Spectral AVO Inversion for Lithology
SAIL Combines:

- Spectral Decomposition
- AVO Analysis
- Inversion
- Seismic Petrophysics

AVO is an approach that examines the nature of the interfaces of contrasting rock properties and not the bodies themselves. By combining AVO with spectral analysis, inversion and seismic petrophysical principles, SAIL images the lithologic bodies without input from well control.

- Only input required is prestack migrated gathers
Spectral AVO Inversion for Lithology

Model Example

Protected by US Patent No. 7,343,245
Seismic Petrophysics

<table>
<thead>
<tr>
<th>Lith</th>
<th>Syn</th>
<th>DT</th>
<th>Rhob</th>
<th>IP</th>
<th>DTSH</th>
<th>PR</th>
</tr>
</thead>
</table>

Modeled Gathers
Seismic Petrophysics

Input Lith

Modeled Gathers

Stack

AVO Lithology

Input Lith
**Seismic Petrophysics**

<table>
<thead>
<tr>
<th>Input Lith</th>
<th>Modeled Gather</th>
<th>Stack</th>
<th>AVO Lithology</th>
<th>SAIL Lithology</th>
<th>Lith</th>
</tr>
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</tbody>
</table>

**SAIL Workflow**

- **4, 8, 16, 32, 64 channels**
Spectral AVO Inversion for Lithology Example

Protected by US Patent No. 7,343,245
Pre-stack Time Migrated Stack

- Gas
- Down dip wet sand
- Gas
- Gas
Spectral AVO Types

- Gas
- Down dip wet sand
- Gas
- Gas
Spectral AVO Inversion for Lithology Example

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Spectral AVO Inversion for Lithology

Results run on the whole line.
Spectral AVO Types
SAIL FAQs
Bandlimited Examples

Amplitude Spectra
- SAIL
- Well Logs
- Stack

2,3,100,120
4,8,20,50
4,8,12,20

2,3,100,120
4,8,20,50
4,8,12,20
Wedge Model, Frequency Content 3 – 90 Hz
Wedge Model, Frequency Content 8 – 35 Hz
Wedge Model & Gas Contact

3 to 90 Hz

8 to 40 Hz

8 to 15 Hz
SAIL Lithology Model
Spectral AVO Inversion for Lithology