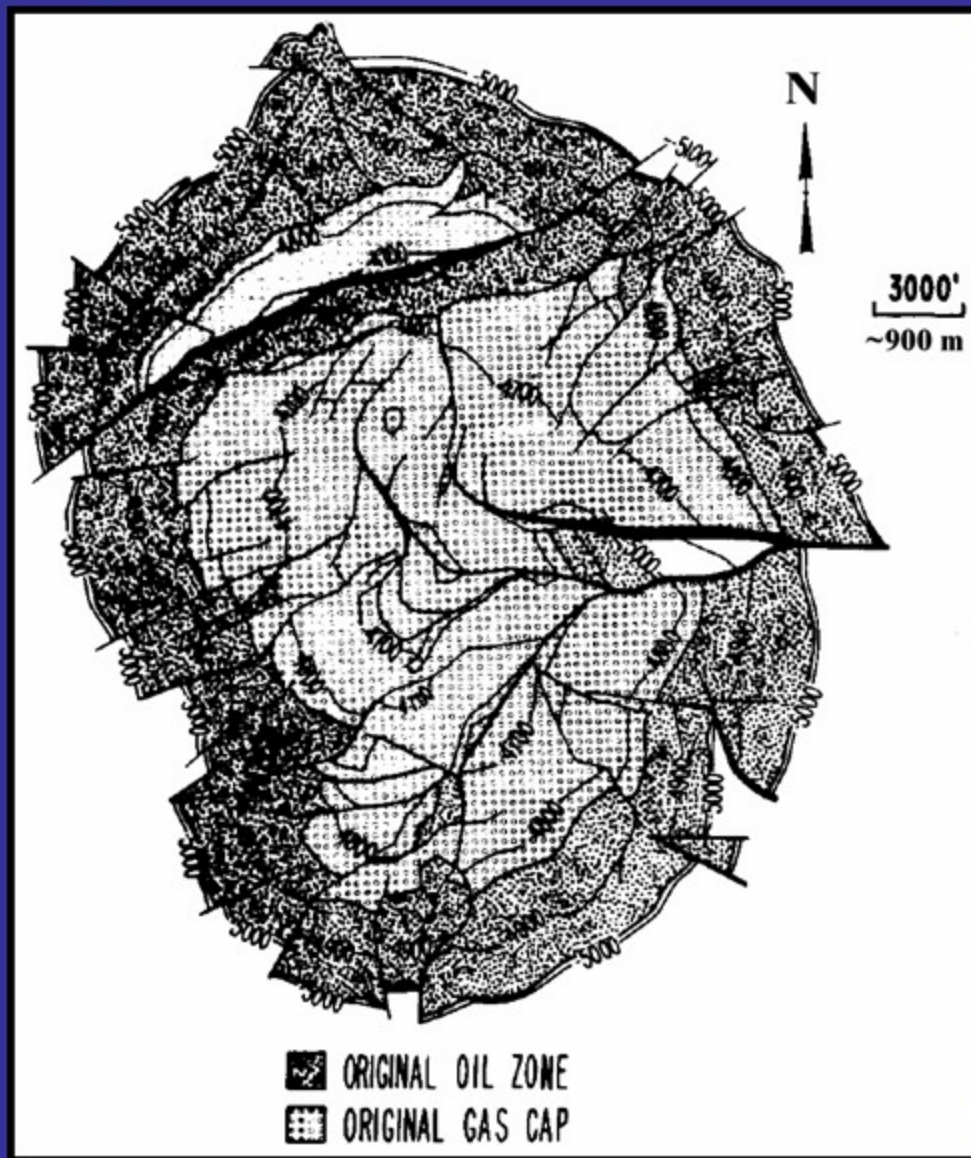


Comparison of three field parameters from a 2D test line, Conroe, Texas

Han-xing Lu, Kevin W. Hall,
Robert R. Stewart and Robert E. Lory*

Map

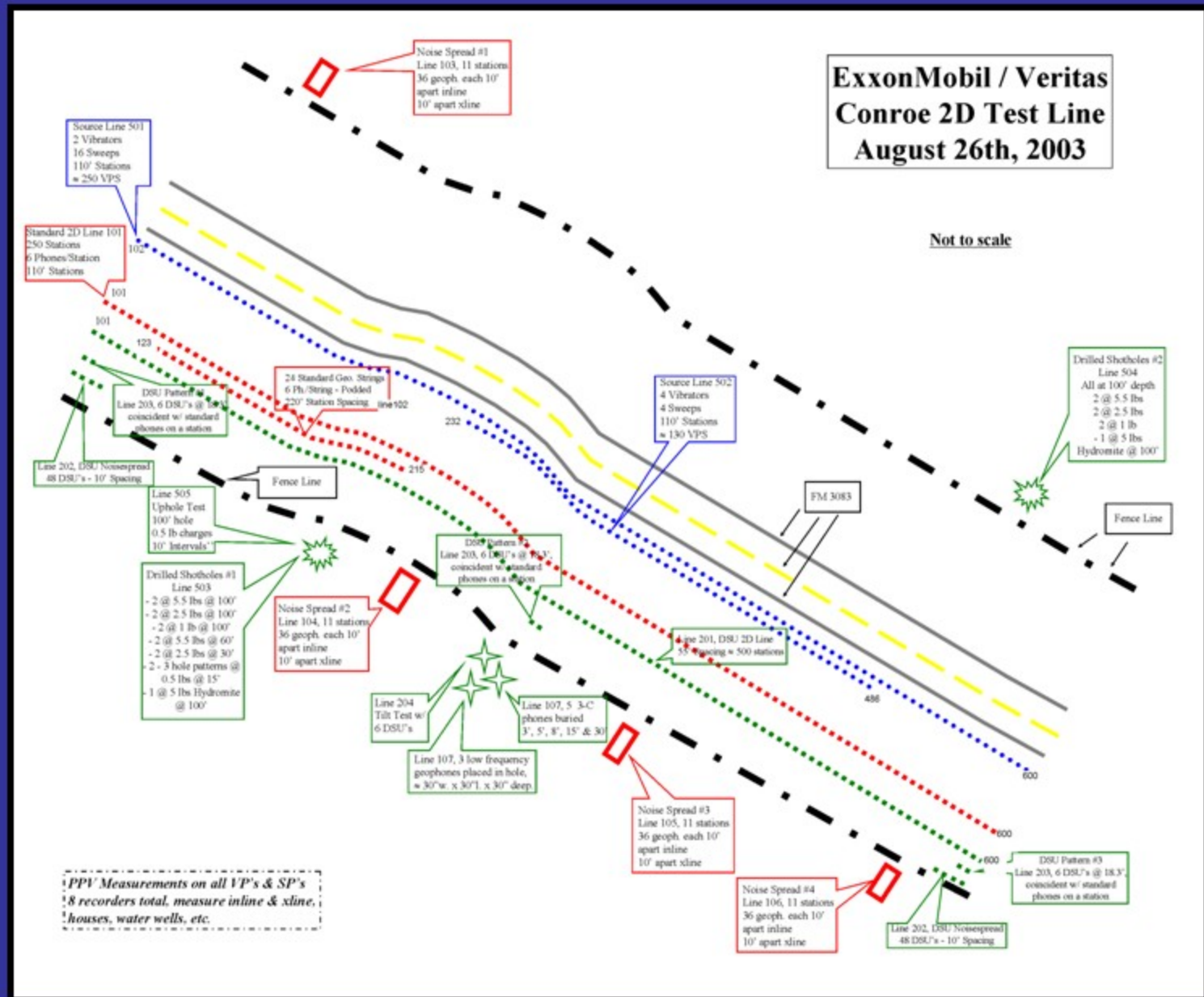


Conroe Field

- ~96 km N of Houston, Texas.

- Complexly faulted 4-way closure, likely salt cored.

Map



Test line

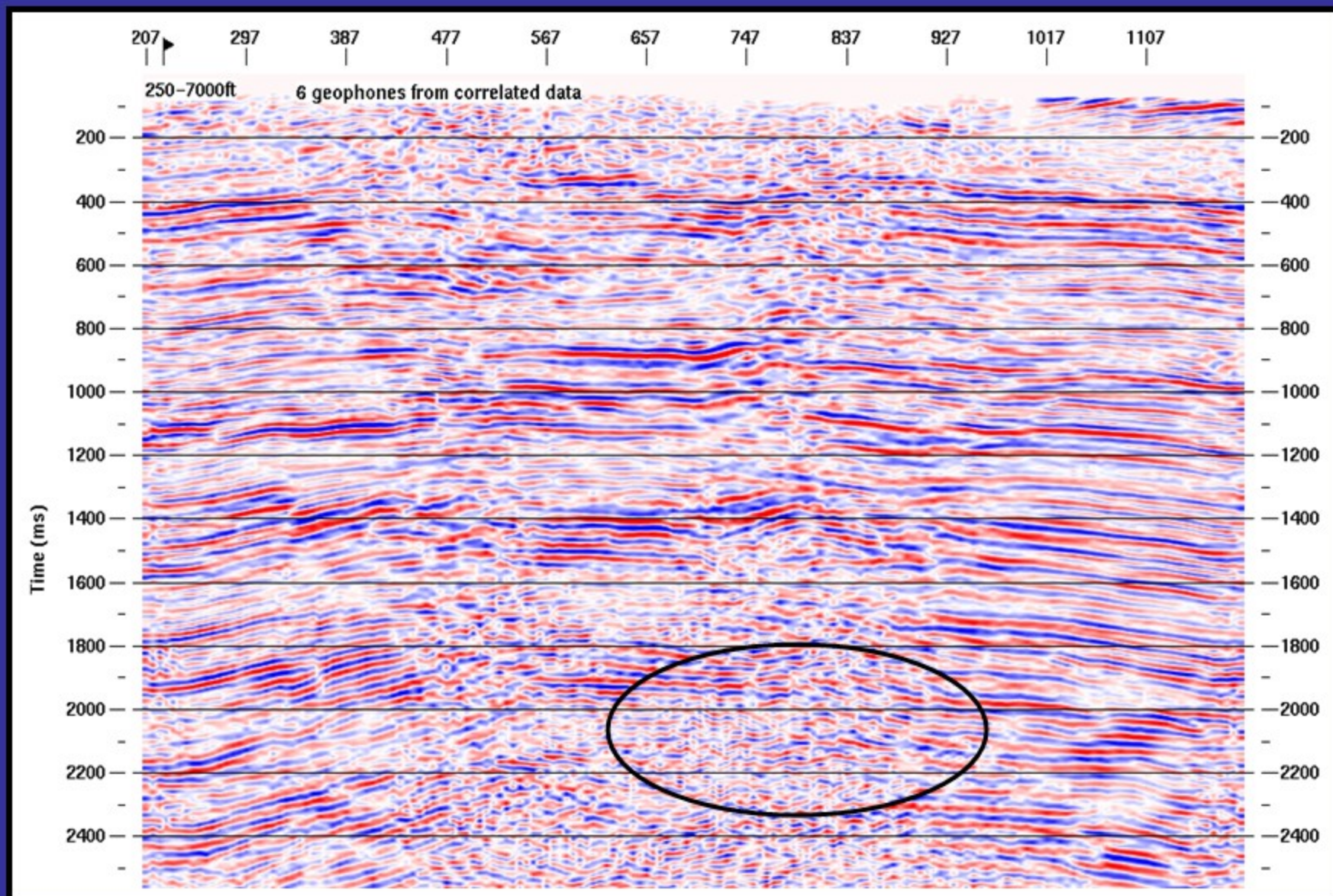
Source and receiver lines

Source line 501	2 Vibes; 16 sweeps per VP; ~33.5 m (110 ft) interval
Source line 502	4 Vibes; 4 sweeps per VP; ~33.5 m (110 ft) interval
Receiver line 101	6-geophones per station; ~33.5 m (110 ft) interval
Receiver line 201	1 Sercel DSU per station; ~16.8 m (55 ft) interval

Initial *PP* results

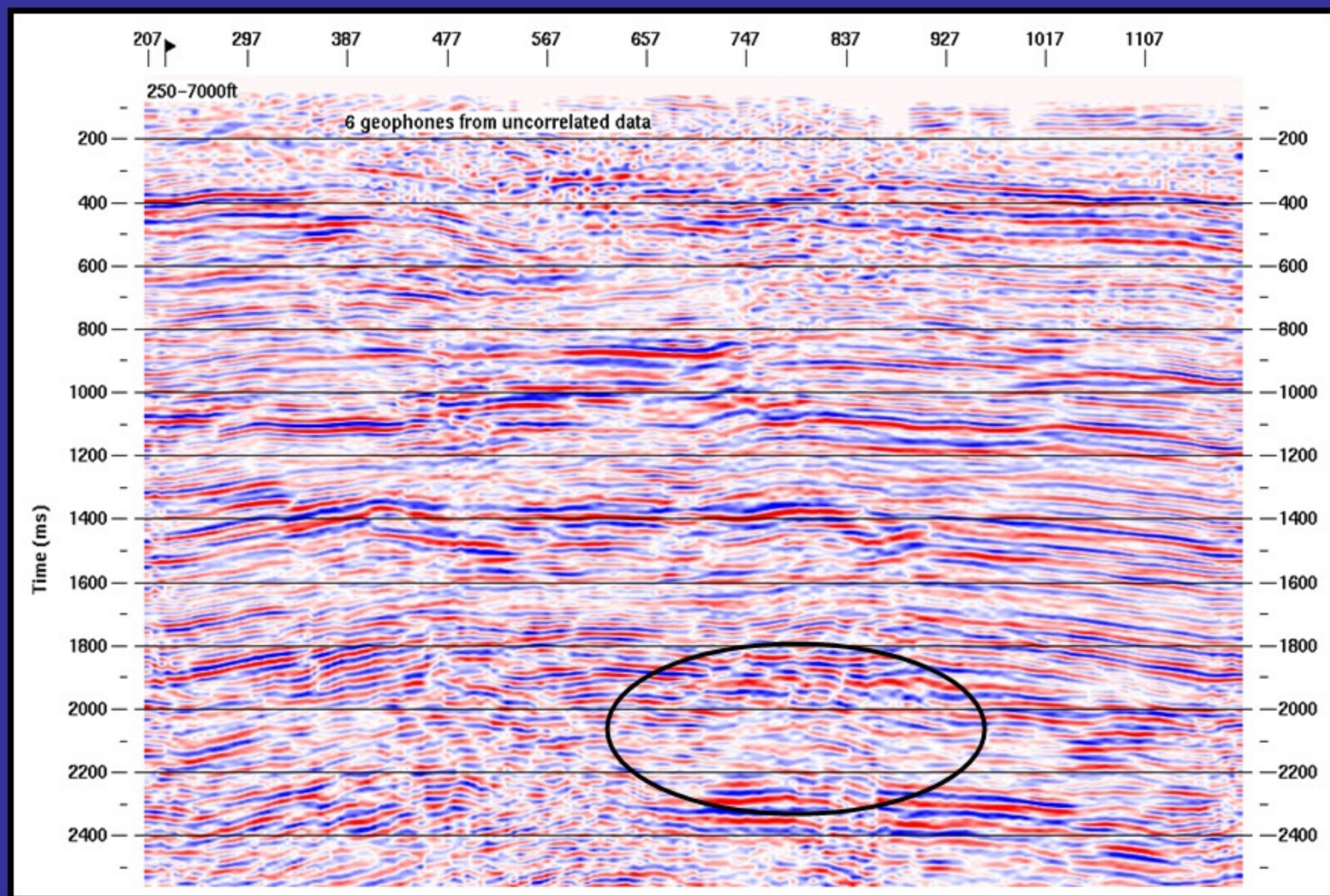
- Effect of vertical stacking methods
- Effect of receiver arrays
- Effect of source arrays

Effect of vertical stacking methods



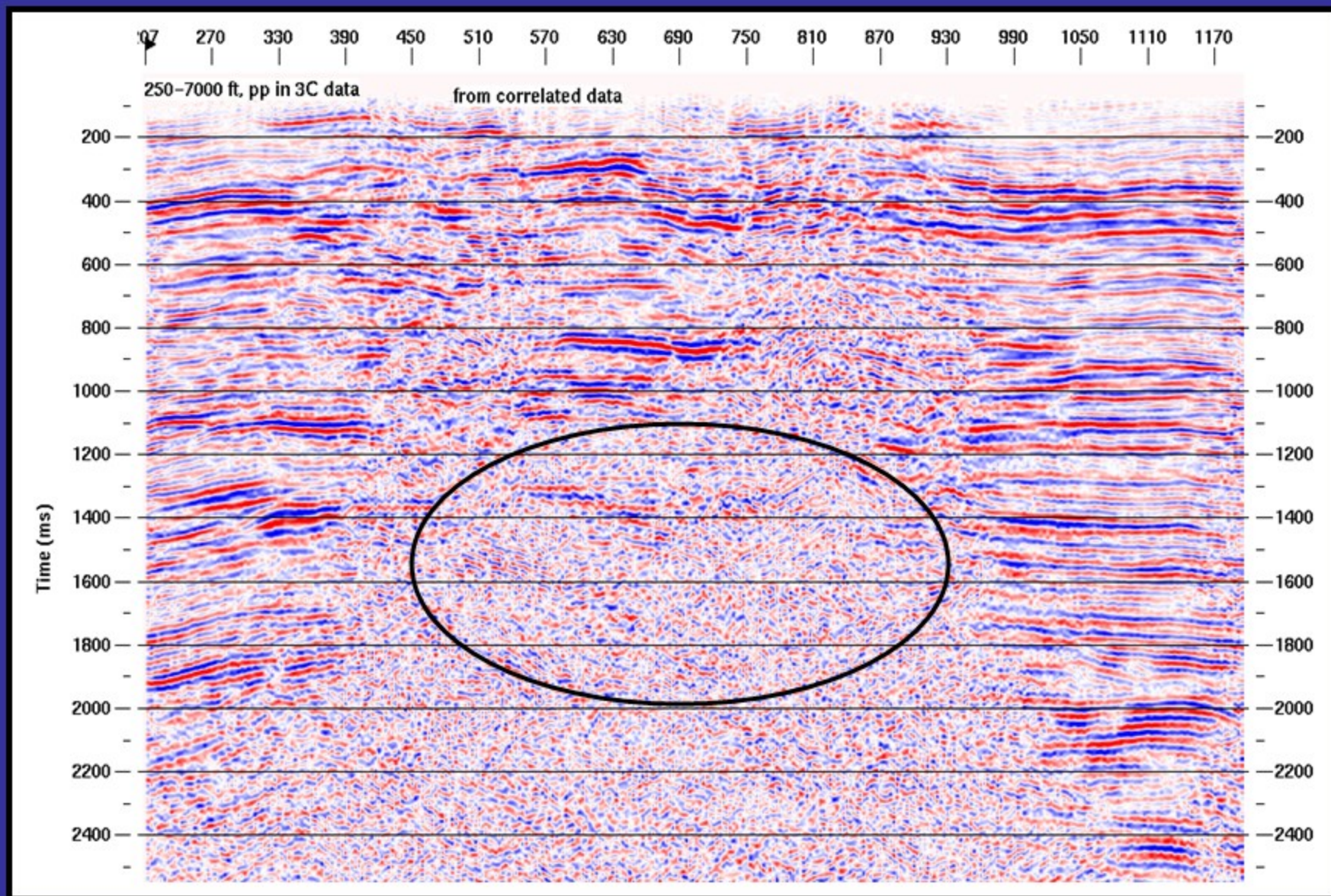
Source line 501 and receiver line 101, mean stack

Effect of vertical stacking methods



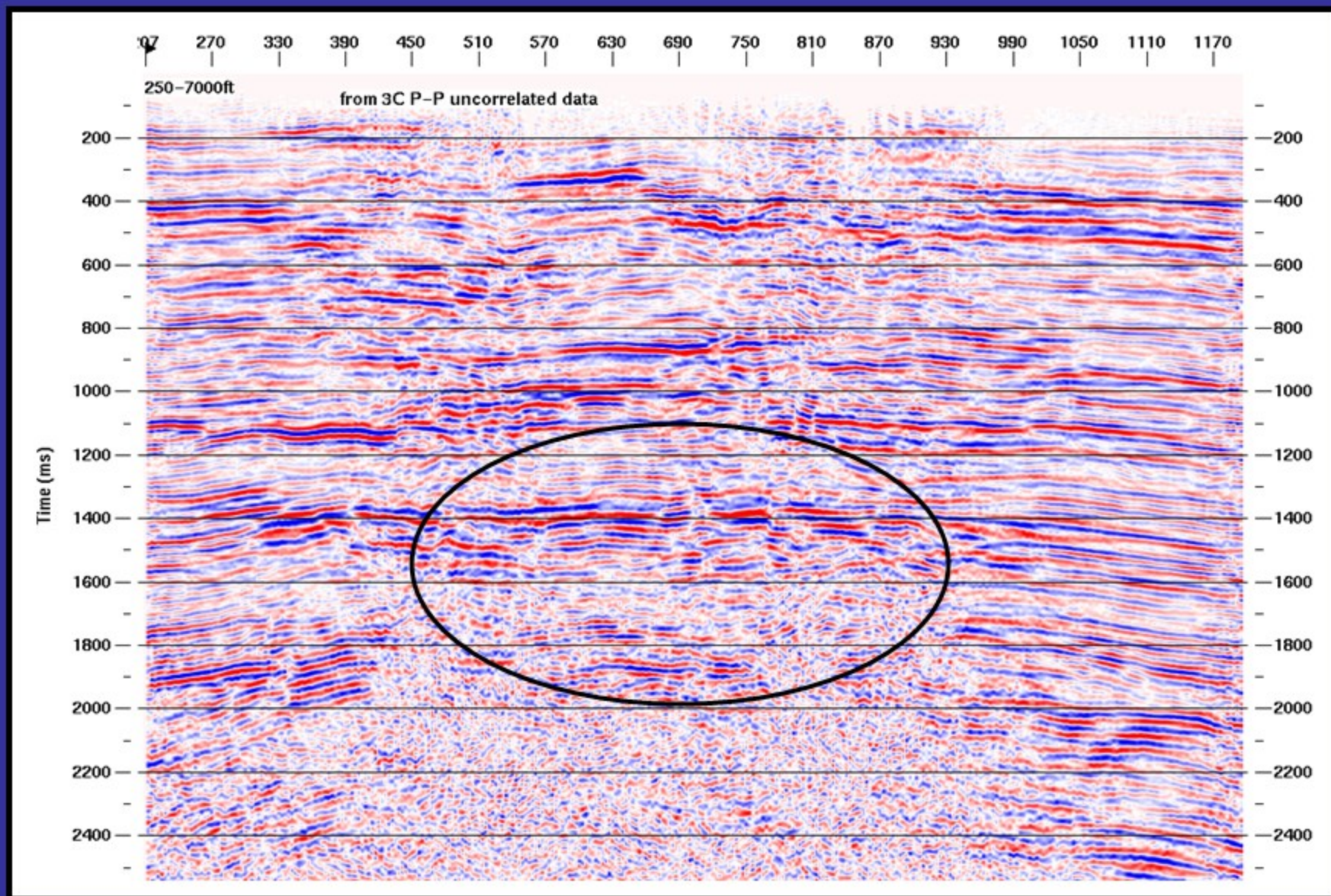
Source line 501 and receiver line 101, diversity stack

Effect of vertical stacking methods



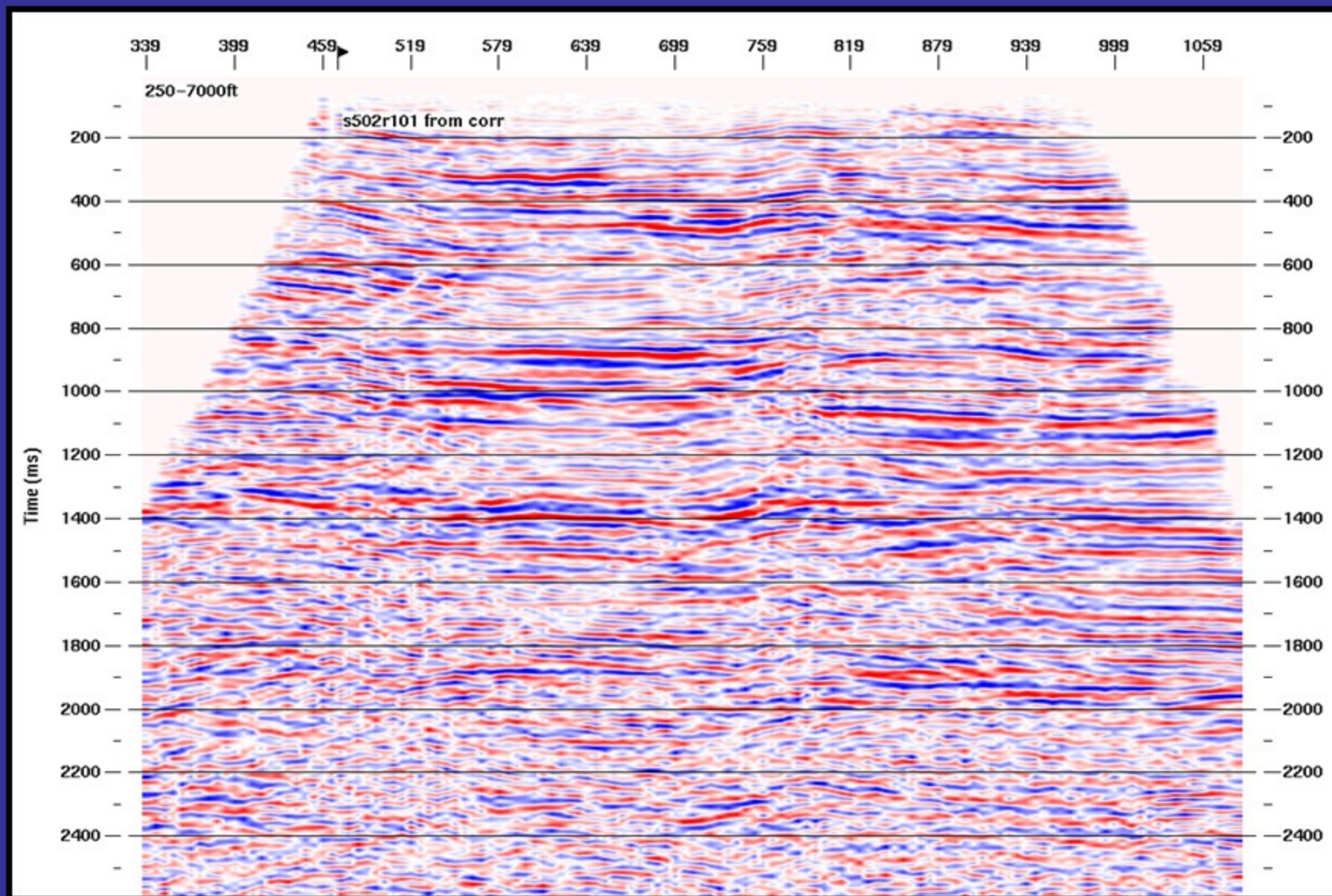
Source line 501 and receiver line 201, mean stack

Effect of vertical stacking methods



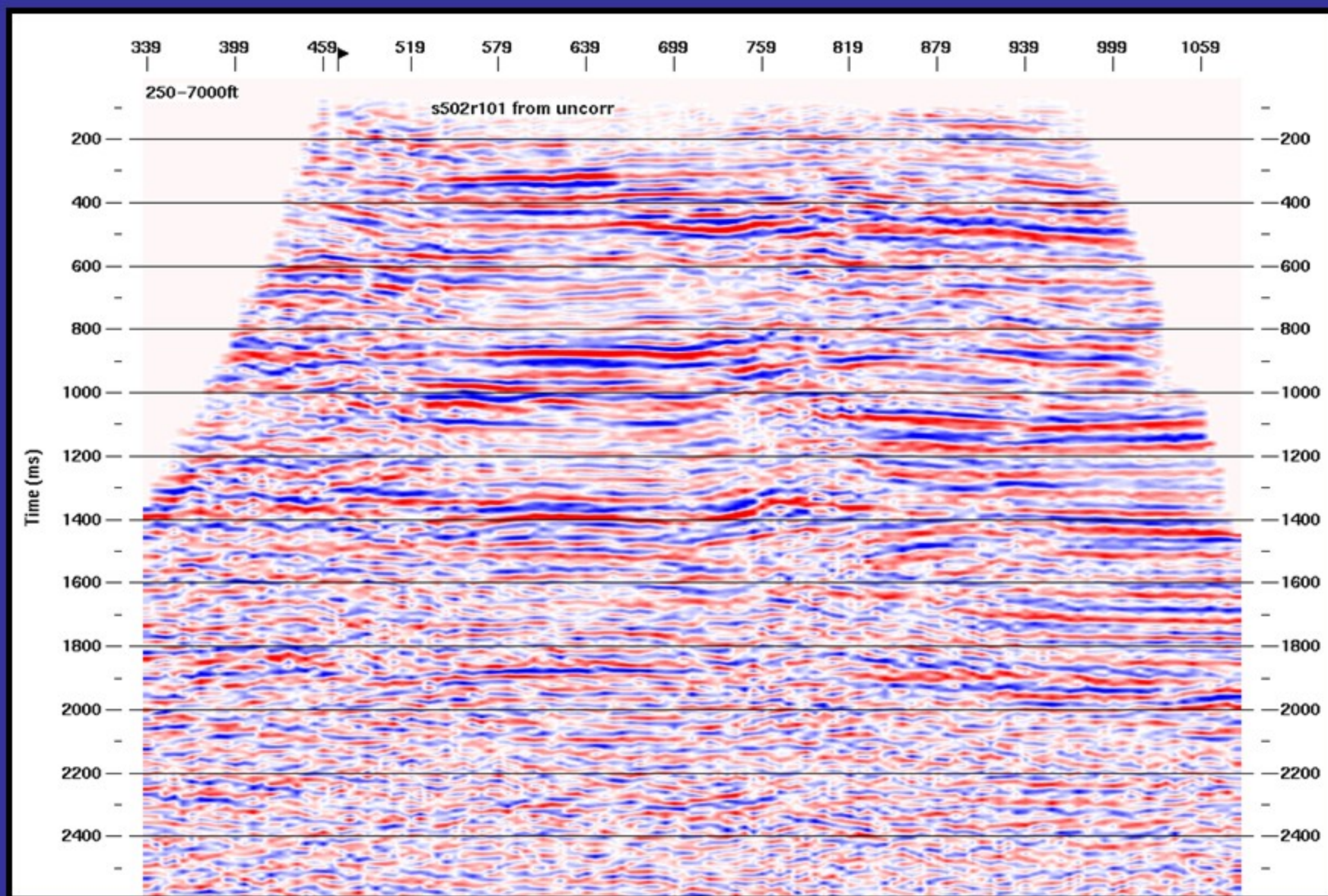
Source line 501 and receiver line 201, diversity stack

Effect of vertical stacking methods



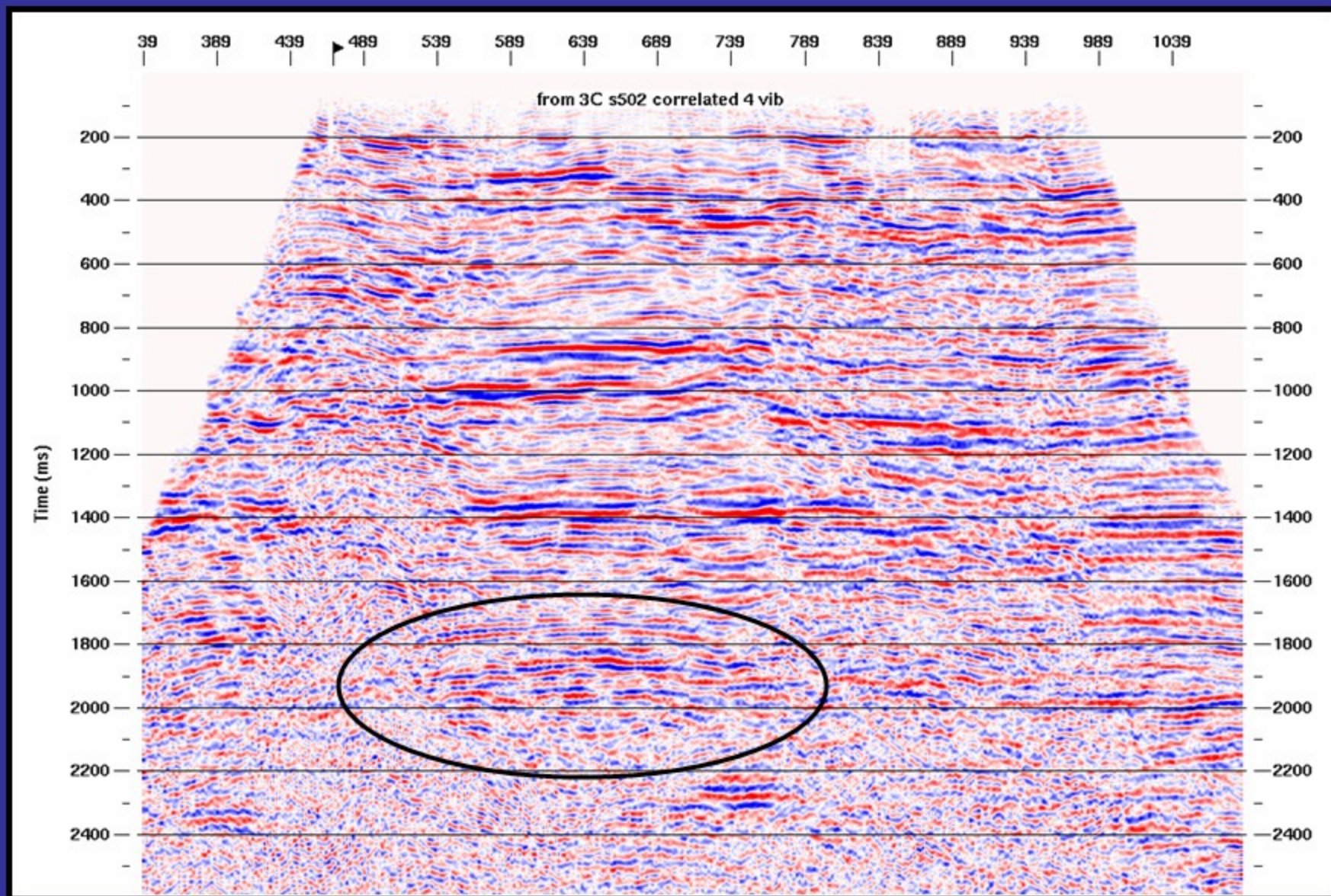
Source line 502 and receiver line 101, mean stack

Effect of vertical stacking methods



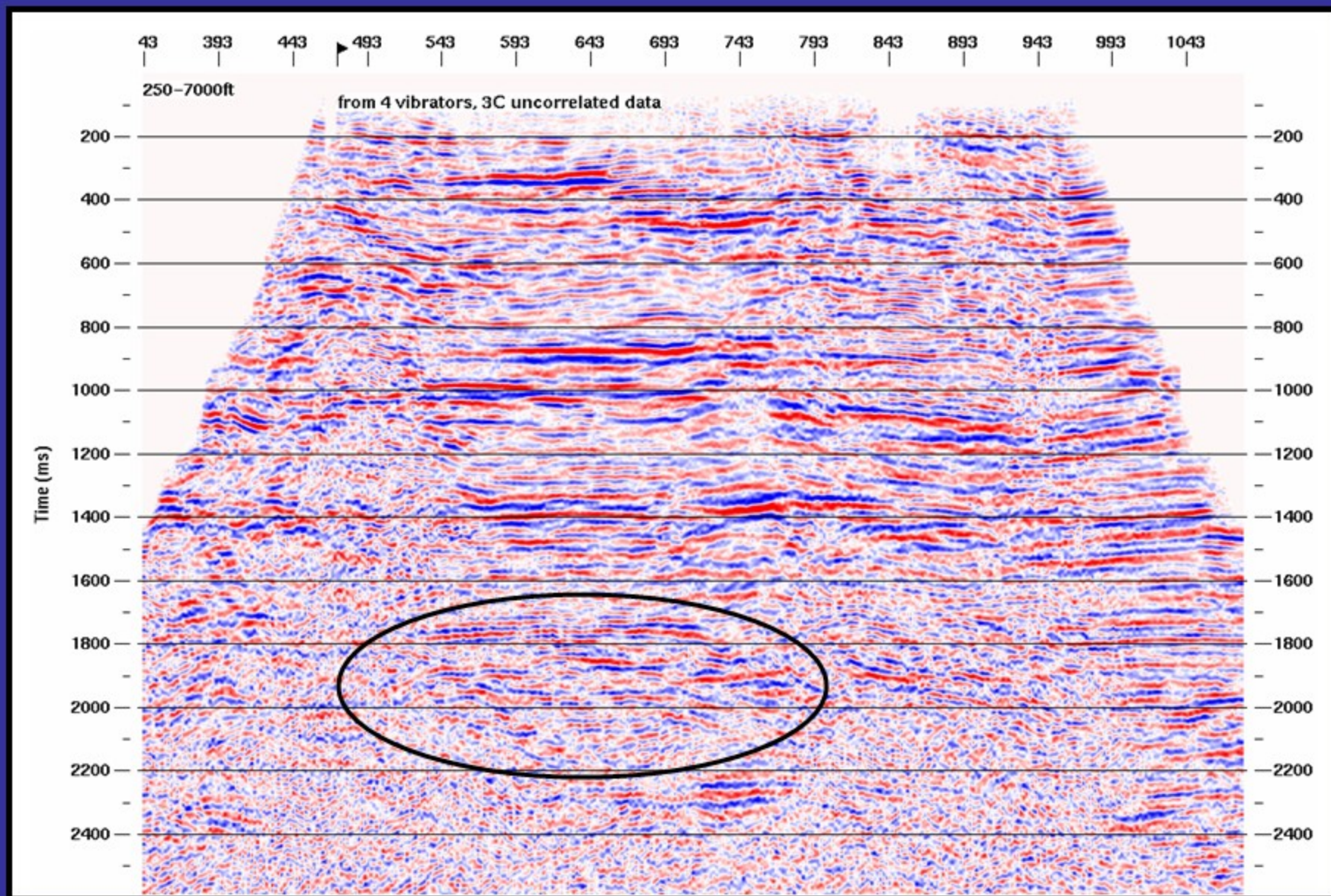
Source line 502 and receiver line 101, diversity stack

Effect of vertical stacking methods



Source line 502 and receiver line 201, mean stack

Effect of vertical stacking methods

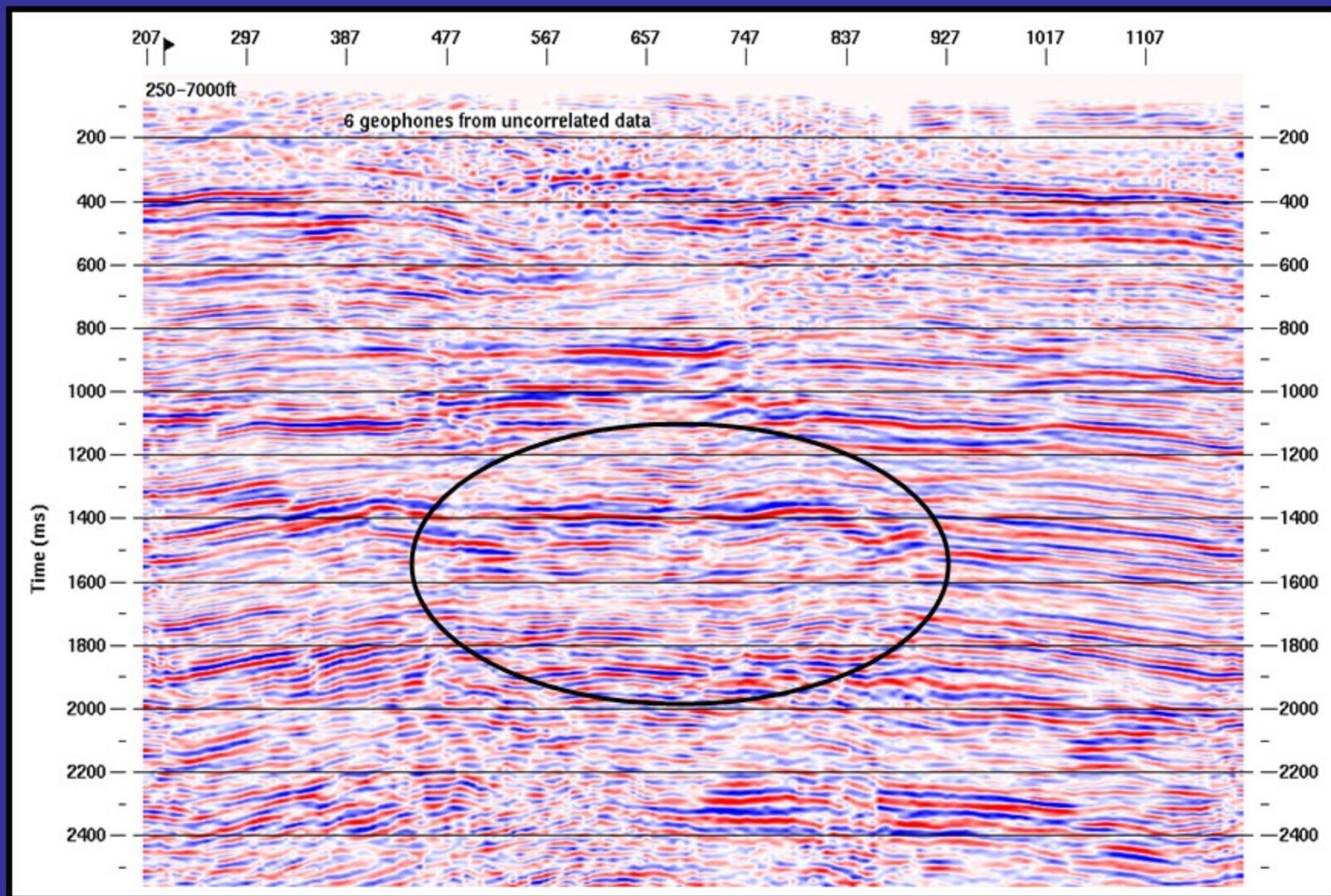


Source line 502 and receiver line 201, diversity stack

Initial PP results

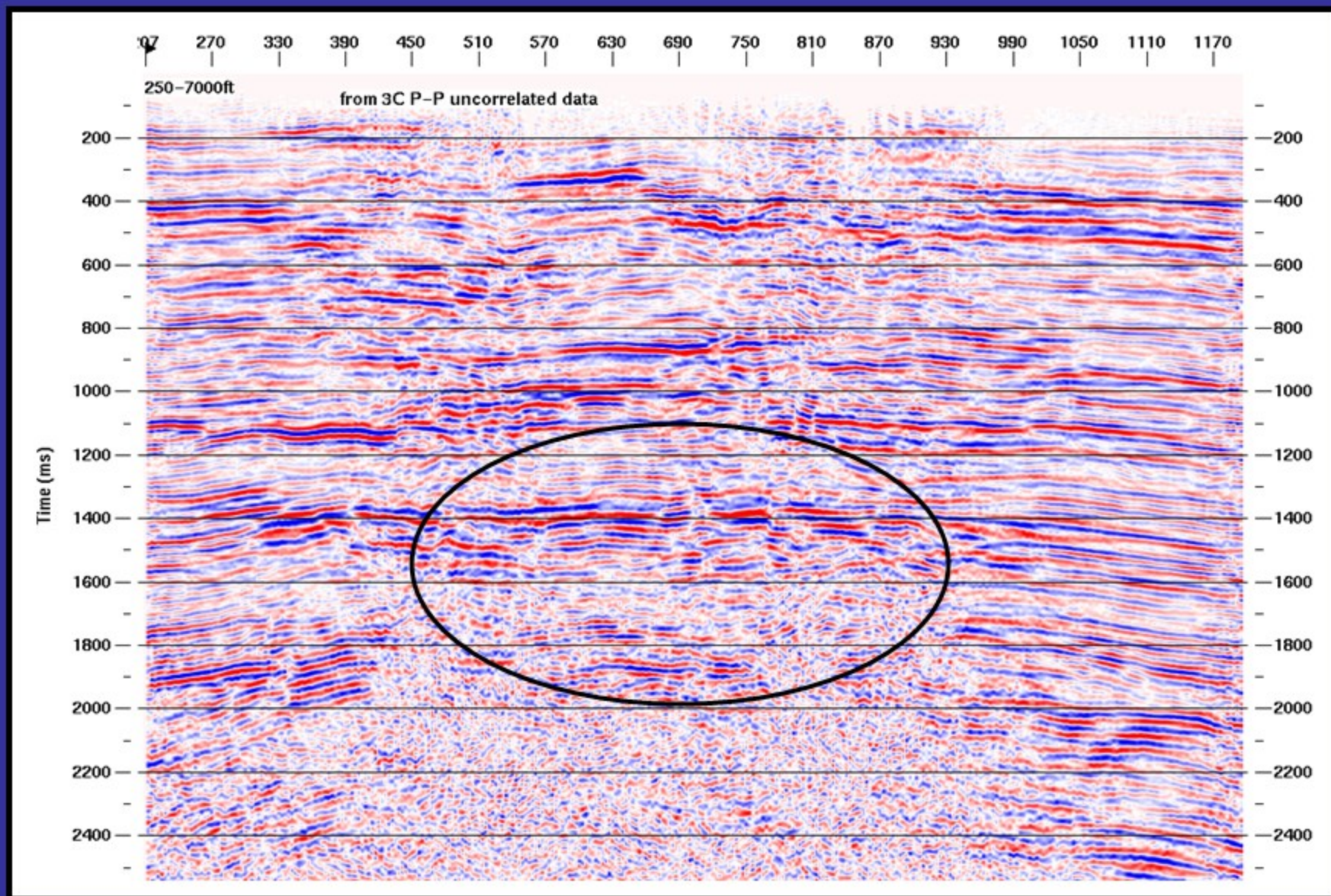
- Effect of vertical stacking methods
- Effect of receiver arrays
- Effect of source arrays

Effect of receiver arrays



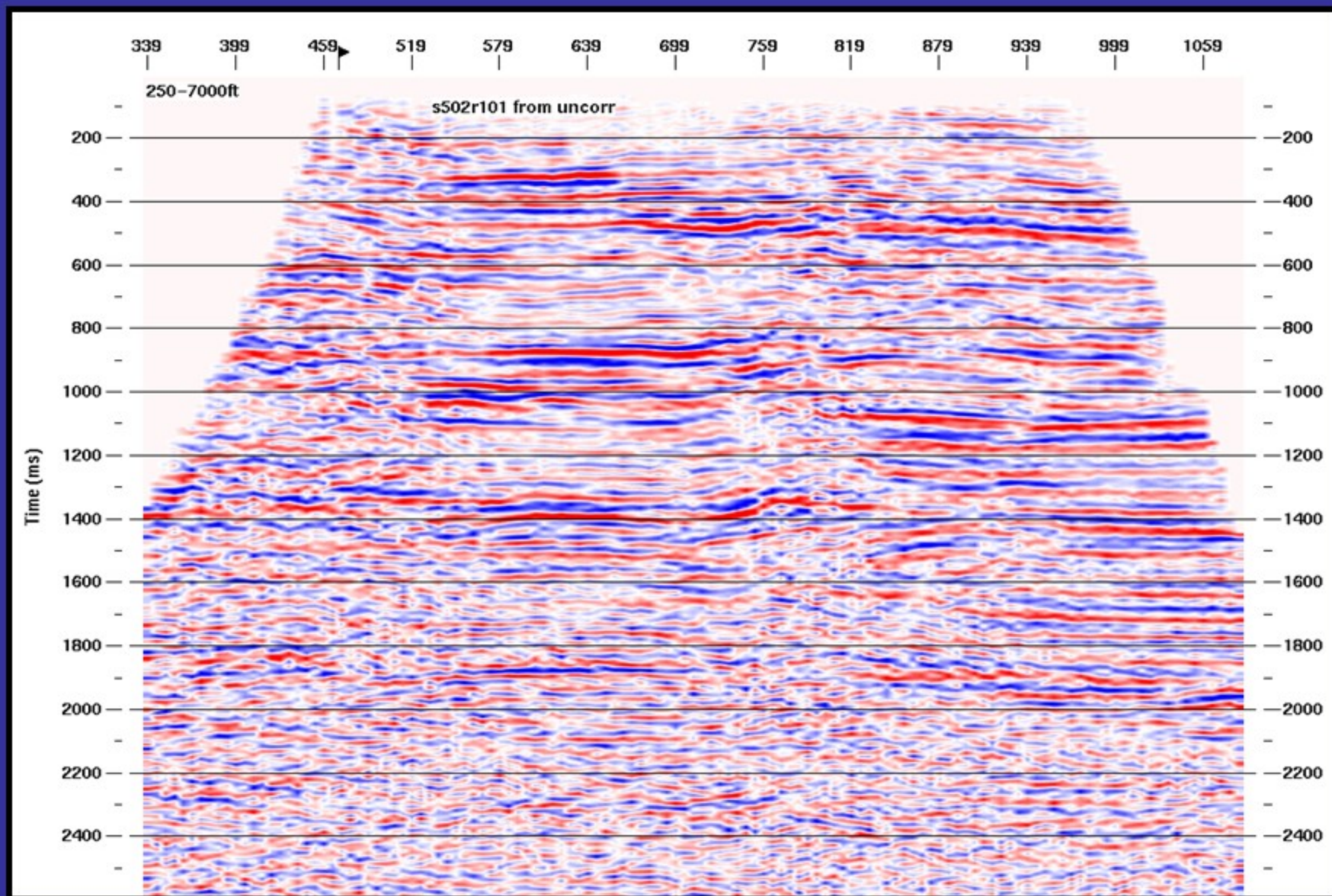
Source line 501 and receiver line 101, diversity stack

Effect of receiver arrays



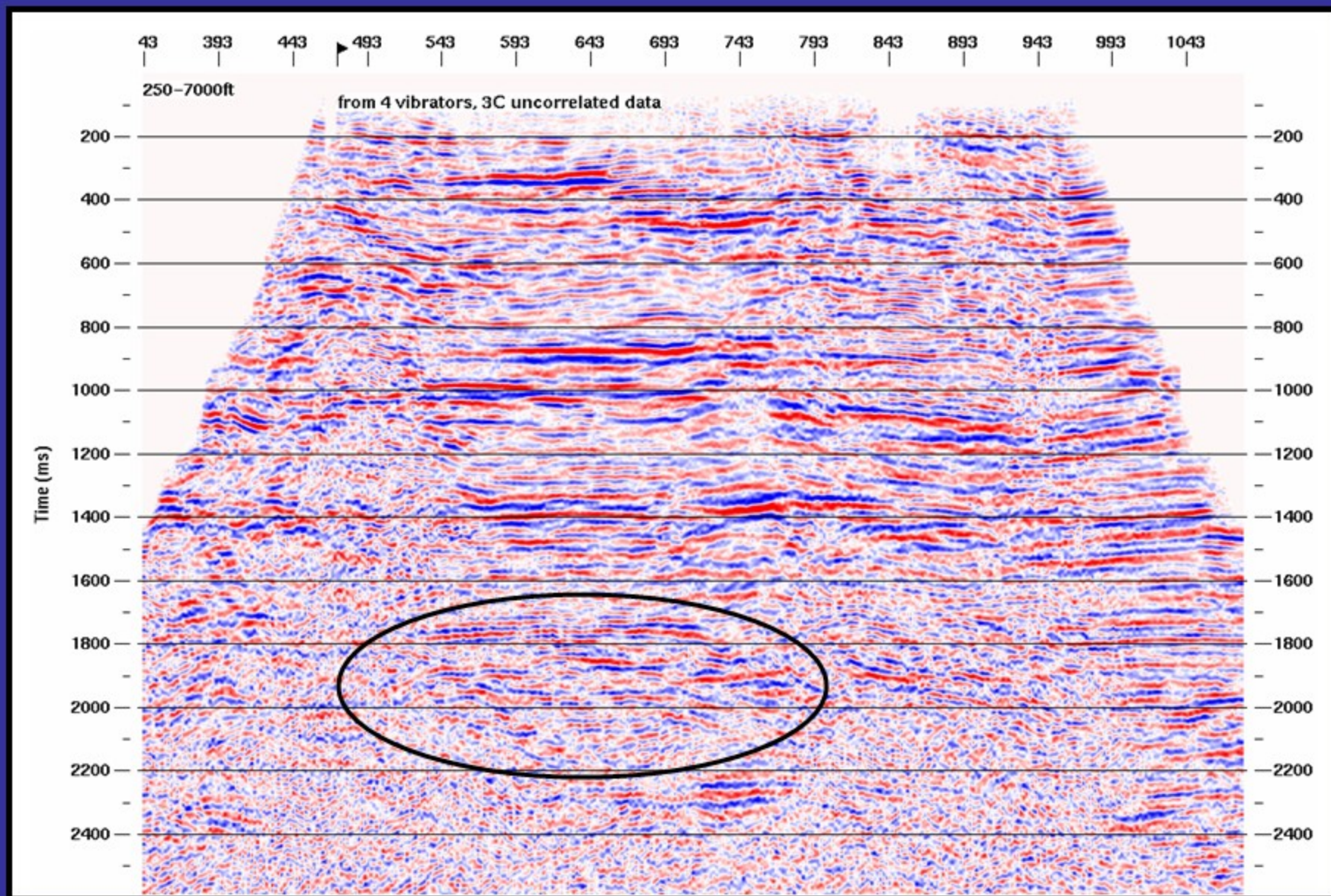
Source line 501 and receiver line 201, diversity stack

Effect of receiver arrays



Source line 502 and receiver line 101, diversity stack

Effect of receiver arrays

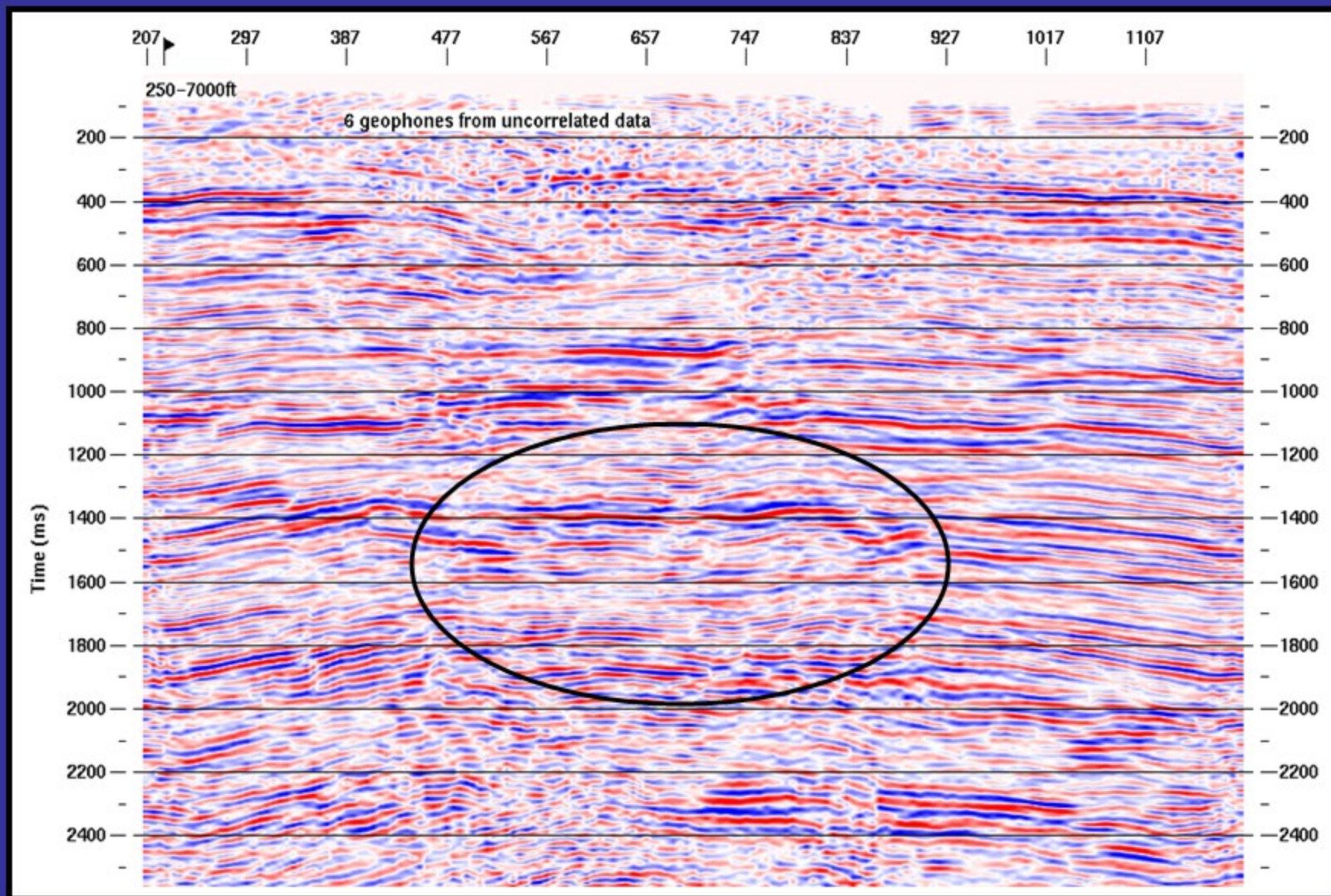


Source line 502 and receiver line 201, diversity stack

Initial *PP* results

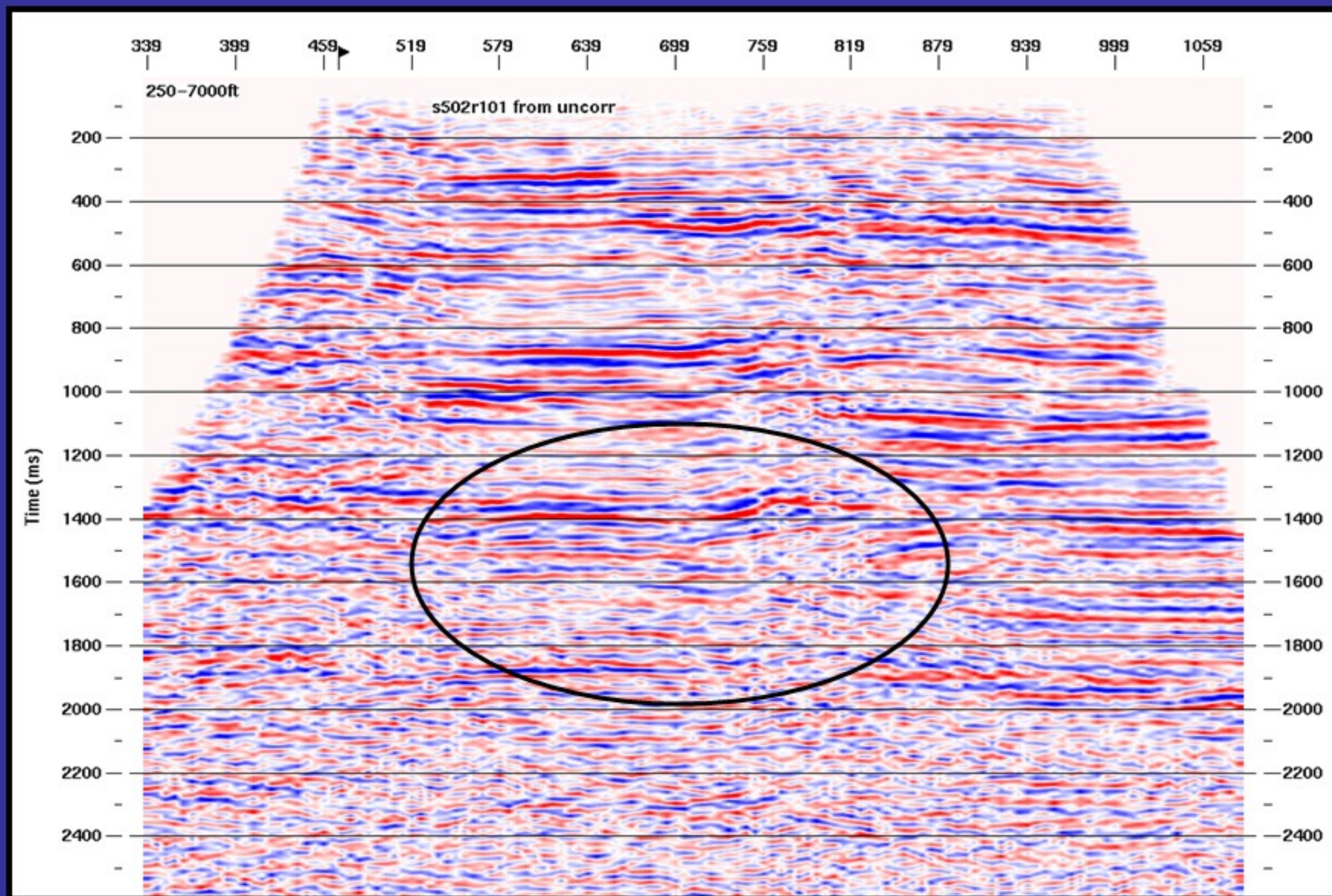
- Effect of vertical stacking methods
- Effect of receiver arrays
- Effect of source arrays

Effect of source arrays



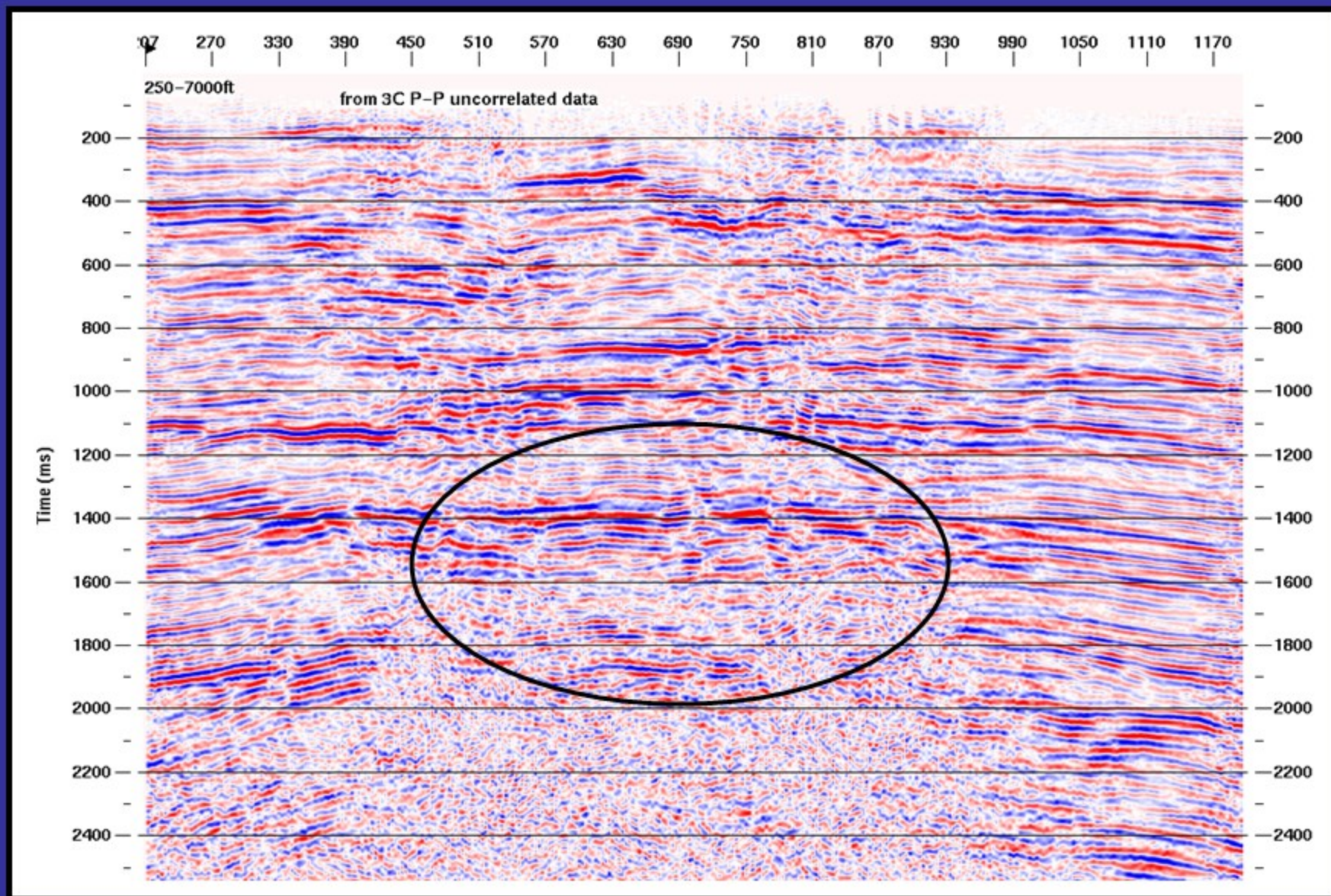
Source line 501 and receiver line 101, diversity stack

Effect of source arrays



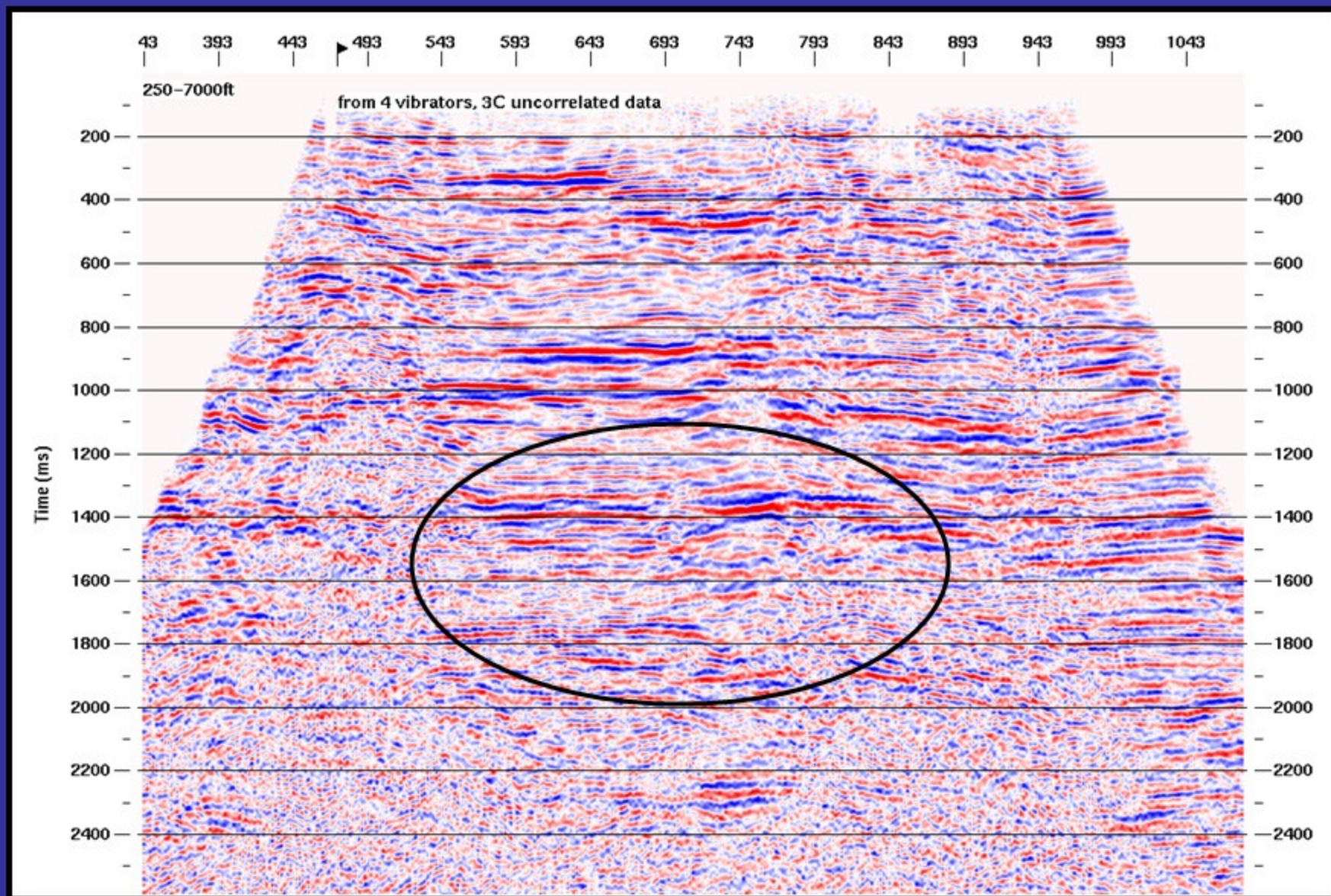
Source line 502 and receiver line 101, diversity stack

Effect of source arrays



Source line 501 and receiver line 201, diversity stack

Effect of source arrays

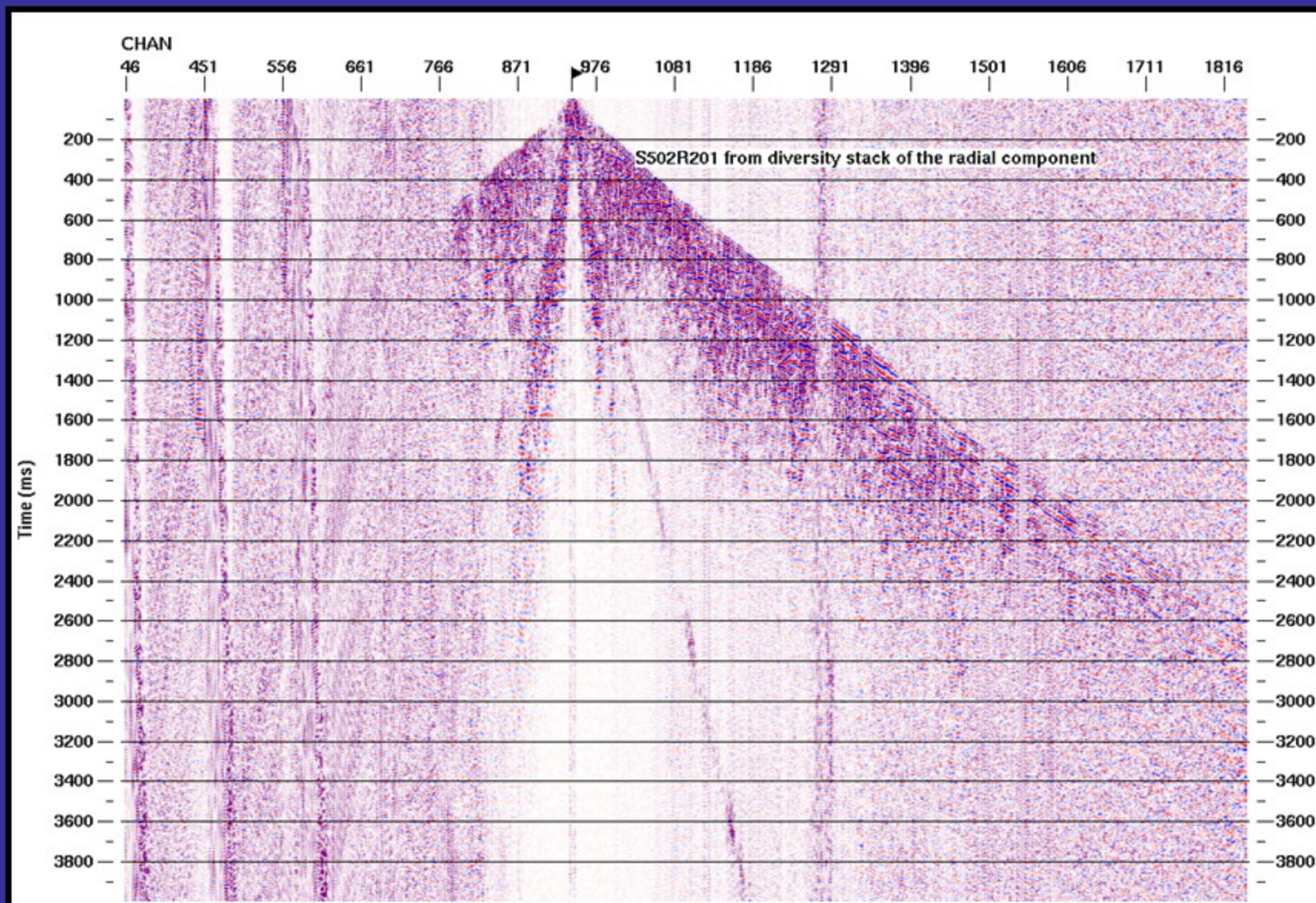


Source line 502 and receiver line 201, diversity stack

Initial *PS* results

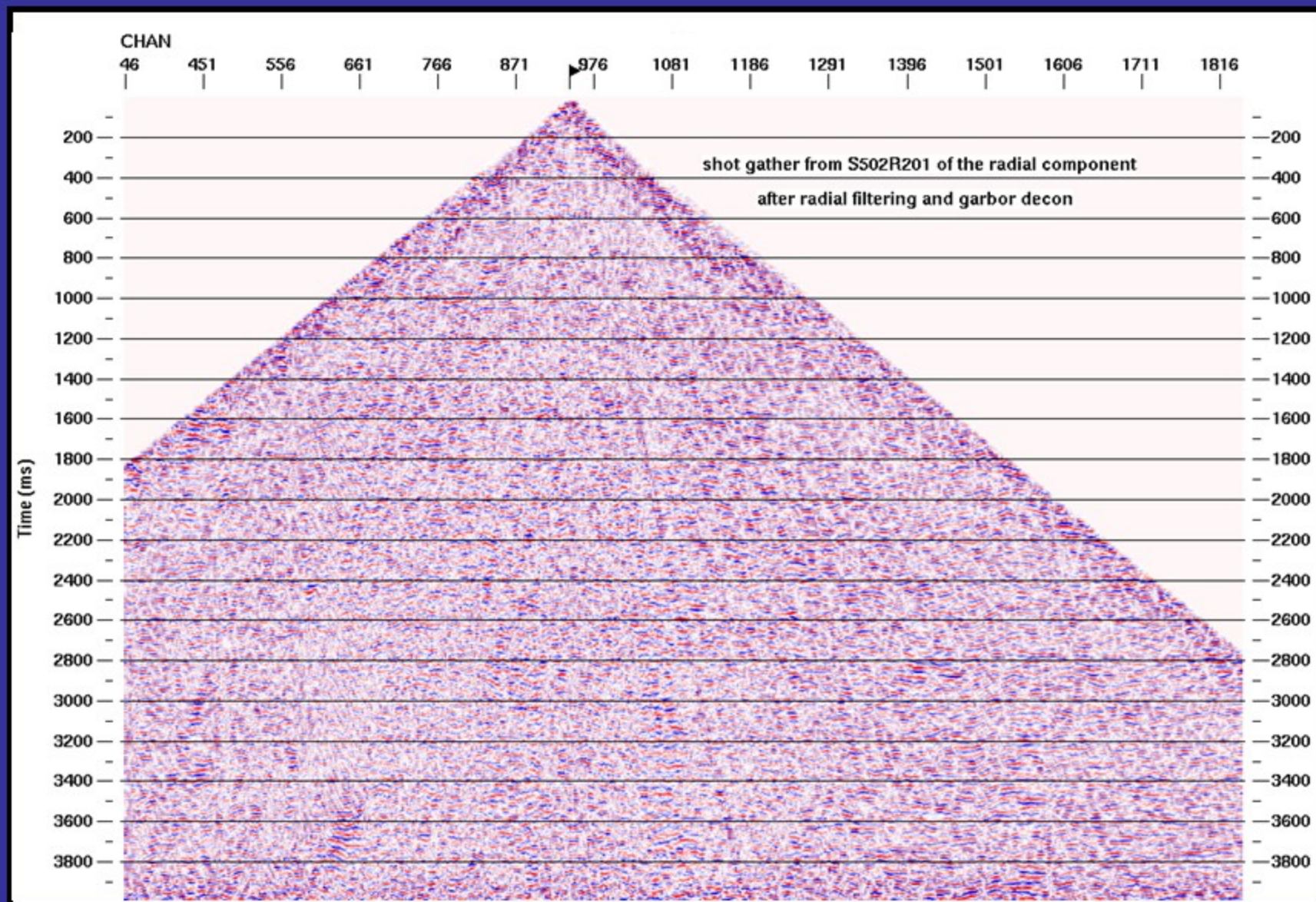
- Filtering and deconvolution
 - 6 rounds of radial trace filtering
 - 2 rounds of wavefront healing
 - Gabor deconvolution + bandpass filter
- Brute receiver and CCP stacks
 - No hand receiver statics
 - *PP* shot statics
 - *PP* receiver statics scaled assuming $V_P/V_S = 2.2$

Unfiltered radial shot gather



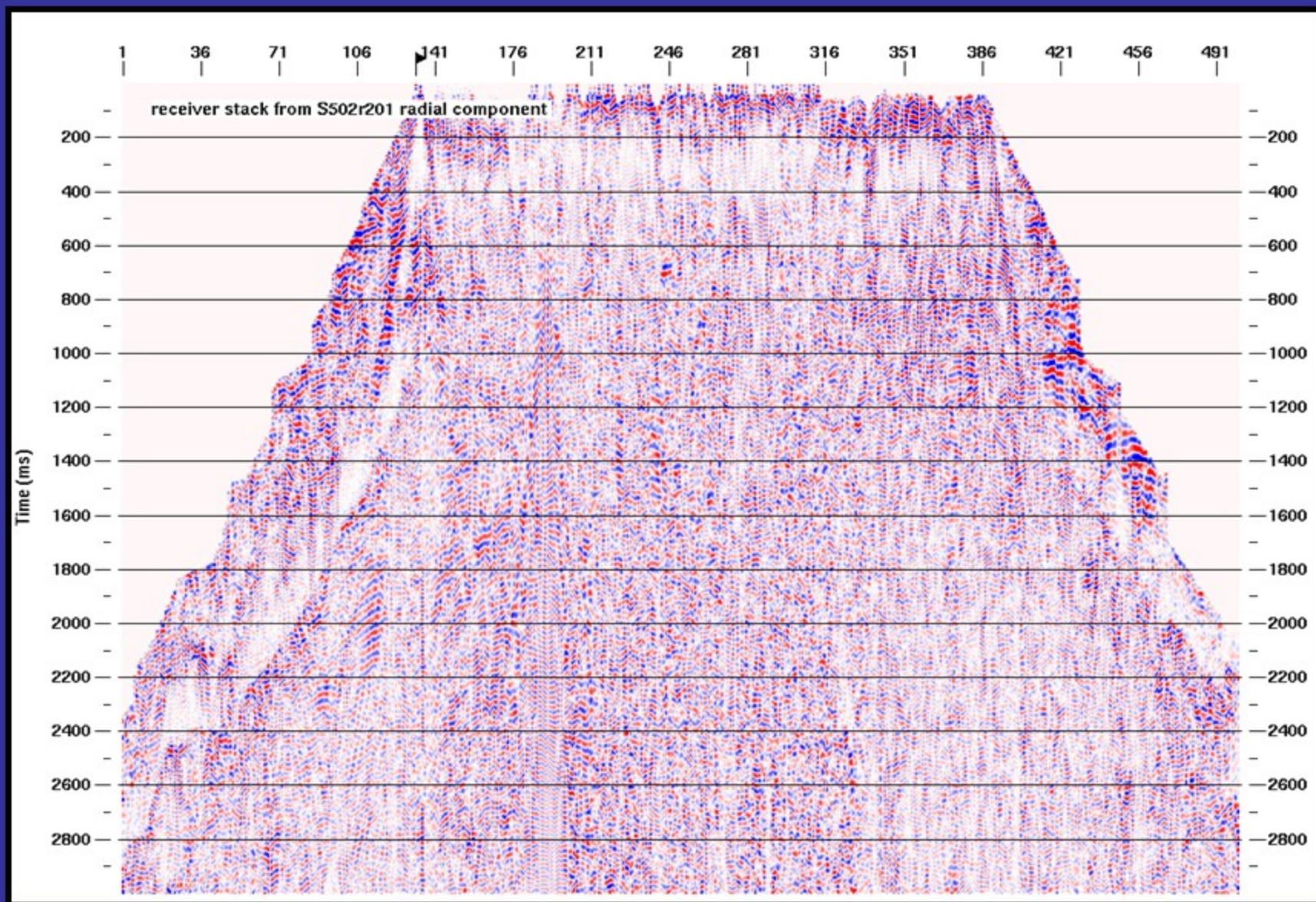
Source line 502 and receiver line 201, diversity stack

Filtered and deconvolved radial shot gather



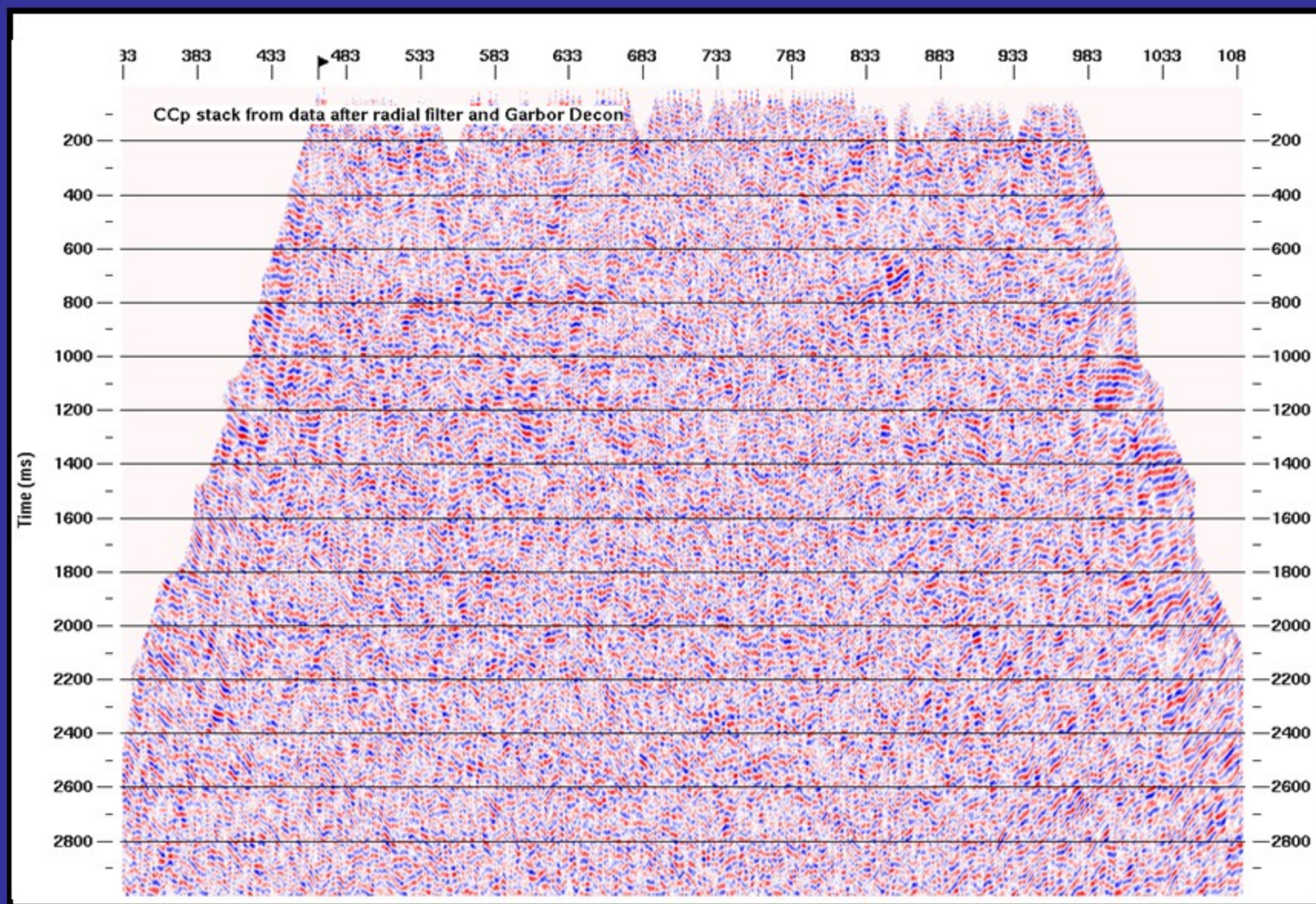
Source line 502 and receiver line 201, diversity stack

Receiver stack, unfiltered radial shot gathers



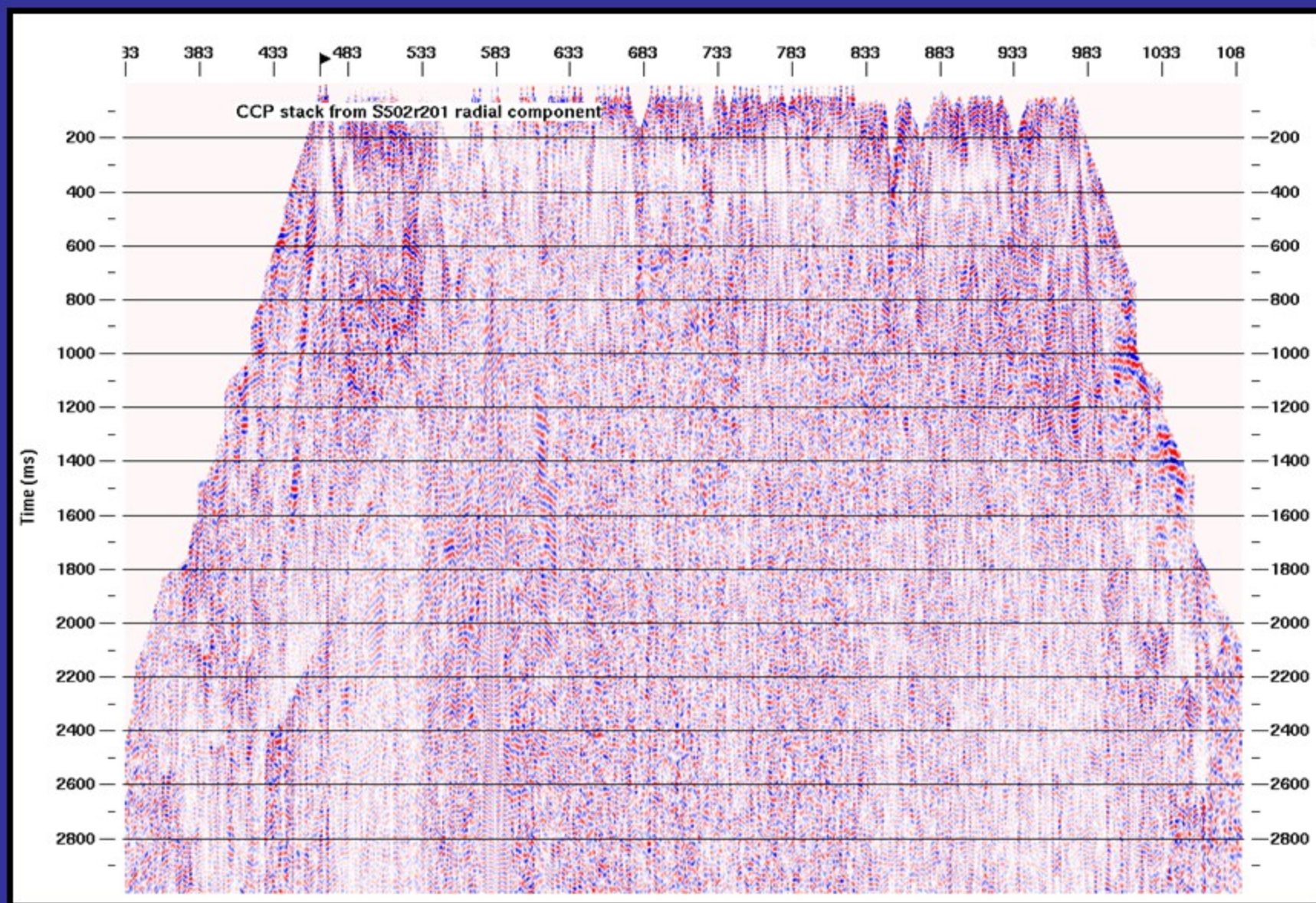
Source line 502 and receiver line 201, diversity stack

Receiver stack, filtered/deconvolved radial shot gathers



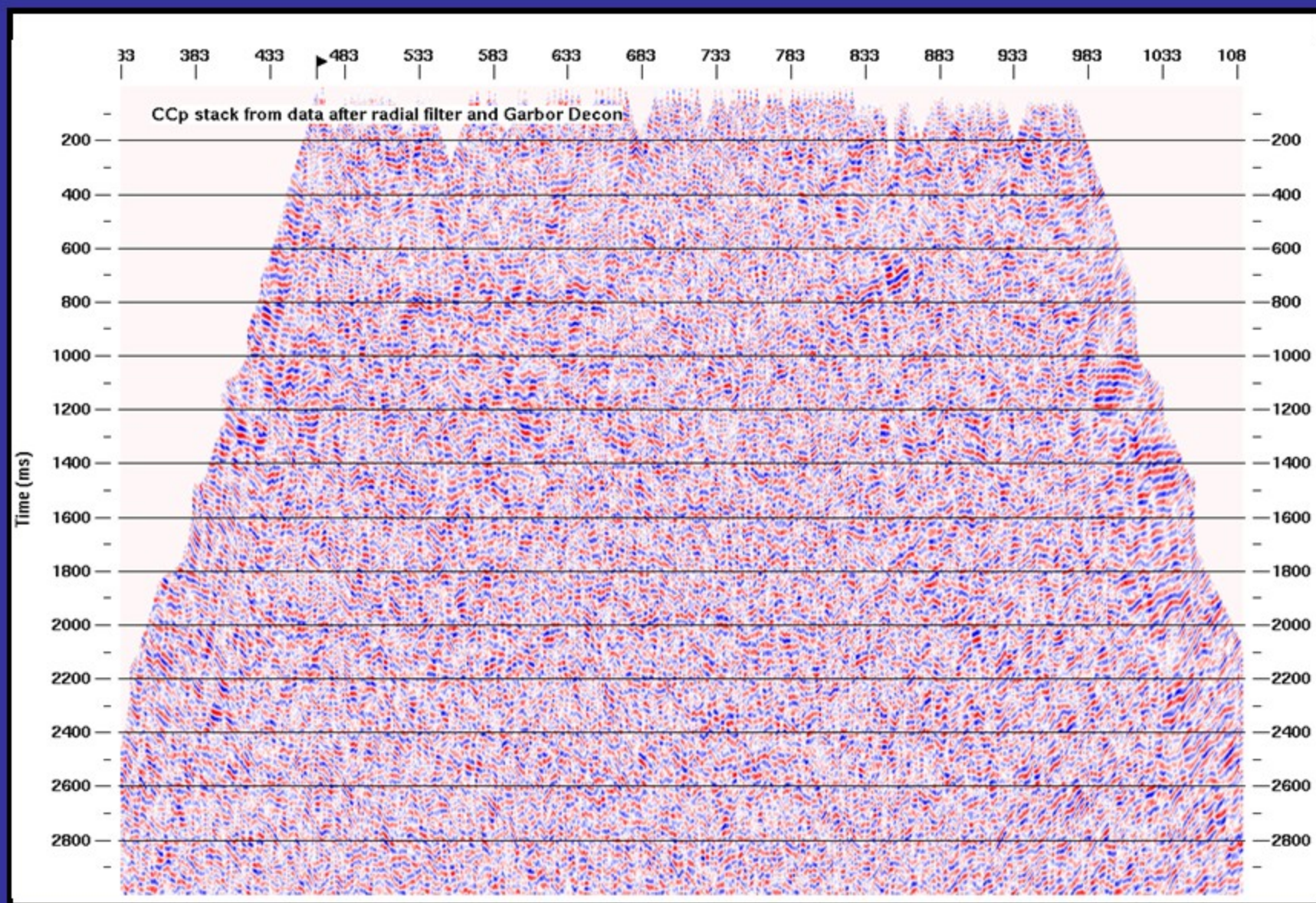
Source line 502 and receiver line 201, diversity stack

Brute CCP stack, unfiltered radial shot gathers



Source line 502 and receiver line 201, diversity stack

Brute CCP stack, filtered/deconvolved radial shot gathers



Source line 502 and receiver line 201, diversity stack

Discussion 1/2

- **Initial *PP* results**

- **Effect of vertical stacking methods**

- Diversity stacking significantly improved results for line 501.
 - Less improvement (if any) for line 502.

- **Effect of receiver arrays**

- Unfiltered six-per geophone arrays result in better images than unfiltered single or podded geophones.

Discussion 2/2

– Effect of source arrays

- Difficult to directly compare lines 501 (night) and 502 (day) due to differences in CDP fold and differing amounts of vehicular traffic.
- Best images (based on reflection continuity) from line 501 after diversity stacking.

• *PS* results

- Radial trace filtering and Gabor deconvolution of diversity stacked shot gathers results in a much improved brute stack.

Acknowledgements

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