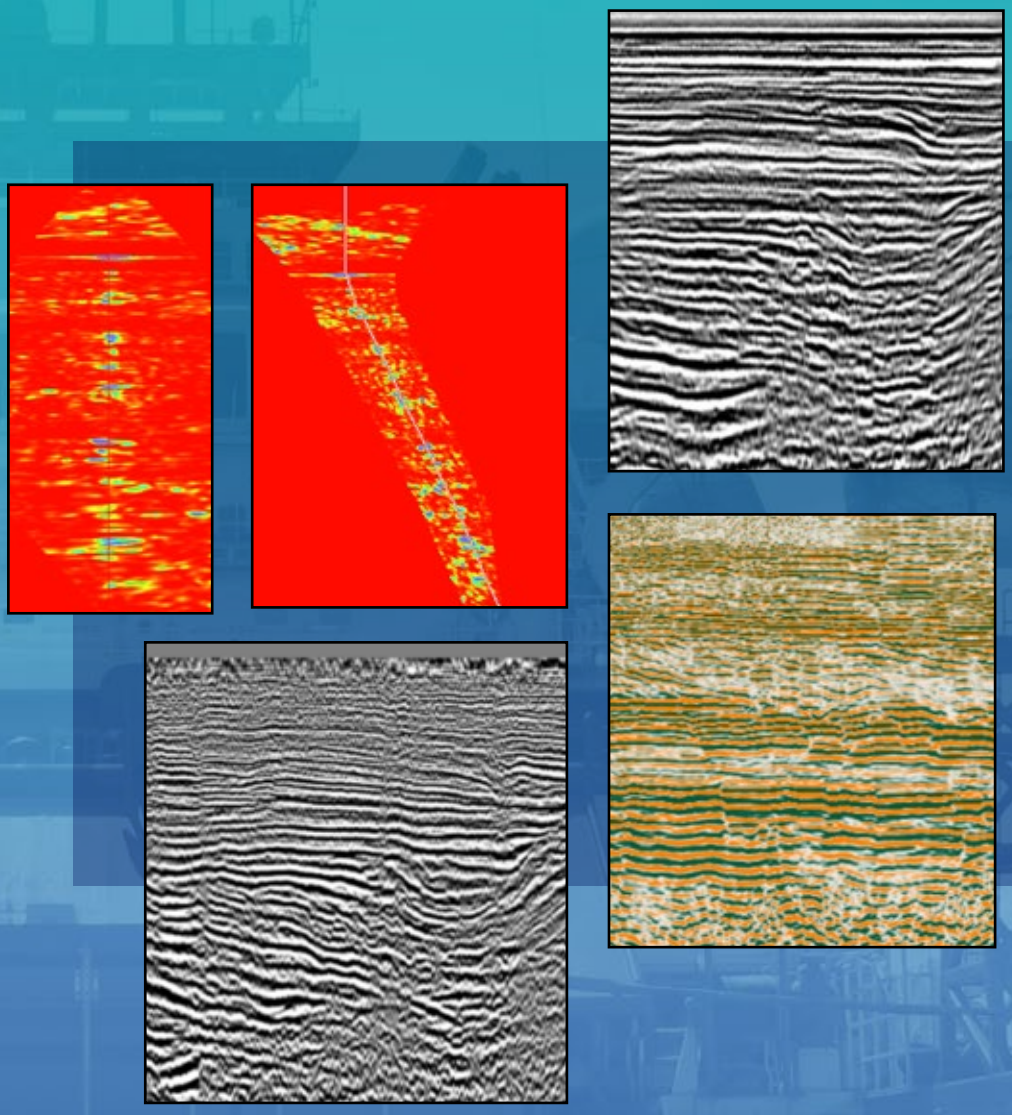
SAExploration



Data Analysis & Imaging Solutions

Safety. Acquisition. Experience.

OBN Seismic Services
Processing Quality Control Techniques

QC SOLUTIONS

SAE's QC and processing systems were developed to meet the demands of the industry providing consistent and reliable seismic imaging services.

Our business principles are based on ethics, integrity, respect, honesty and reliability.

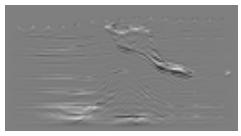
Our Quality Control services include:

- 3D PSPI Pre-Stack Depth Migration Fast-Track
- Wave-Equation Illumination Studies
- End of Line QC

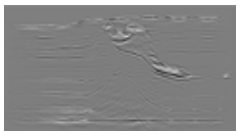
3D PSPI MIGRATION FAST-TRACK

SAE's fast-track module offers a unique option in the field to monitor the quality of the acquired data.

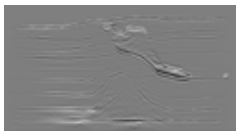
A feasibility study can be performed to define optimal shot and receiver decimations.



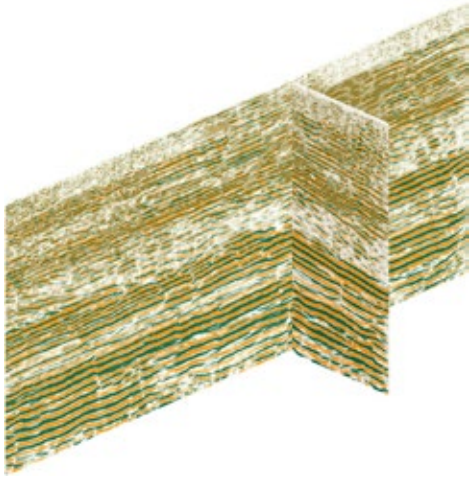
Direct Image
Nodes every 2.5km



Mirror Image
Nodes every 2.5km



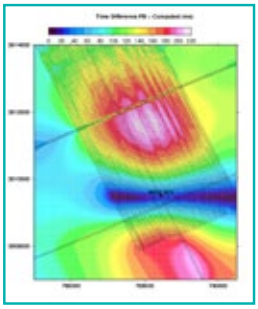
Direct + Mirror Image
Nodes every 2.5km

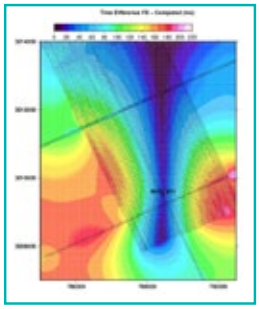


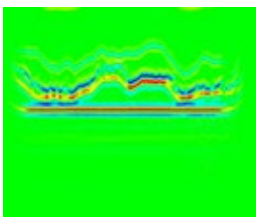
Data Sort (Shot/Node Decimation) → Resampling → Amplitude Balancing → 3D Binning → Gap Deconvolution → Wavefield Separation → 3D PSPI Pre-Stack Migration → Post-Migration Conditioning

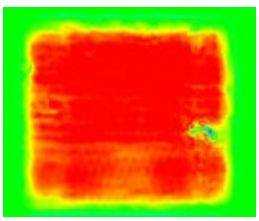
3D WAVE-EQUATION ILLUMINATION STUDY

Acoustic forward modeling followed by 3-D PSPI shot record imaging is an excellent way to study illumination of horizons or features beneath complex overburden.









END OF LINE QC

- Data input - after active shots extracted from continuous record
- Common Receiver Gathers Sort
- First Break Picking
- Flag bad components and bad records
- Direct arrival polarization

OBN Seismic Processing & Imaging Solutions

Shallow & Deep Water

SEISMIC IMAGING SOLUTIONS

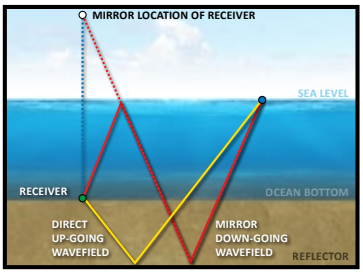
Our commitment is to maximize the quality of seismic processing for complex geology, irregular and sparse survey geometries.

The depth processing and imaging capability has an extensive number of modules and applications for deconvolution, wave-equation migration, model building, de-multiple and post-migration processes.

We specialize in Wavefield Modeling and Wave-Equation Depth Imaging.

SAE's algorithm for 3D PSPI Pre-Stack Migration is an affordable and efficient solution. We deliver three migrated volumes of data: Up-coming Field, Down-going Field and the Sum of Direct and Mirror Migrations.

We also offer Converted-Wave Imaging (Isotropic & Anisotropic), where the Common-Conversion-Point (CCP) binning technique is not required.



Wavefield Separation

The matching filter is determined to adjust the Hydrophone data to the Vertical Phone data. The matched data is co-sensor summed and co-sensor differenced to separate up-coming and down-going wavefields. This will allow for the separate imaging of up-coming and down-going energies hence essentially doubling the fold of the survey.

3D Pre-Stack PSPI Migration

SAE's 3D PSPI migration module is an accurate, efficient and affordable solution on seismic imaging based on wavefield extrapolation. As the geology gets more complicated, less confidence is placed in ray tracing based techniques such as Kirchhoff Migration.

C-Wave Processing

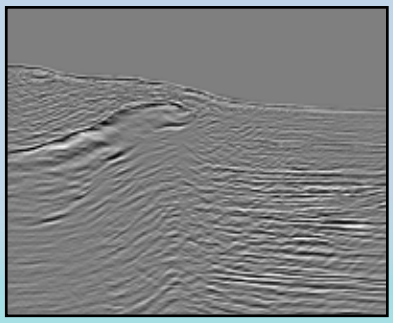
- SAE offers 2D and 3D converted-wave solutions for isotropic and anisotropic imaging.
- Our algorithms use P velocity for down-going waves and S velocity for up-coming waves.
- Depth Focusing Converted-Wave Velocity Analysis application is used to determine S velocity model.

Depth Focusing Velocity Analysis

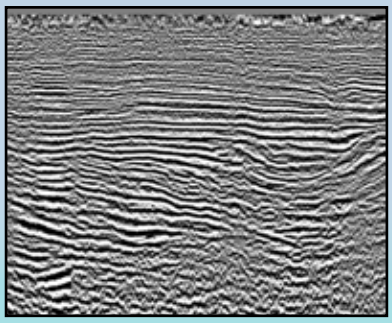
- Iterative application based on determining the best imaging velocity by examining how the energy is "focused" during the wave-equation migration.
- Tomography techniques are not necessary.

3D Wave-Equation Multiple Attenuation

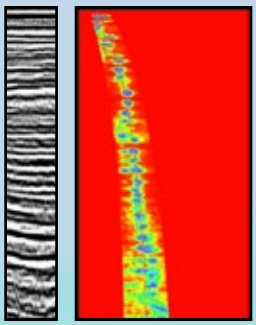
- One of few multiple suppression techniques especially well adapted to 3D Common Receiver data (ocean bottom node).
- Predicted multiples are suppressed by least squares adaptive subtraction process.



3D Pre-Stack PSPI Migration



C-Wave Processing



Depth Focusing Velocity Analysis

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