



Residual Noise Attenuation

NZ 3D Processing

14 July 2021

cgg.com



INSTITUTE FOR GEOPHYSICS



Passion for Geoscience

1. Convert to CGG Internal Format
2. Nav merge / trace edit
3. Low Cut Filter
4. Time Variant Scaling (TVS) & Resample to 4ms
5. Swell Noise Attenuation (SNA)
6. Debubble
7. Linear Noise Attenuation (LNA)
8. Tidal Statics Correction
9. Water Column Statics Correction
10. Shot & Channel Scaling
11. Receiver Motion Correction (RMC)
12. Joint Deghost & Designature
13. Residual Bubble Removal
14. Source Sensor Datum Correction
15. Shallow Water Demultiple
16. Surface Related Multiple Elimination (3D SRME)
17. Simultaneous Subtraction of MWD & SRME
18. Residual Linear Noise Attenuation (residual LNA)
19. Trace Regularization & Interpolation
20. Velocity Analysis
21. Radon Demultiple
22. Footprint Removal
23. Diffracted Multiple Removal
24. Common Offset Denoise
25. Q Analysis and Compensation
26. Final TTI Kirchhoff Migration
27. Convert from Depth to Time Domain
28. High Density Automatically Velocity Analysis
29. Radon Demultiple
30. Trim Static Correction
31. Post Migration Denoise
32. Q Compensation (Amplitude)
33. Spectra Offset Balancing
34. Angle Mute & Full Stack
35. Residual Noise Attenuation

- **Objective:**

To attenuate residual noise in stack

- **Procedure:**

- Migration swing attenuation: Apply dip-filter in the F-K domain to attenuate the migration swing observed in crossline direction. Apply area is controlled by hand mute.
- High frequency noise attenuation: High frequency high dipping noise is attenuated in control area.

- **Display:**

Full stack selected subline and crosslin.

- **Observation & Recommendation:**

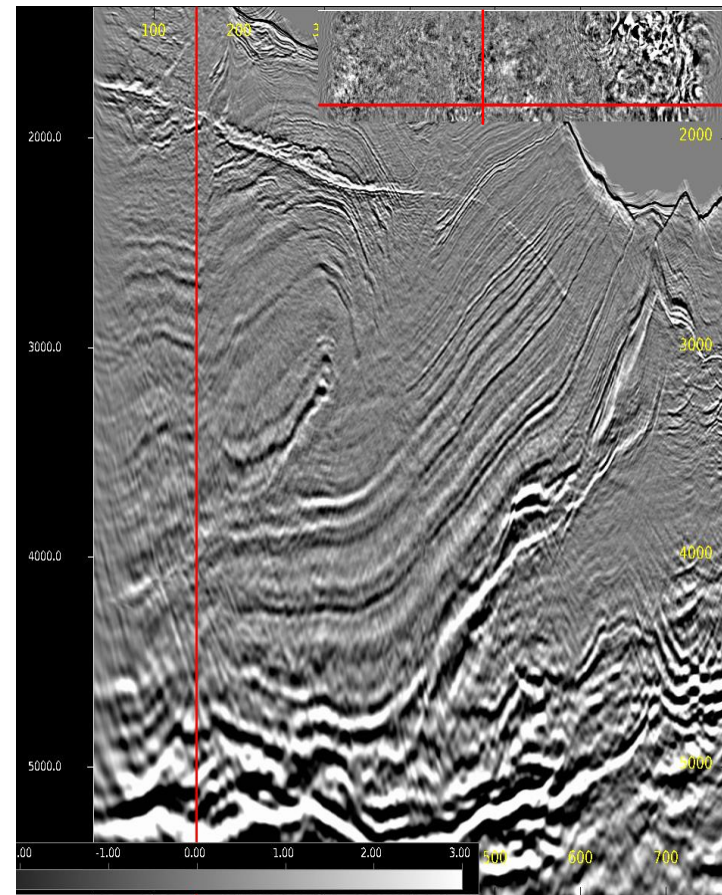
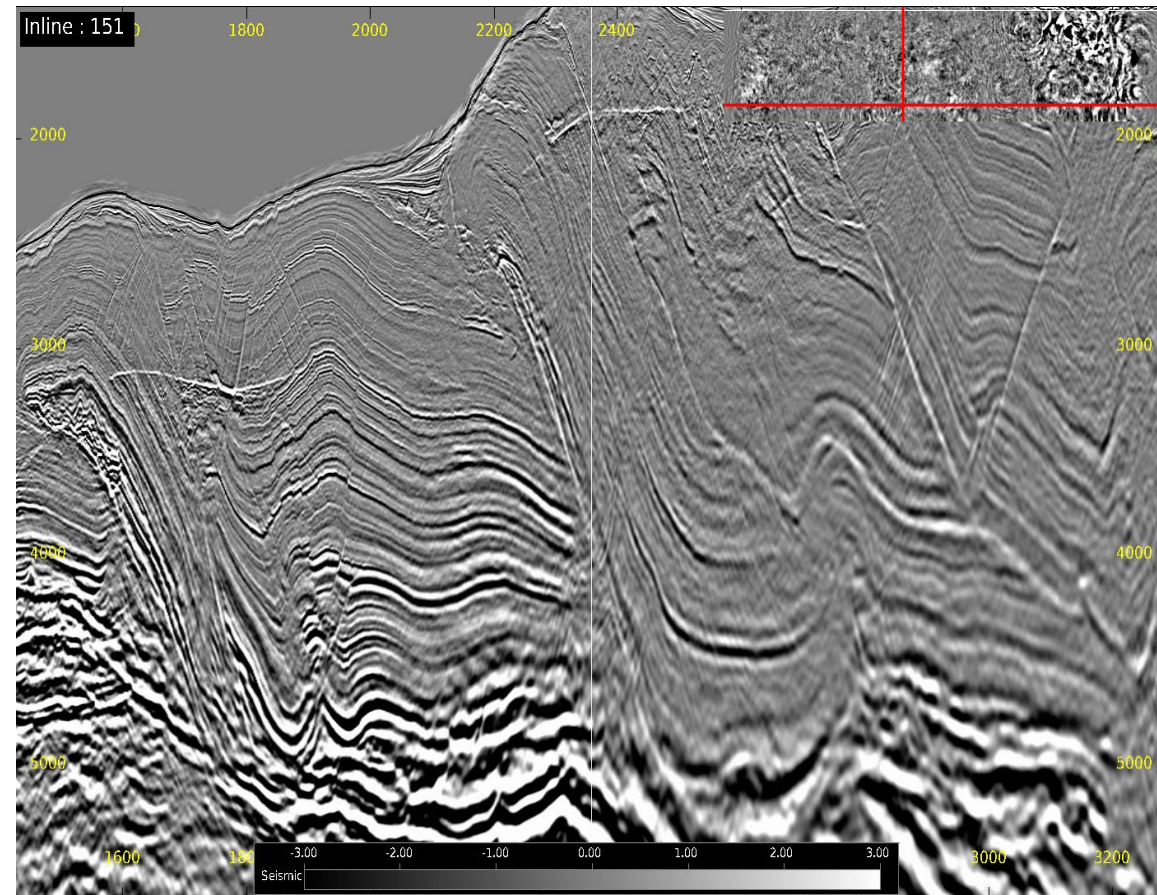
- Residual noise attenuation can improve signal noise ratio.
- Recommend apply residual noise attenuation to production.

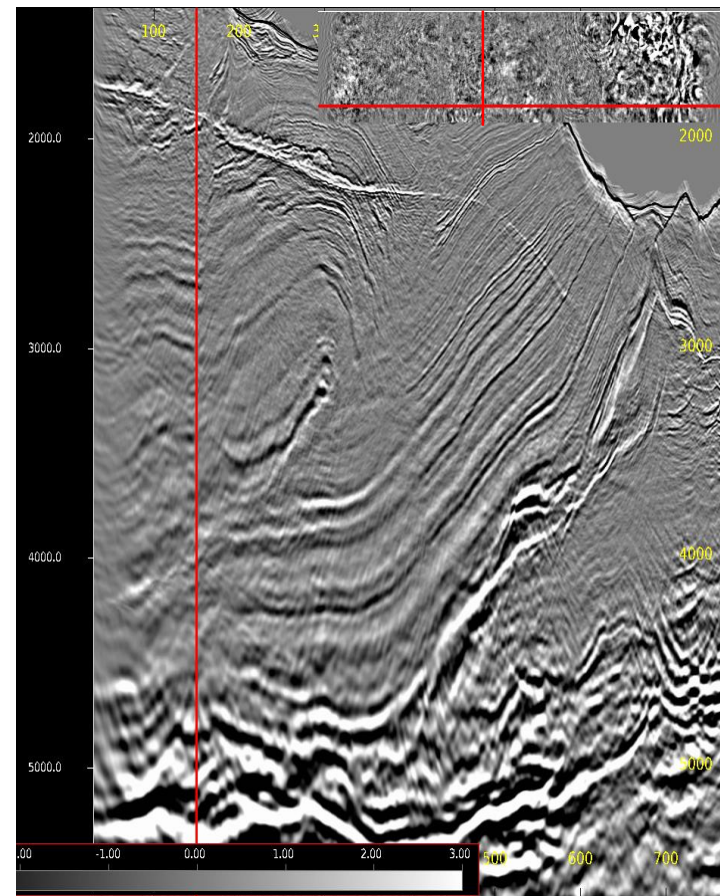
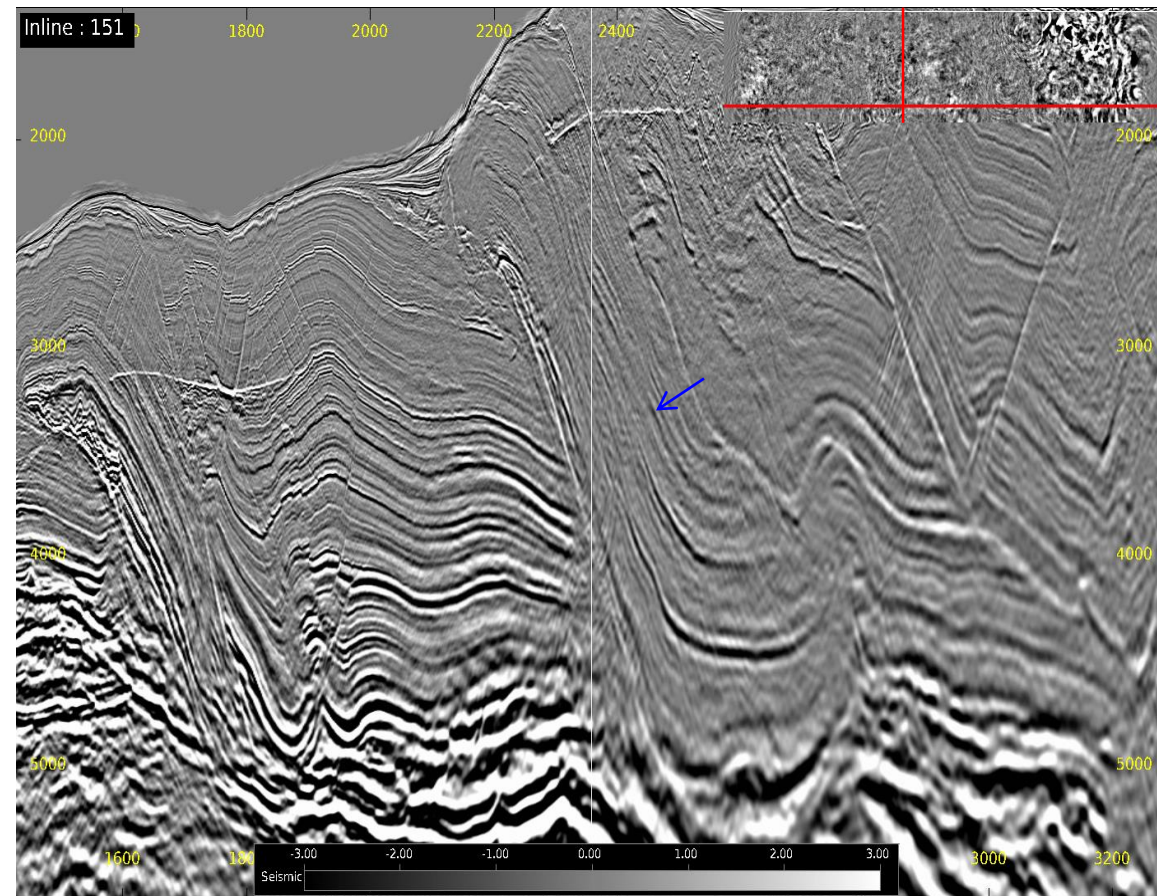


Migration swing attenuation.



Subline 151 and crossline 2359: before denoise

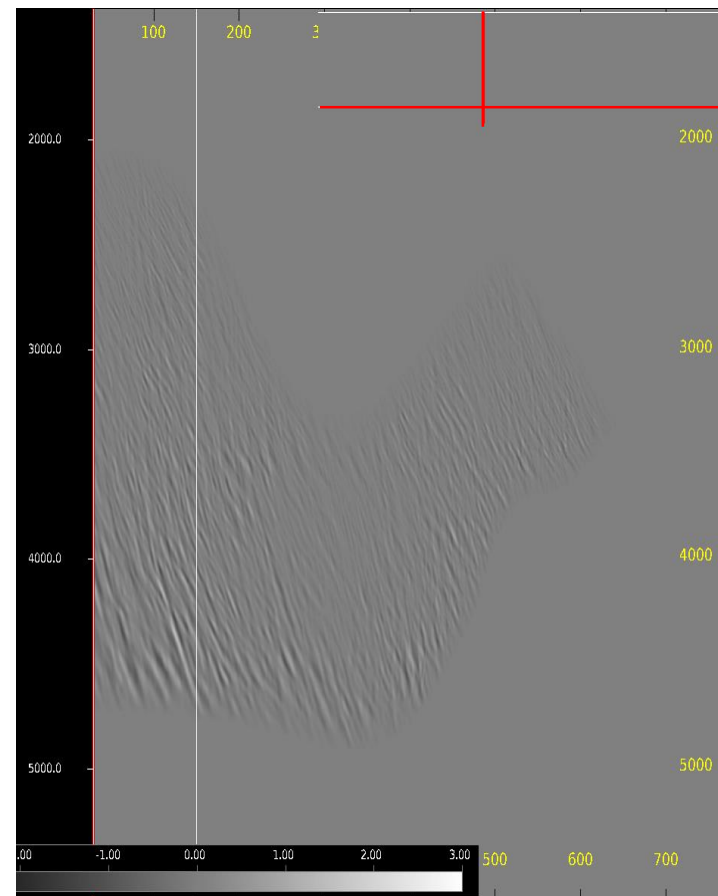
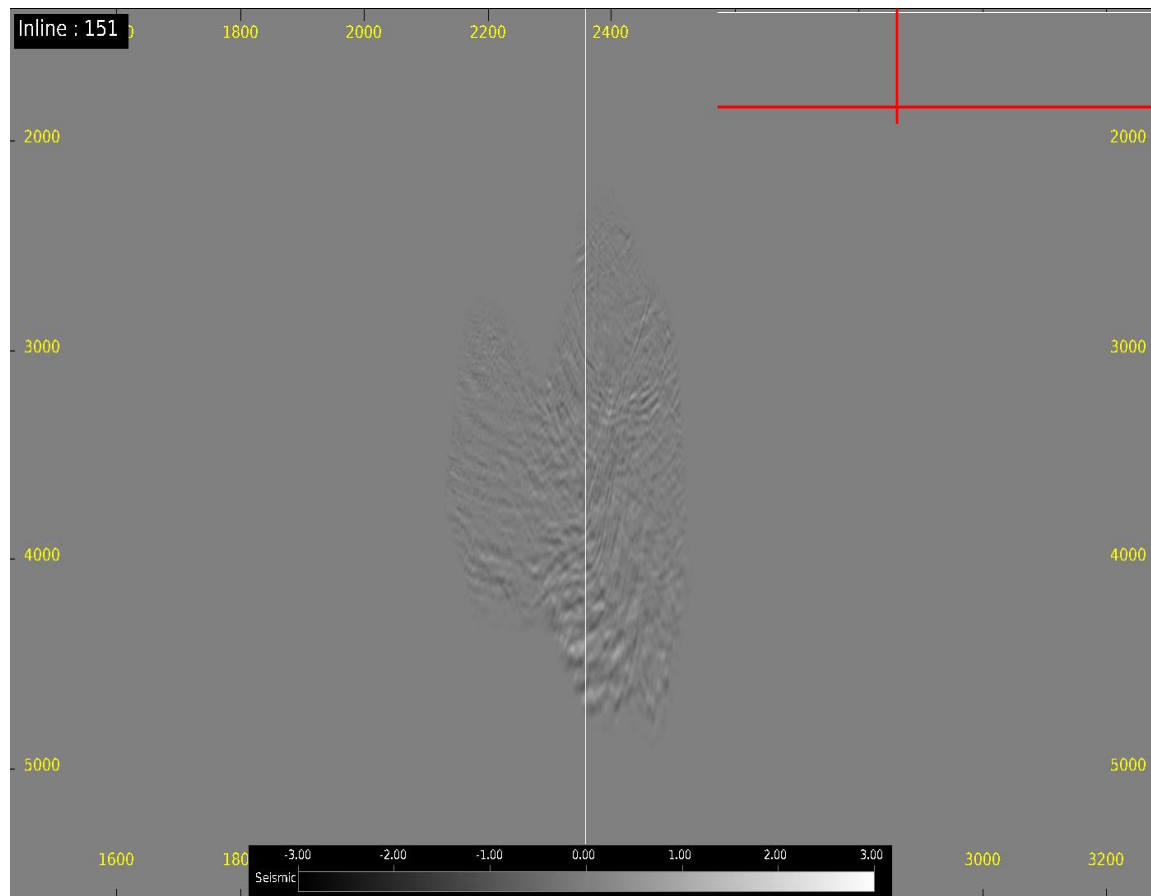






Subline 151 and crossline 2359: difference

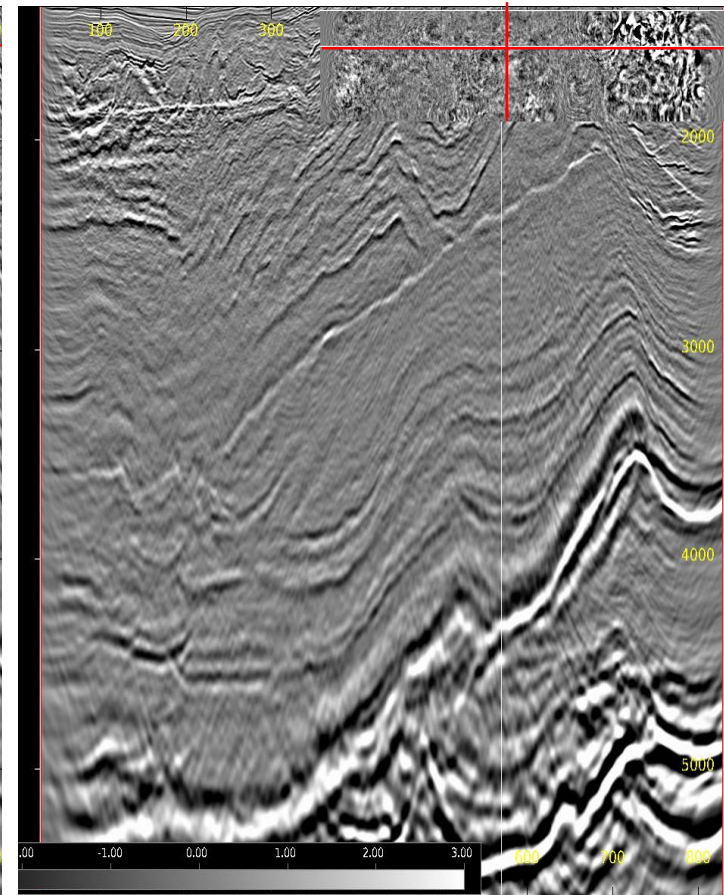
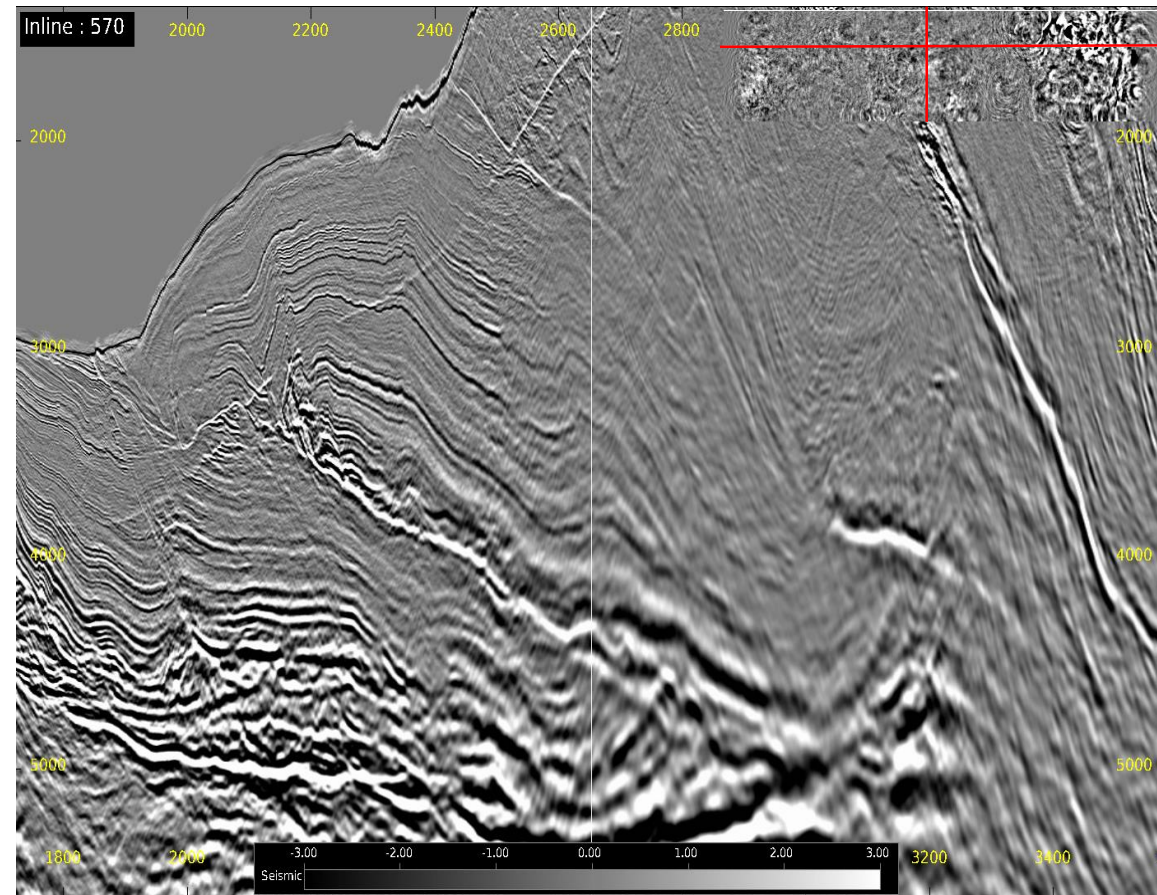
7



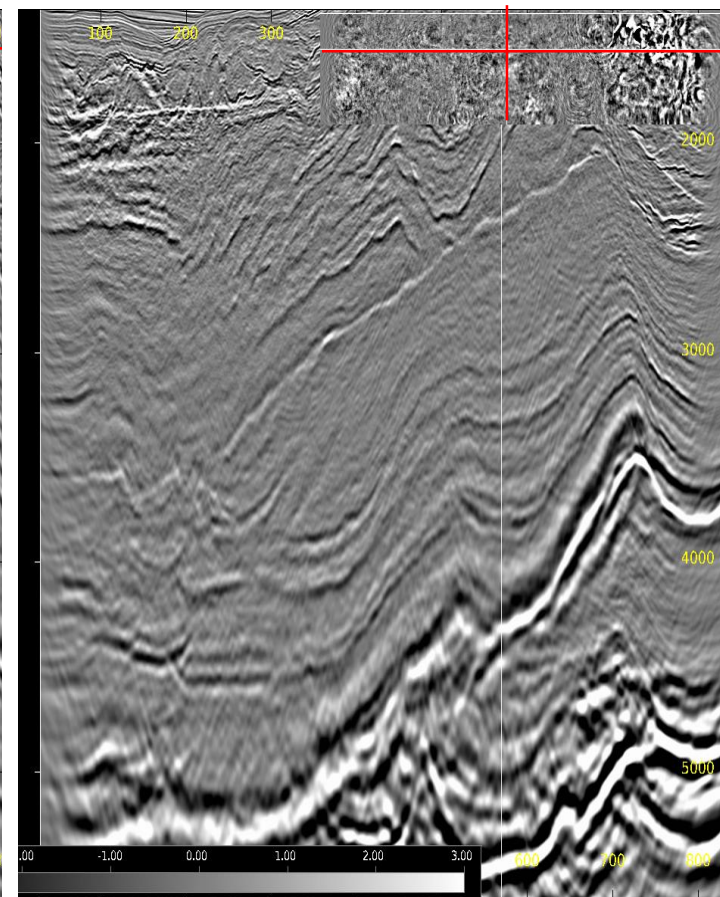
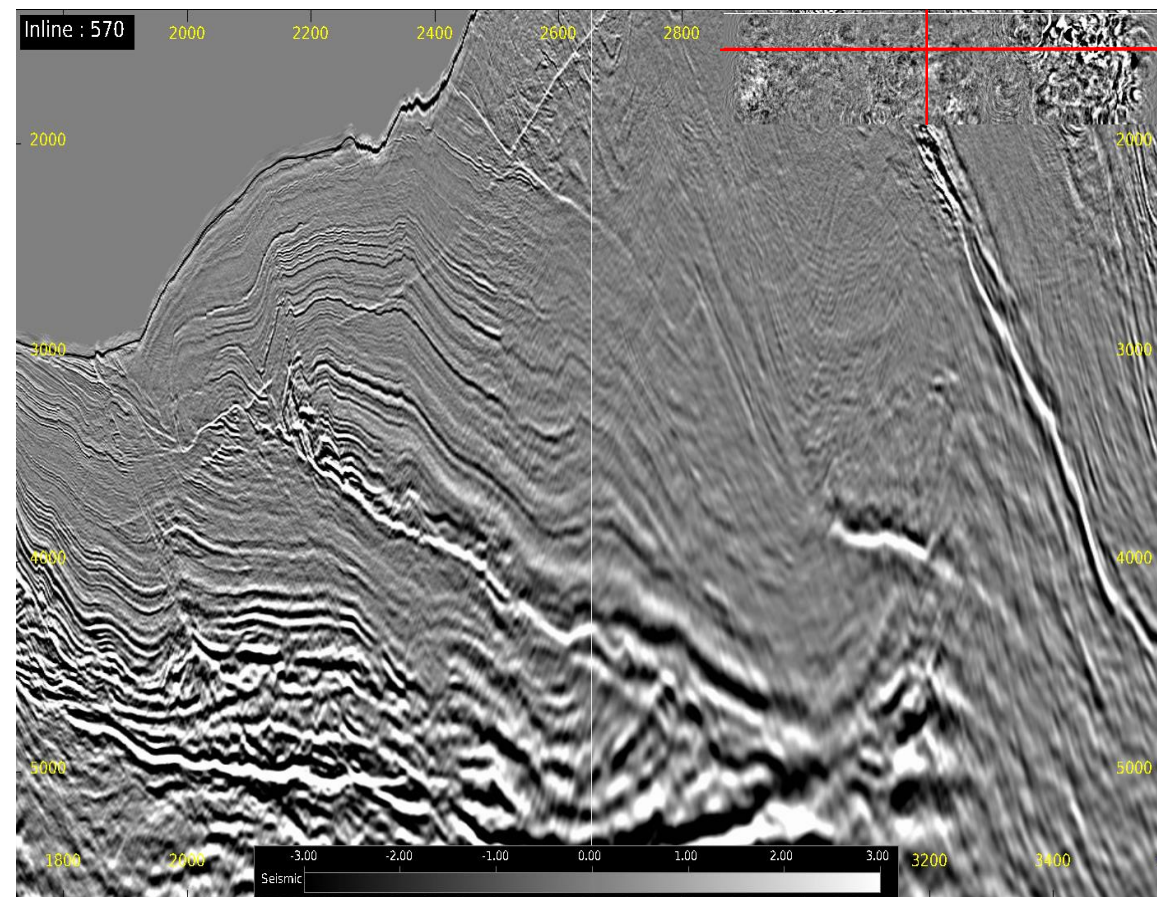


Subline 570 and crossline 2655: before denoise

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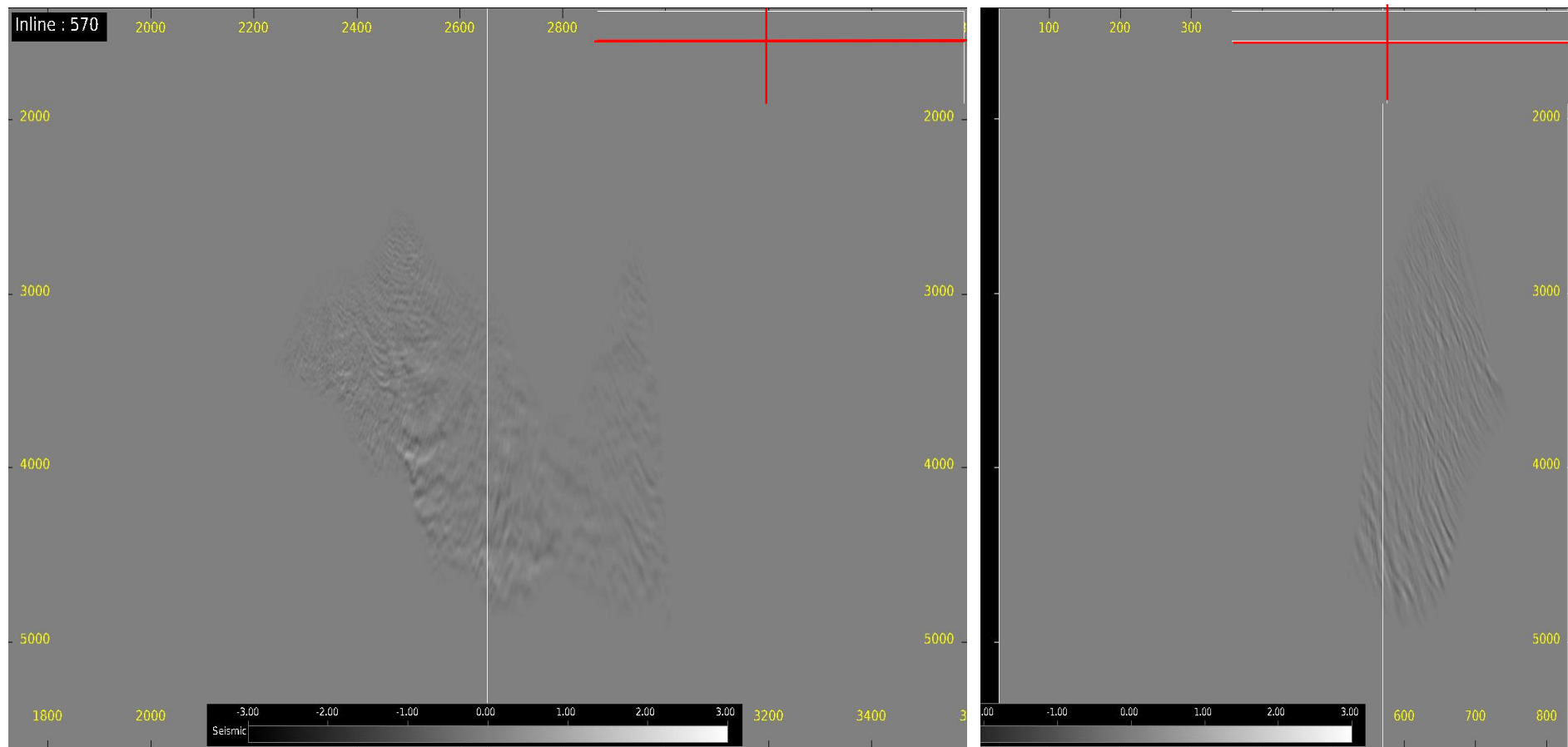
Subline 570 and crossline 2655: **after** denoise





Subline 570 and crossline 2655: difference

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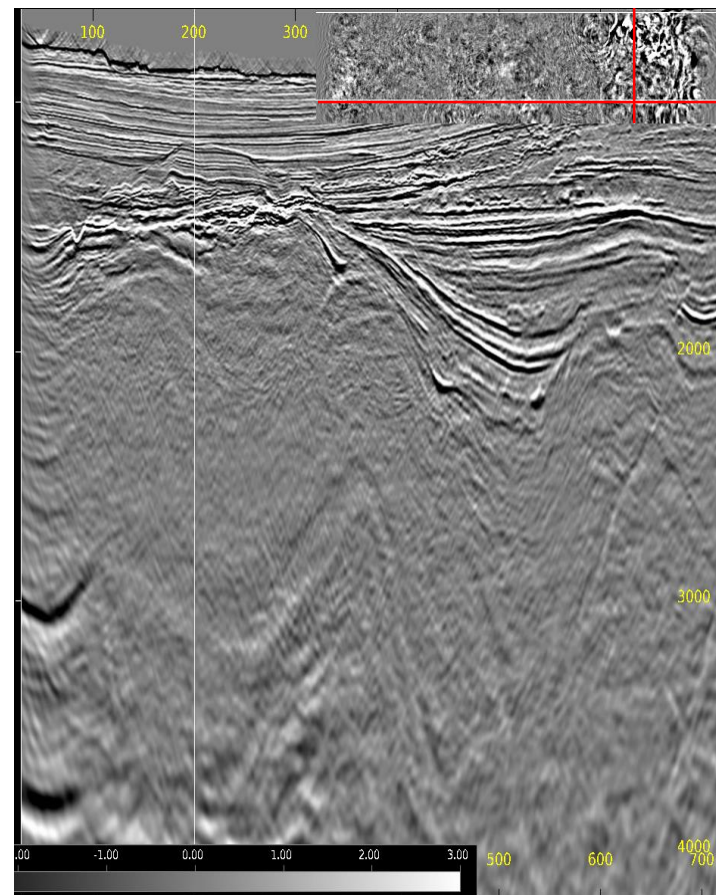
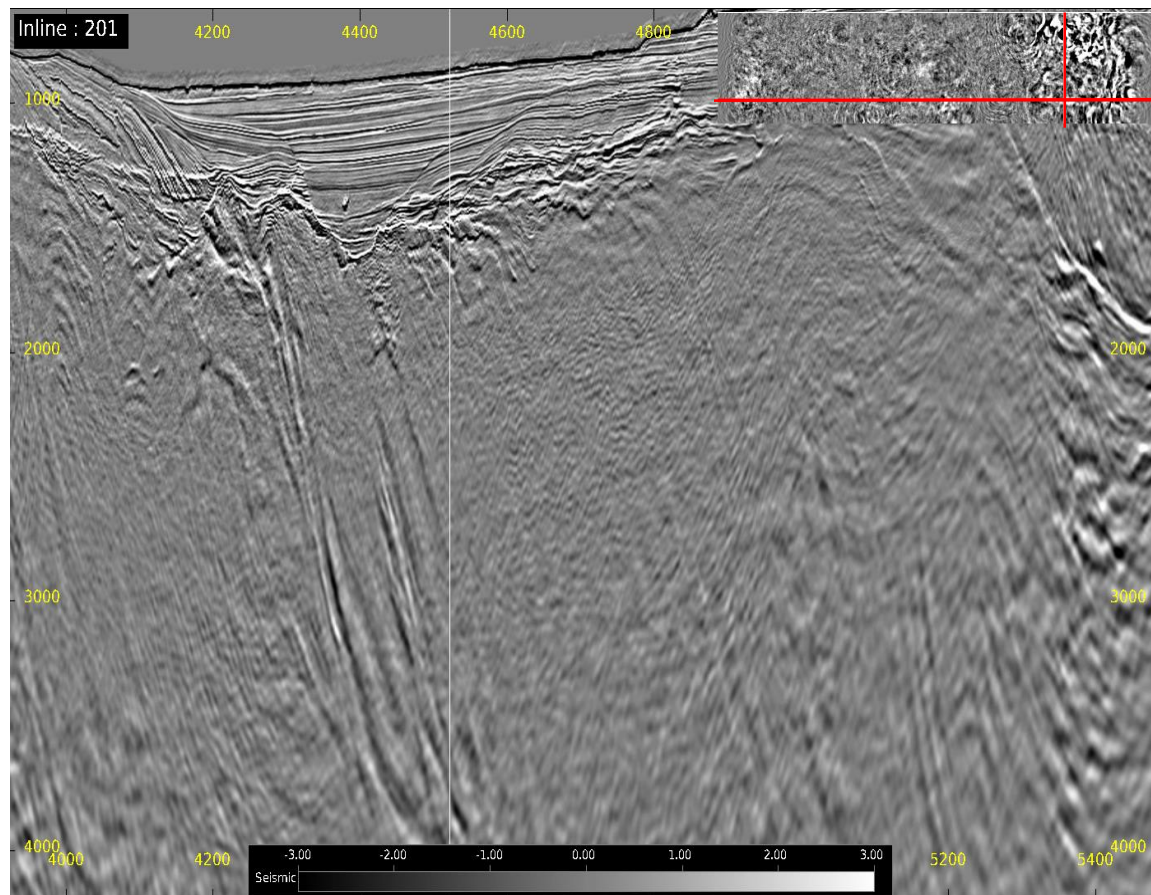


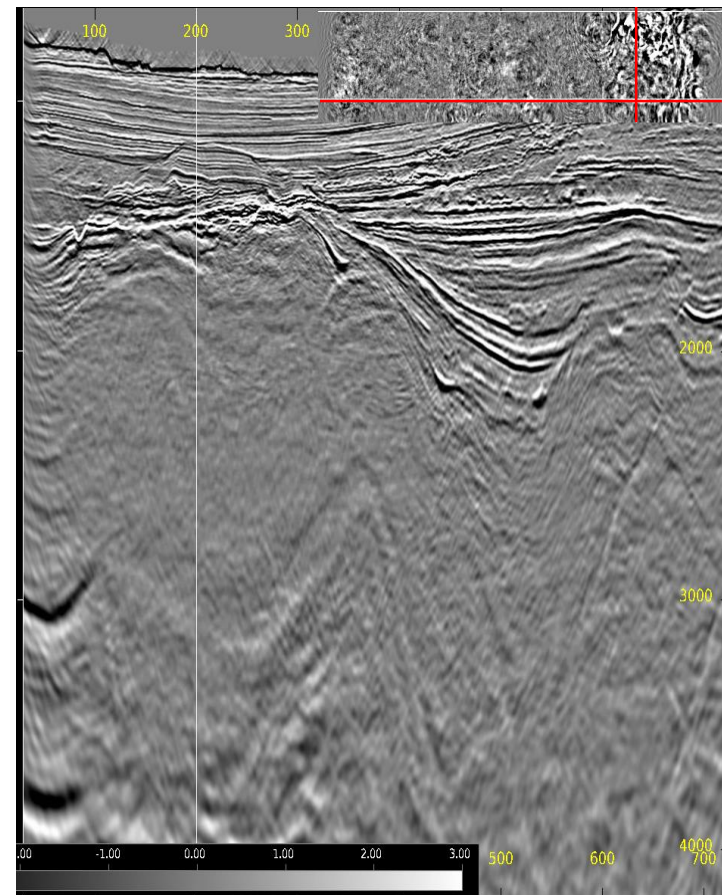
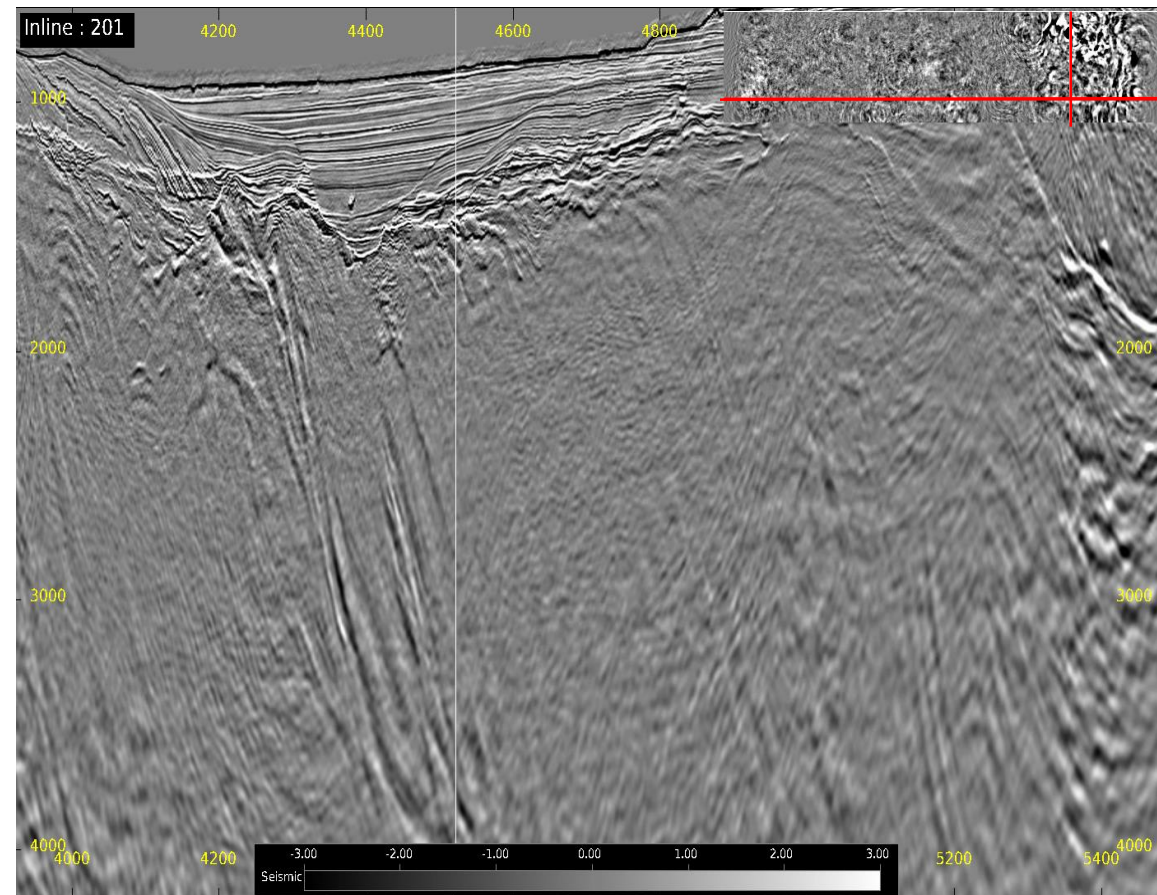
High frequency noise attenuation



Subline 201 and crossline 4523: before denoise

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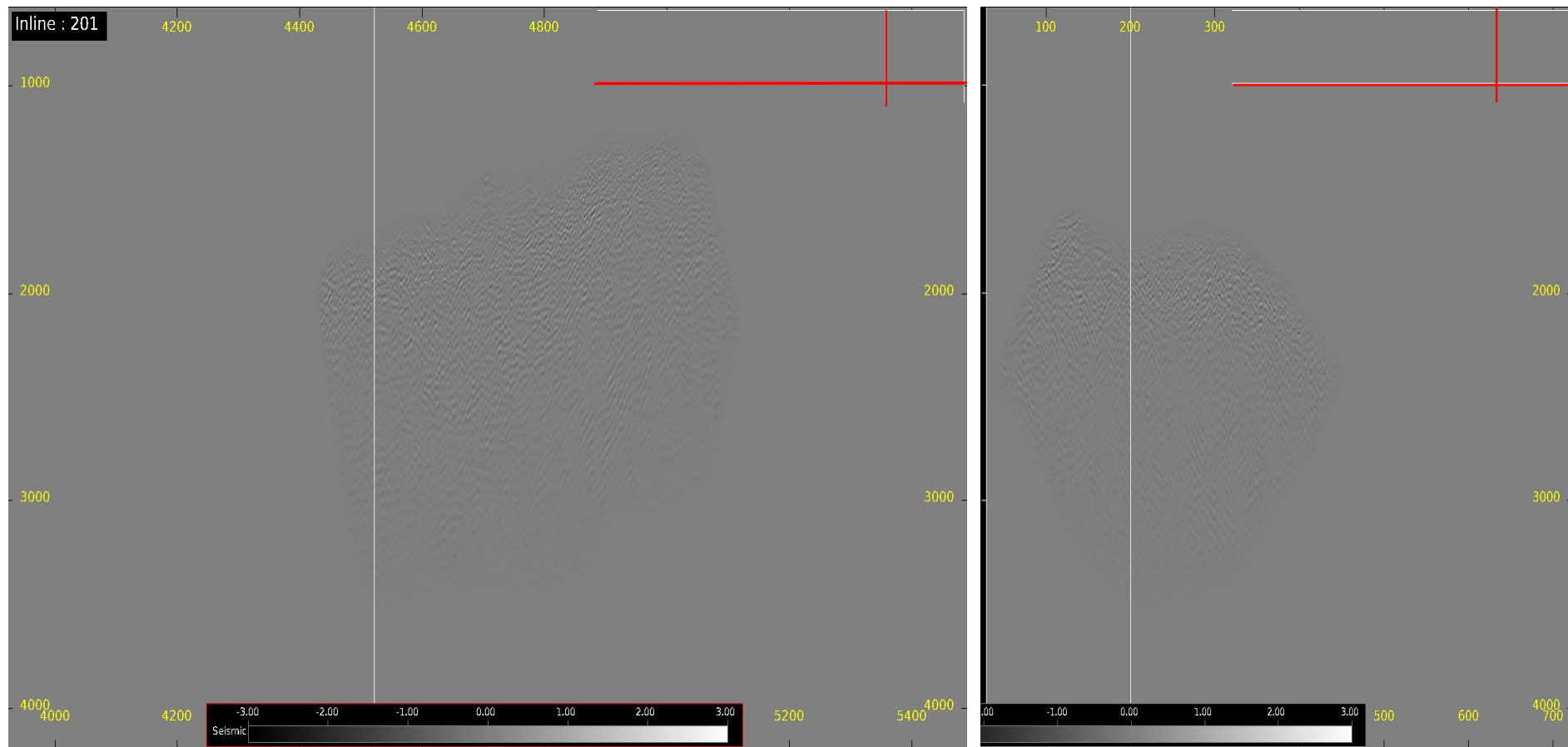






Subline 201 and crossline 4523: difference

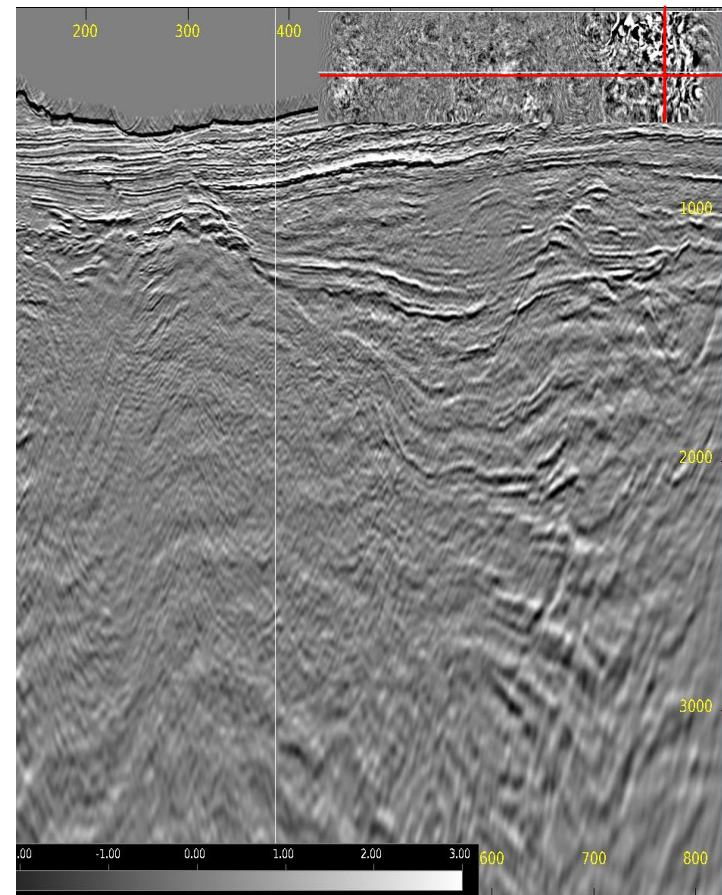
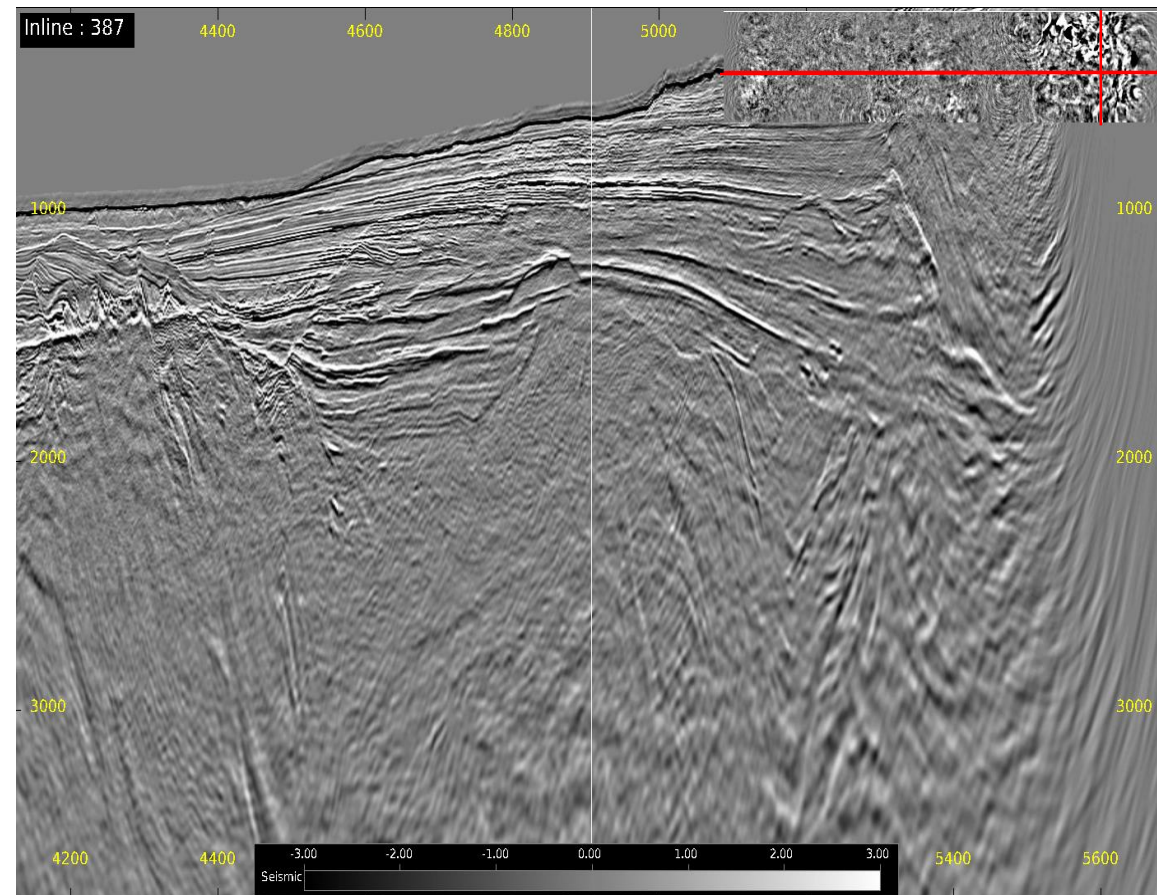
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Subline 387 and crossline 4909: **before** denoise

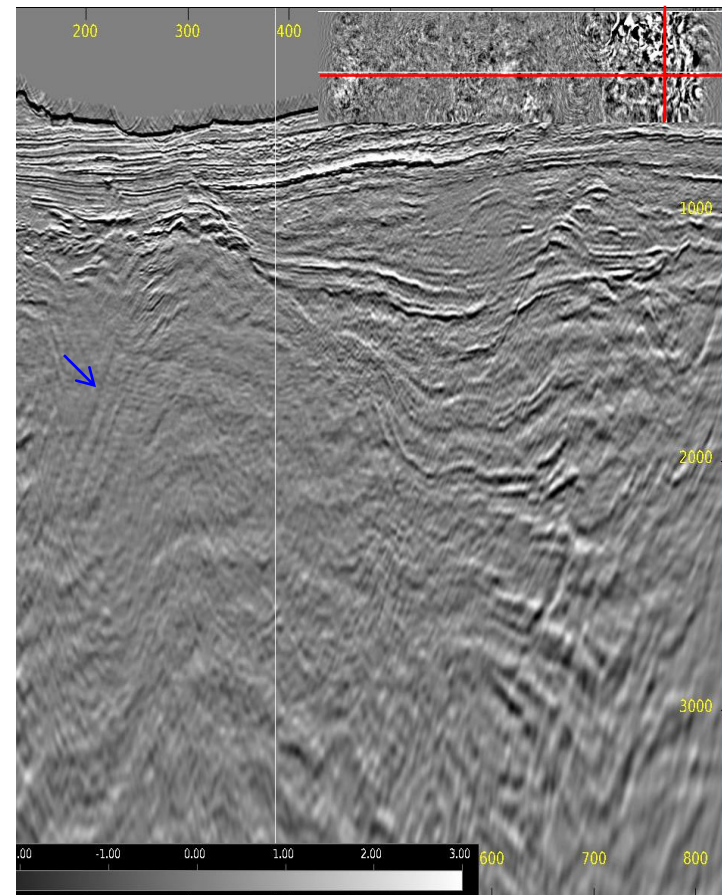
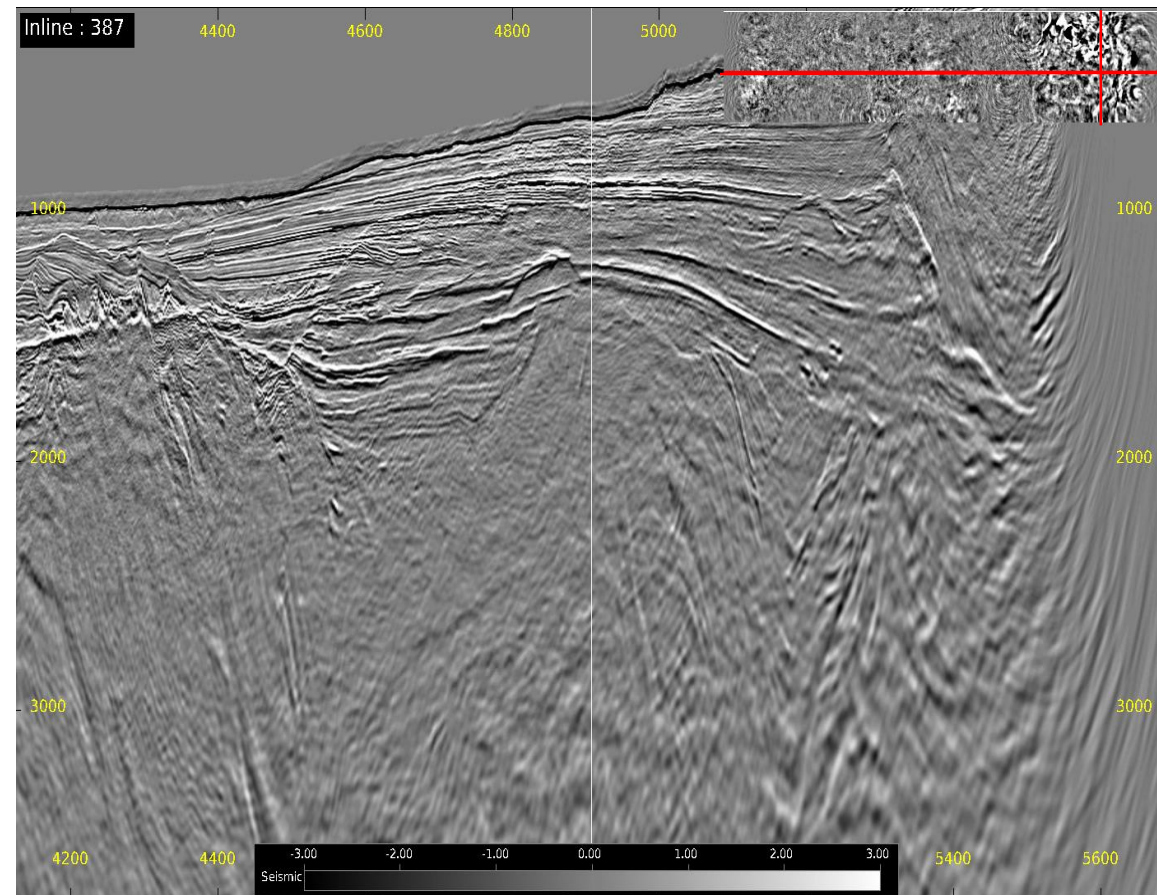
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Subline 387 and crossline 4909: **after** denoise

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Subline 387 and crossline 4909: differenc

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