



# Spectral Avo Inversion for Lithology



## *SAIL Combines:*

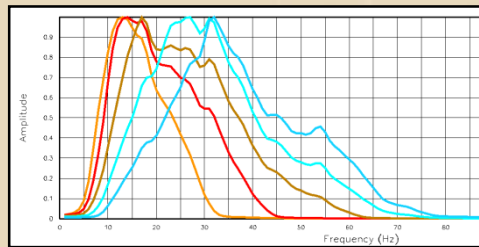
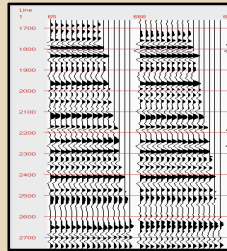
- Spectral Decomposition
- AVO Analysis
- Inversion
- Seismic Petrophysics

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.

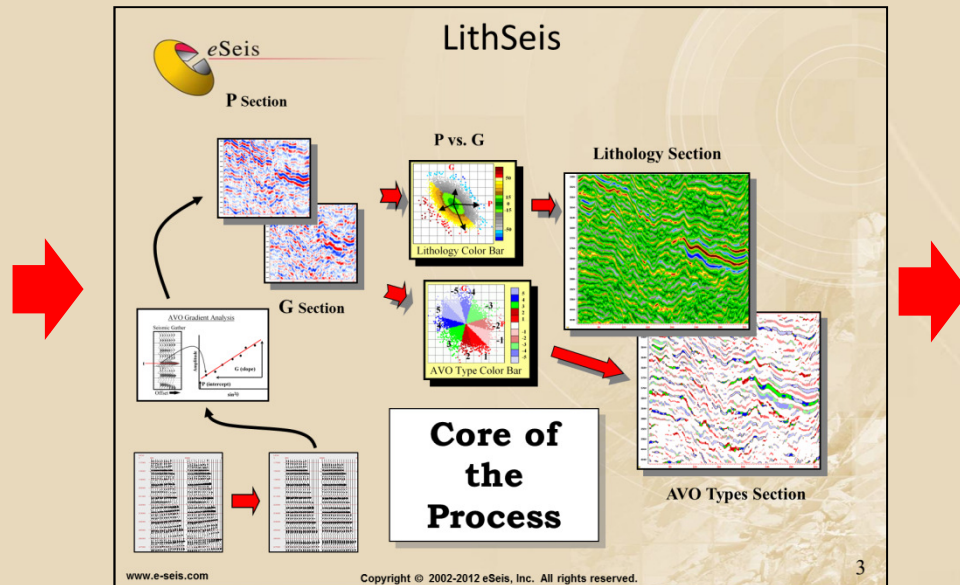
- Only input required is prestack migrated gathers



# SAIL Workflow



4 8 16 32 64 Combined



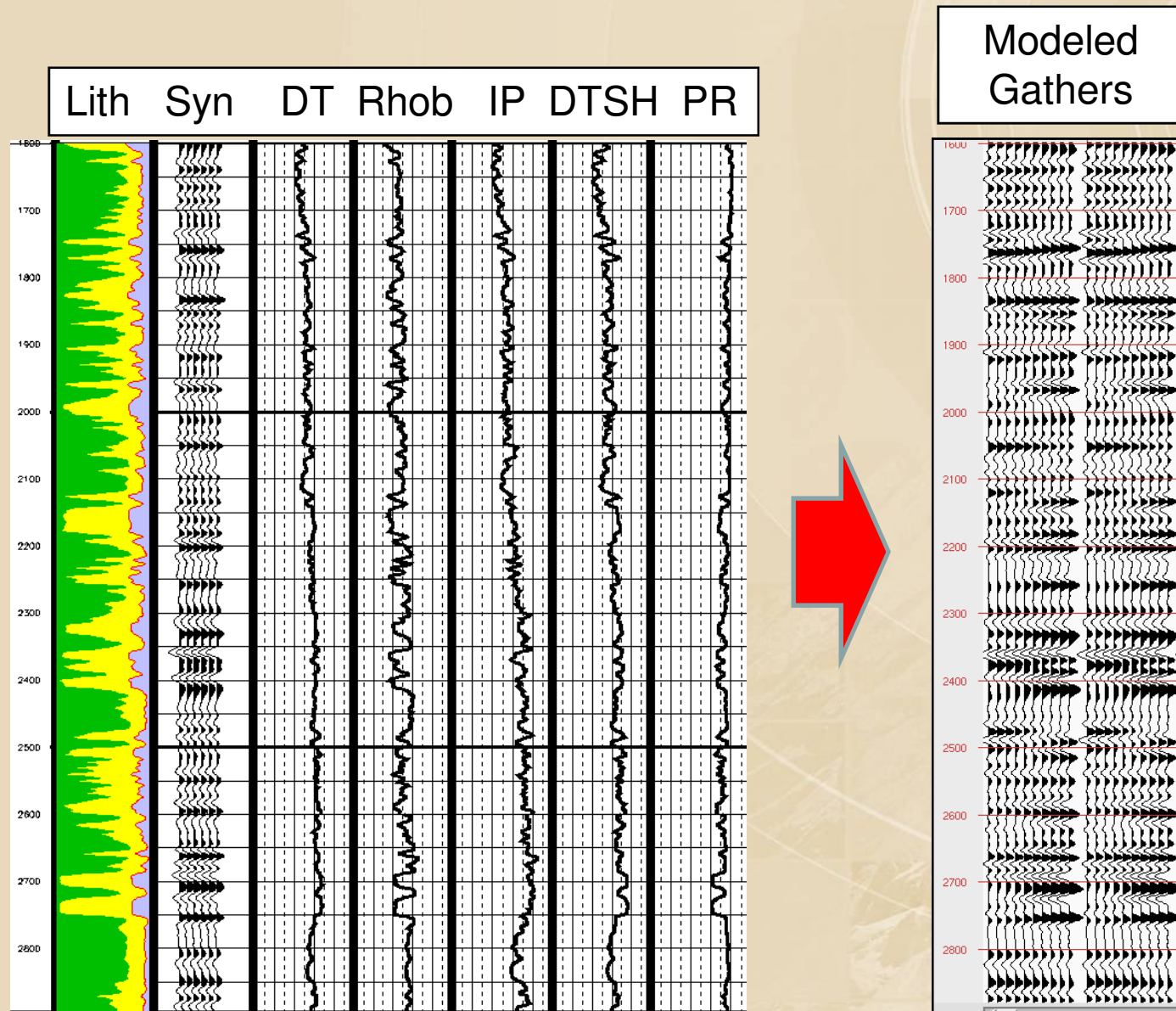


# Spectral *AVO* Inversion for *Lithology* Model Example

Protected by US Patent No. 7,343,245



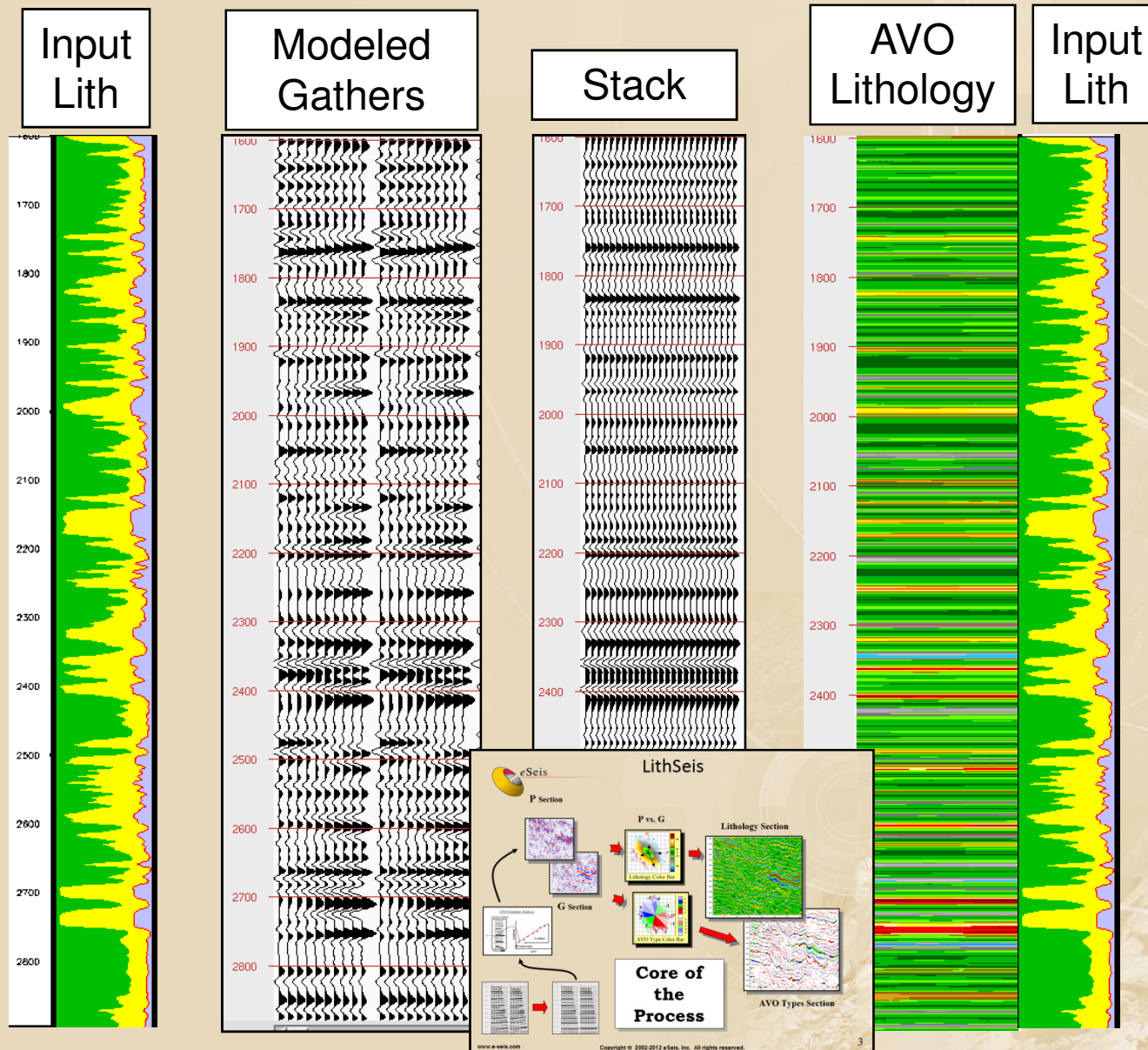
# Seismic Petrophysics





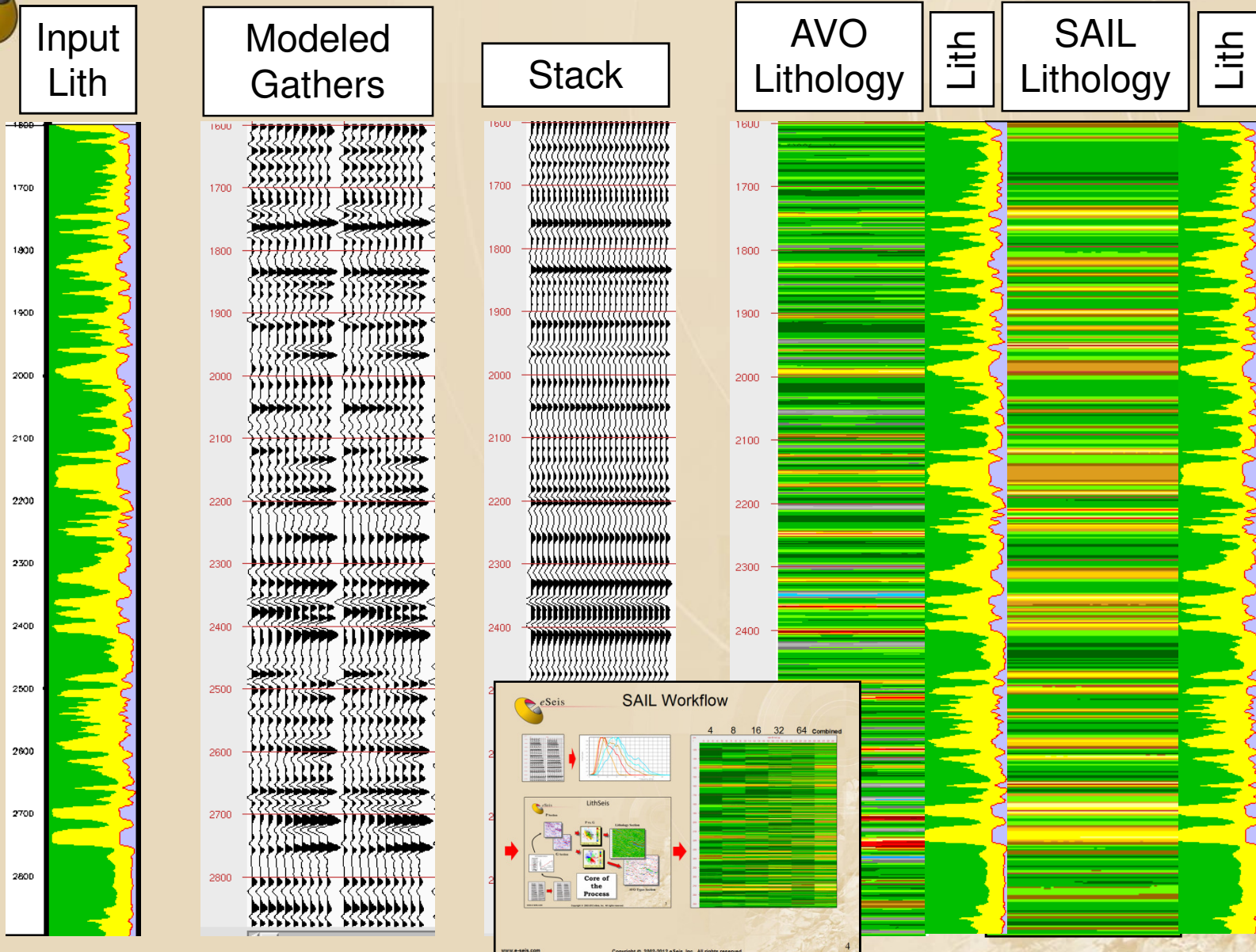


# Seismic Petrophysics





# Seismic Petrophysics





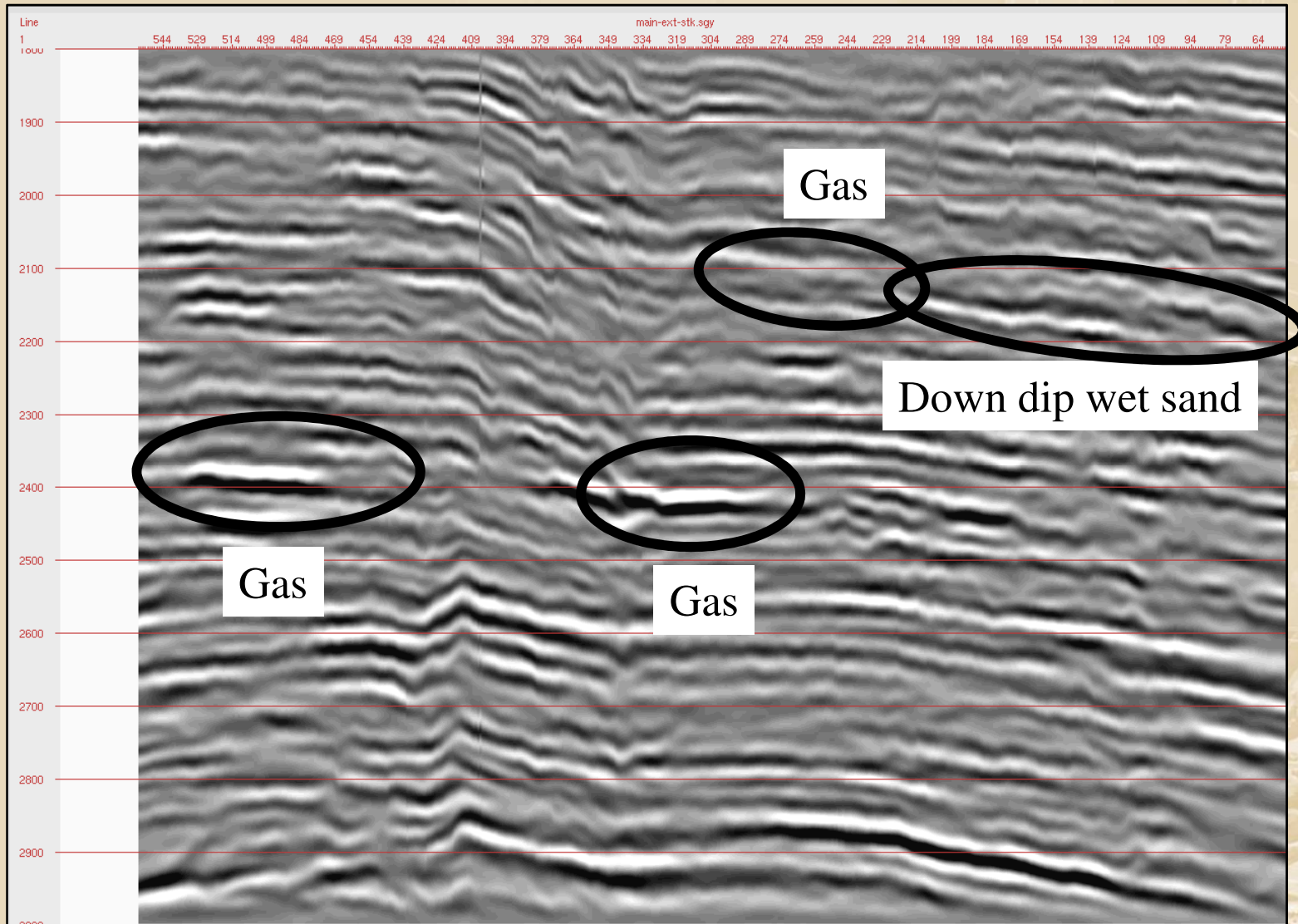
# Spectral *AVO* Inversion for *Lithology* Example

Protected by US Patent No. 7,343,245



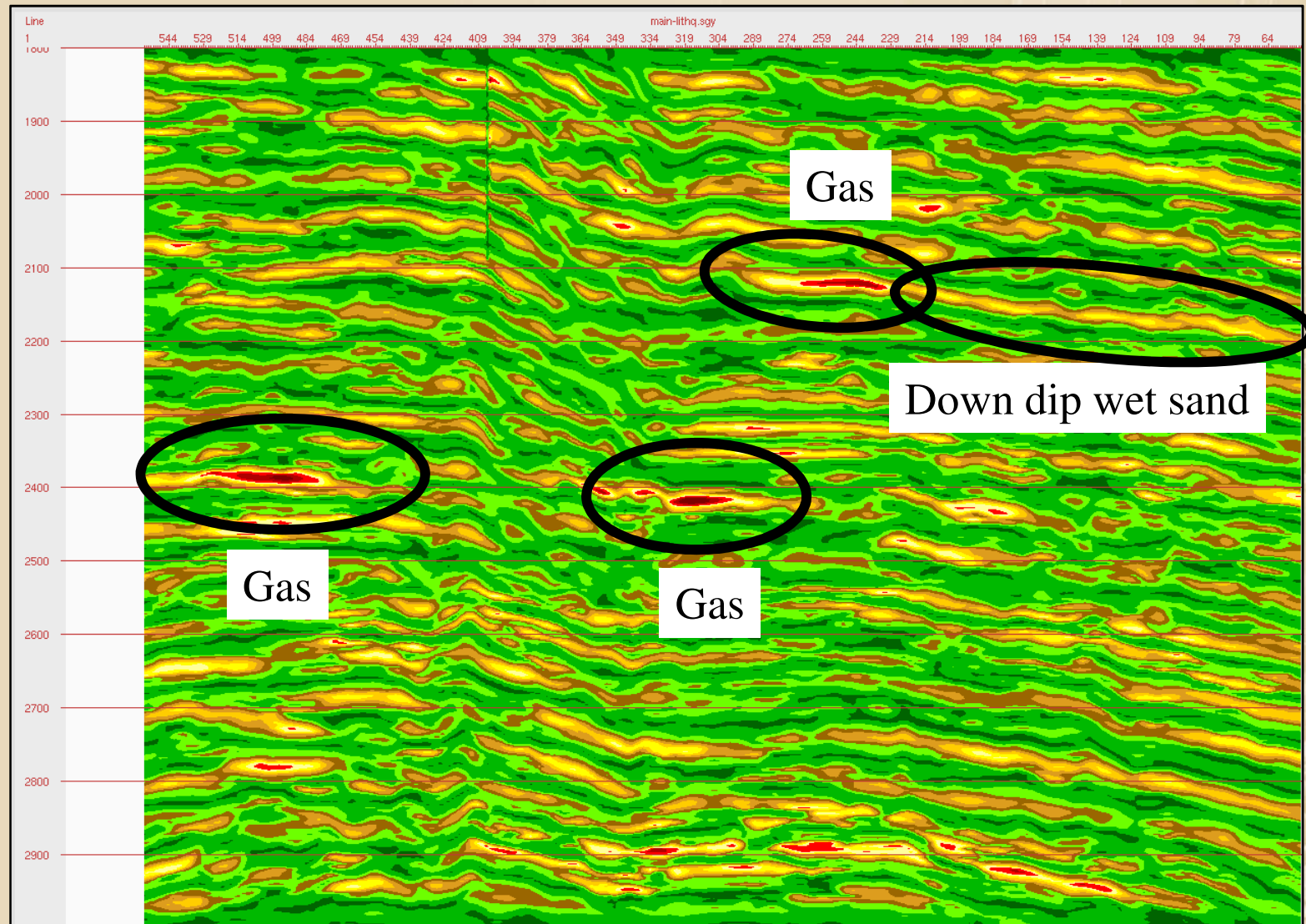


## Pre-stack Time Migrated Stack



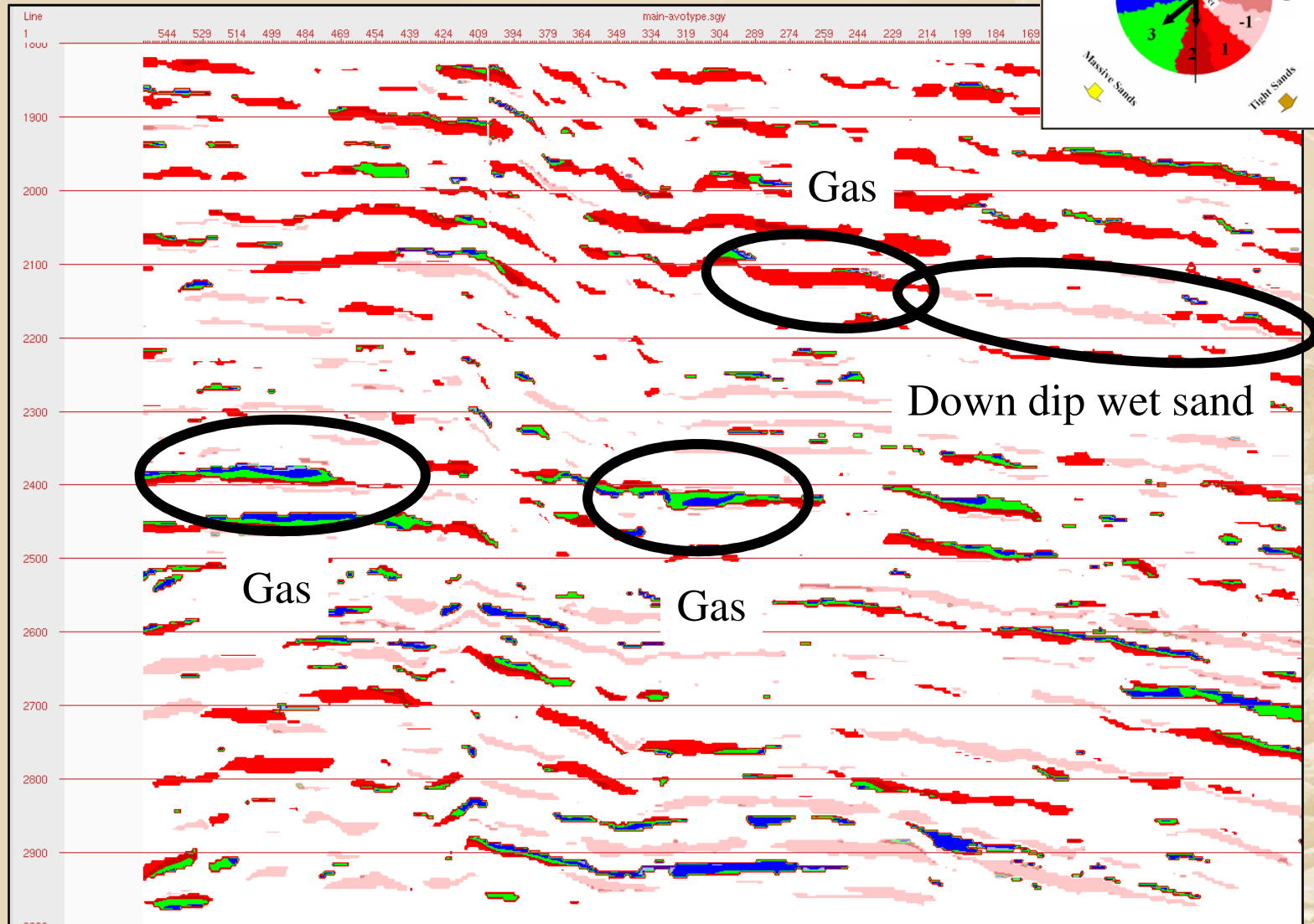
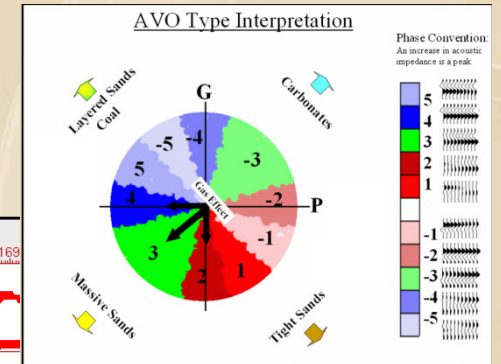


## Spectral AVO Inversion for Lithology





# Spectral AVO Types





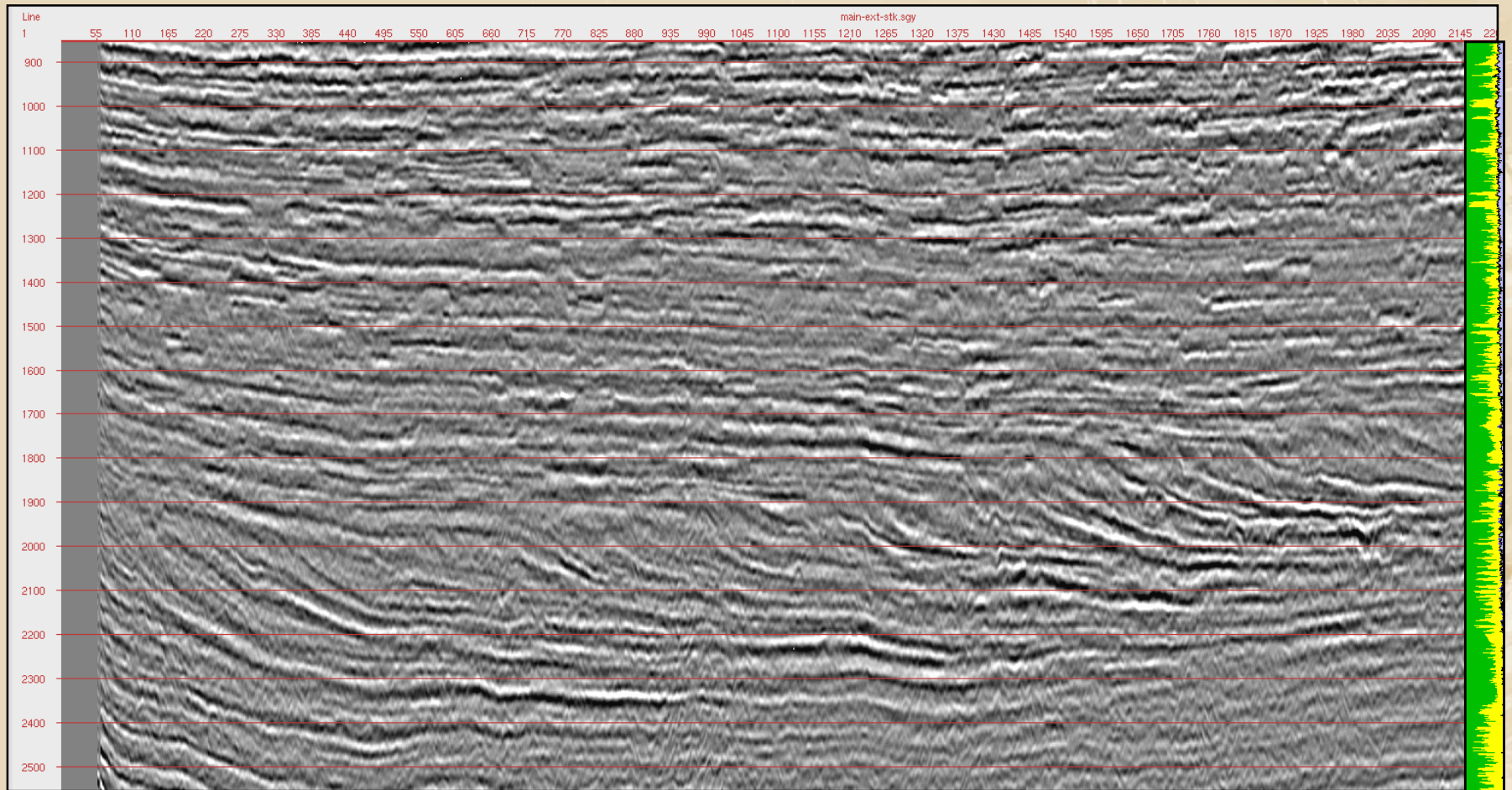
# Spectral *AVO* Inversion for *Lithology* Example

Protected by US Patent No. 7,343,245

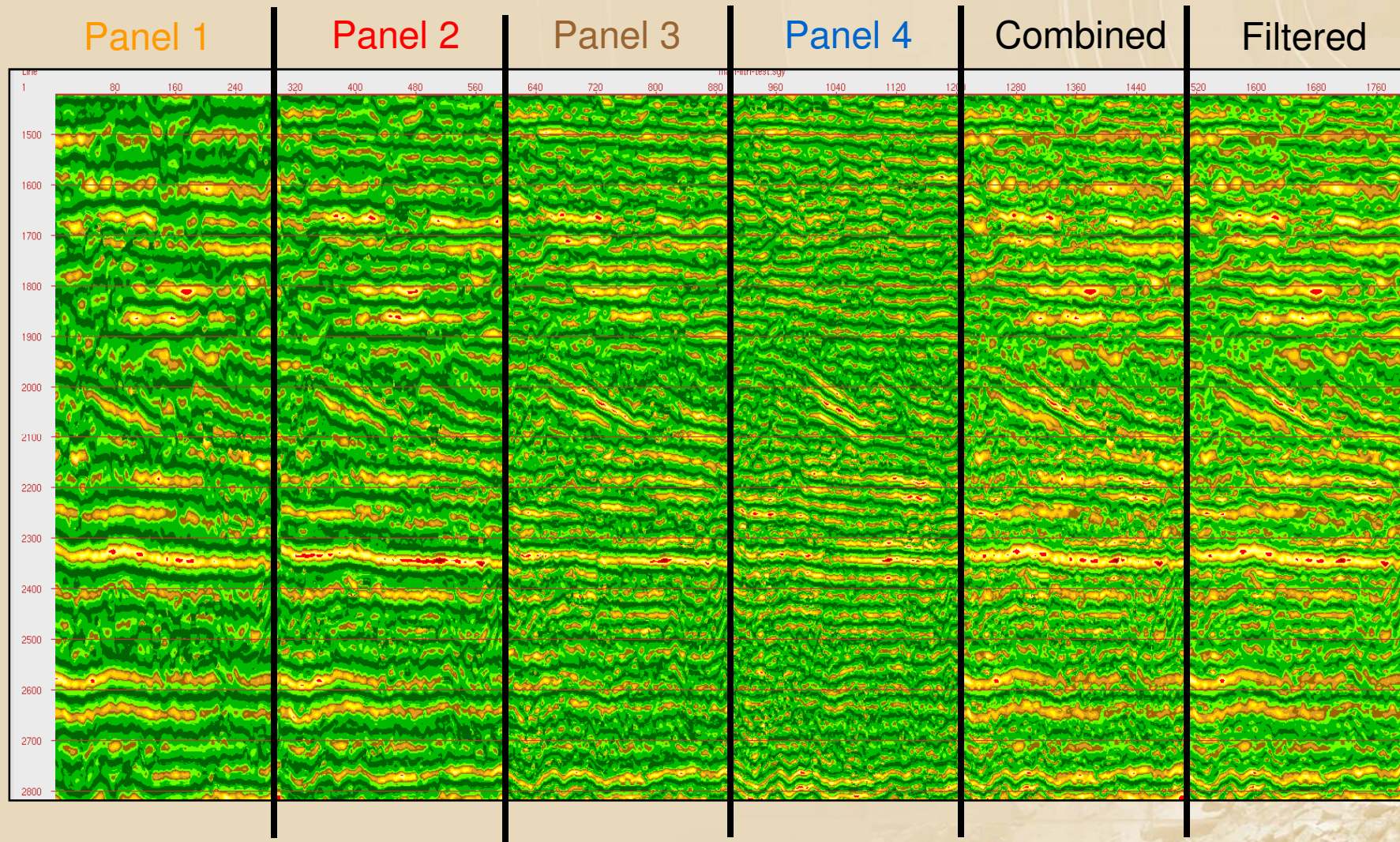
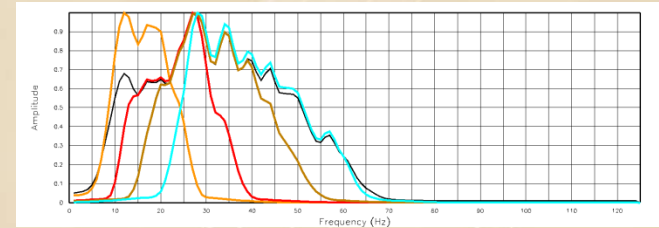




# Stack





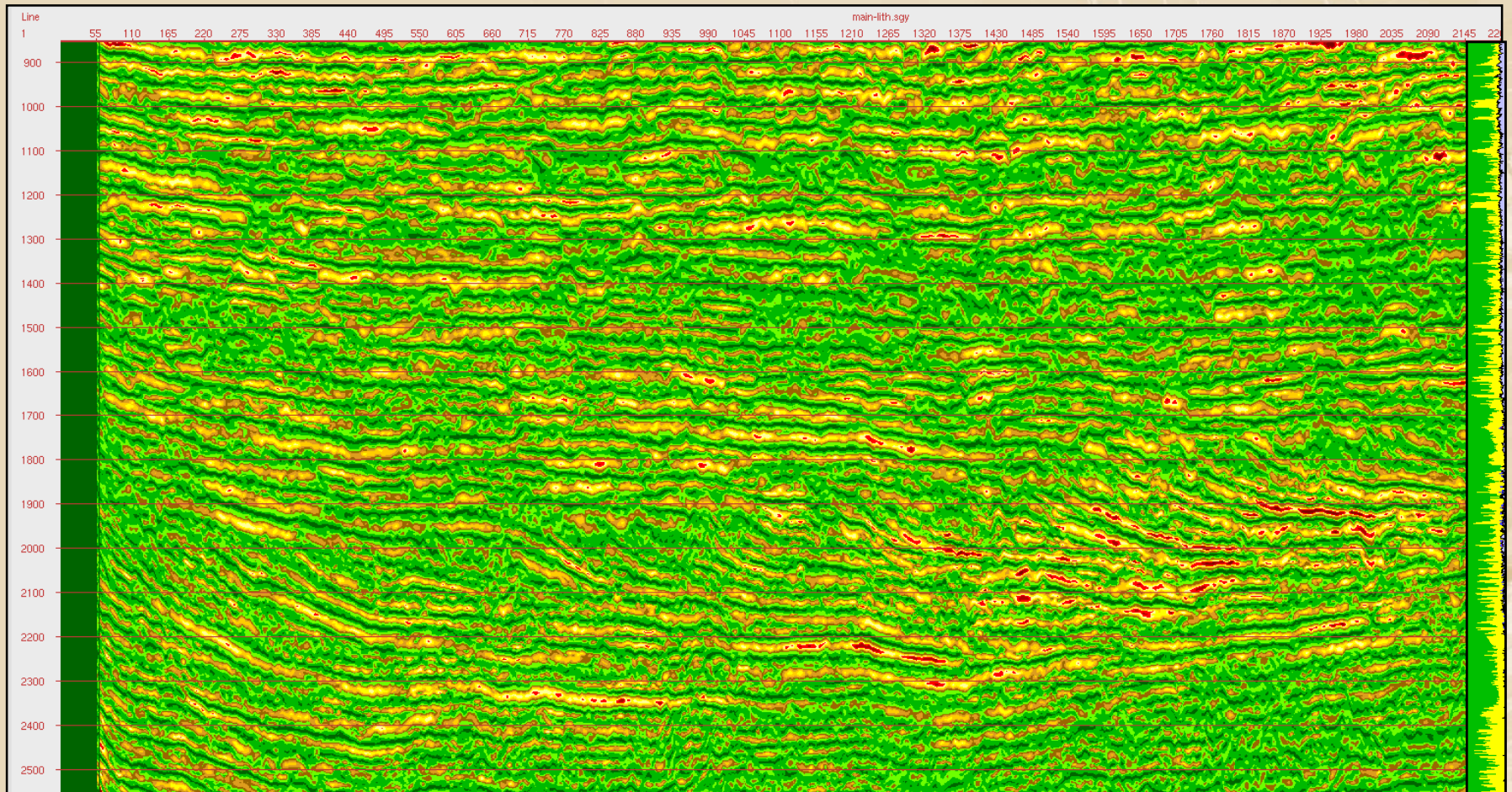






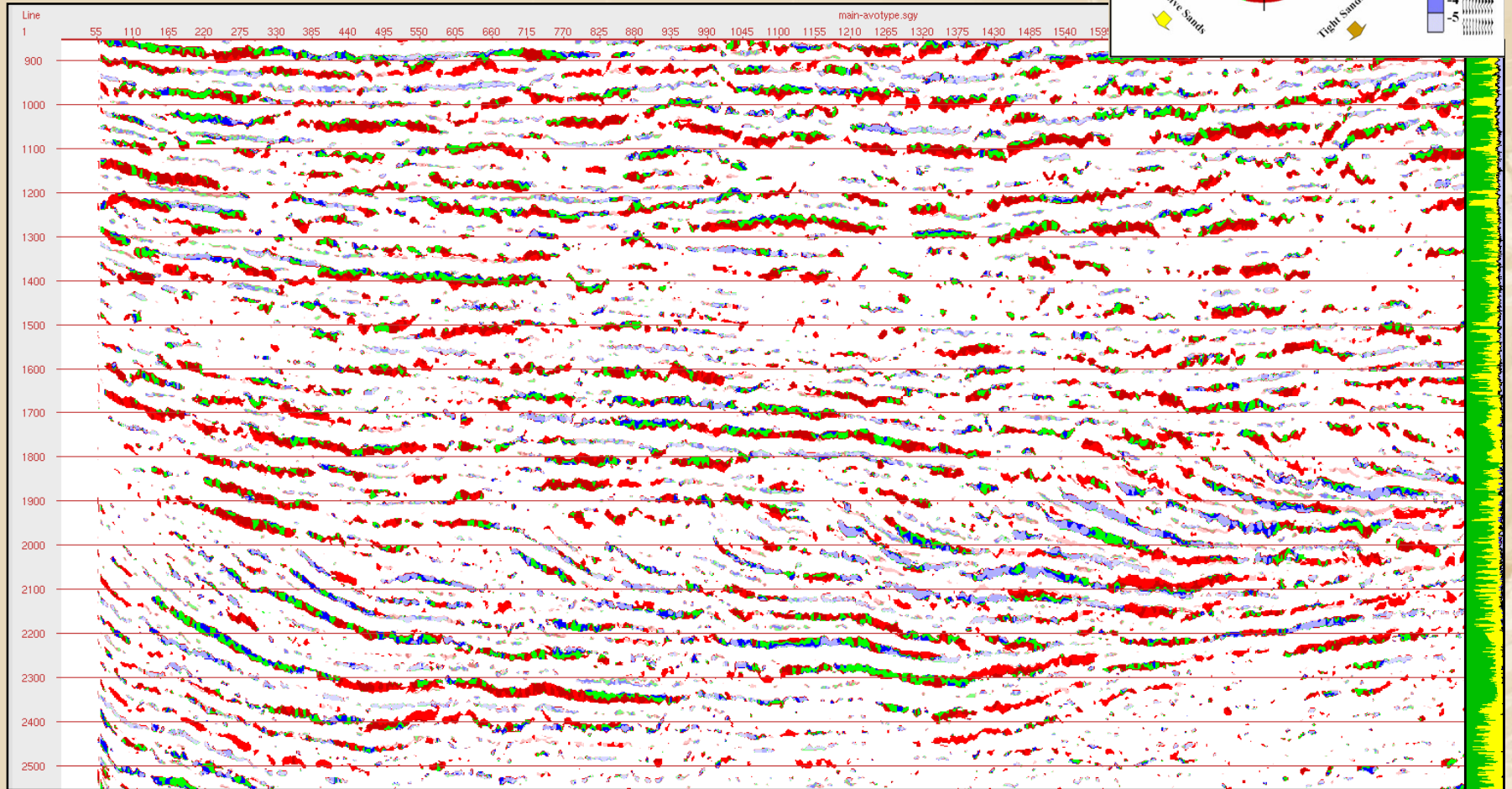
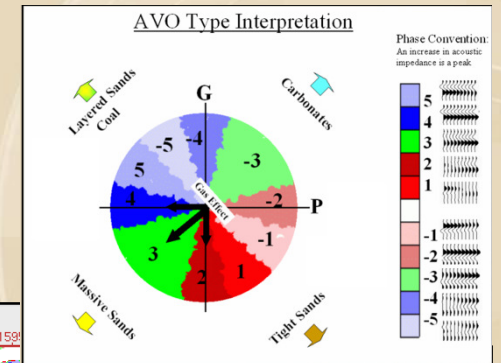
## Spectral AVO Inversion for Lithology

*Results run on the whole line.*





# Spectral AVO Types







# *SAIL* *FAQs*



## Bandlimited Examples

Amplitude Spectra

SAIL 

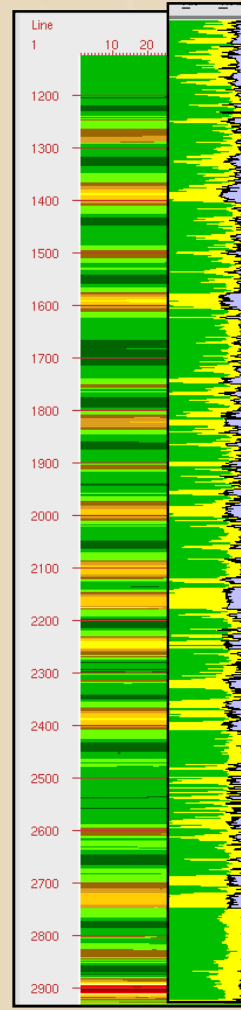
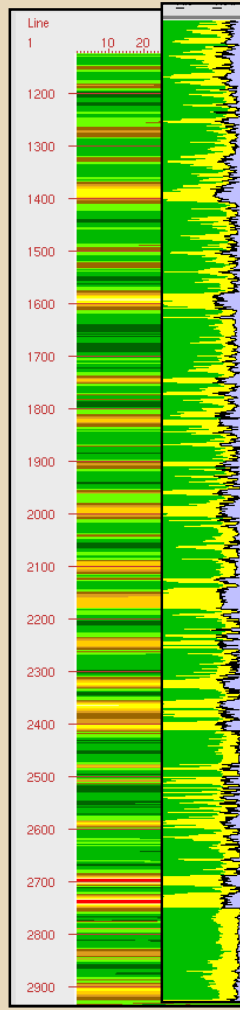
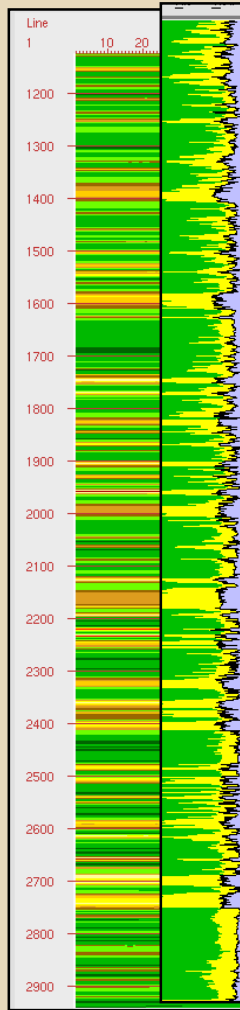
Well Logs 

Stack 

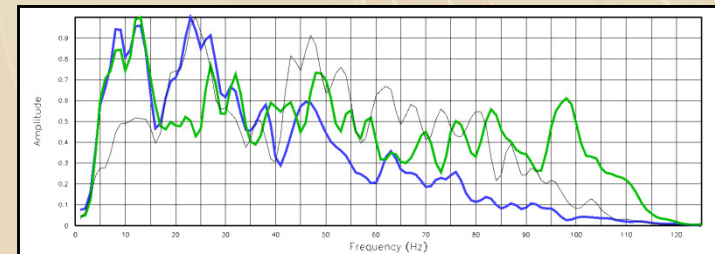
2,3,100,120

4,8,20,50

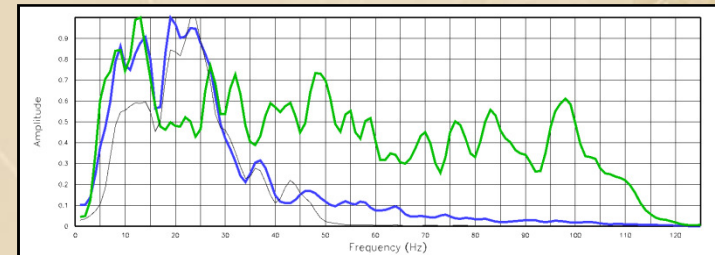
4,8,12,20



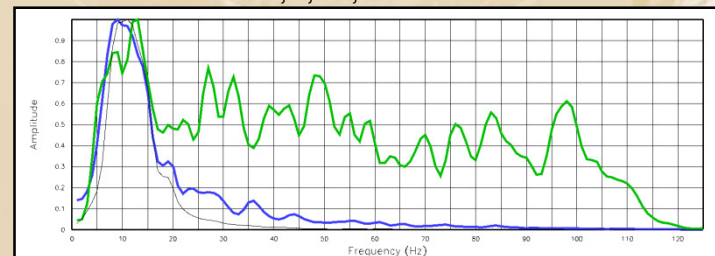
2,3,100,120



4,8,20,50



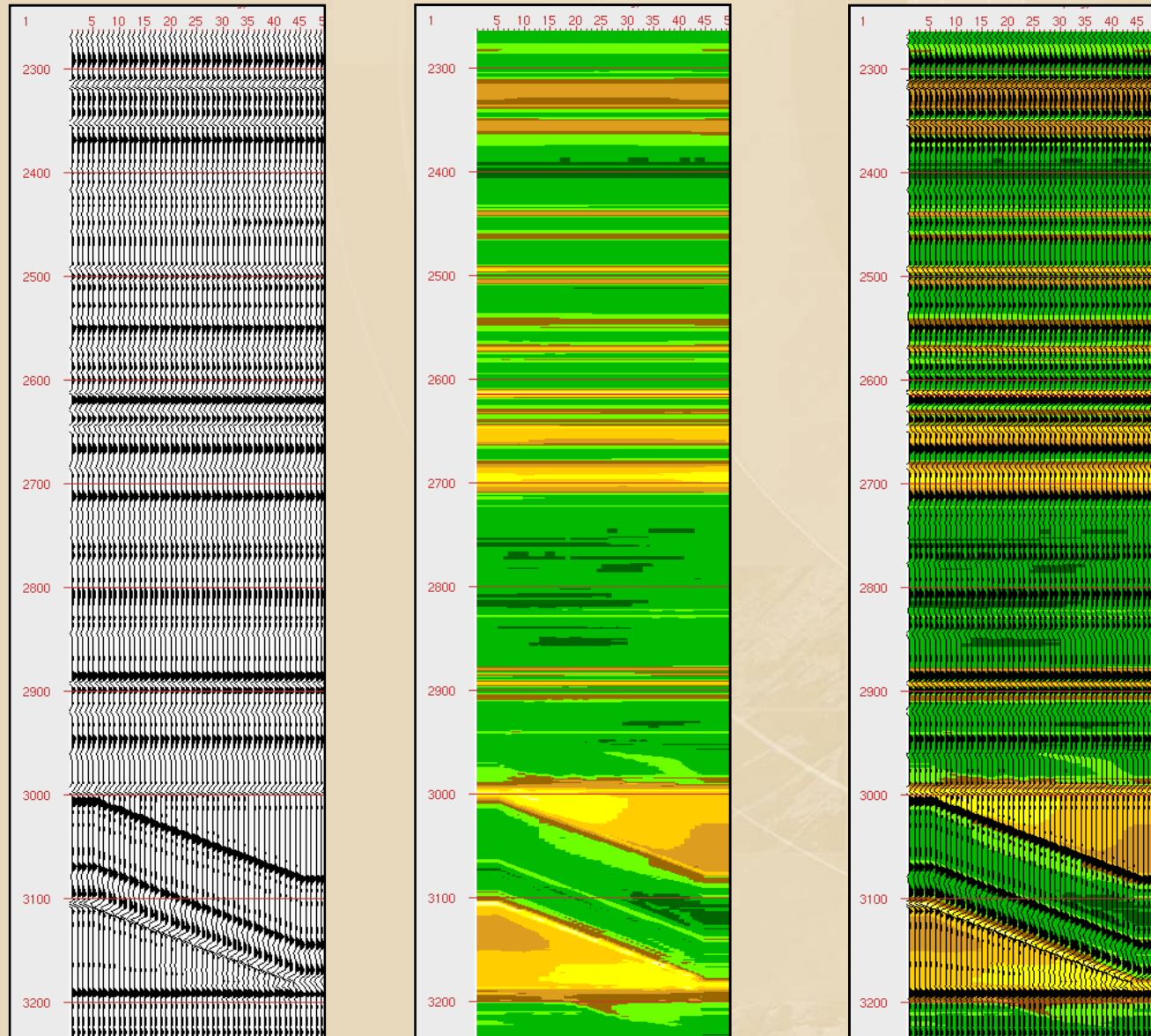
4,8,12,20





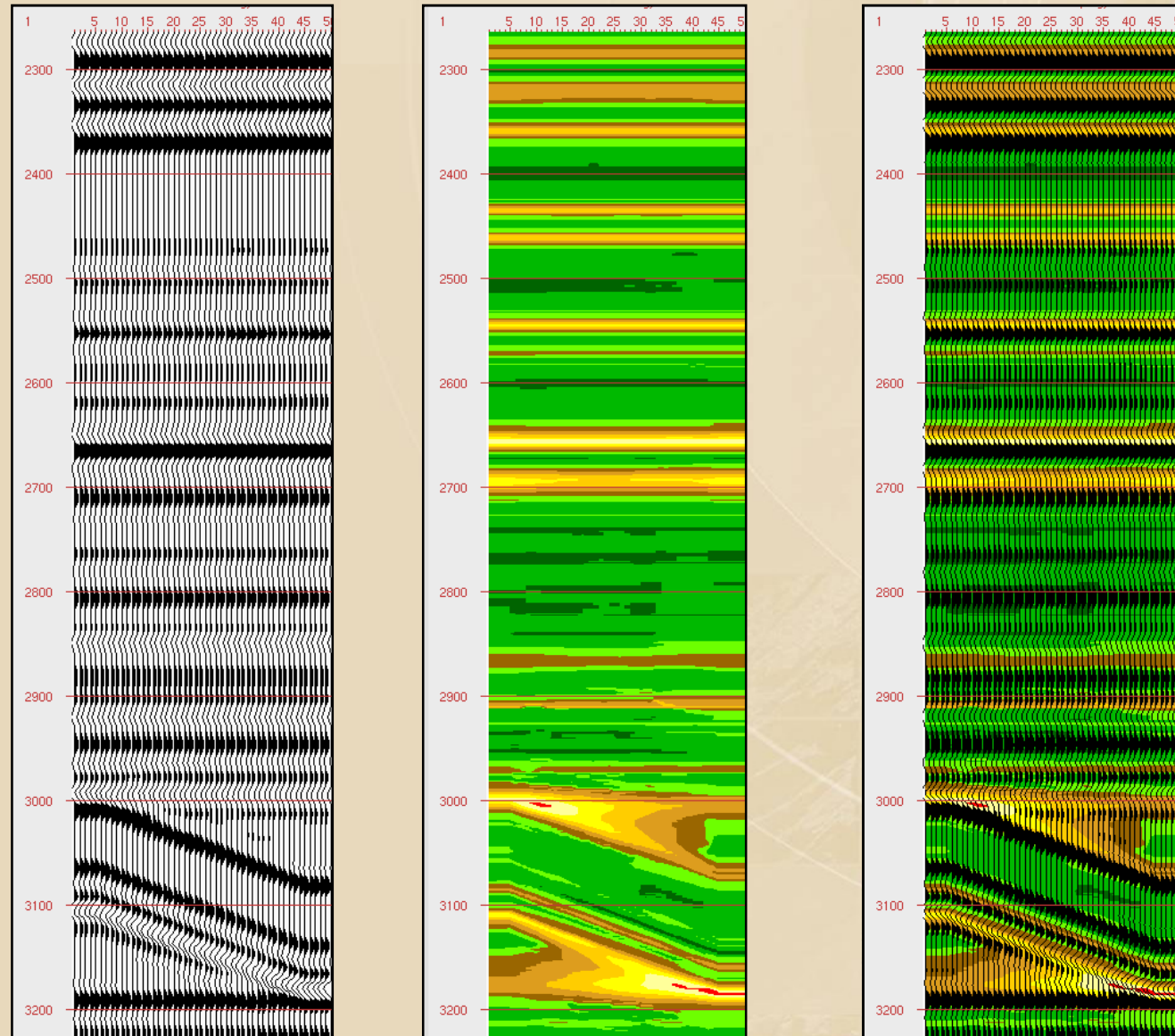


# Wedge Model, Frequency Content 3 – 90 Hz





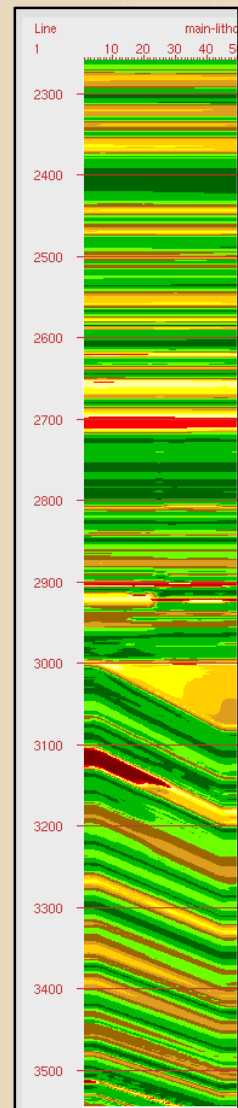
# Wedge Model, Frequency Content 8 – 35 Hz



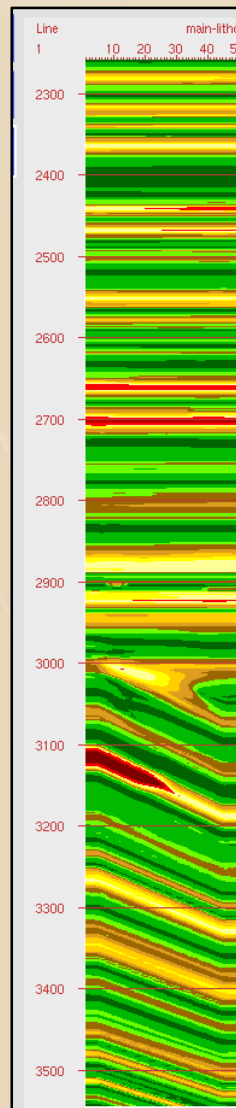


# Wedge Model & Gas Contact

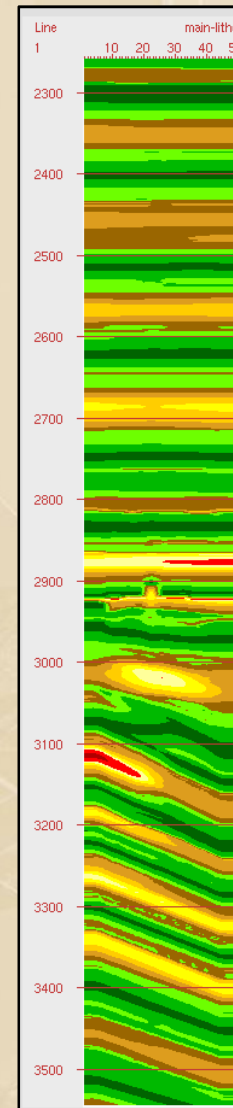
3 to 90 Hz



8 to 40 Hz

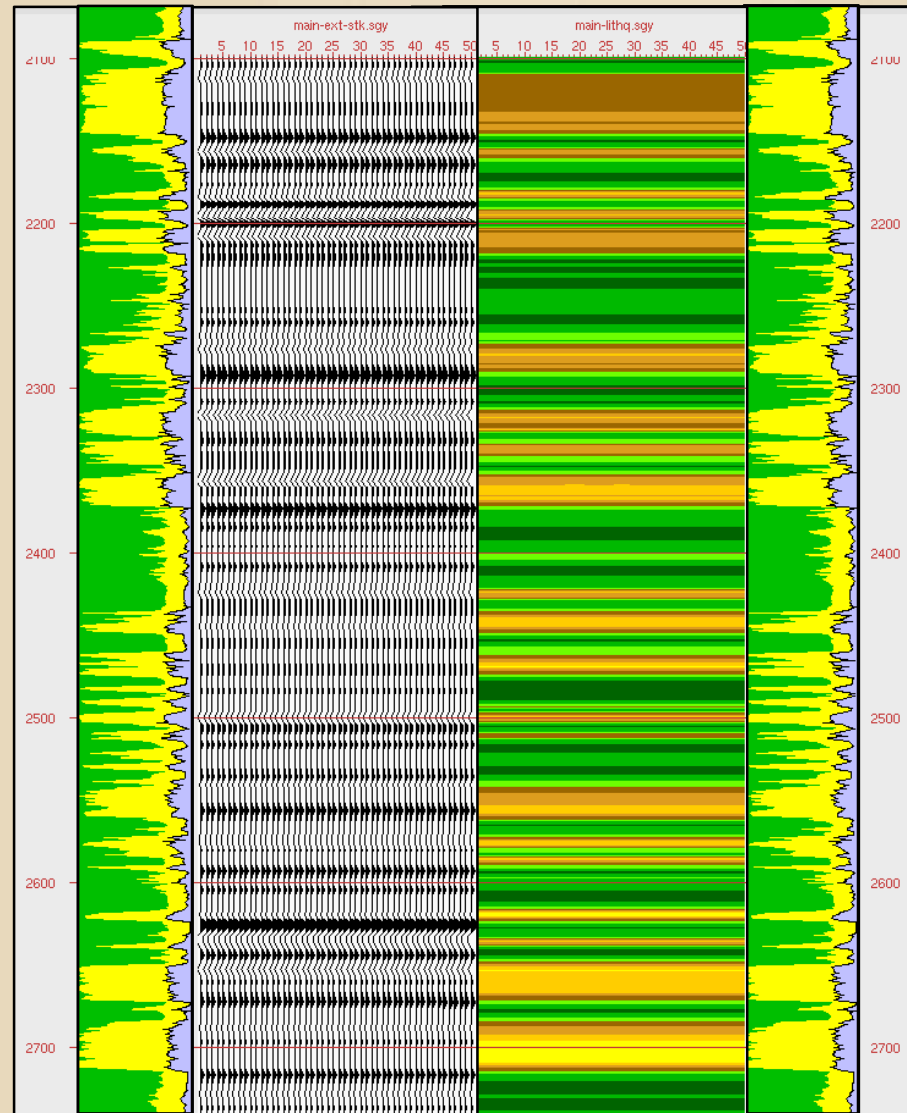


8 to 15 Hz





# SAIL Lithology Model







# Spectral Avo Inversion for Lithology