



Source Sensor Datum Correction

NZ 3D Processing

09 December 2020

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

- **Objective:**

To correct gun & cable to mean sea level.

- **Procedure:**

To apply NMO time shift based on gun & cable depth and ray path angle.

- **Display:**

Sailline 018 and Sailline 039

Display: Shot gathers and stack.

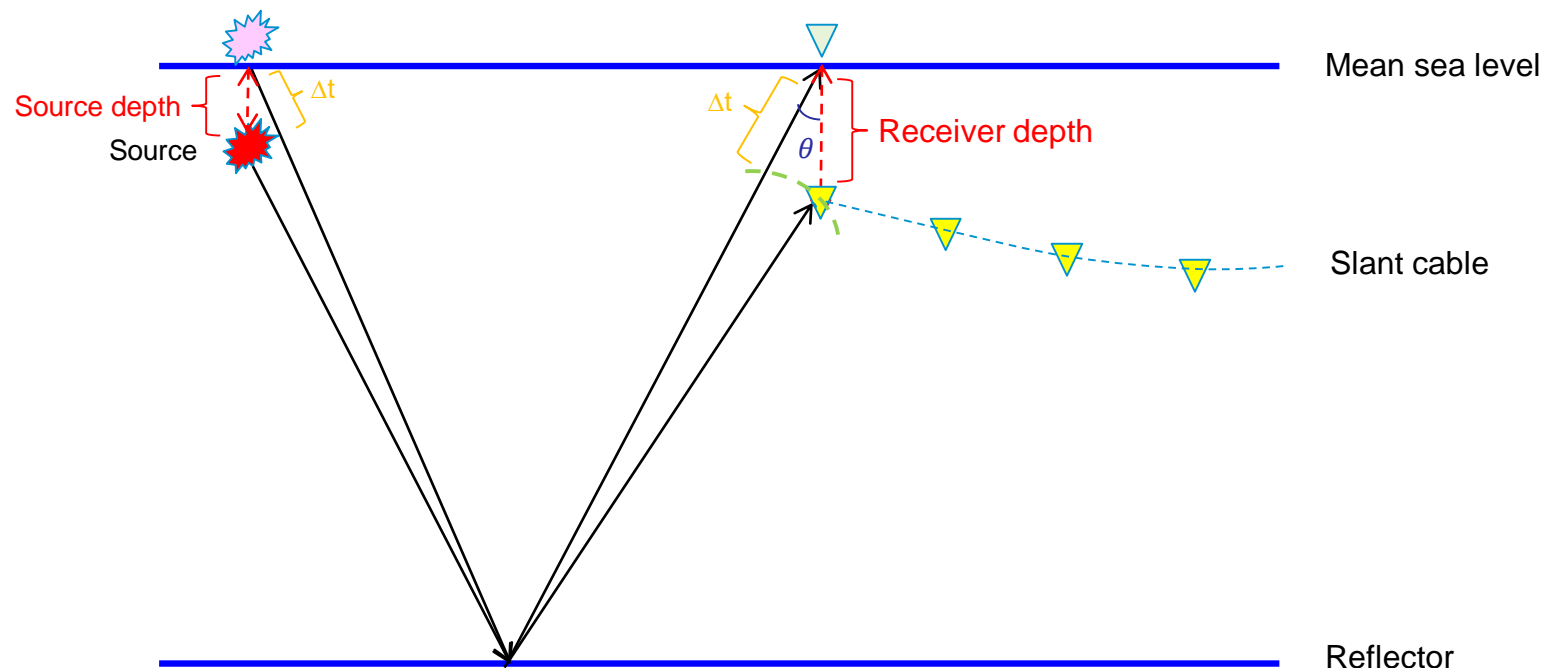
- **Observation and Recommendation:**

The data are shifted downwards as if acquired with source and receiver lying at the mean sea level. The correction is necessary for modelling free surface-related multiples, so it is recommended to be applied on the production.



Brief Illustration on Source Sensor Datum Correction

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Seq 018

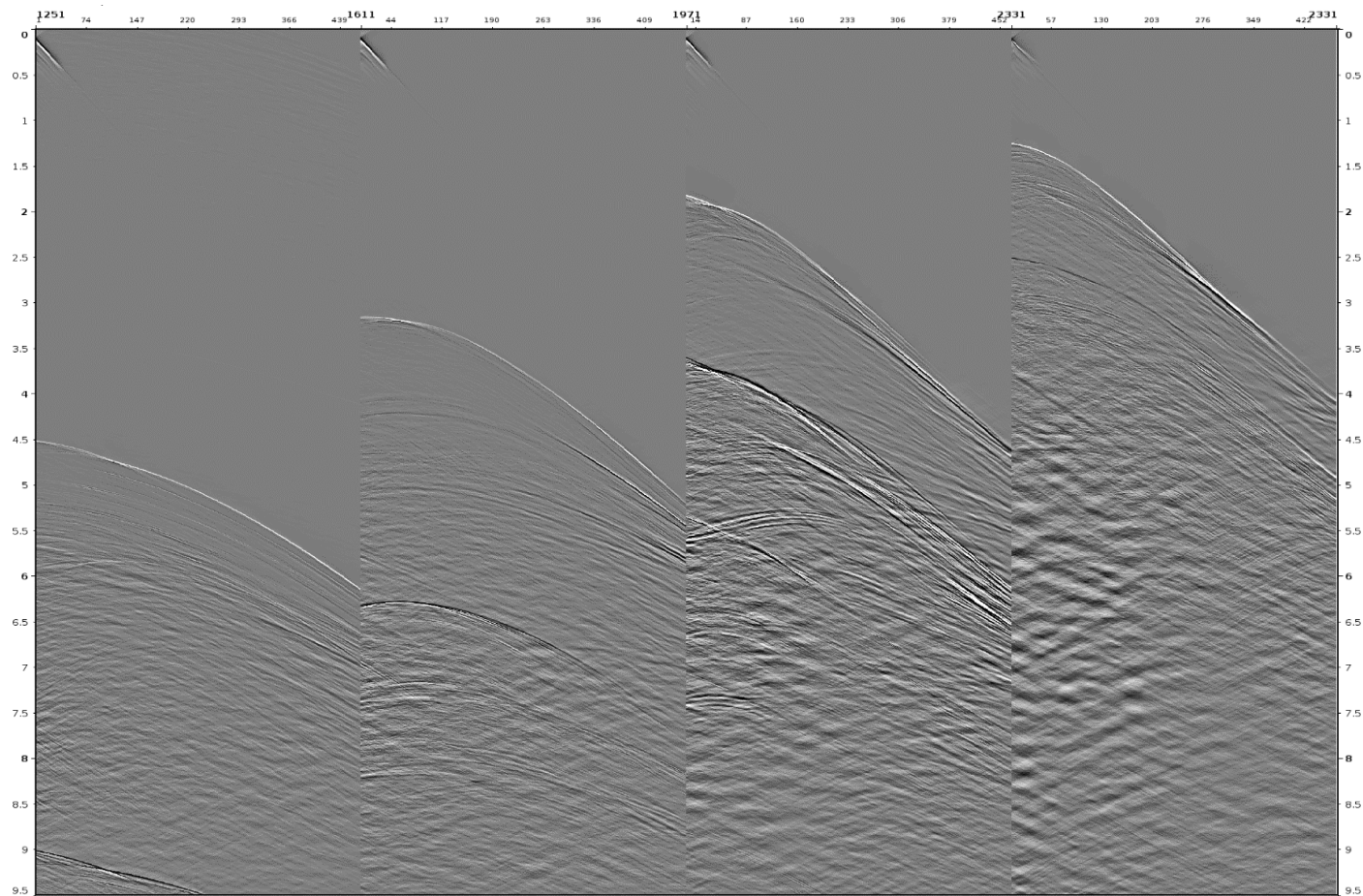
Shot gathers

Stack



Shot Gather before SSD Correction

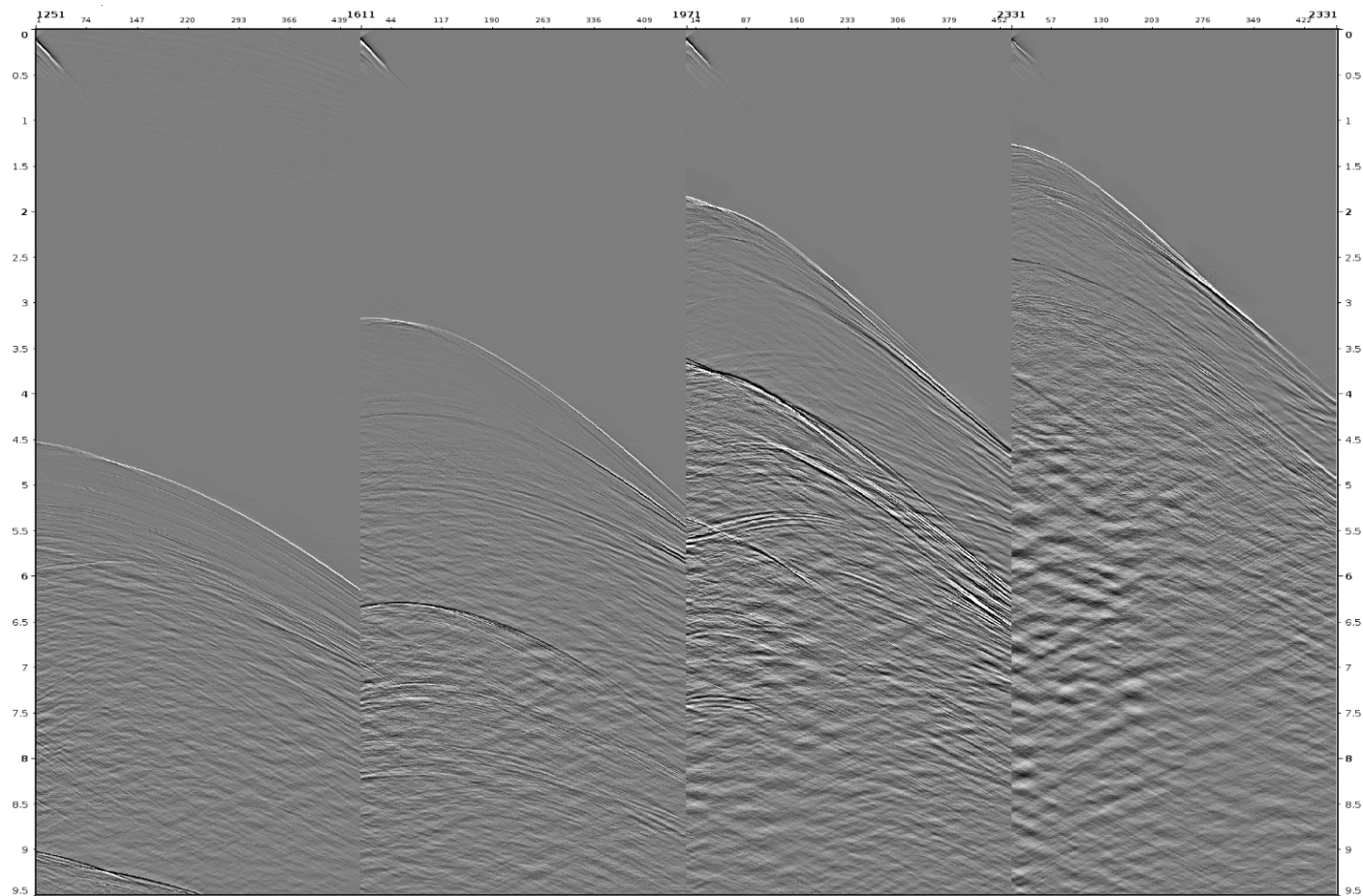
6



- A slight shift is applied to correct gun & cable to mean sea level.
- The event geology keeps consistent.

Shot Gather after SSD Correction

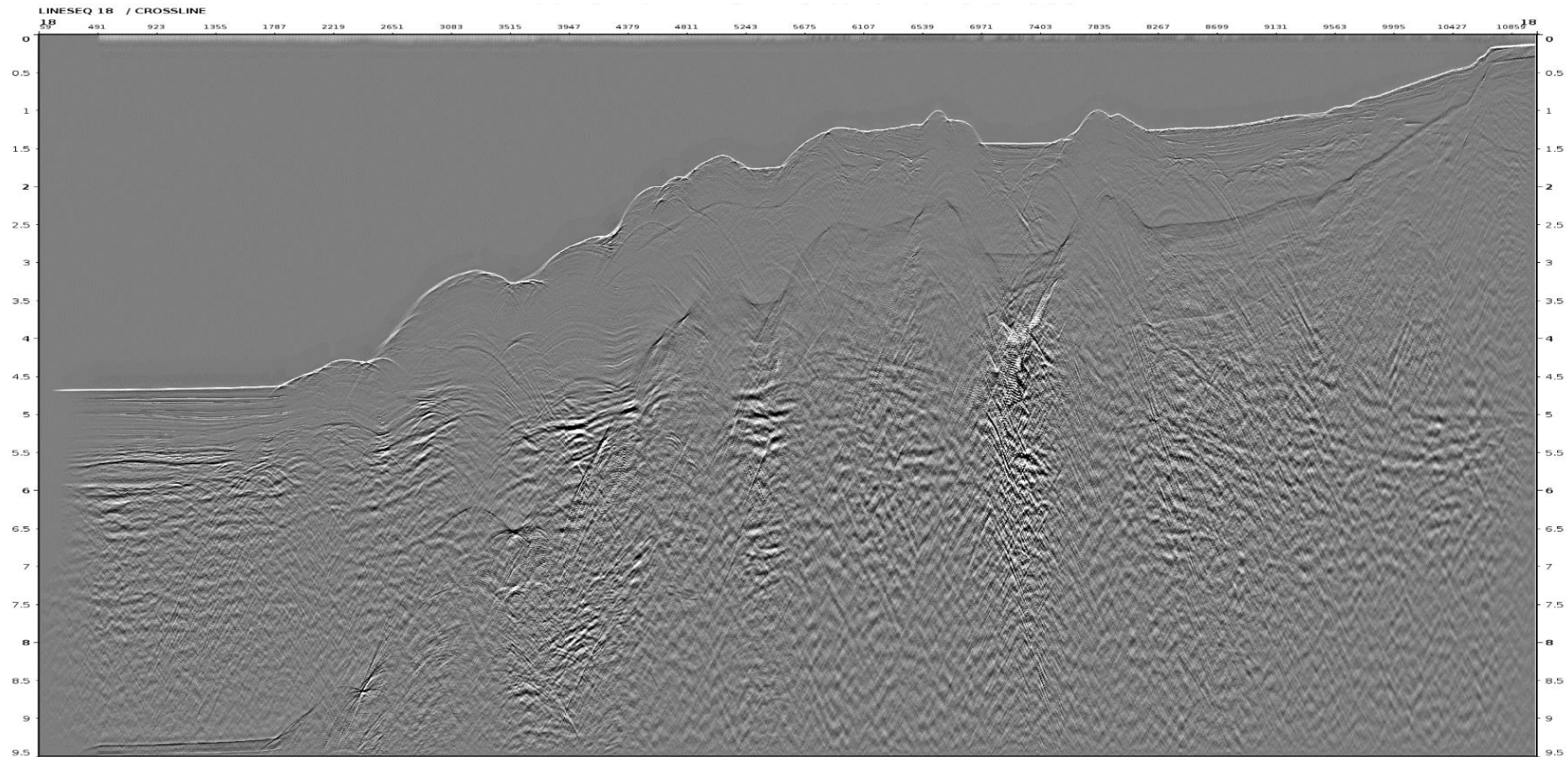
7



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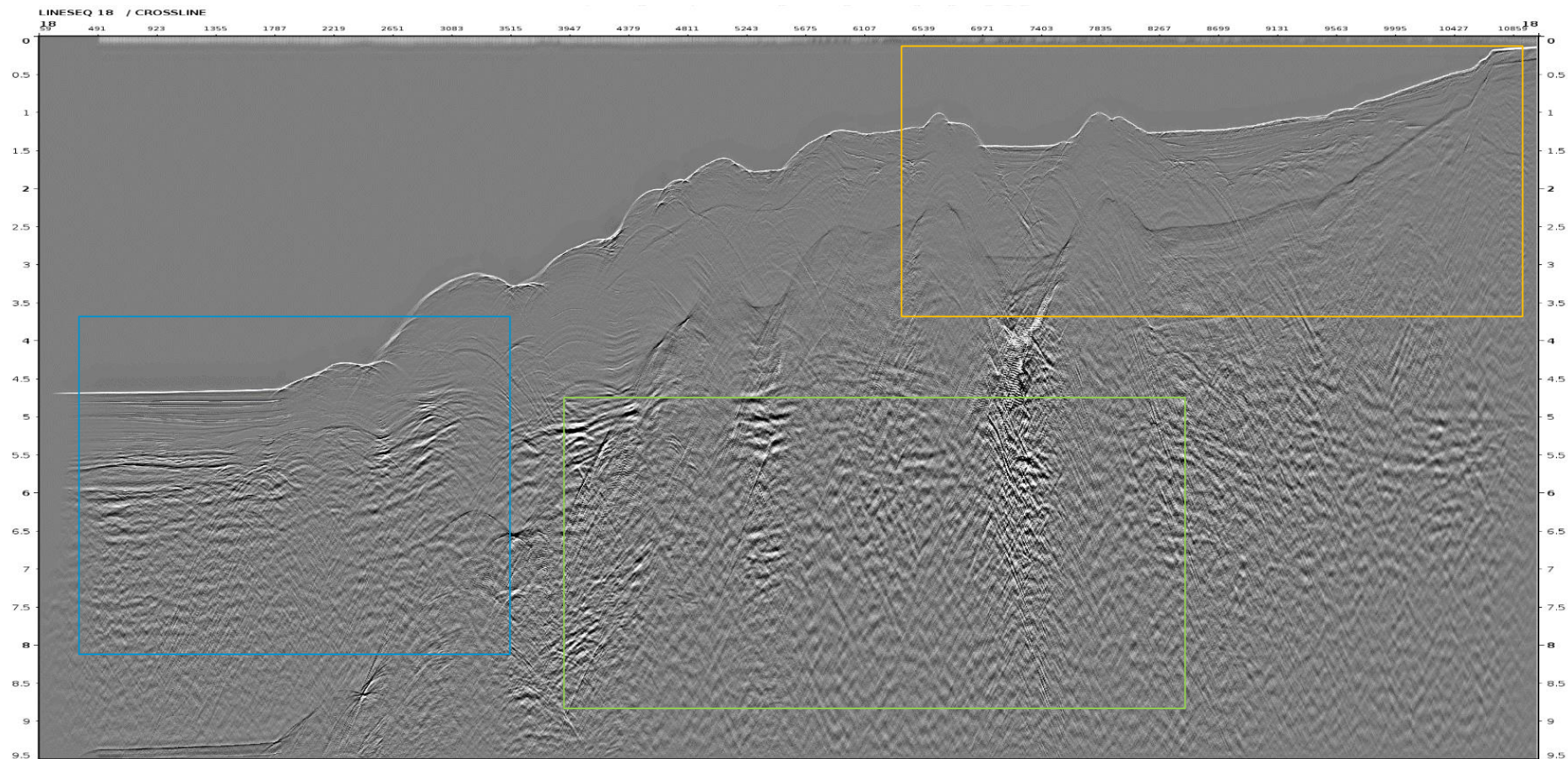


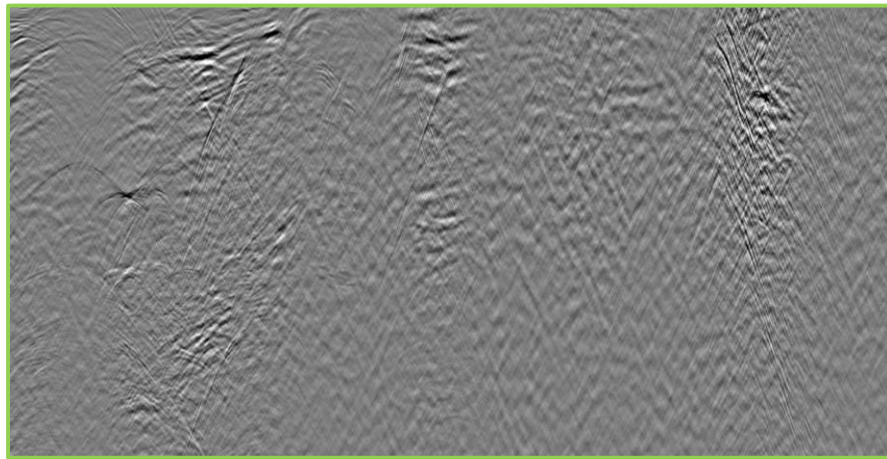
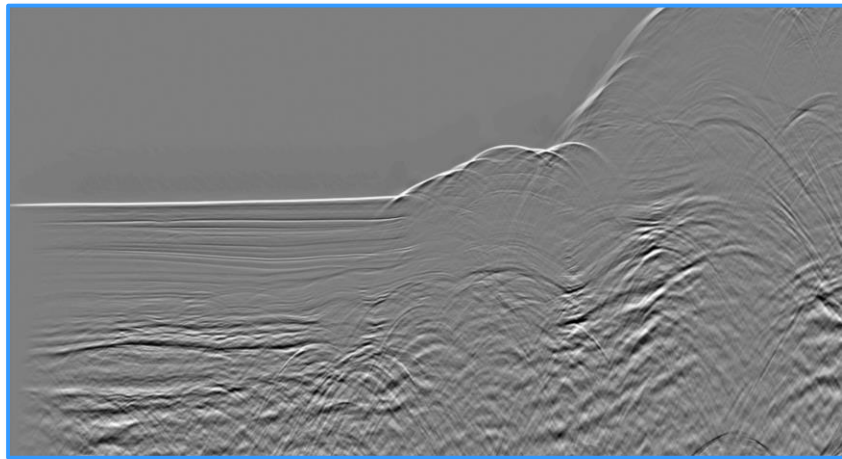
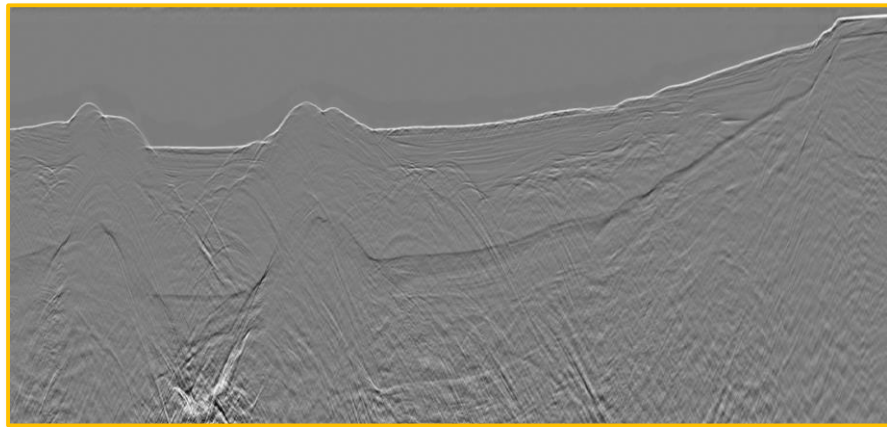
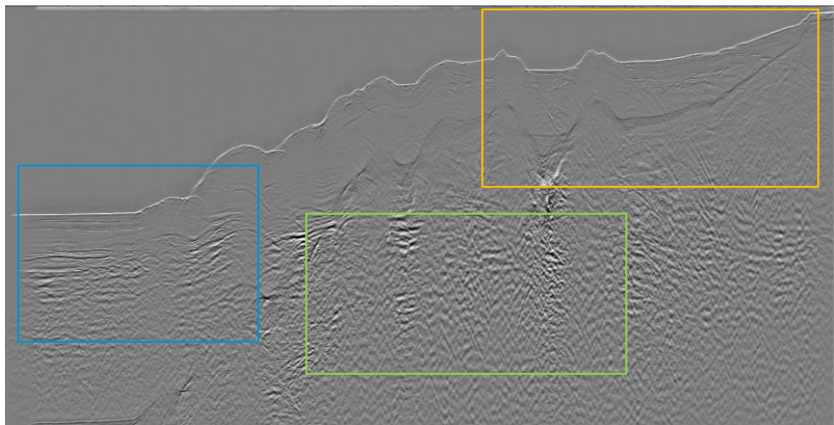
Stack before SSD Correction

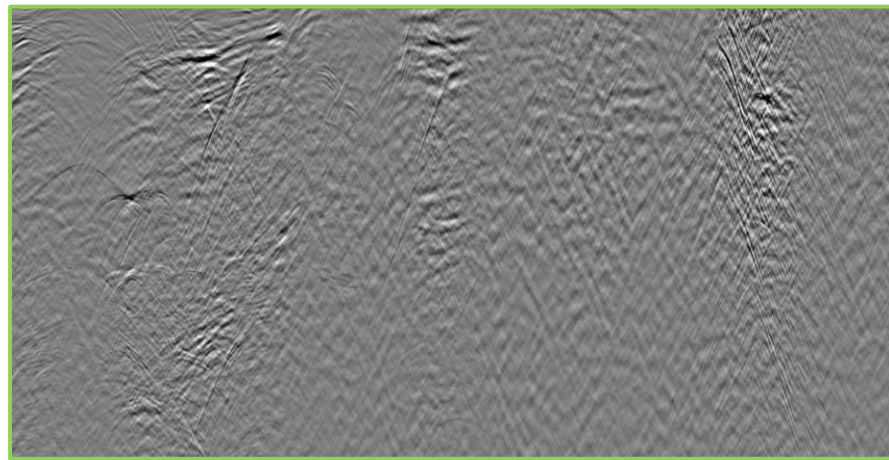
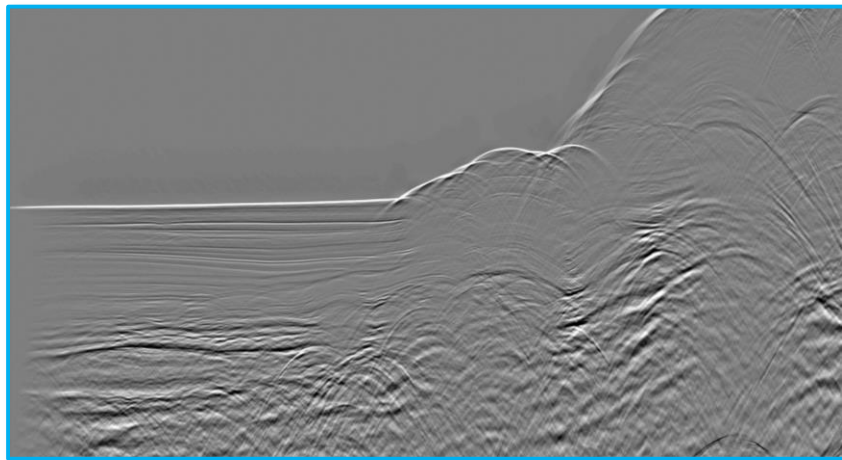
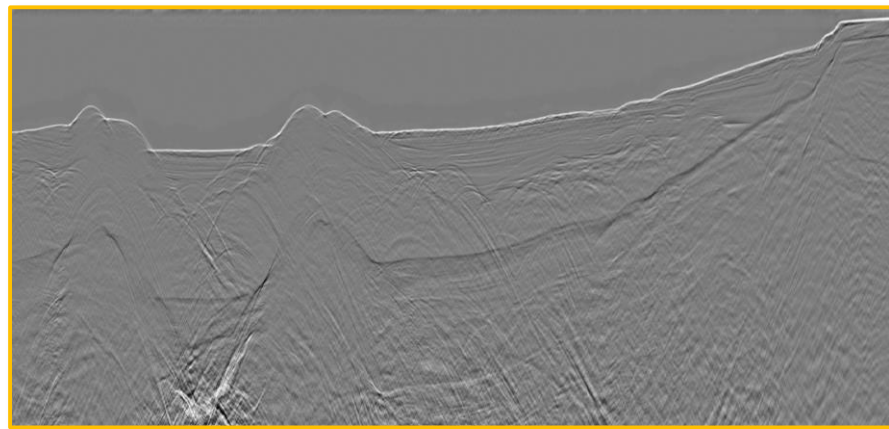
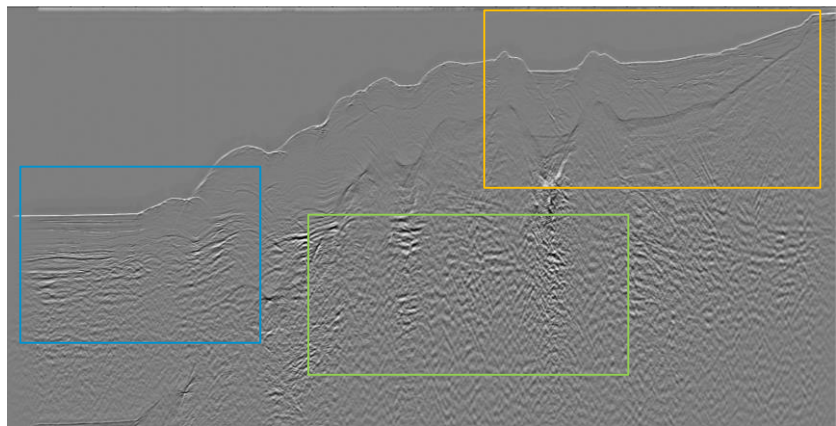




Stack after SSD Correction







Seq 039

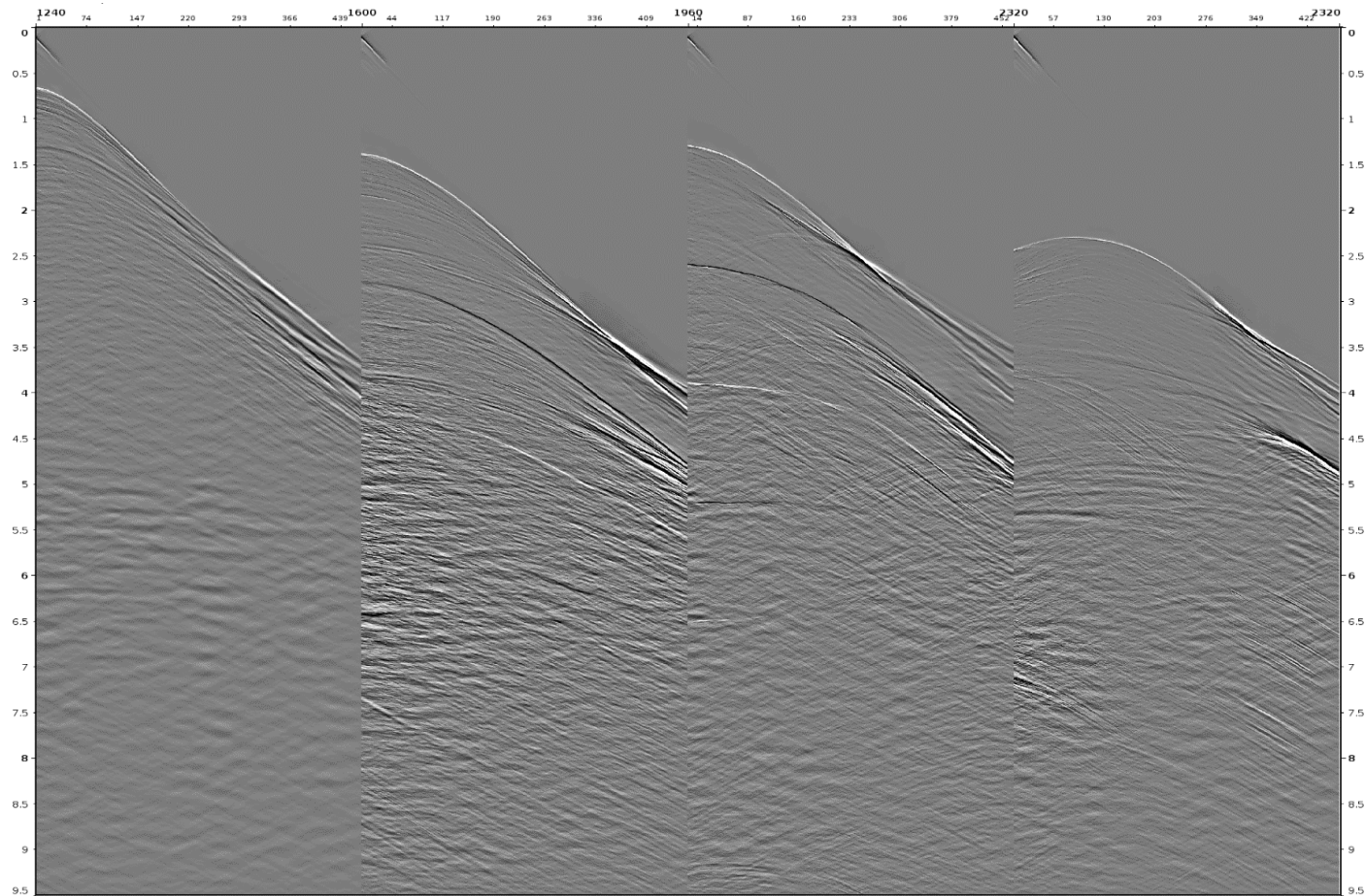
Shot gathers

Stack



Shot Gather before SSD Correction

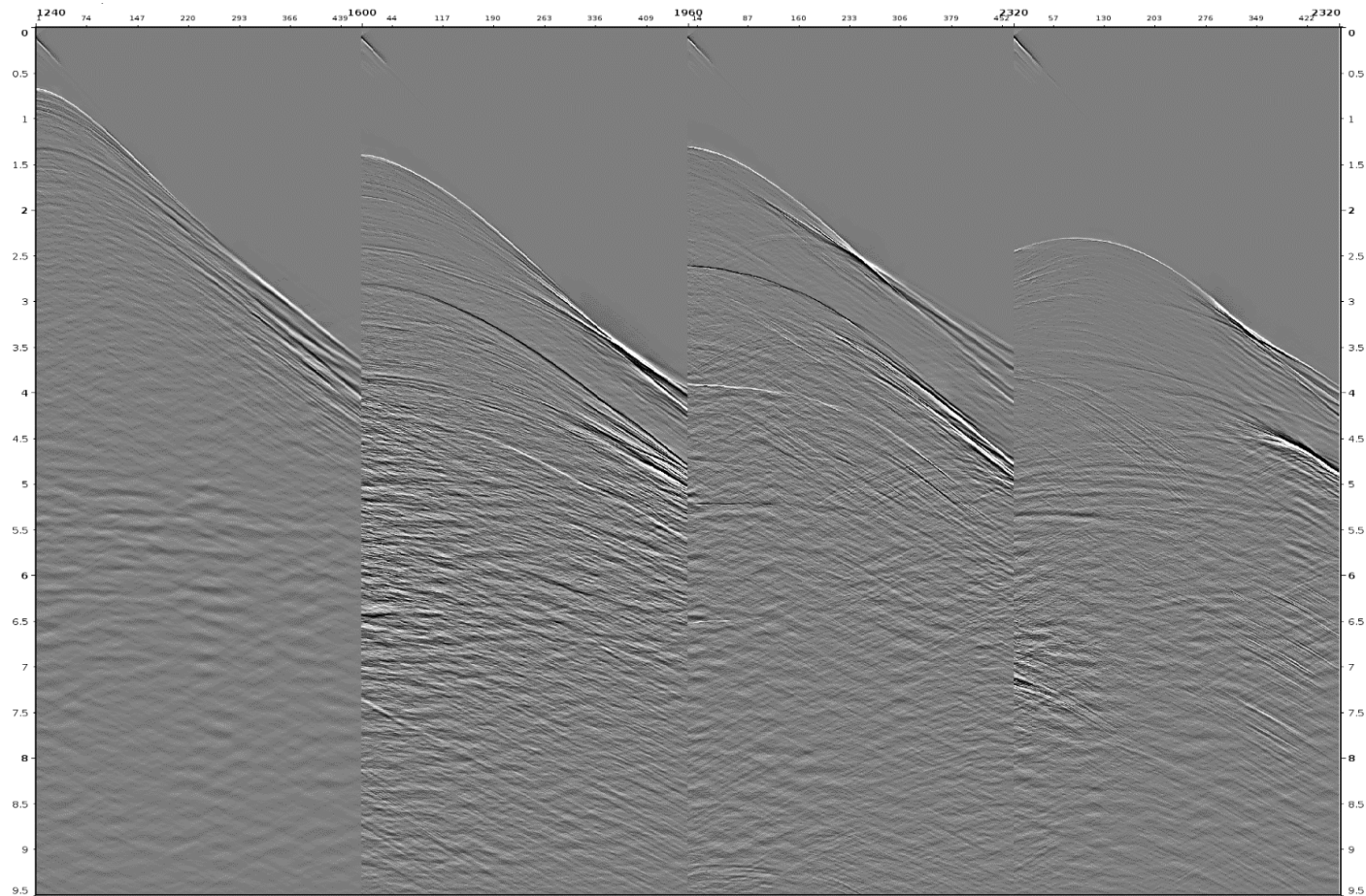
13



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- The event geology keeps consistent.

Shot Gather after SSD Correction

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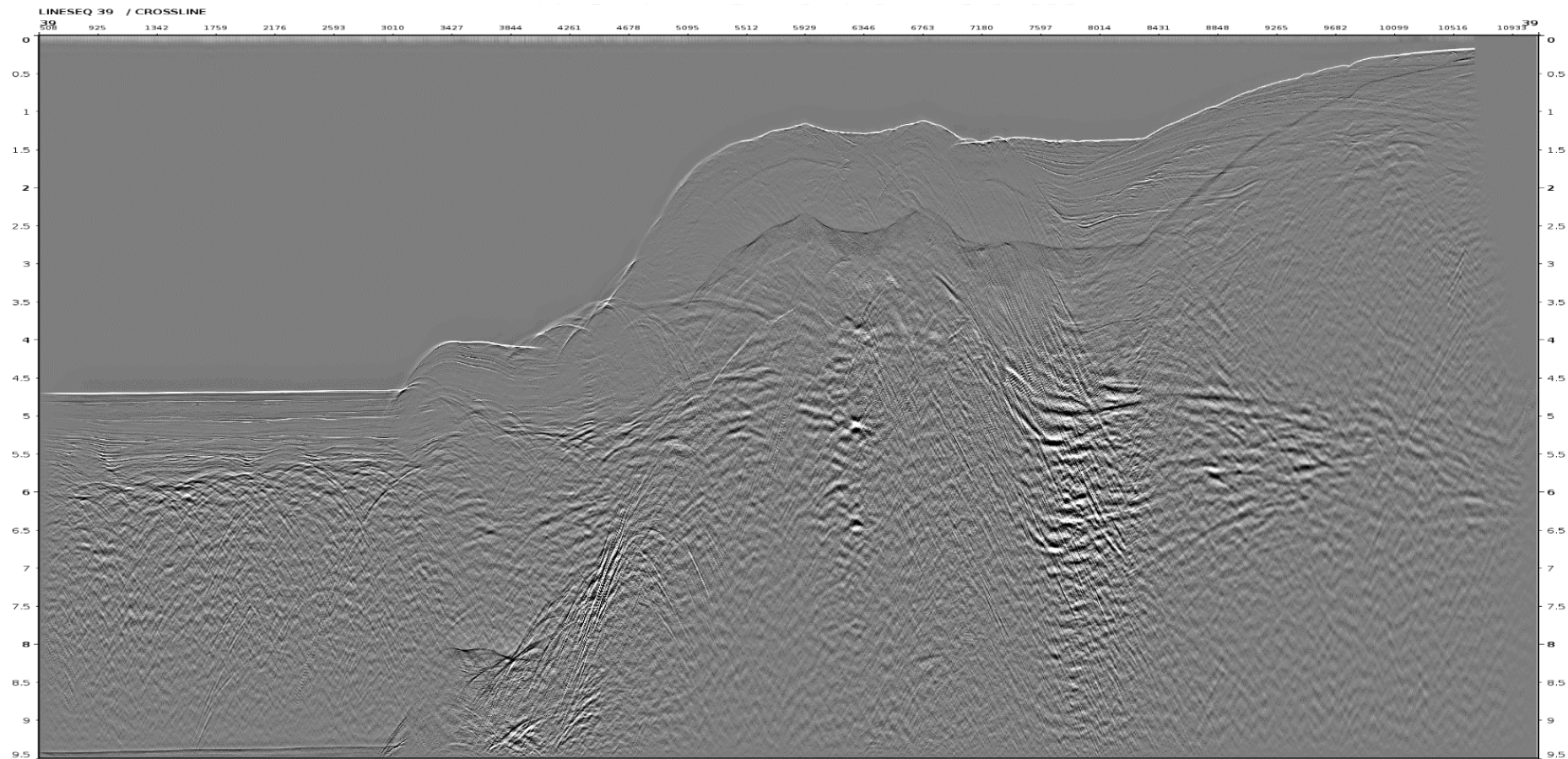


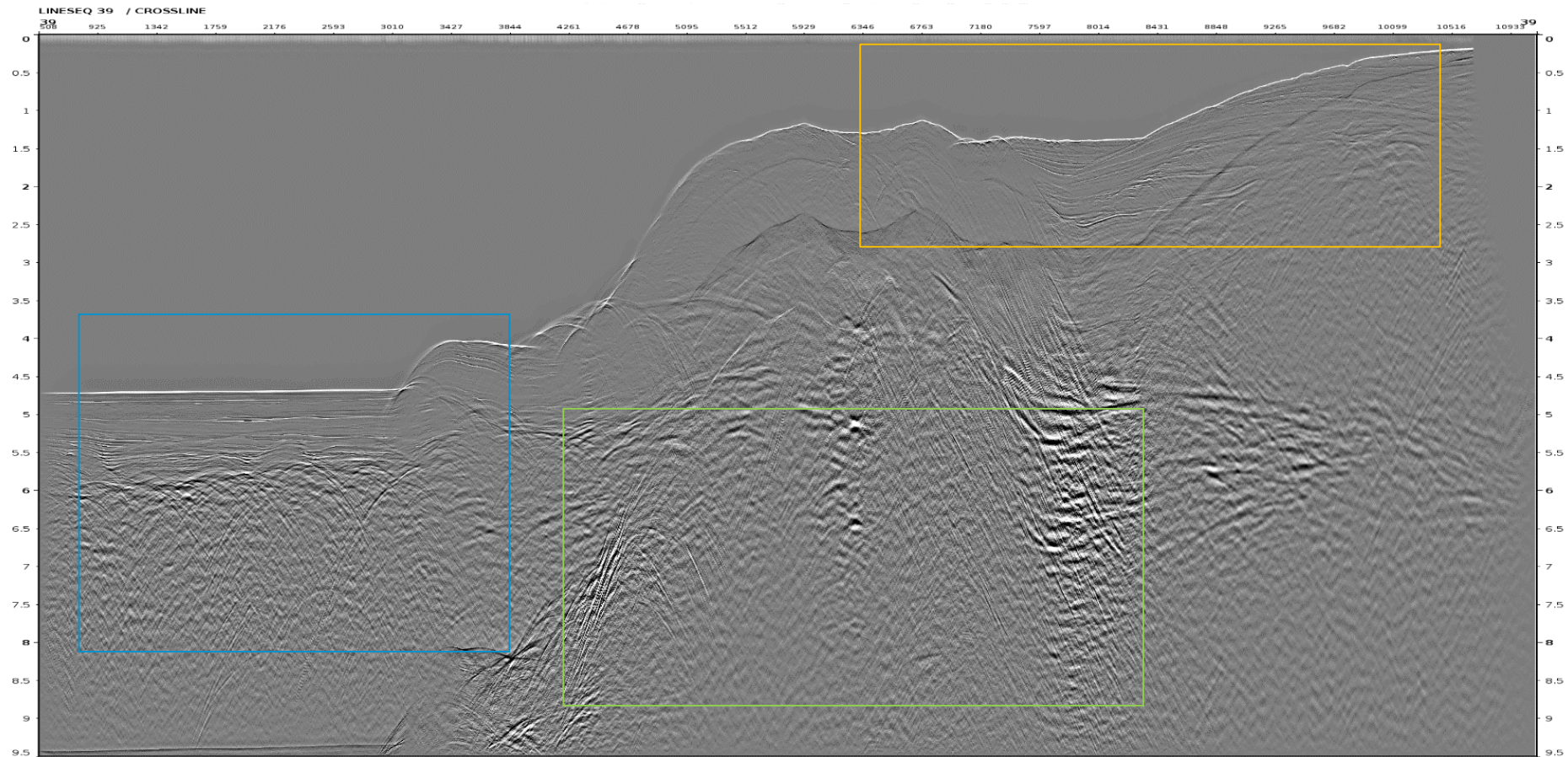
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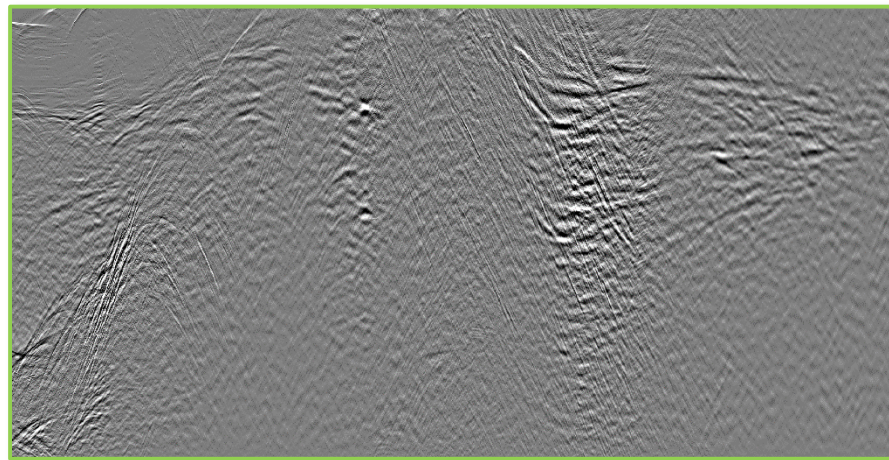
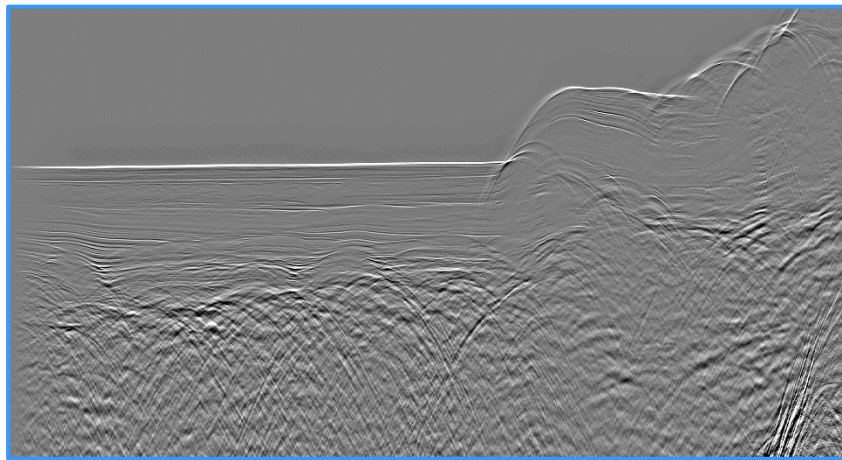
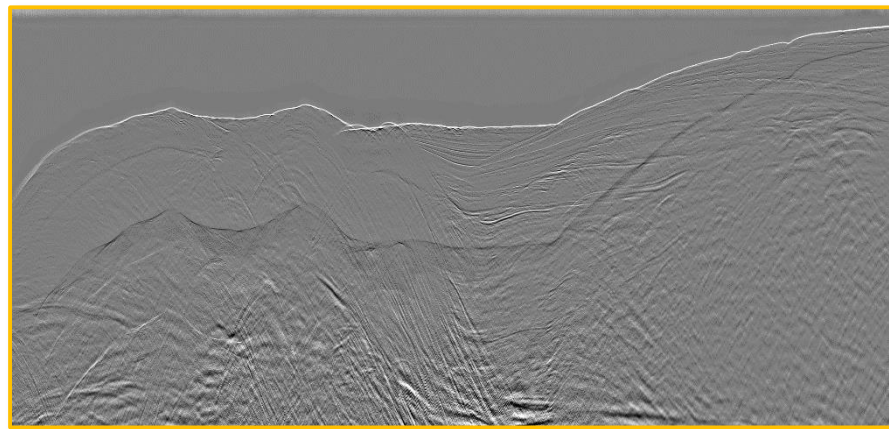
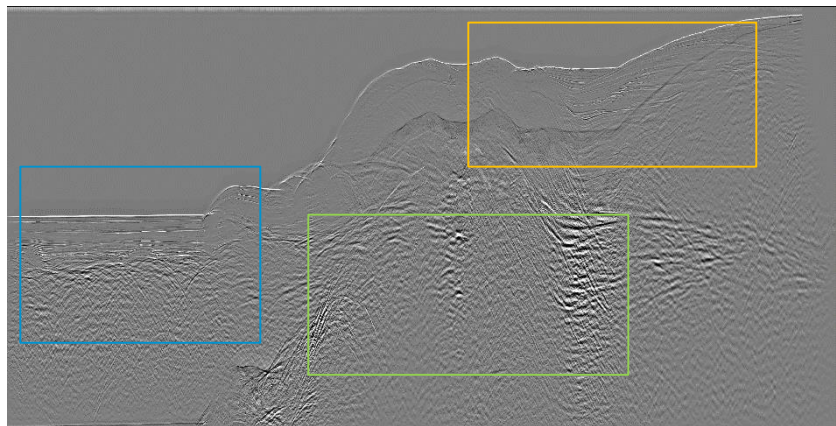


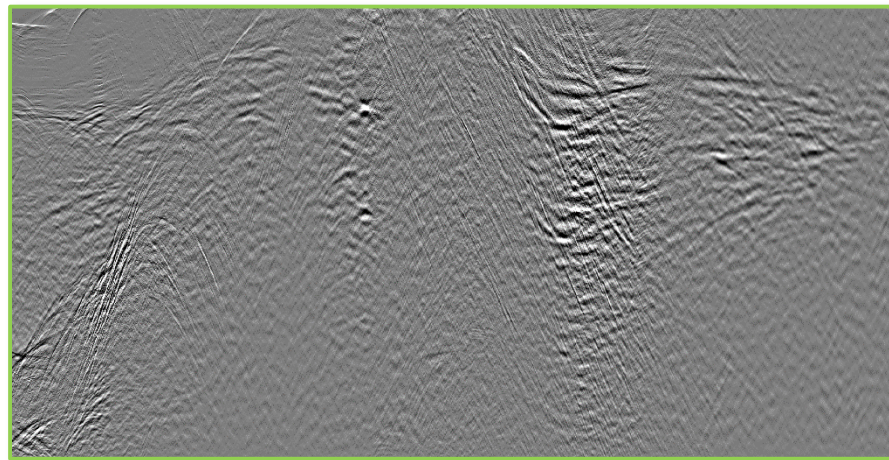
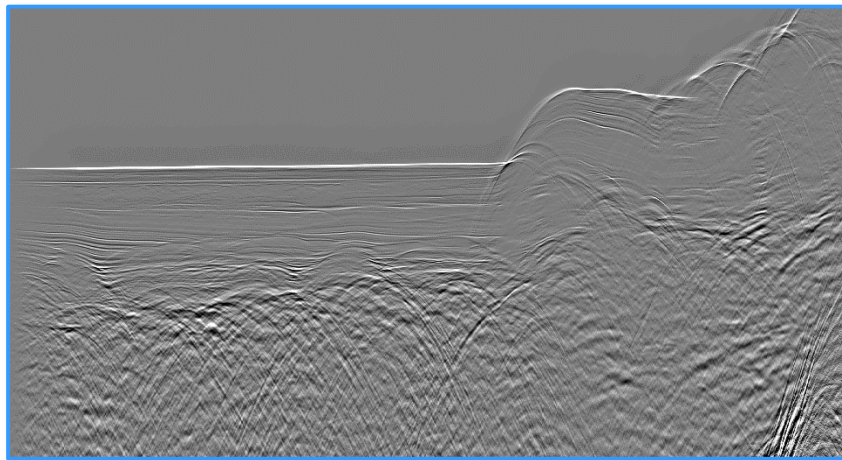
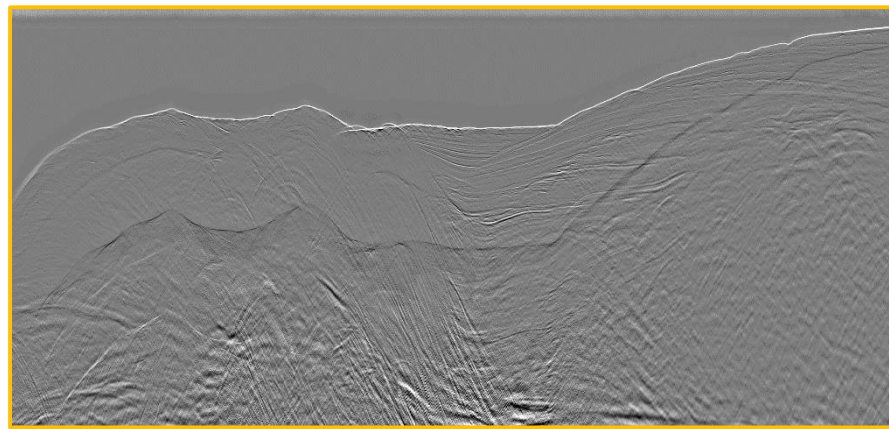
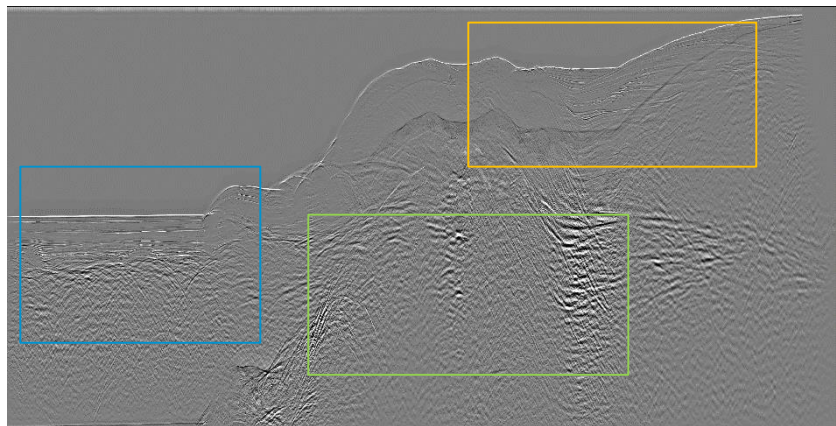
Stack before SSD Correction

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- The shifted seismic appears as if acquired with source and receiver lying at the mean sea level, which is necessary to following free surface related multiple modelling.