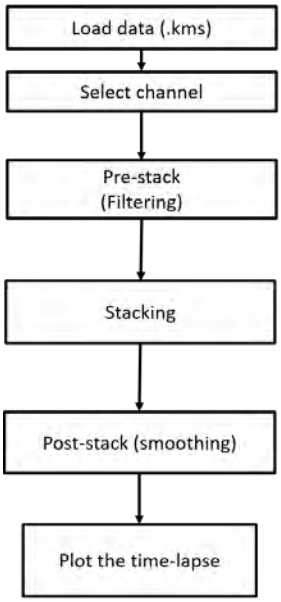
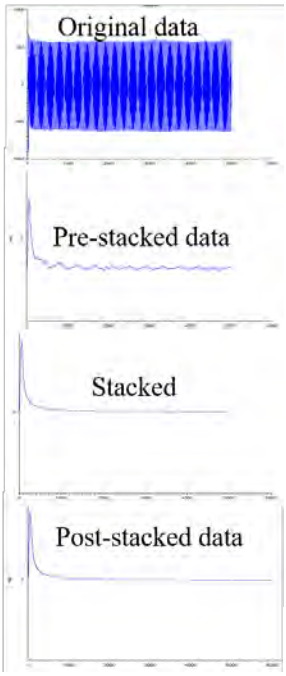
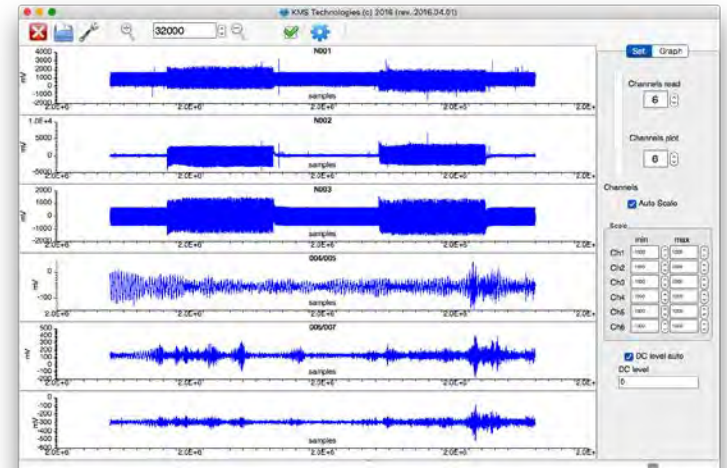
tCSEM™

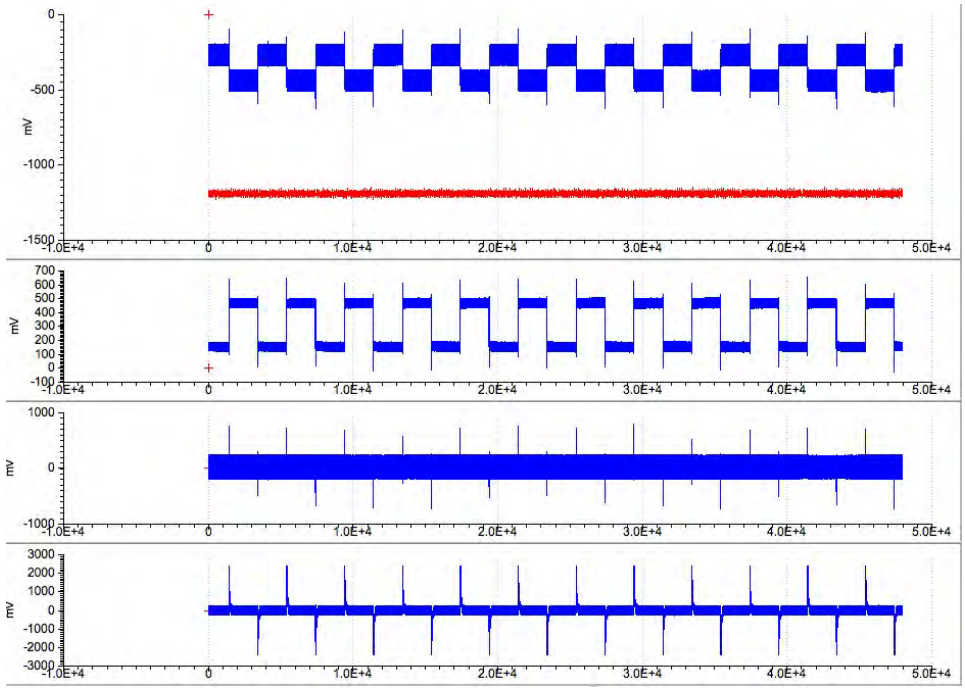




Data processing workflow



Raw data example



Receiver and transmitter data matching

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