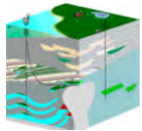




## KMS-200 Acquisition & processing software



## KMS Technologies

KJT Enterprises Inc.  
11999 Katy Freeway, Suite 160  
Houston, TX 77079  
USA

Tel: +1.713.532.8144

Email: [info@KMSTechnologies.com](mailto:info@KMSTechnologies.com)  
[www.KMSTechnologies.com](http://www.KMSTechnologies.com)

## KMS-200

KMS-200 is the most comprehensive acquisition & monitoring with embedded processing software to accompany KMS-820 & LEMI-424 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.



KMS-200 software works with KMS-820 MT system (left), Mini Mt system (middle), LEMI-424 system (right)

## Software products

1. **Acquisition software: KMS-200-ACQ** for KMS-820 only
  - Receiver acquisition control & monitor
  - Acquisition scheduler
  - Sensor calibration
2. **Transmitter control & monitor software: KMS-200-TX** for KMS-820 only
  - Transmitter control & monitor
  - Pre-defined & customized transmitter waveform
  - Special transmitter safety feature
3. **Basic robust MT processing software: KMS-200-P** for KMS-820 only
  - Robust MT processing
  - Standard MT processing workflow
4. **Fast robust processing software: KMS-200-AP** for KMS-820 & LEMI-424
  - Fast robust processing
  - Adjustable processing parameter
  - Batch processing mode
  - Improved graphic display
5. **1D MT inversion software: KMS-200-IX1D** for KMS-820 & LEMI-424
  - IX1D MT sounding inversion
  - Graphic display of apparent resistivity & impedance phase
6. **2D MT inversion software: KMS-200-ZONDMT2D** for KMS-820 & LEMI-424
  - Zond 2D MT inversion
7. **TEM processing software: KMS-200-tCSEM™** for KMS-820 only
  - KMSPro tCSEM™ processing (lease only)

### Software bundles (collection of software product application/price optimized)

8. **KMS-200 MT Bundle 1:** includes KMS-200-ACQ, KMS-200-P, KMS-200-AP, & KMS-200-IX1D
9. **KMS-200 MT Bundle 2:** all in Bundle 1 plus KMS-200-ZONDMT2D

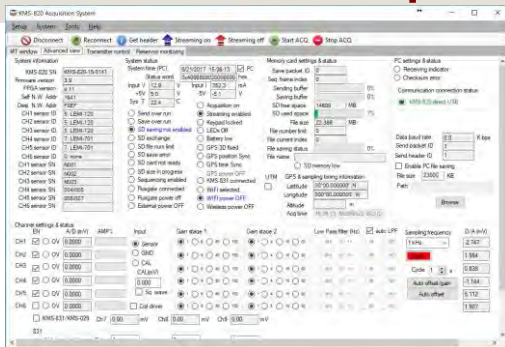
# Software features

- Available for all operating systems: **Windows** 32 and 64 bit, **MacOS** Sierra (High Sierra), **Linux**
- Time series editing
- Data processing (single site and remote reference) and visualizing of MT parameters
- Calculating the impedance, resistivity, phase and other MT parameters like skew, tipper, polar diagram, induction arrow etc. and plotting
- 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:

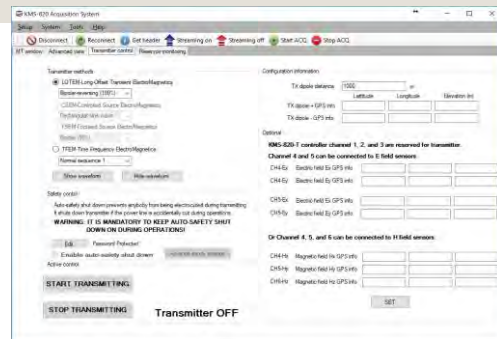
- Magnetotelluric robust processing workflow (shown)
- CSEM acquisition & processing (Lotem) - KMSPro
- TFEM & Induced polarization (time domain)
- Magnetotelluric 2D/3D inversion
- Others upon request

# Acquisition software



Acquisition control window

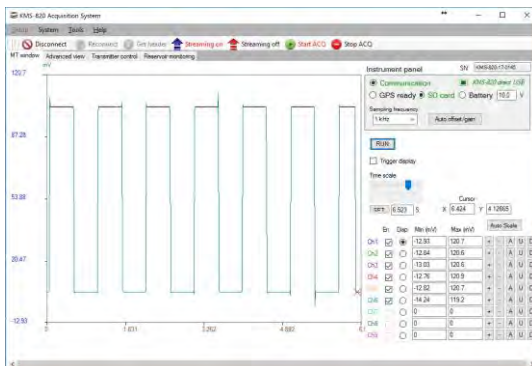
- Control both receiver & transmitter
- Customized acquisition scheduler
- Sensor Calibration function
- Quick-start windows for MT & CSEM



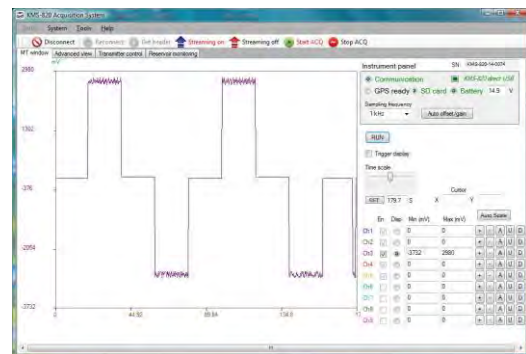
Transmitter control window

- 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

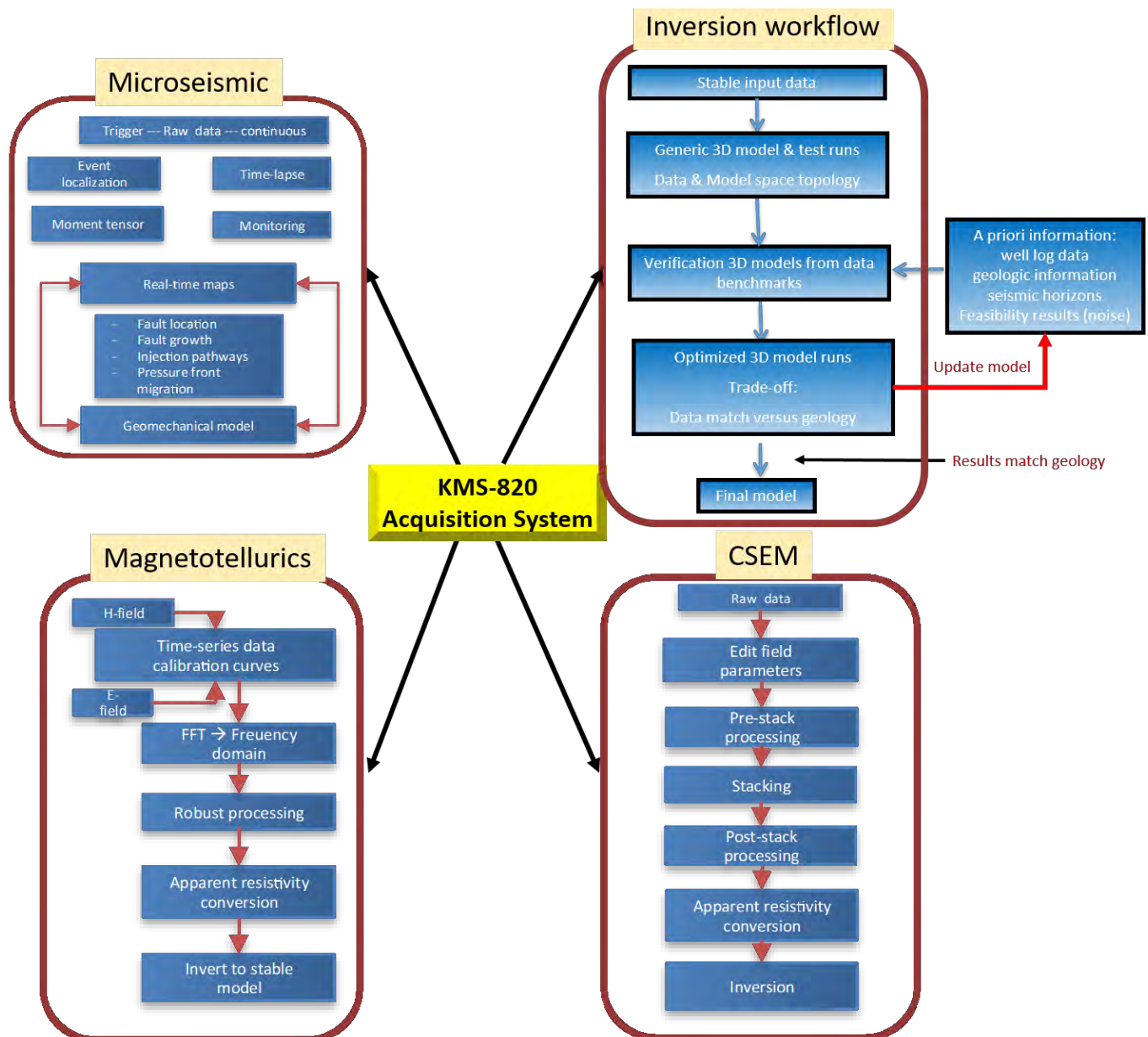


Transmitter real-time monitoring

# 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.



# Basic robust MT processing

MT processing tool

Help

**MT processing flow**

Step 1: Choose/create working directory  
Working directory: C:\Users\Xiyu\Desktop\DEMO

Step 2: Calculate Fourier coefficients  
Time series binary file (.bin): C:\Users\Xiyu\Desktop\DEMO\data\1kHz\_50Hz\_ [Browse]

Step 3: Estimate MT transfer function  
 Processing with reference station  
 Use default .CFG file  
C:\Users\Xiyu\Desktop\DEMO\S01\_1kHz\_3to4\_TRANMT.CFG [Browse]

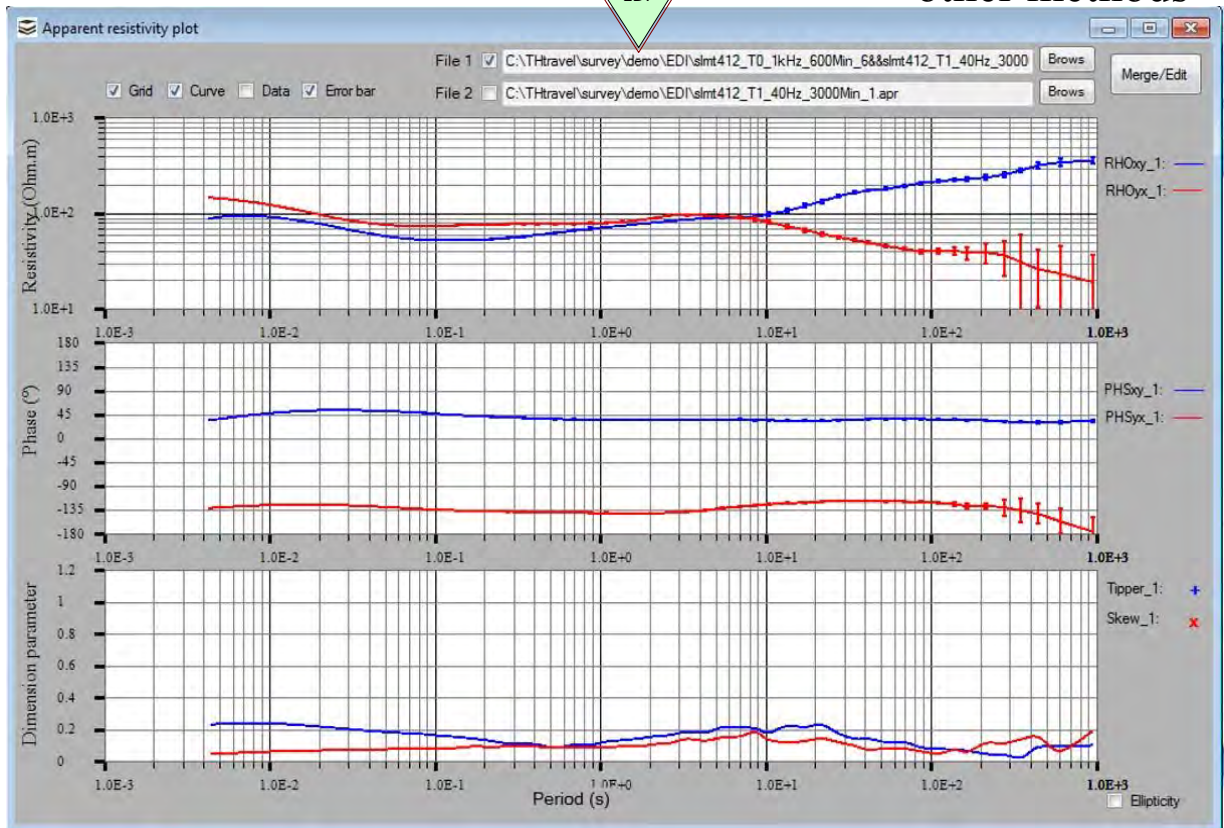
Step 4: Convert to EDI

Step 5: Plot apparent resistivity

Processing log: [Clear]  
KMS header is found and extracted successfully.  
paths.cfg is created successfully for this data location.  
S01\_1kHz\_3to4.sp is created successfully for this data file.  
S01\_1kHz\_3to4\_TRANMT.CFG is created successfully for this data file.  
kms\_driff.exe "f:S01\_1kHz\_3to4.bin" "sp:S01\_1kHz\_3to4.sp" -p:50

Calculate Fourier coefficients  
↓  
Robust impedance Estimate  
↓  
Output EDI

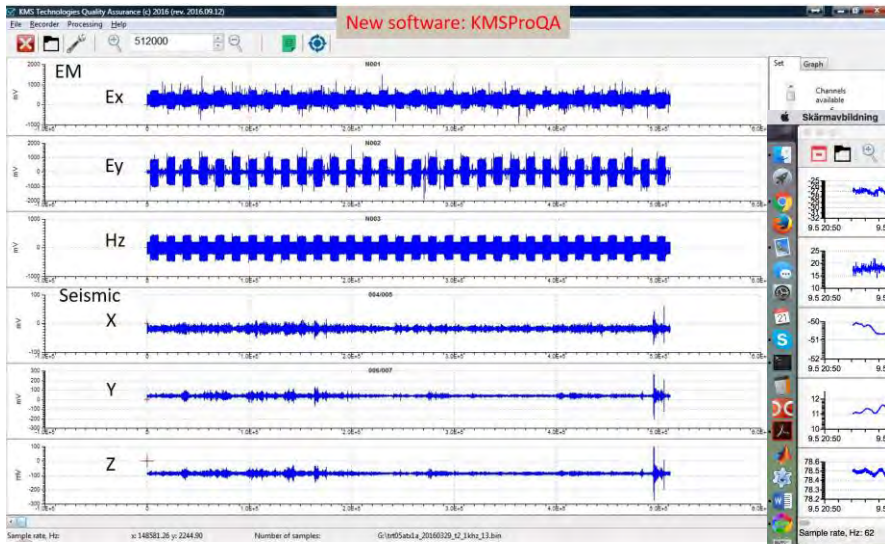
Similar workflow is used for other methods



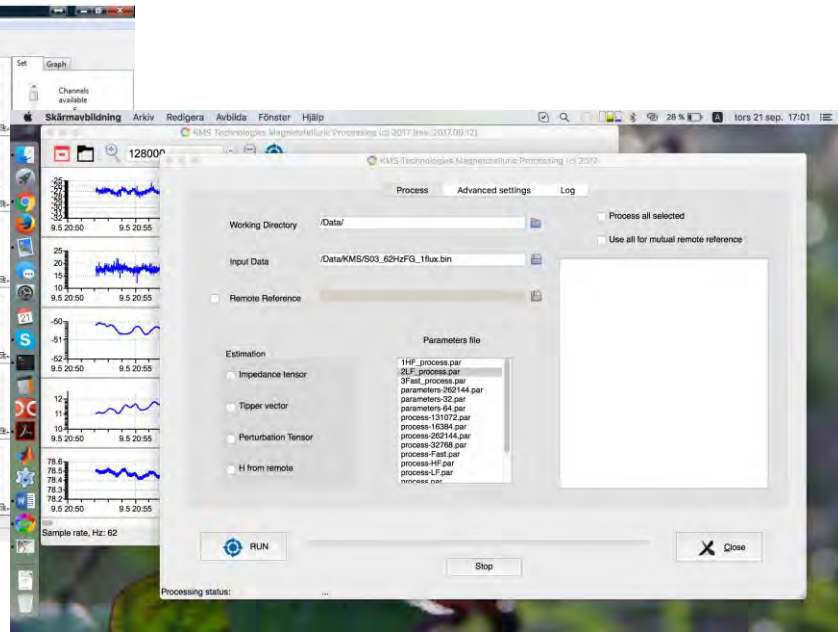
## References:

- 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

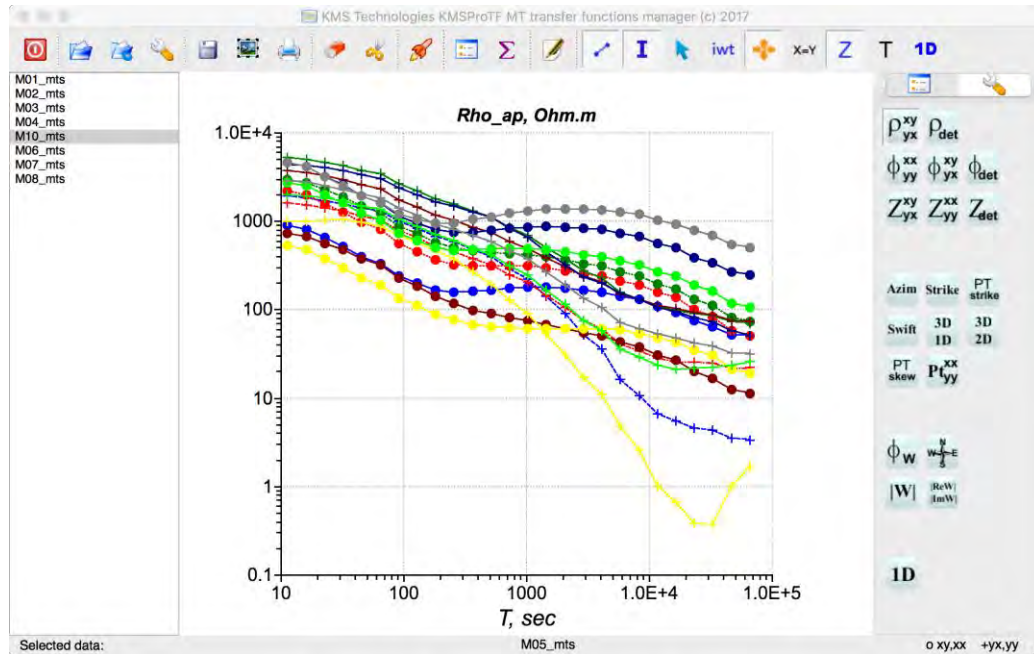
# Advanced MT processing – KMSProMT



KMSProQA Time series



KMSProMT multi-remote reference processing

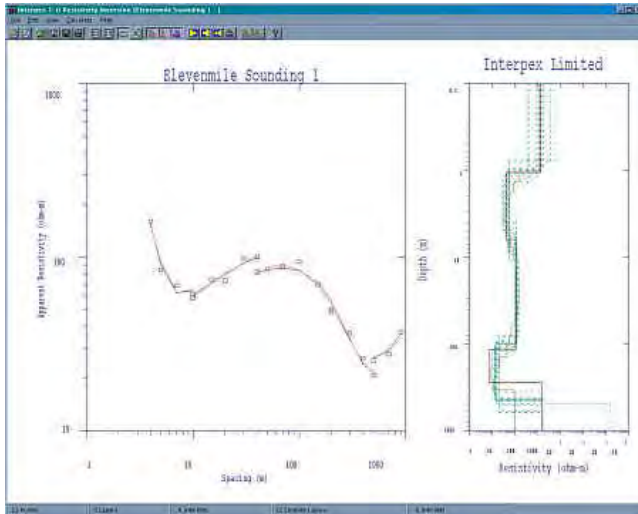


KMSProTF magnetotelluric transfer functions manager multi-remote reference apparent resistivity plots

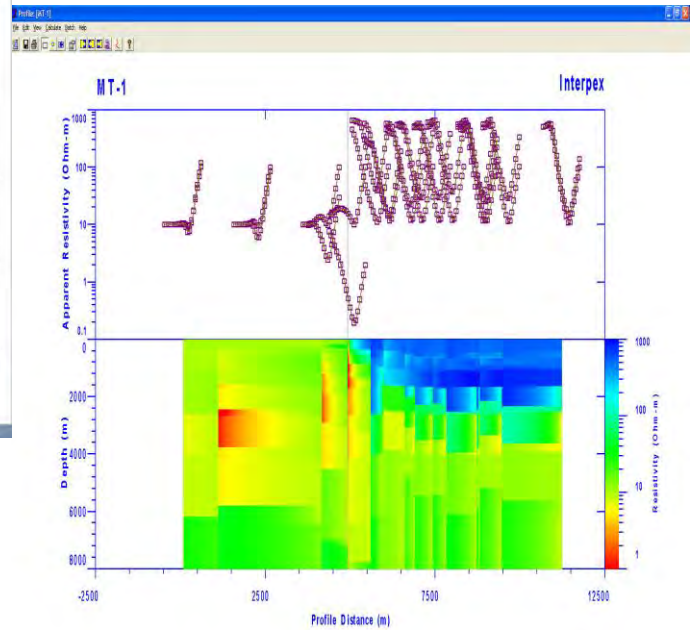
**References:**

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

# 1D inversion - included

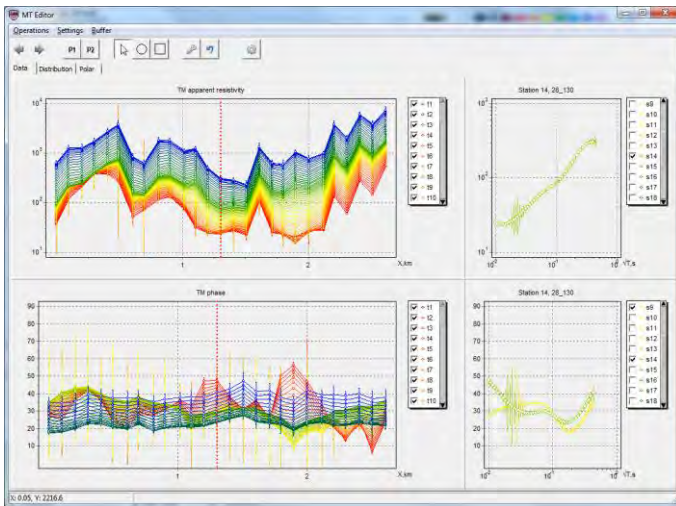


IX1D Sounding Window Graphics



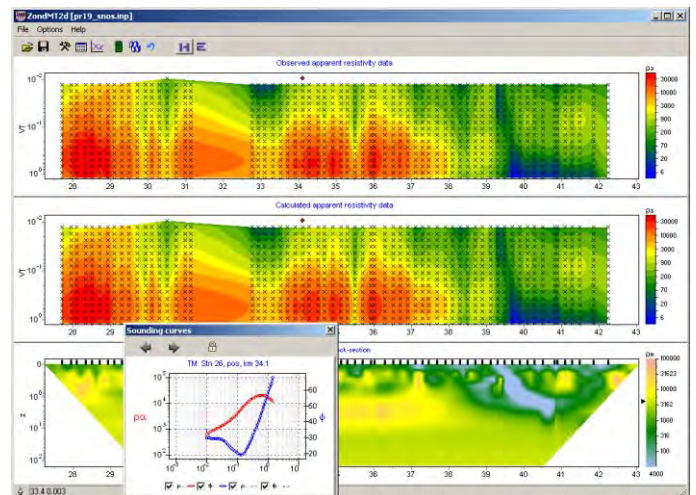
IX1D Display of MT Data with apparent resistivity data displayed as curves, synthetic displayed as lines and smooth model displayed as a colored section.

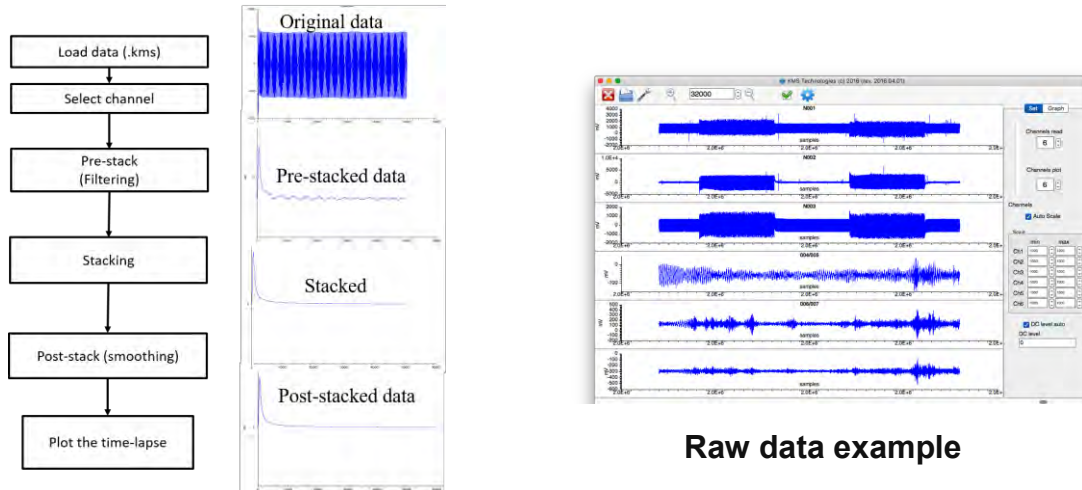
# 2D inversion 3<sup>rd</sup> party example



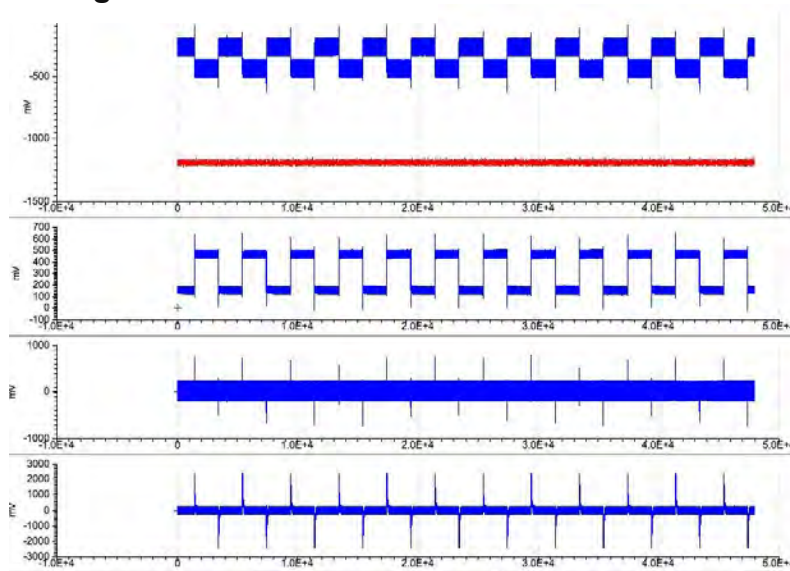
MT editor for data filtration, analysis and rotation

# Resistivity 2D inversion in ZondMT2D





## Data processing workflow



## Receiver and transmitter data matching

# Order Information

### Software bundles

- KMS-200 MT Bundle 1:** includes KMS-200-ACQ, KMS-200-P, KMS-200-AP, & KMS-200-IX1D
- KMS-200 MT Bundle 2:** all in Bundle 1 plus KMS-200-ZONDMT2D

### Individual software products

- KMS-200-ACQ: Acquisition software for KMS-820 only
- KMS-200-TX: Transmitter control & monitor software for KMS-820 only
- KMS-200-P: Basic robust MT processing software for KMS-820 only
- KMS-200-AP: Fast robust processing software: for KMS-820 & LEMI-424
- KMS-200-IX1D: 1D MT inversion software for KMS-820 & LEMI-424
- KMS-200-ZONDMT2D: 2D MT inversion software for KMS-820 & LEMI-424
- KMS-200-tCSEM™: TEM processing software for MS-820 only

Please contact [info@KMSTechnologies.com](mailto:info@KMSTechnologies.com) for more information and get your customized quote today!