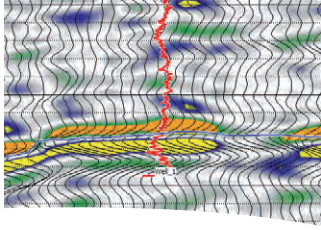
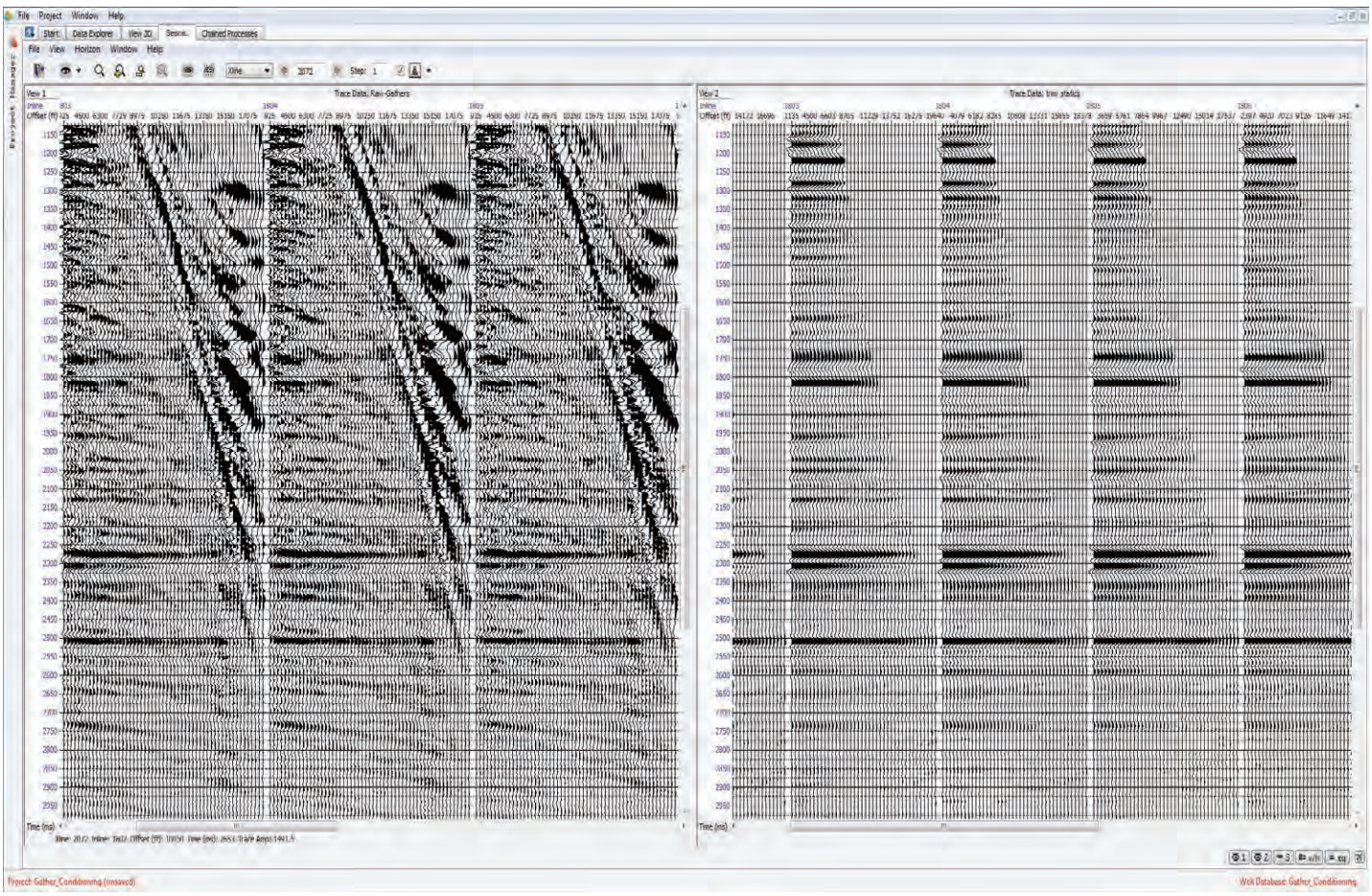
HampsonRussell

AVO



AVO analysis module

AVO performs prestack seismic analysis and reservoir reconnaissance. This module has the tools for conditioning prestack seismic data to produce optimum attribute volumes, crossplotting and interpretation functions for locating AVO anomalies, and AVO modeling tools for calibration. Customizable workflows and the integration of **AVO** tools into the **Geoview** interface make sophisticated AVO analysis simple.



Seismic data conditioning

The fundamental assumption made in AVO studies is that the prestack data has been optimally processed. This means that the data is noise-free, with preserved amplitudes and correct time positioning for the angle range being studied. The **AVO** module in **HampsonRussell** offers you the data conditioning tools you need to prepare your data for attribute analysis.

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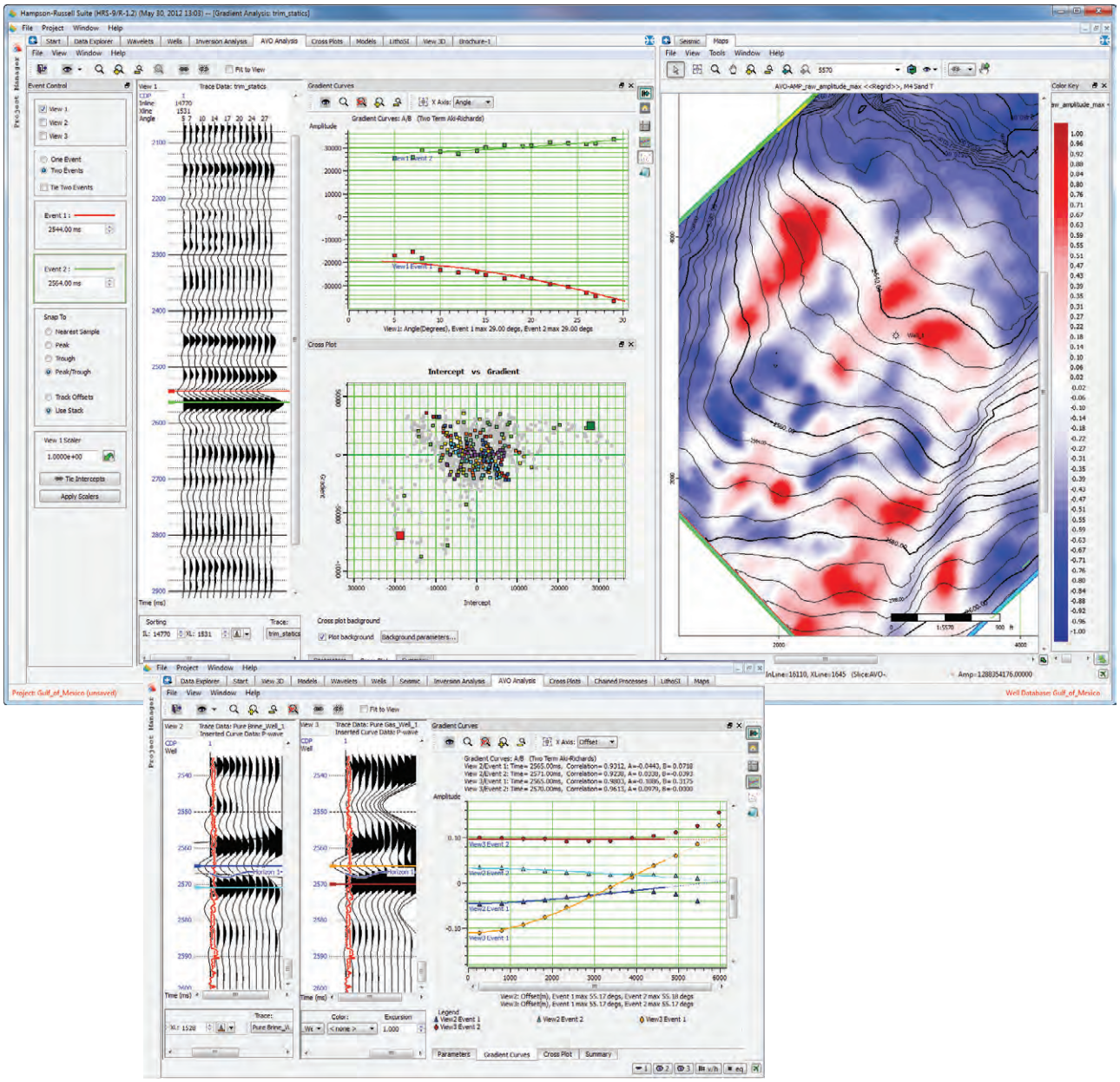
Gradient analysis

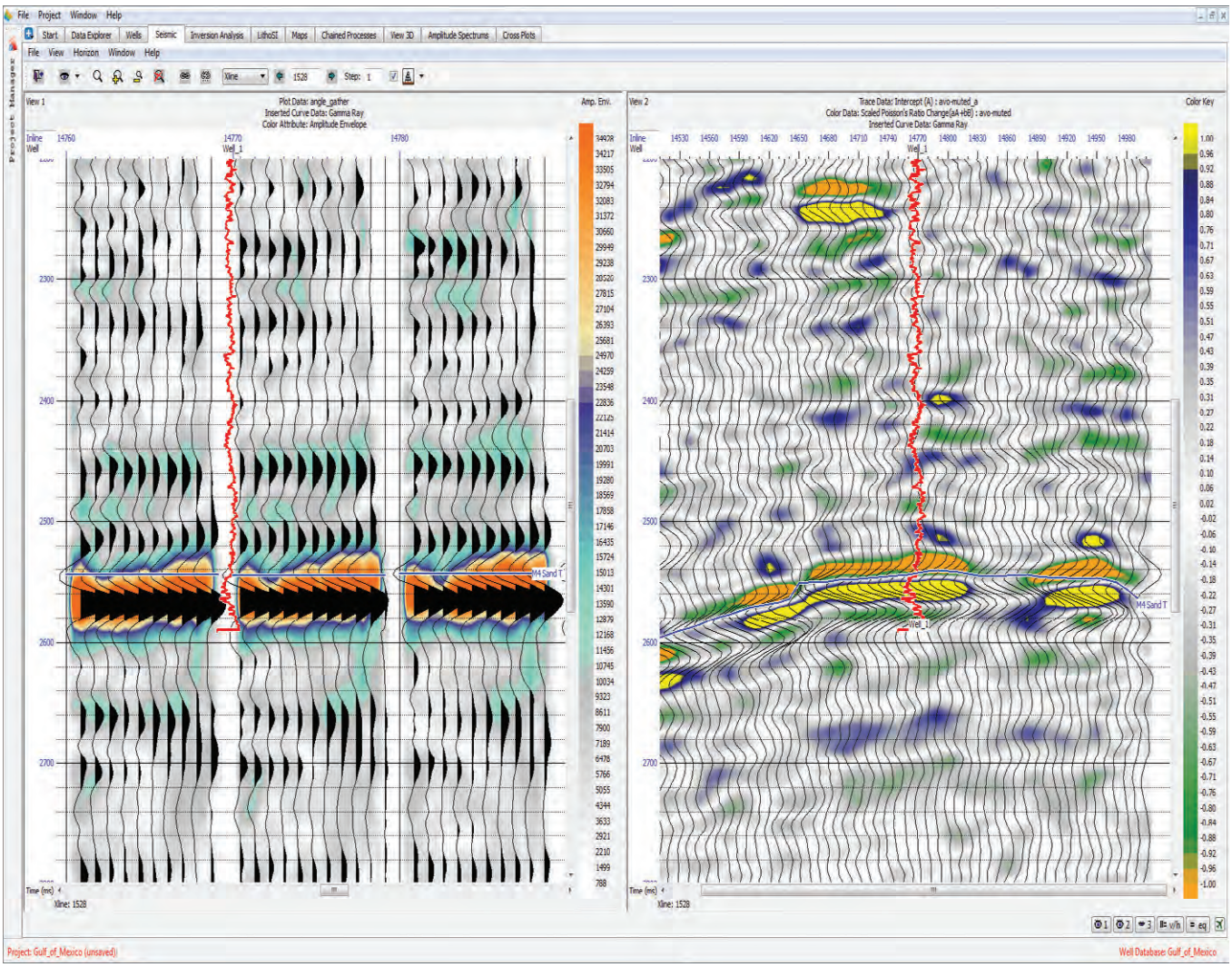
The **AVO** Gradient Analysis tool is designed to examine seismic gathers and show the intercept and gradient values for specific events within those gathers. Some features in the Gradient Analysis tool include:

- Analysis of the gradient distribution against offset angle (Θ), or $\sin^2 \Theta$
- Tracking of amplitudes by constant time, or amplitude tracking
- Using the overall data trend to analyze and understand the deviation from background
- Simultaneous analysis of multiple CDPs to compare AVO responses



AVO attribute volume calculation

Once the amplitudes observed in the prestack data are stable and robust, AVO attributes can be calculated as volumes and maps. Volumes can be cross-plotted to characterize the different AVO classes and proceed through modeling to lithology.



HampsonRussell AVO attribute options

- Two Term Aki-Richards A/B
- Three Term Aki-Richards A/B/C
- Two Term Fattis Rp/Rs
- Three Term Fattis Rp/Rs/Rd
- Intercept* Gradient volume
- Scaled Poisson's Ratio Change aA+bB
- Fluid Factor Volume

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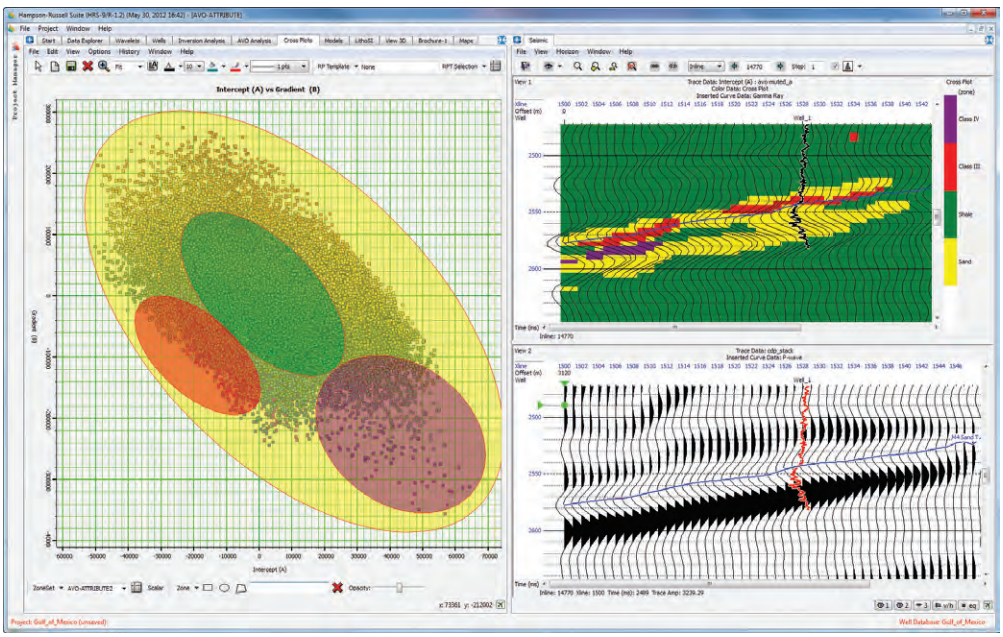
Crossplotting

- Crossplotting the primary (seismic) and secondary data (well data) within the same tool
- Define zones using a variety of shapes and colors
- Tie zones to all sections, maps and View3d windows
- Process zones for geo-bodies



AVO analysis and conditioning tools

- Angle Gather
- Super Gather
- Offset Mute
- Angle Mute
- Inverse Q
- Trim Statics
- Parabolic Radon (INVEST)
- RNMO & NMO Correction
- CDP Stack
- Angle Stack
- Range Limited Stack
- AVO synthetic modeling
- AVO Attribute Volumes
- Gradient Analysis
- AVO Offset Scaling

Benefits of the AVO module:

- Provides a single comprehensive module for data conditioning, attribute calculation and analysis
- High-grades prestack seismic data for inversions
- Calibrates seismic data with model data
- Enables simple navigation and comparison of multiple attribute volumes with seismic gathers

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