Geophysical Modeling

Kingdom 8.5 Geomodeling Software

- Developed for Exploration Industries
- Specifically Oil & Gas, Mineral Exploration
- Used to model complex geologic environments
- Detail on local, sub-regional & regional scale
- Detail obtained by integration and correlation of lithologic, borehole geophysics, surface geophysics, and geochemical data into comprehensive 3-D geomodels
- Demo's at http://www.seismicmicro.com

Geophysical Modeling

Kingdom 8.5 Geomodeling Software

1. **Provided by Seismic Micro – Technology to University:**
   a) UK Earth and Environmental Sciences Geophysics Program
   b) Dr. Ed Woolery
   c) Purpose of Modeling – to apply KINGDOM 8.5 data integration solution methods to PGDP vicinity seismic & supporting data
   d) SPECIFICALLY TO APPLY TO PROCESSING AND INTERPRETATION OF SHALLOW SUBSURFACE GEOPHYSICAL MODELING PROBLEM
      a) Langston & Street (13 miles SH wave profiling)
      b) Anderson-Blitz & Woolery (8 miles SH wave profiling, 5 miles Resistivity)
      c) Amick & Davis - Site 3A Investigation (3 miles P & SH wave profiling)
      d) Amick & Davis – ULF Fault Investigation
      e) PGDP Geophysical, Engineering & Groundwater Investigations (40+) from late 1980's thru Present

Geophysical Modeling
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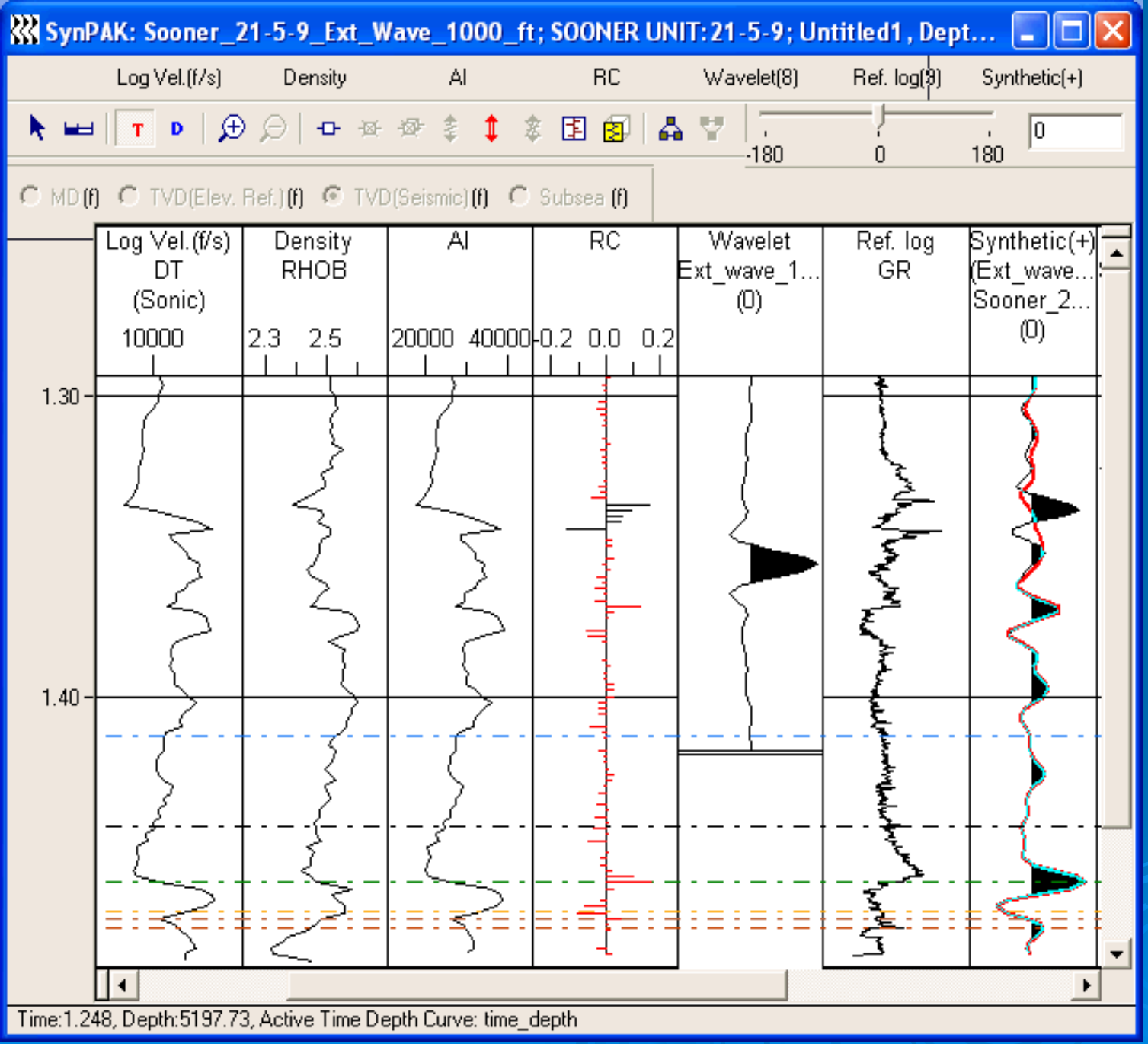
2. Kingdom 8.5 Analyst - Ph.D. Student

a) Ali Al-Mayahi

b) Conduct Detailed Geophysical Data Collection and Modeling in vicinity of PGDP (incl. Southern Illinois)
   a) Model faults in vicinity of PGDP
   b) Assess potential influence of paleo-faulting on Lower Continental Deposits flow system (Regional Gravel Aquifer)

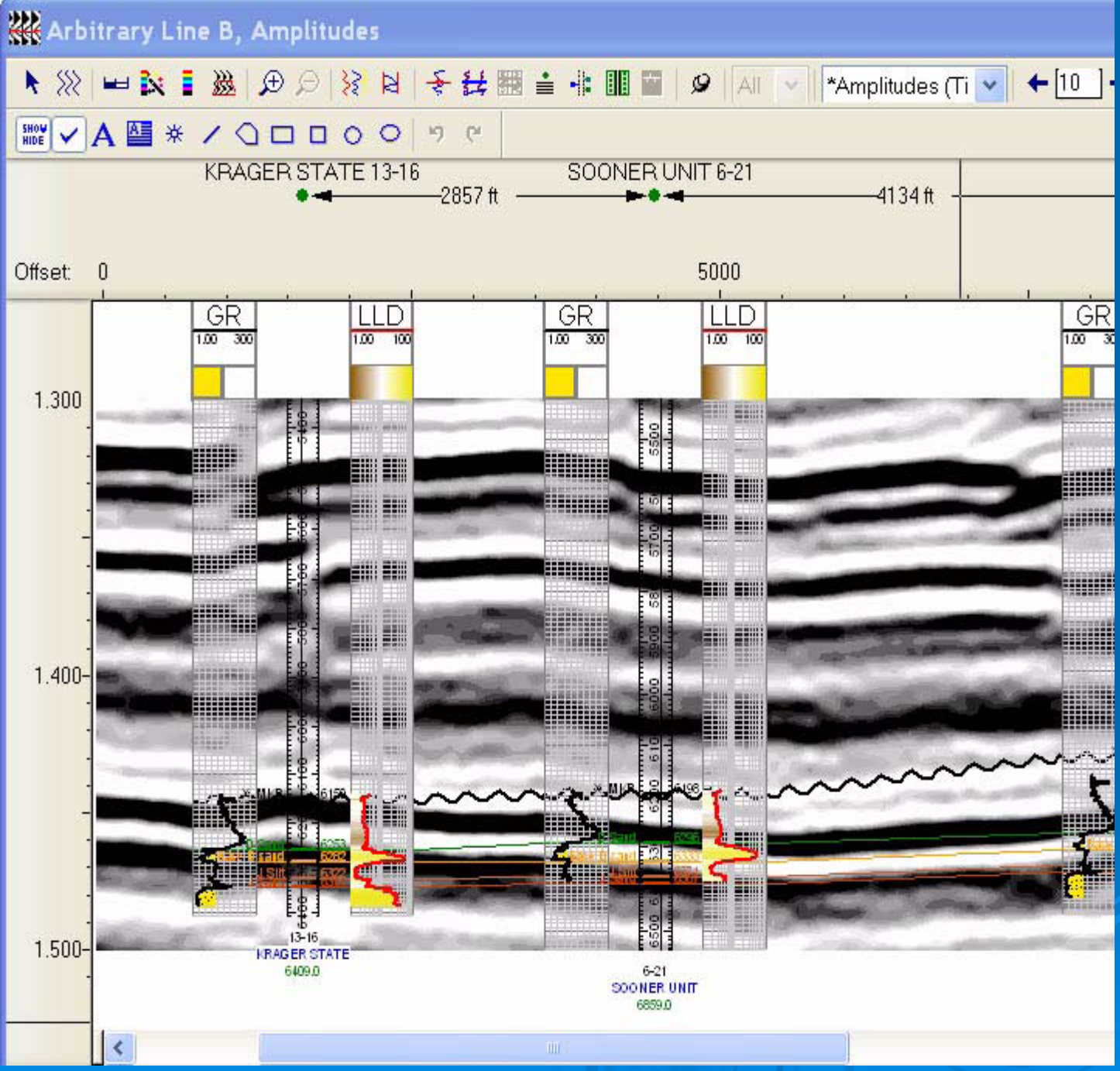
c) Integrate available geophysical data, geotechnical and lithologic data, and

d) Active participation in execution of proposed KRCEE surface and subsurface geophysical data collection (See Geophysical Data Collection Project background presentation)



Correlate digital data from borehole geophysics

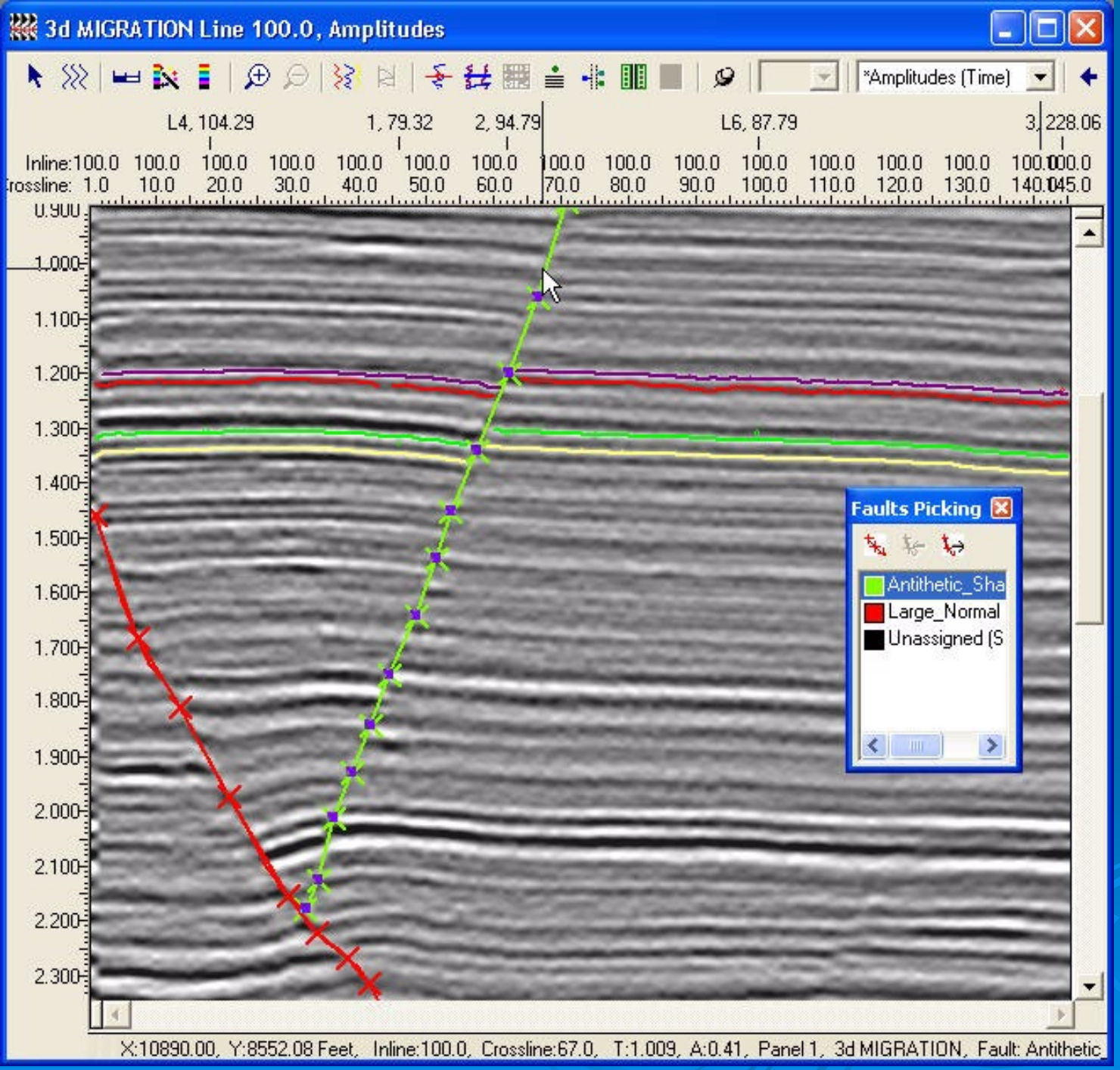
Convert paper logs to digital data thru digitizing



Correlate digital surface to surface geophysics data

with

Borehole Geophysics data

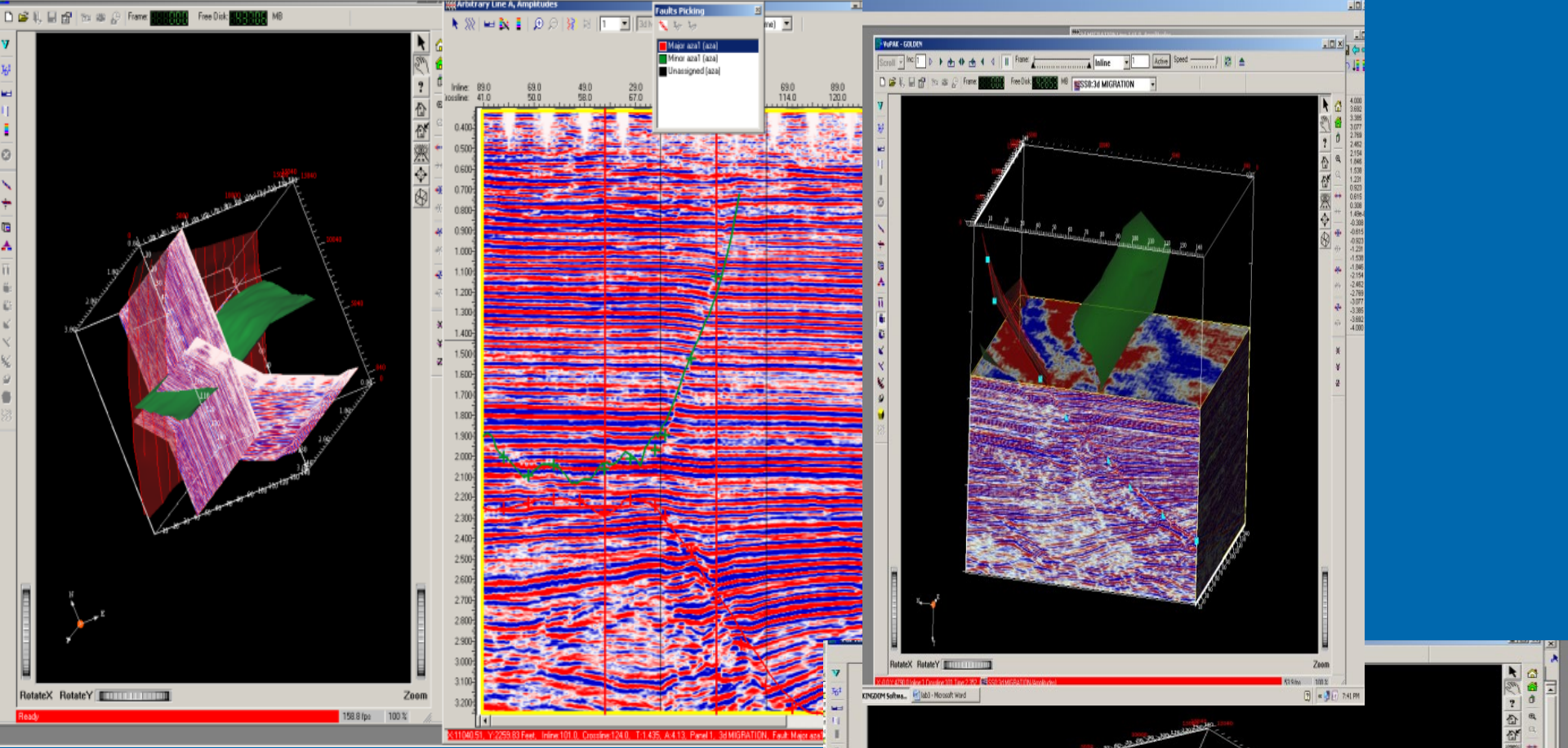


Interpret Faults and trends

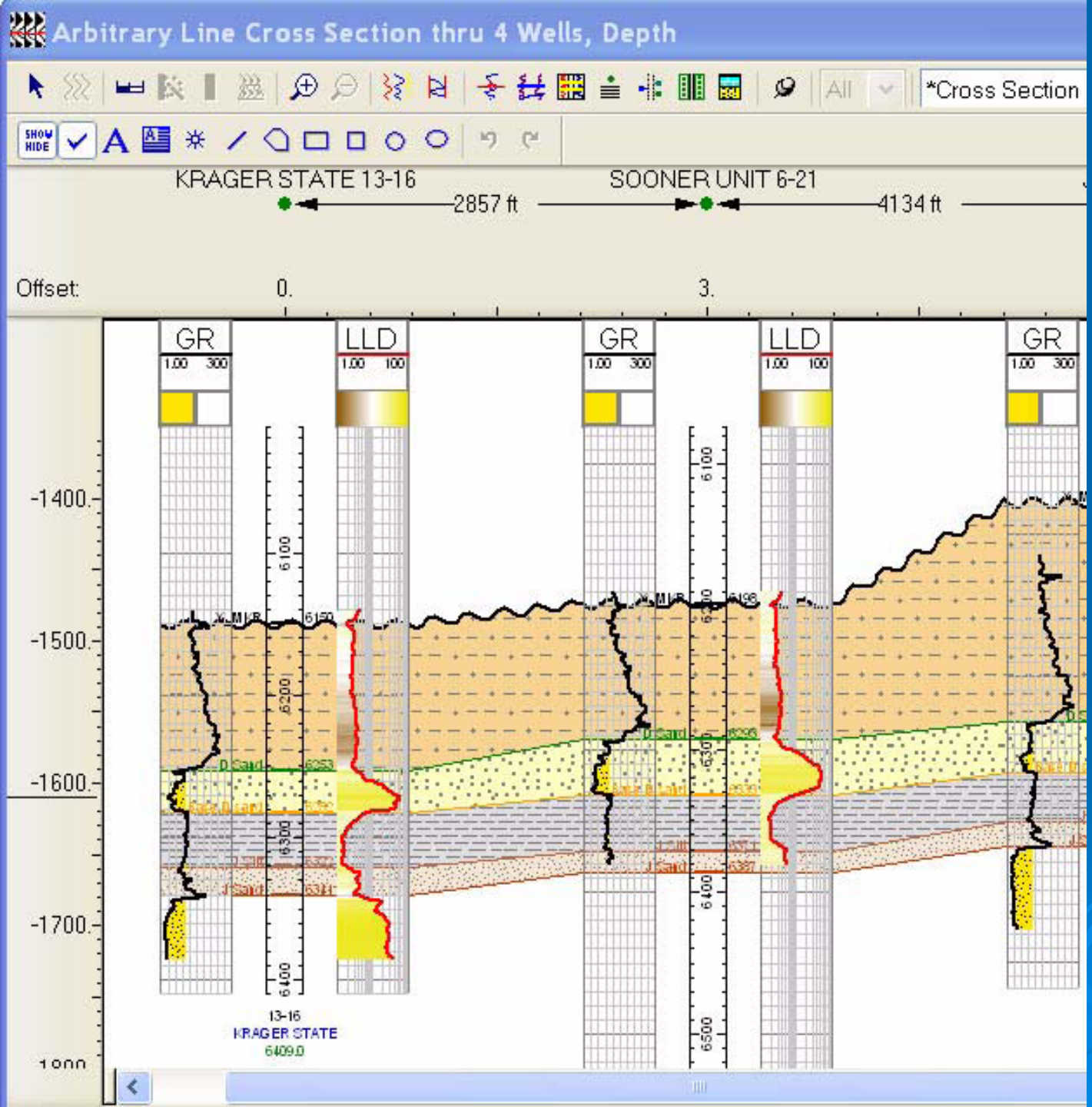
From:
1) Data Assessment,

2) Previous Studies,

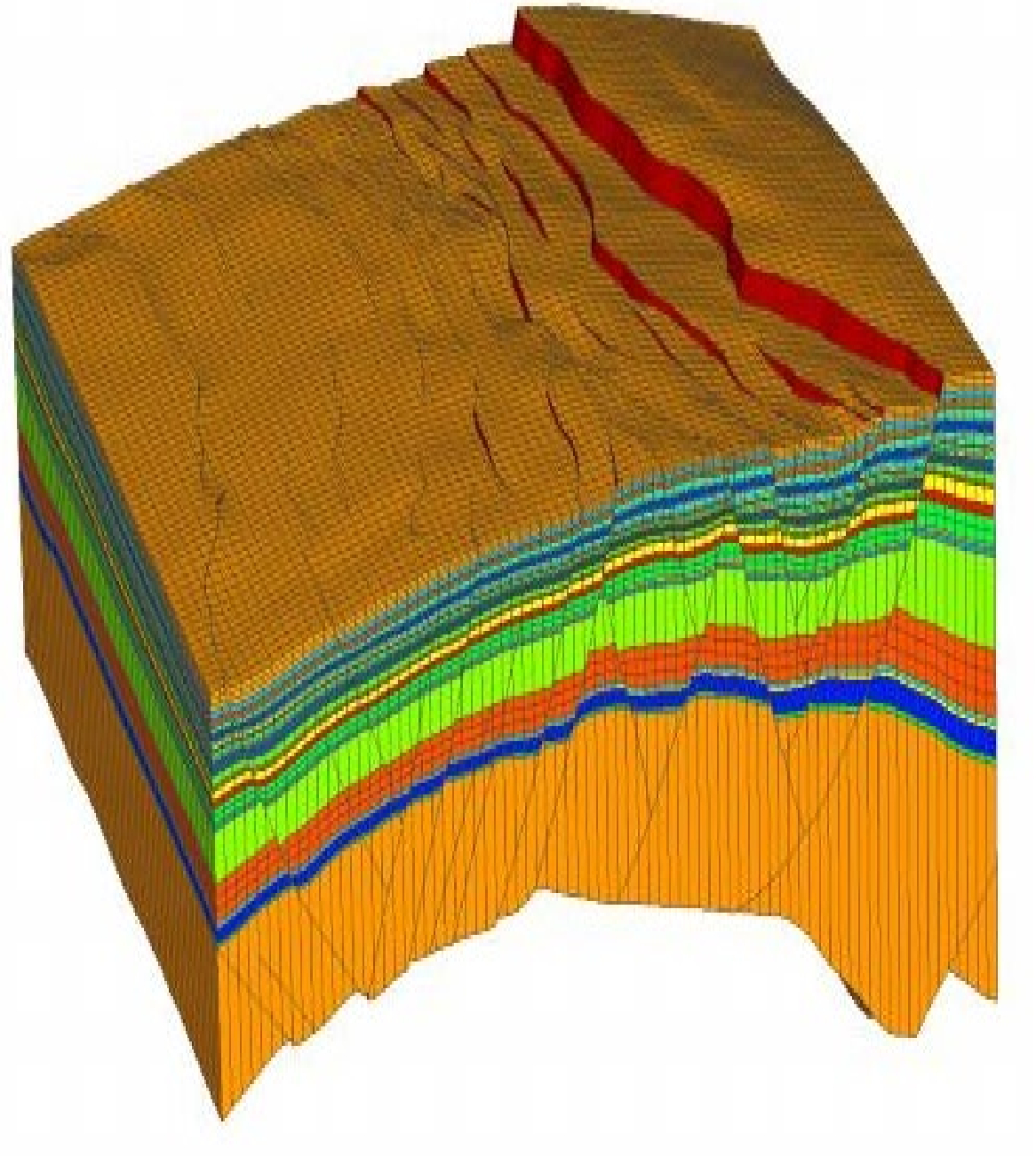
3) Proposed New Geophysical Data Collection



Model Faults and trends in 3-D based on geophysical data collection



Integrate digital borehole geophysics data with lithostratigraphy materials data



Compile correlations of faults, material properties, lithology, and geophysics to 3-D model of the study area

Convert paper logs to digital data thru digitizing