



IT4 – Part 1

NZ 3D Processing

03 February 2021

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INSTITUTE FOR GEOPHYSICS



- **Objective:**

To further improve deep velocity, especially in the middle and west part.

- **Procedure:**

Based on IT3 result, theta and phi were updated. Epsilon is increased from 5% to 8% in the middle to west part based on previous epsilon scanning result. TTI FWI was then run with updated anisotropy from 2.5Hz to 5Hz.

- **Display:**

Velocity, migrated depth full stack & gathers.

- **Observation and Recommendation:**

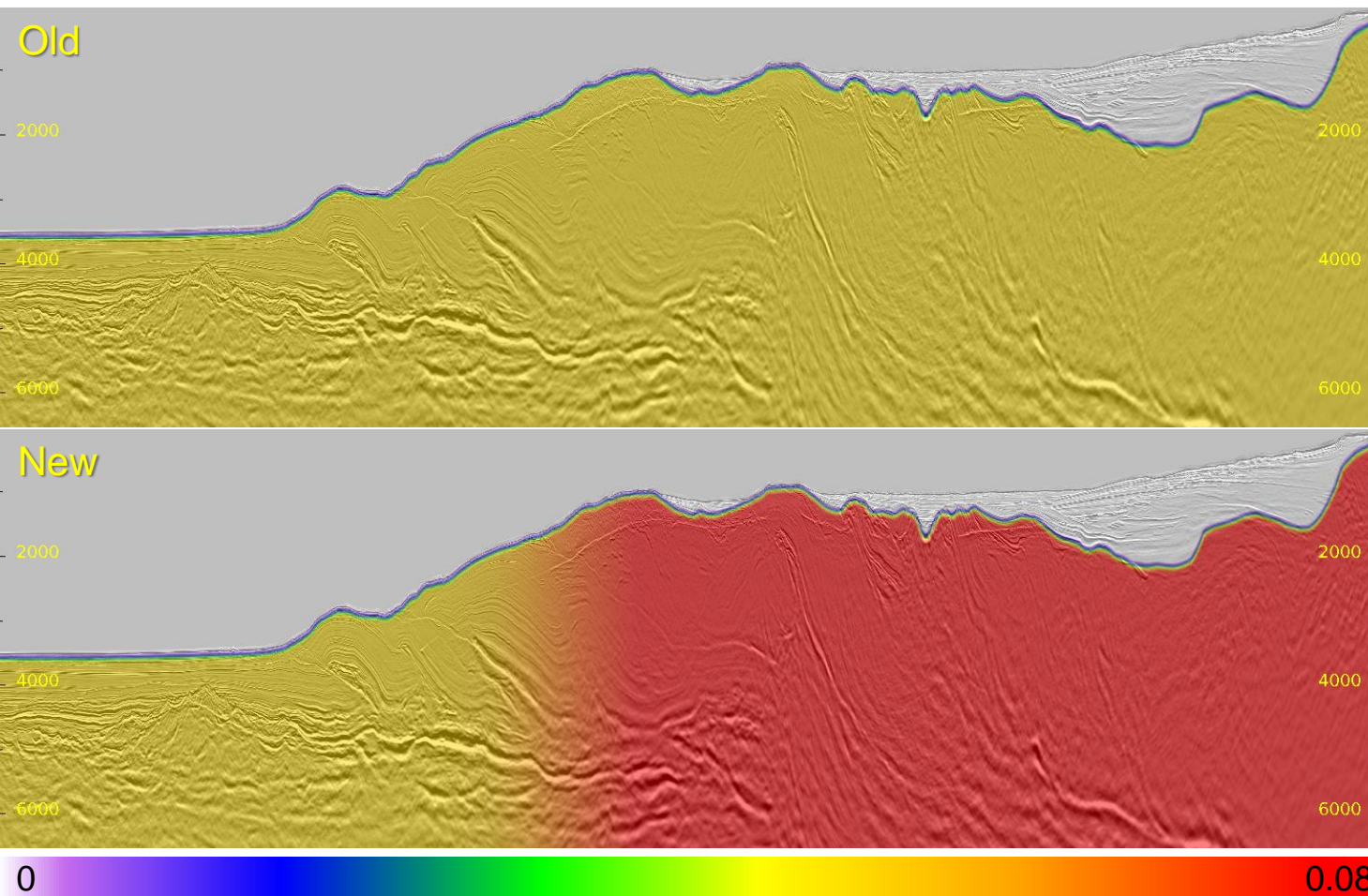
In the low S/N area from middle to west of the survey, the velocity in the deeper area is more geological and results in a better imaging of the central dipping events. We'll continue to focus this area for better velocity.

Velocity Model



Inline 436: Update on Epsilon

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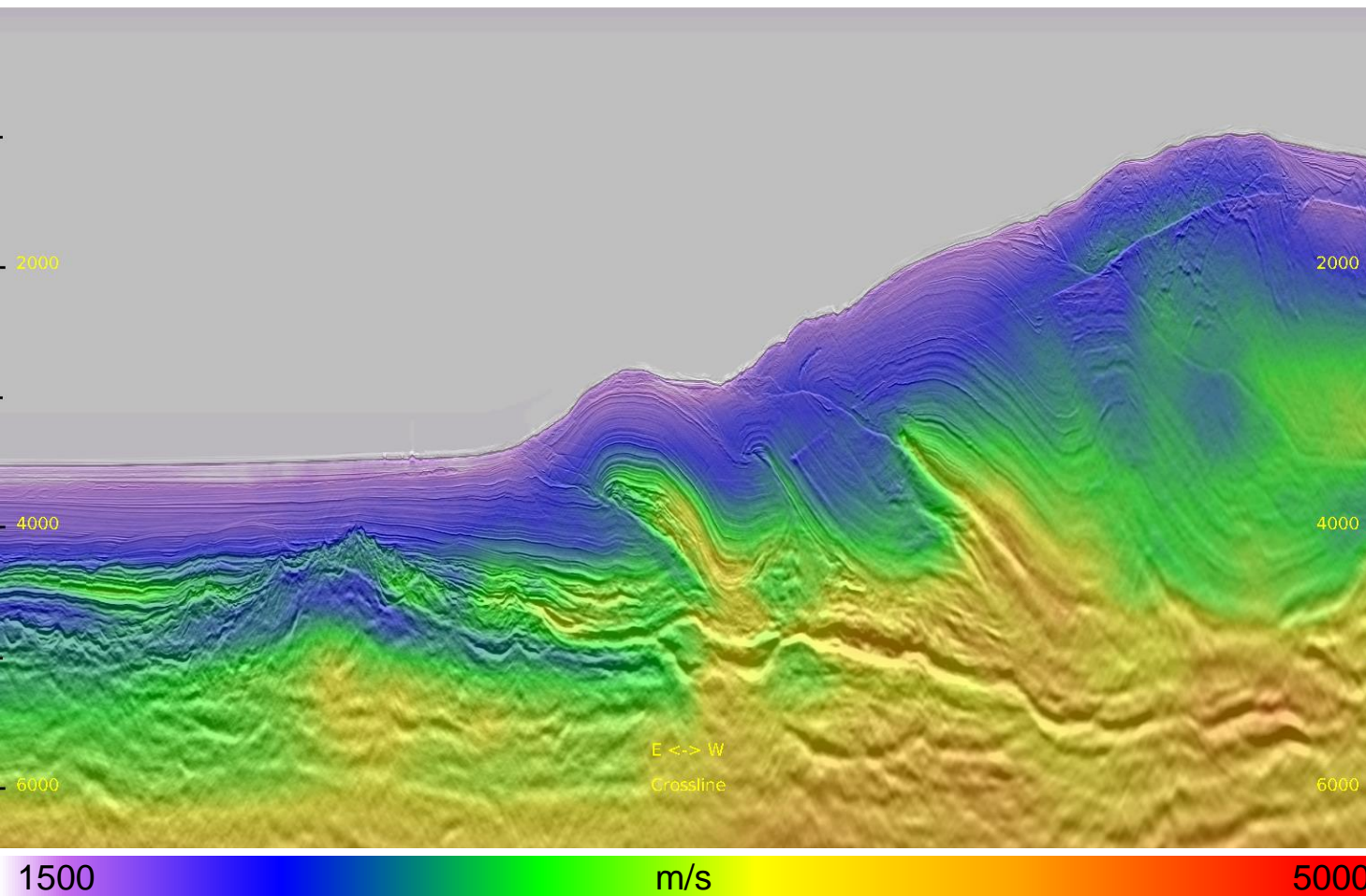


- Base on epsilon scan result, the epsilon value was increased for the middle and west part.



Inline 436 East: IT3 Velocity

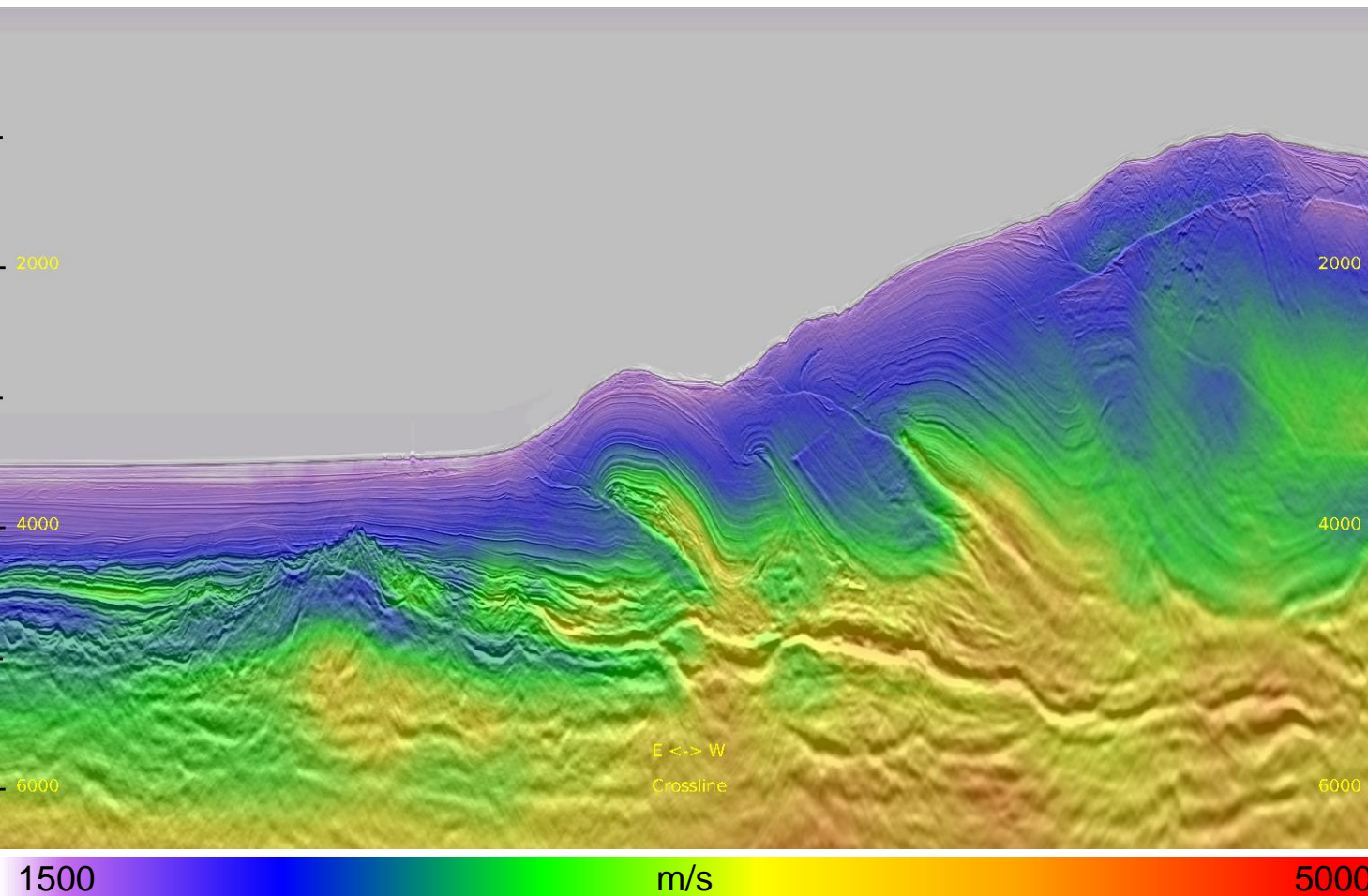
5



- Starting velocity is from IT3 TTI FWI.

Inline 436 East: Current Velocity

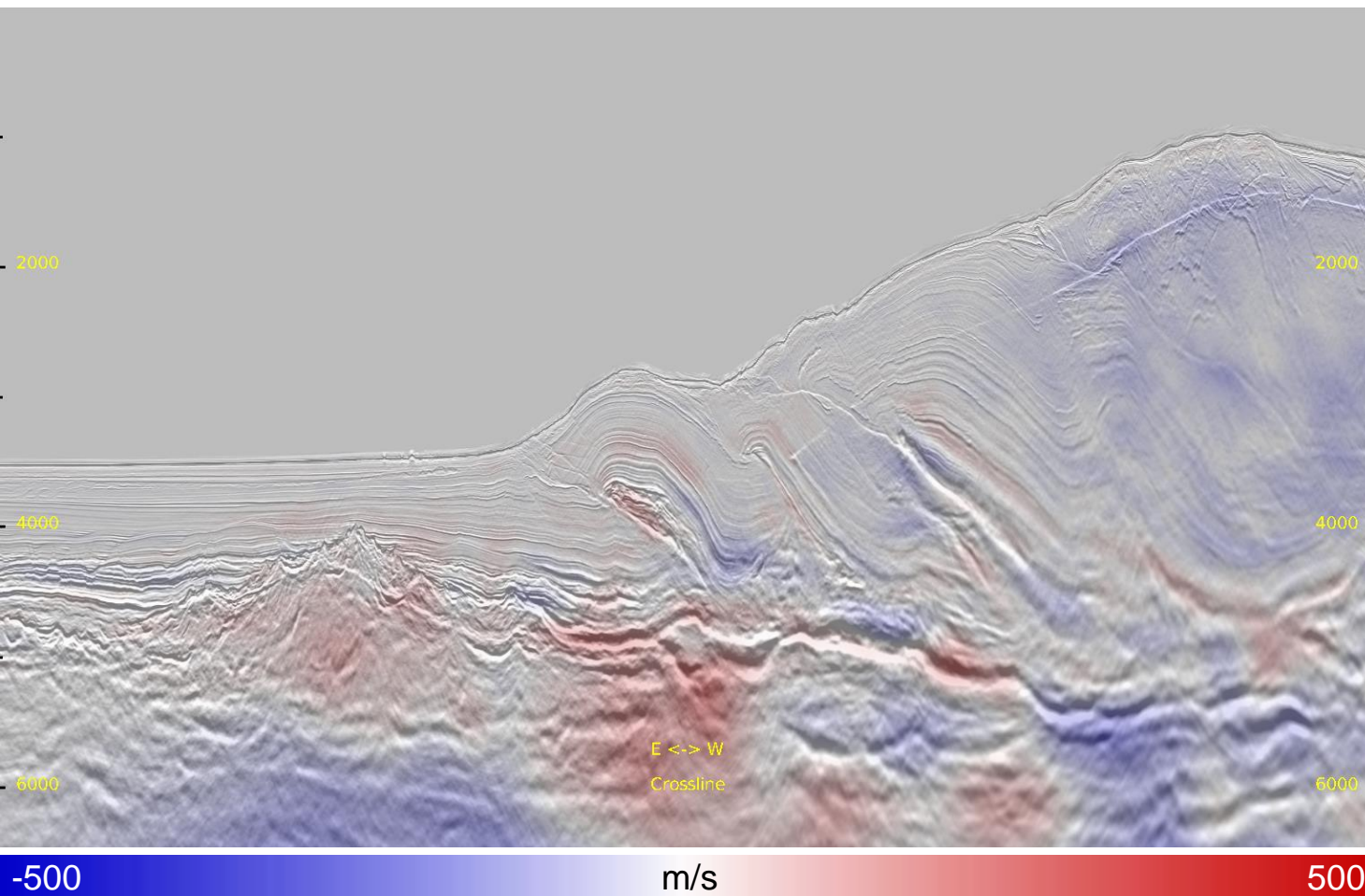
6



- Velocity perturbation is small in this area.

Inline 436 East: Velocity Perturbation

7

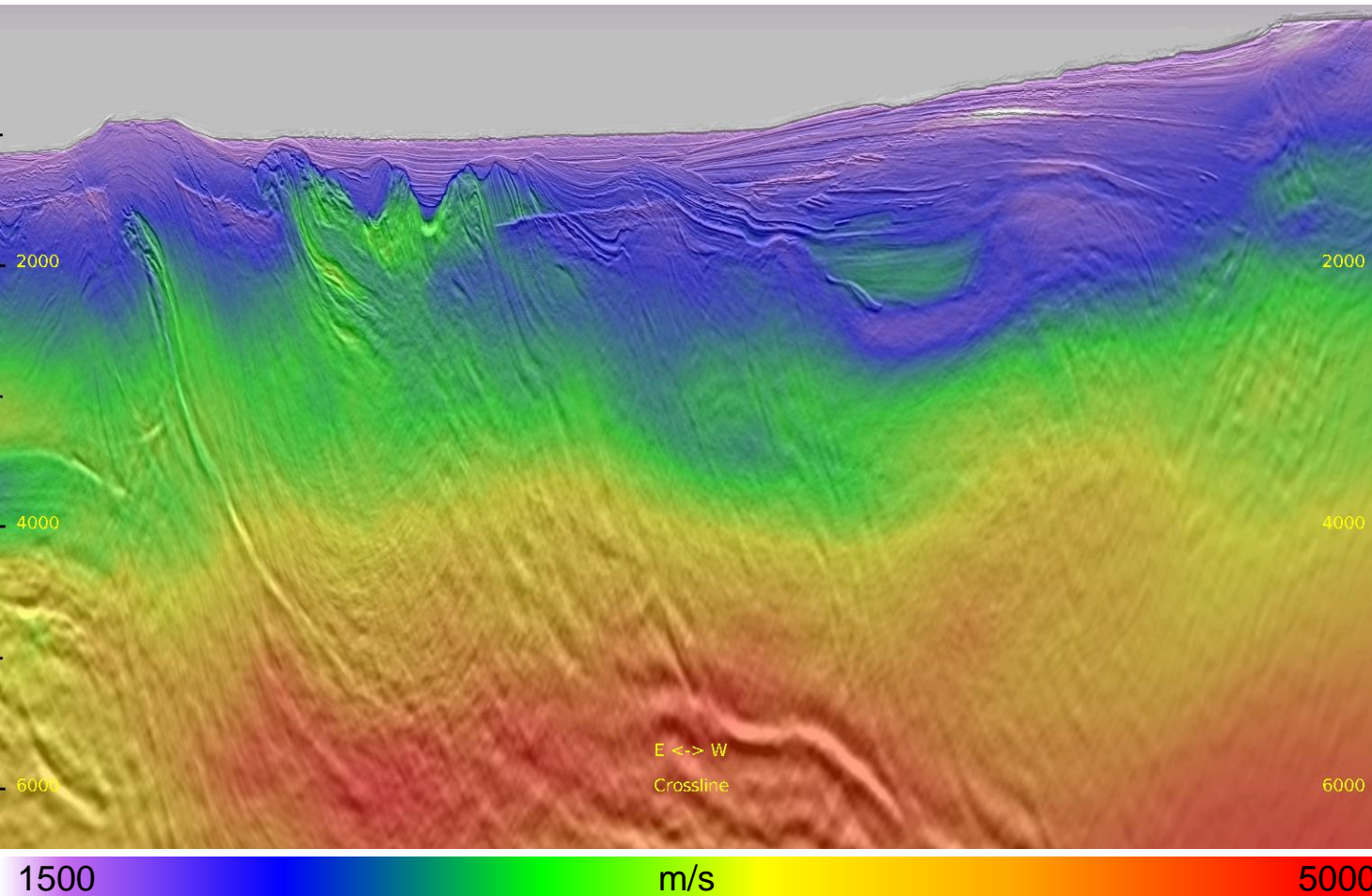


- Velocity perturbation is small in this area.



Inline 436 West: IT3 Velocity

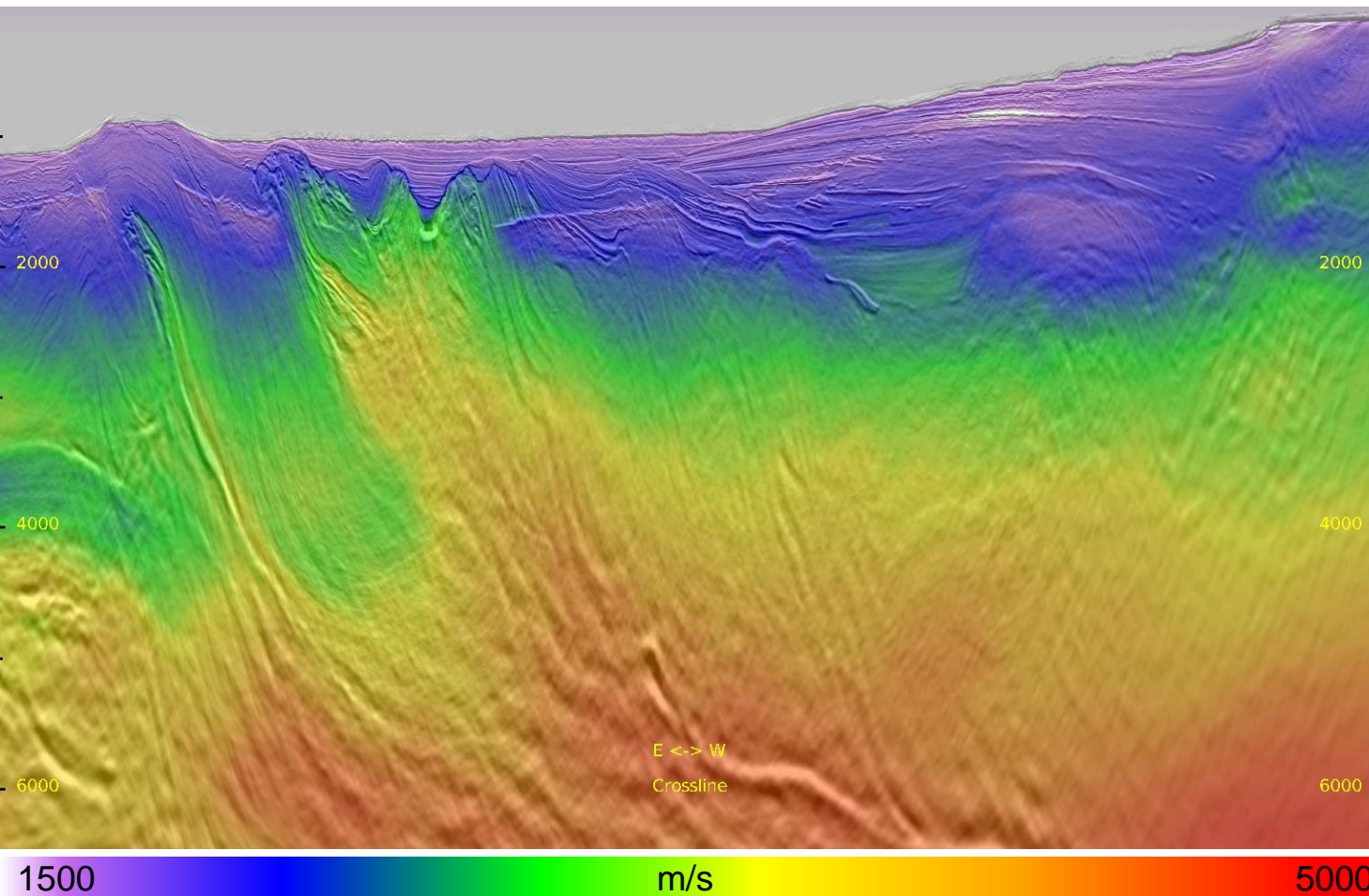
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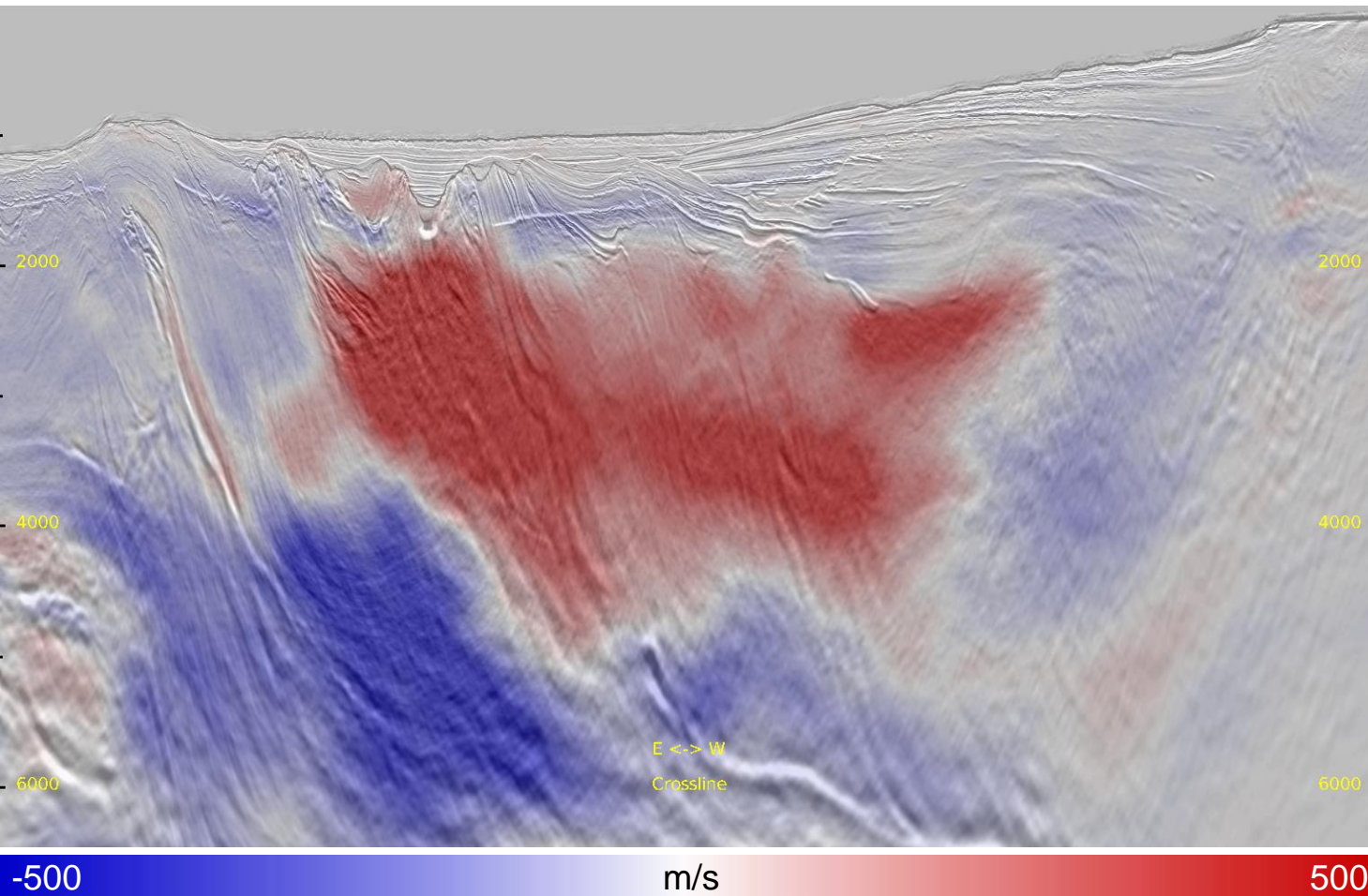
- Starting velocity is from IT3 TTI FWI.

Inline 436 West: Current Velocity

9



- After update with new anisotropy, the velocity is more geological in the deep part.



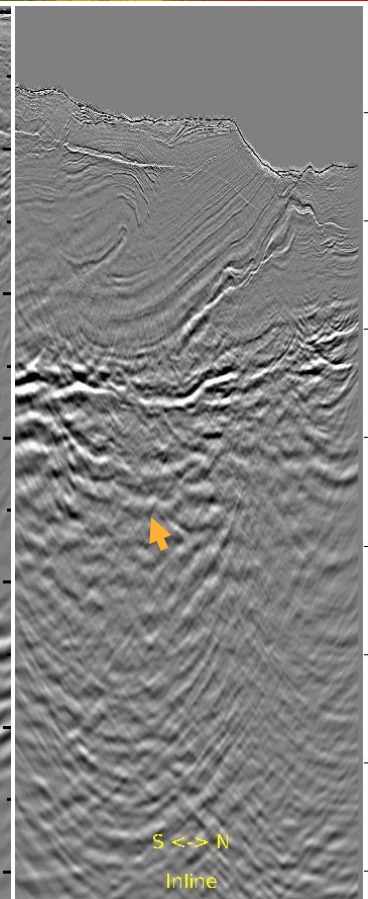
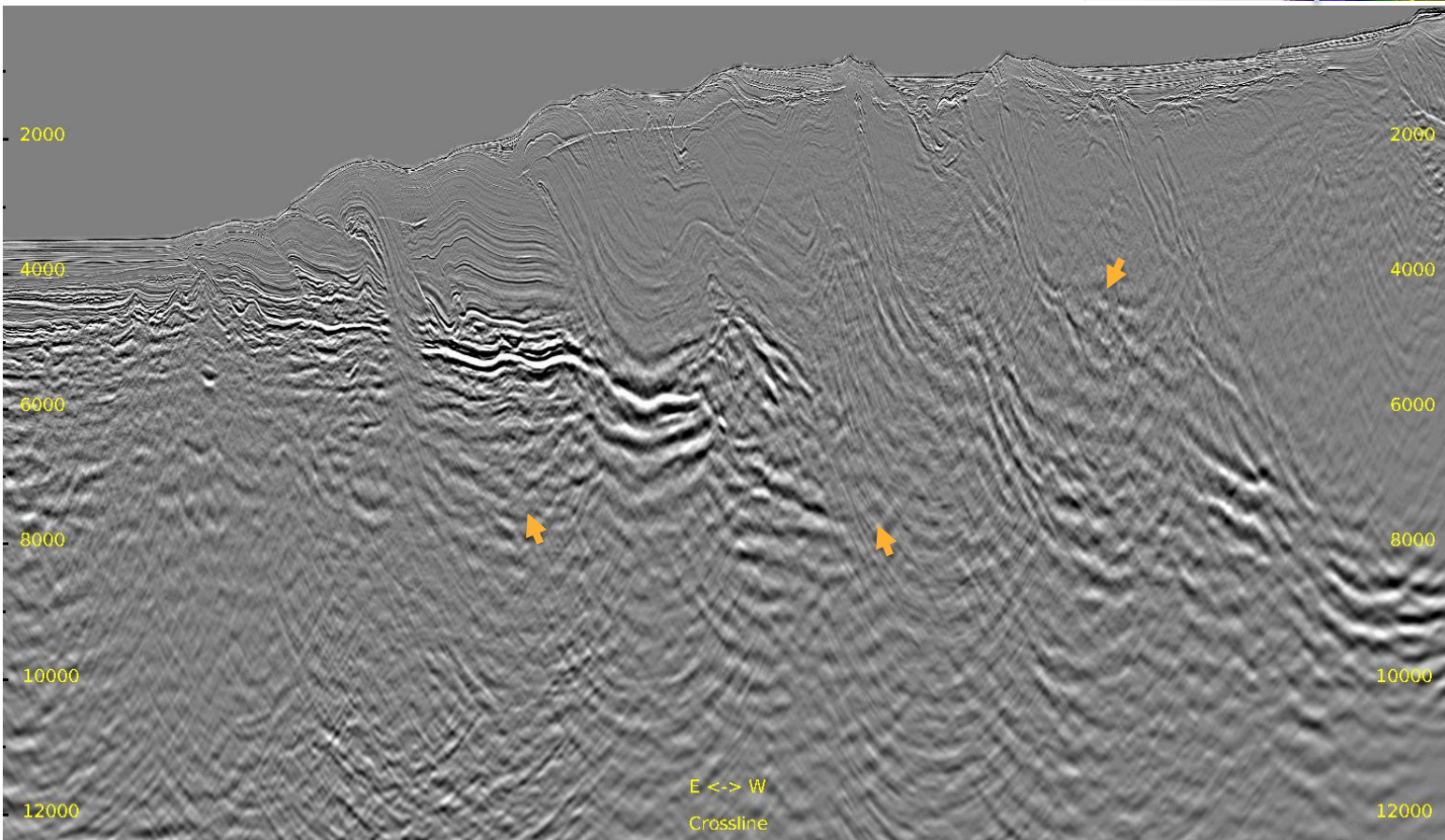
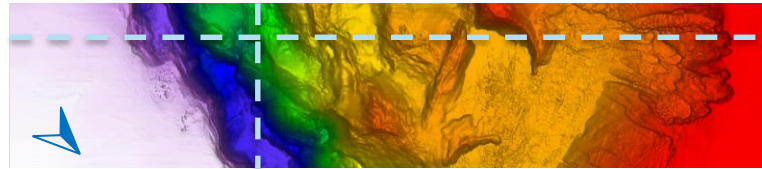
- Velocity perturbation is more in the deep part.

Kirchhoff Depth Migration



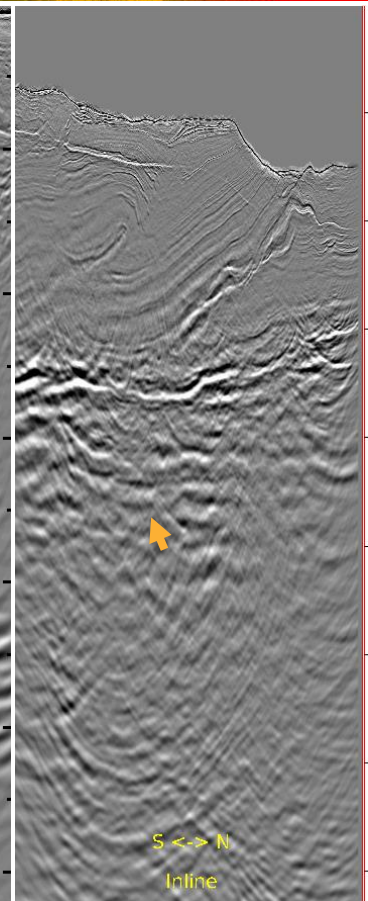
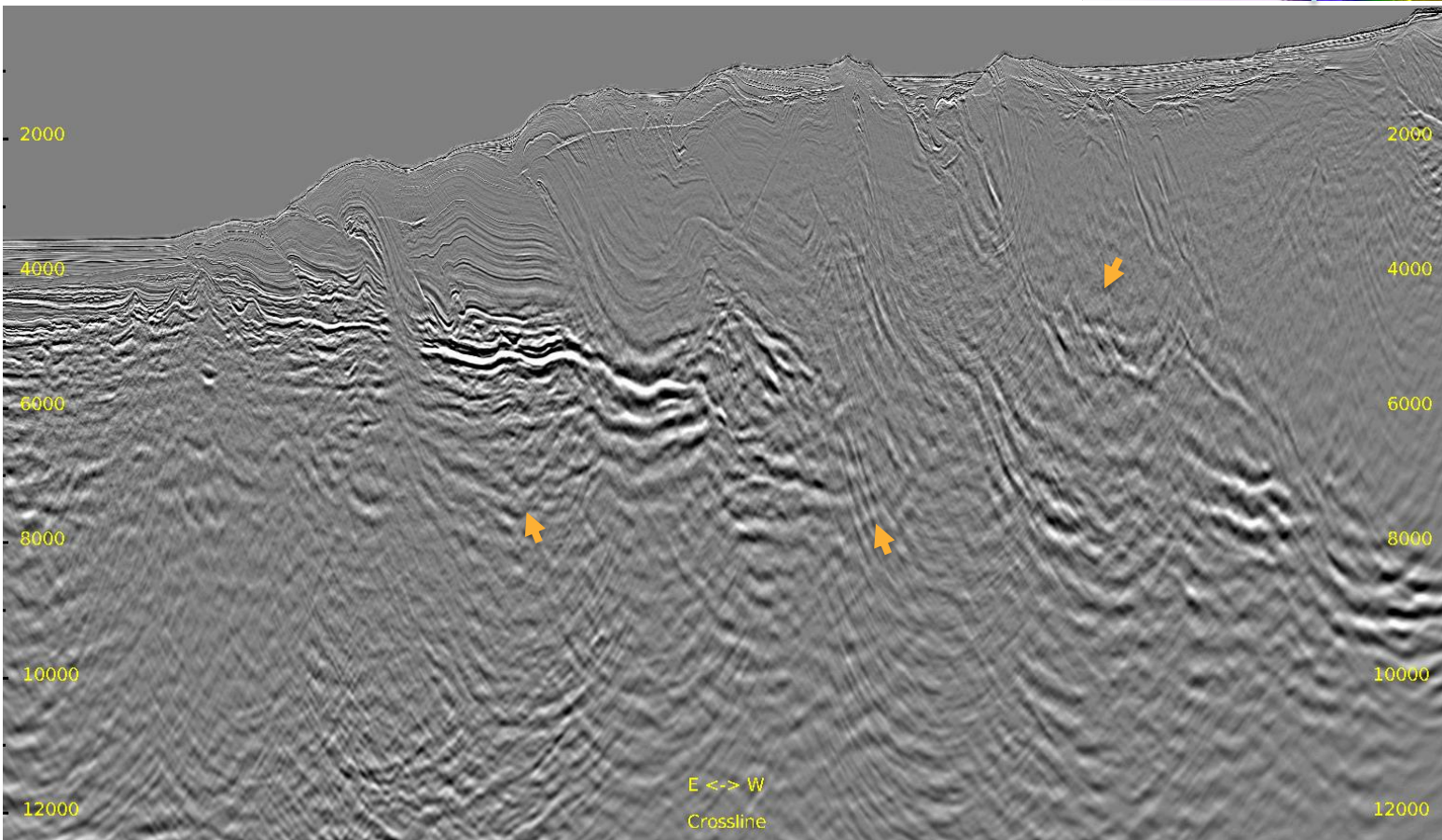
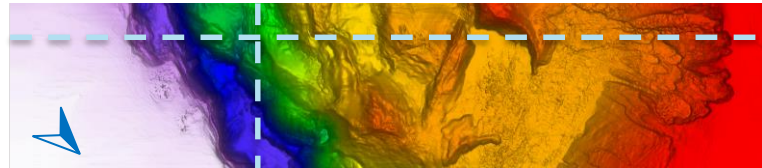
Full Stack: IT3 Result

Inline 205 & Crossline 2368



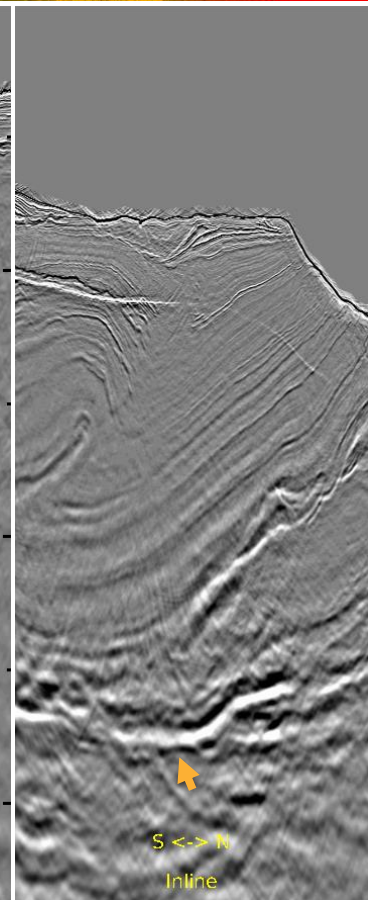
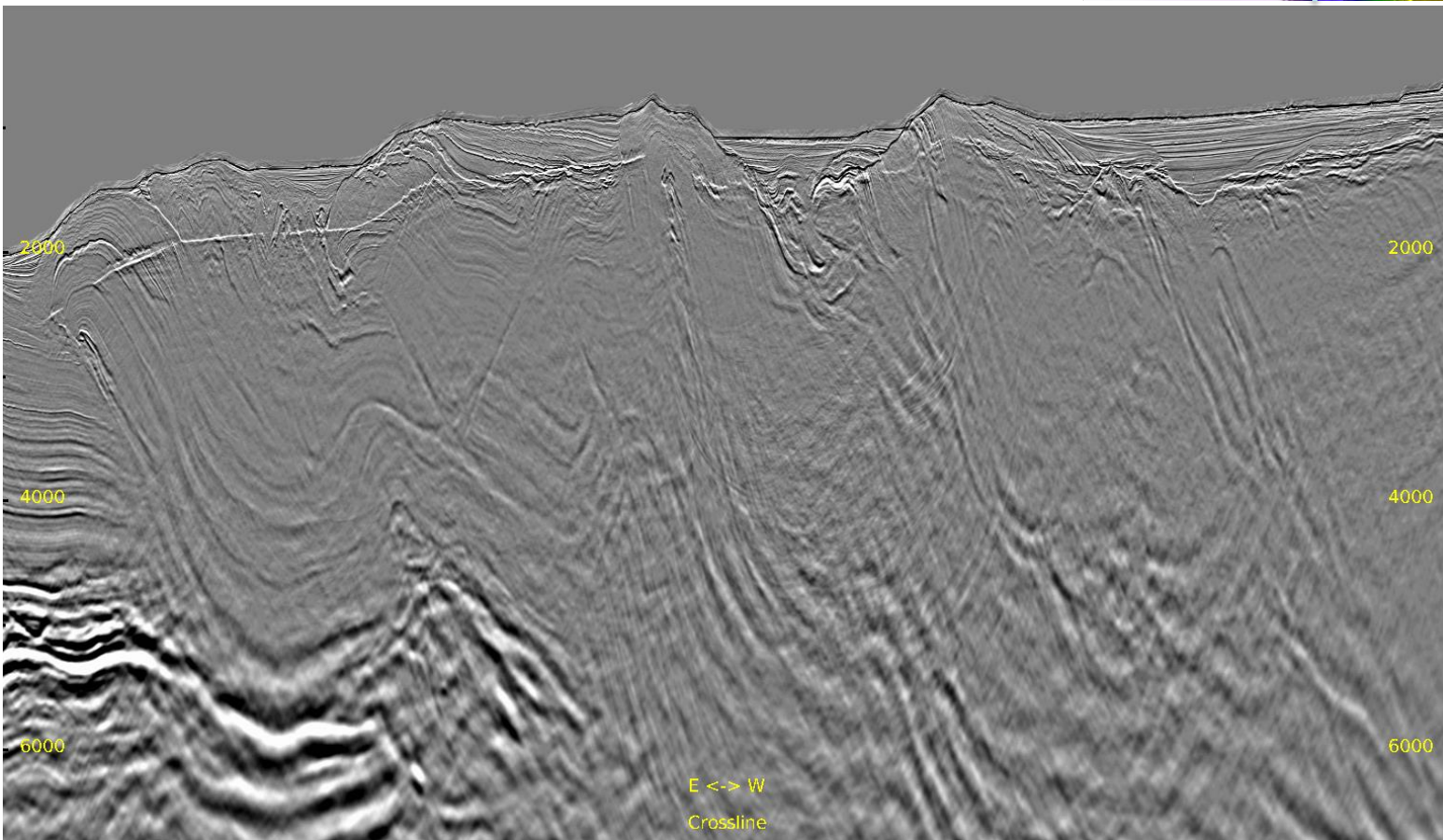
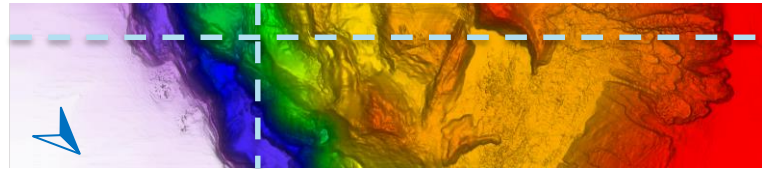
Full Stack: Current Result

Inline 205 & Crossline 2368



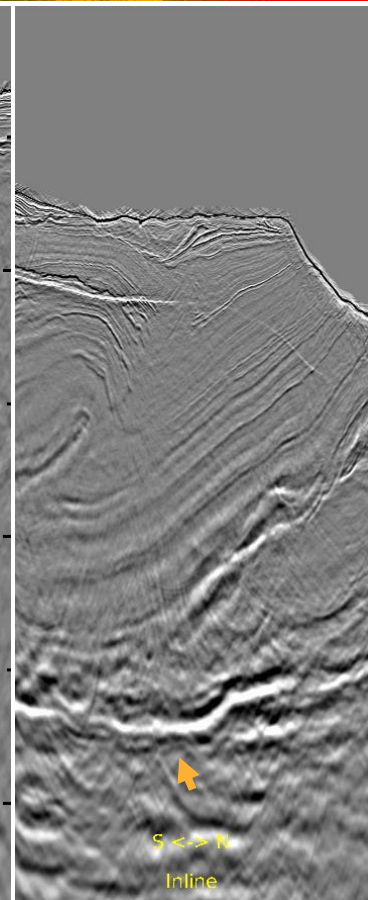
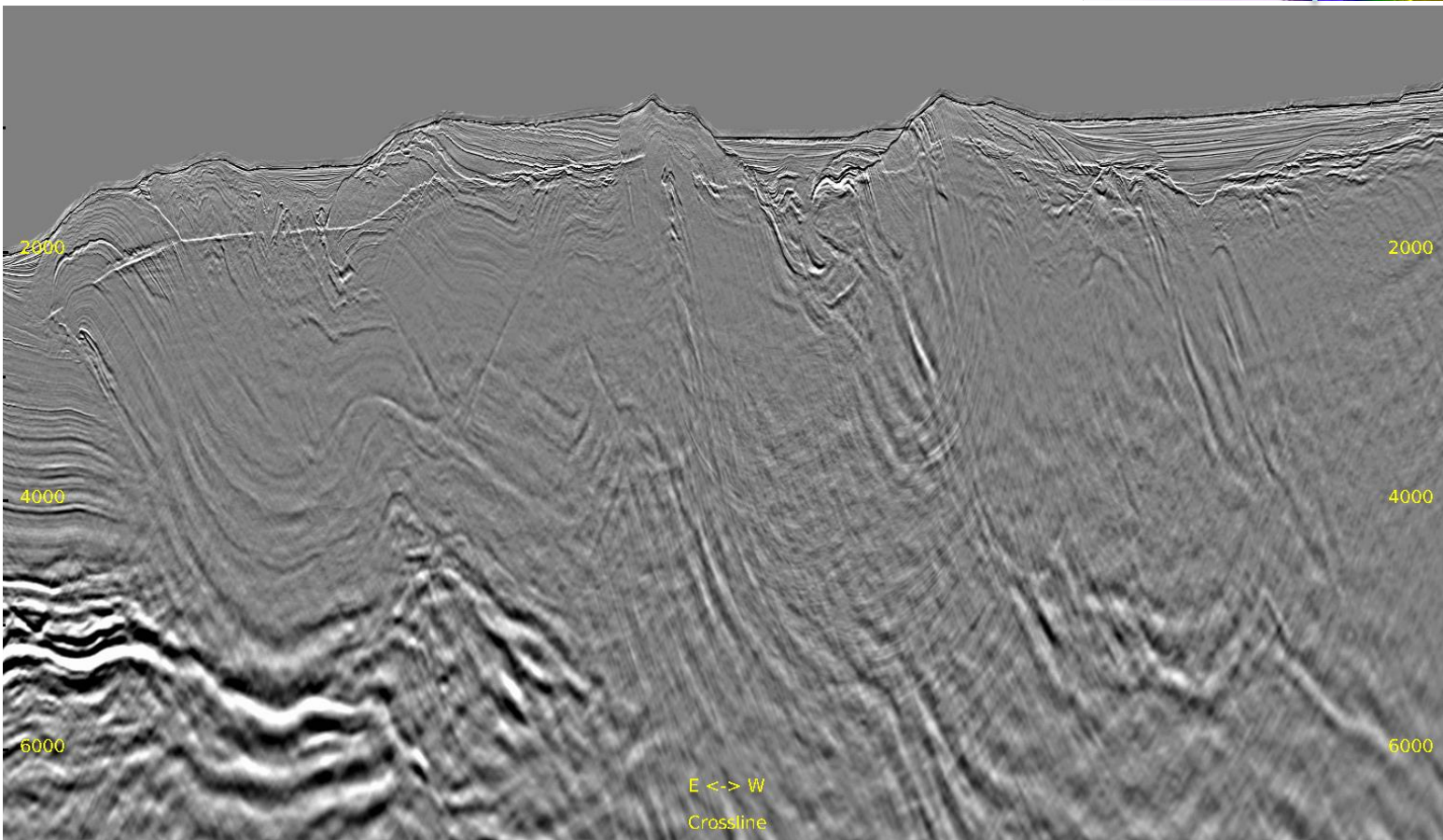
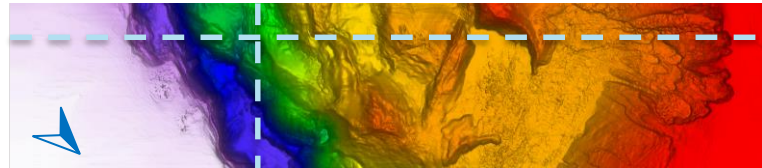
Zoomed Full Stack: IT3 Result

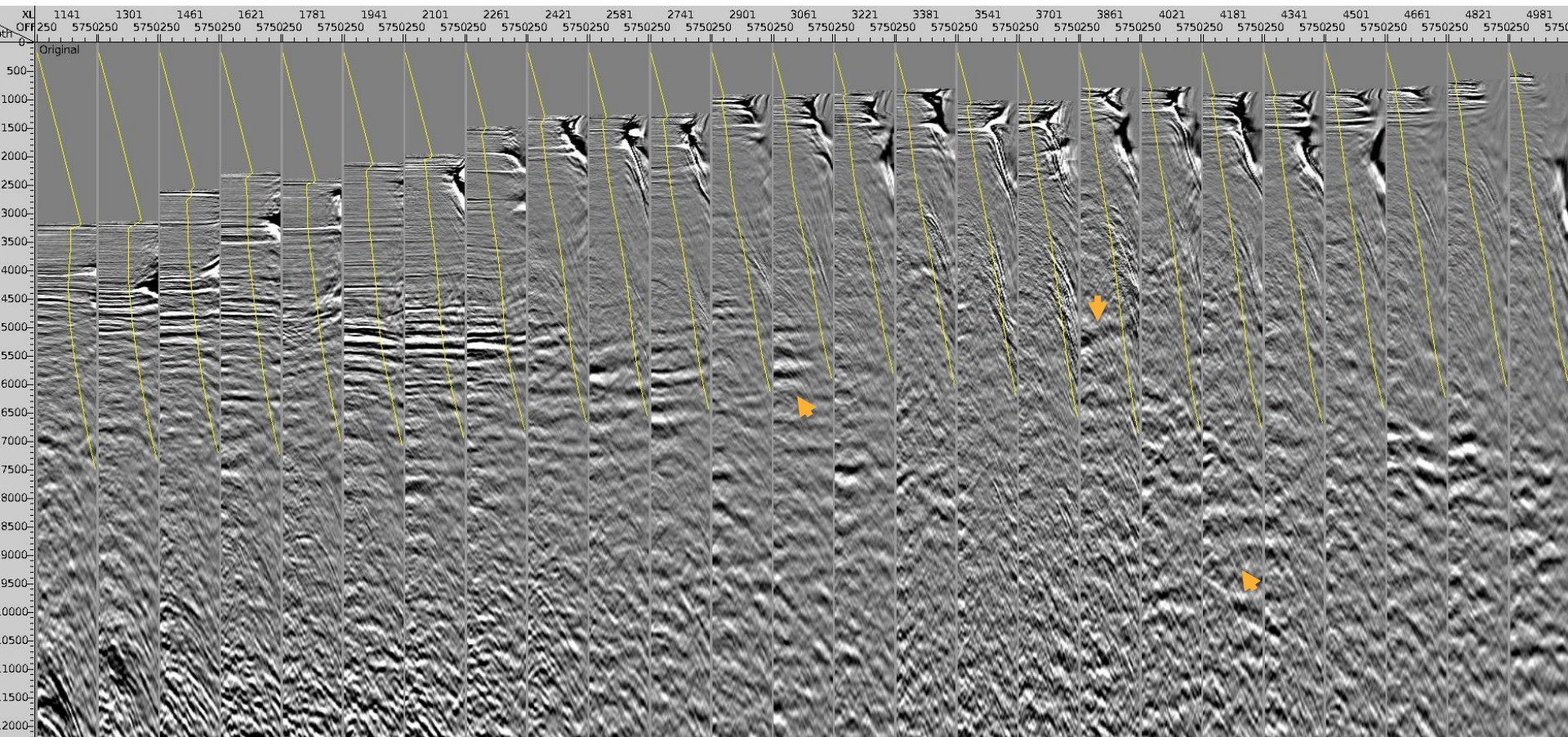
Inline 205 & Crossline 2368



Zoomed Full Stack: Current Result

Inline 205 & Crossline 2368



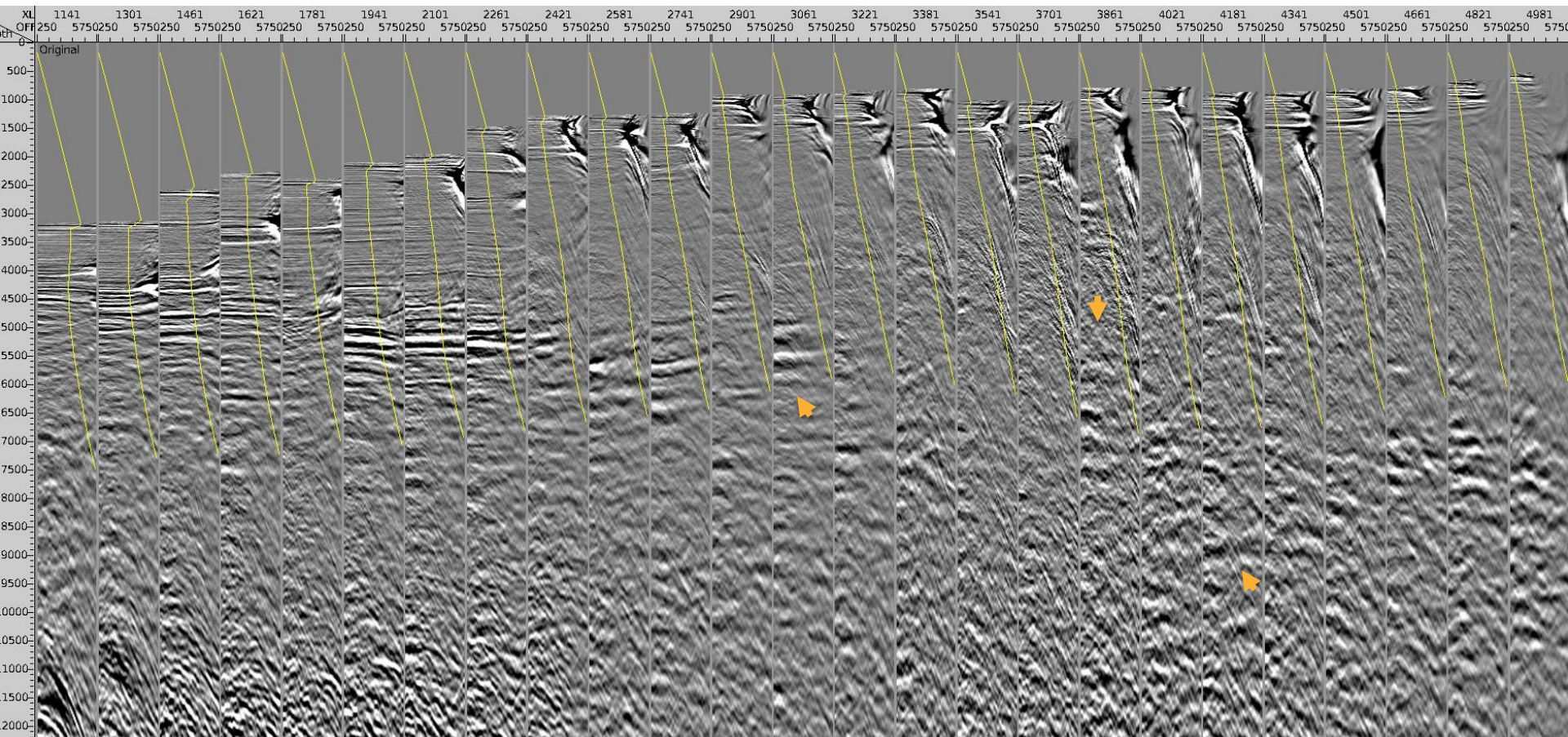




Inline 205 CDP Gathers: Current Result

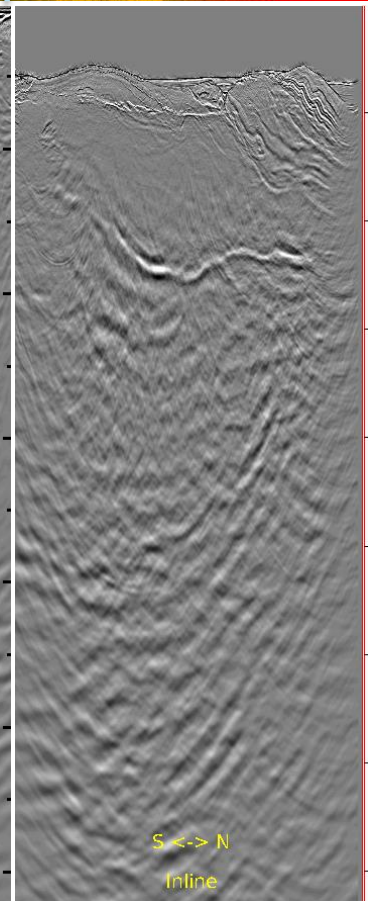
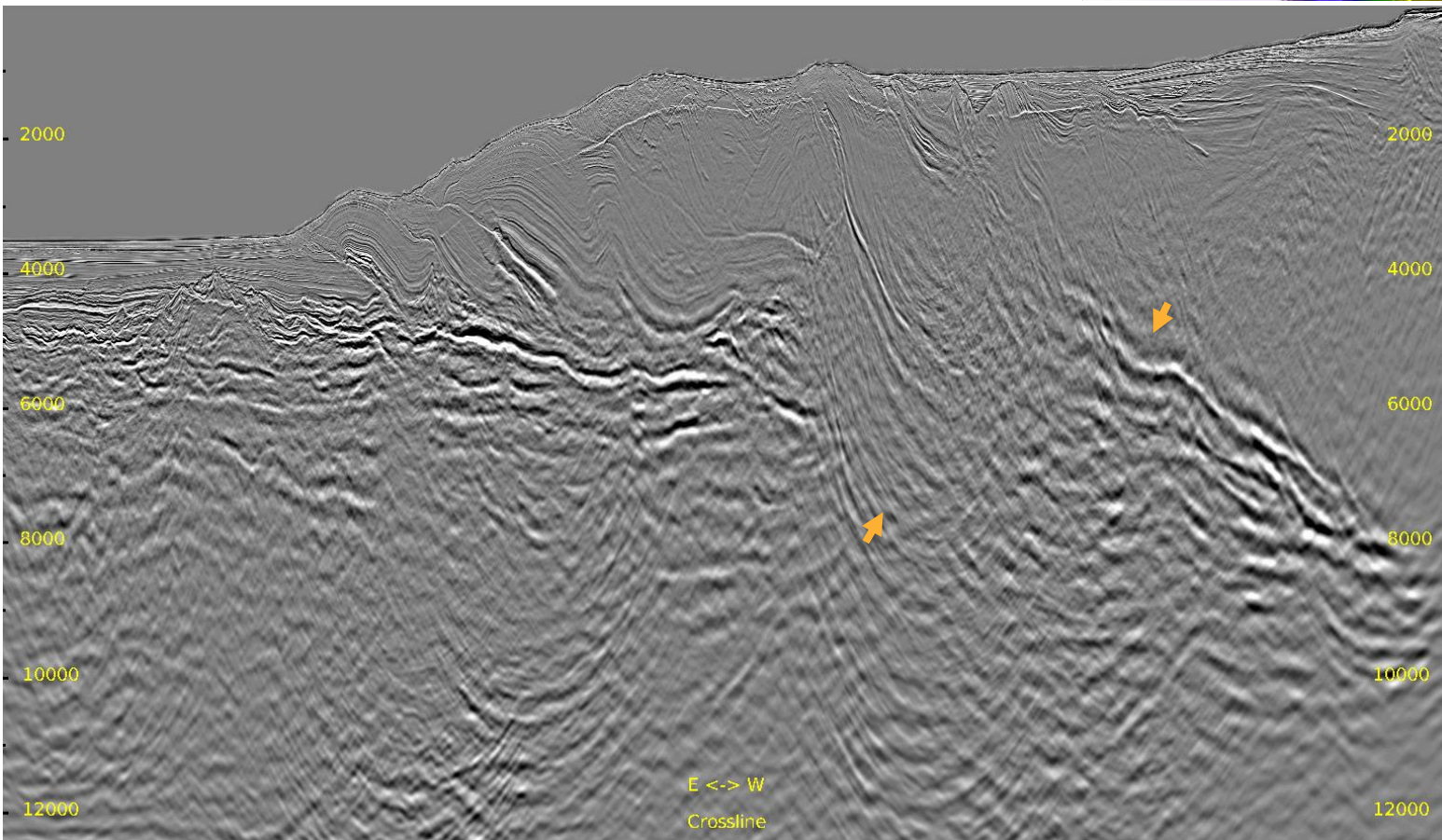
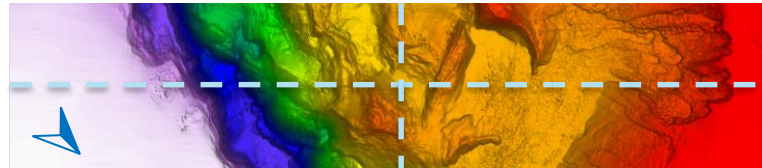
— 35° Mute

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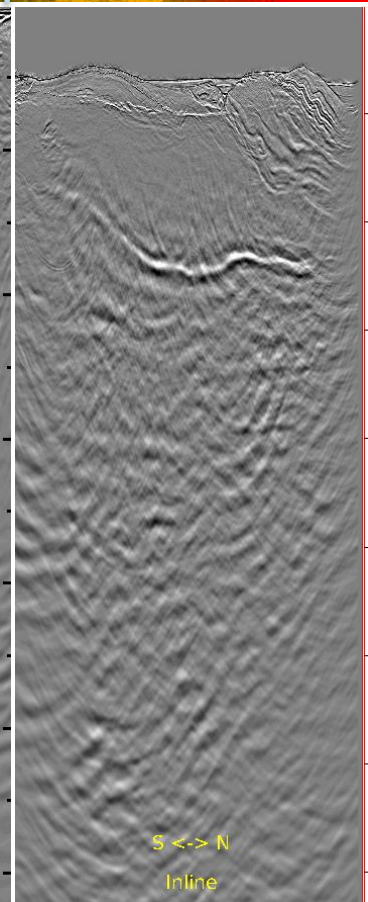
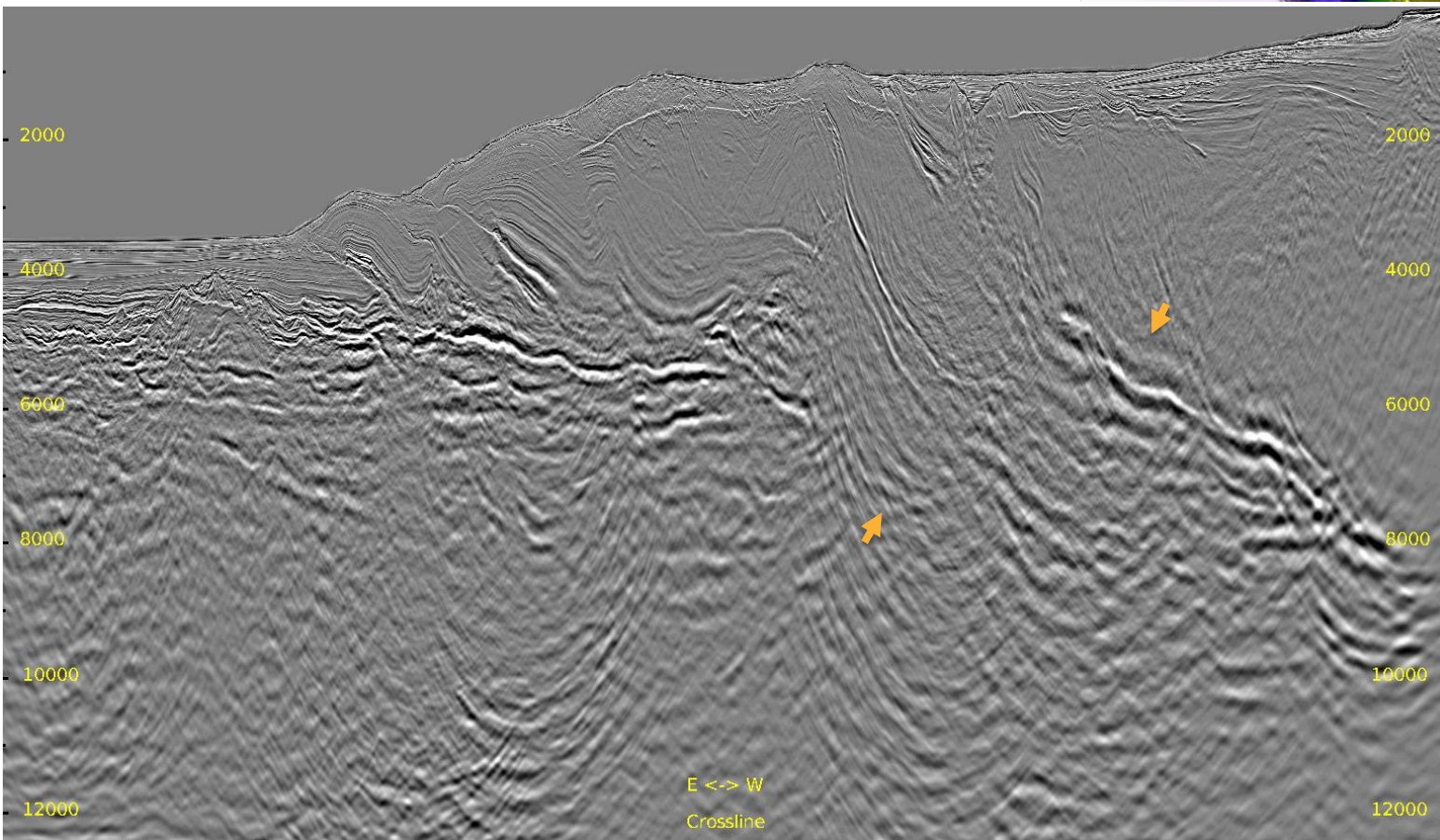
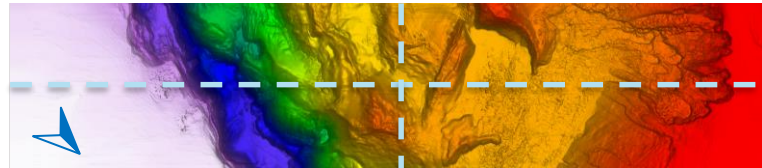
Full Stack: IT3 Result

Inline 418 & Crossline 3411



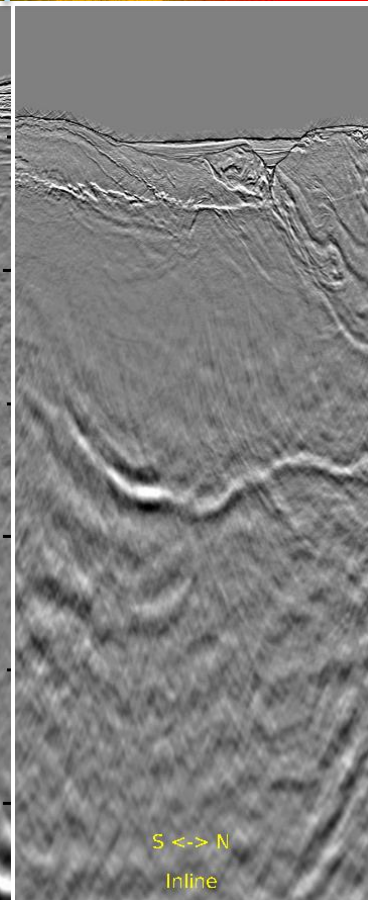
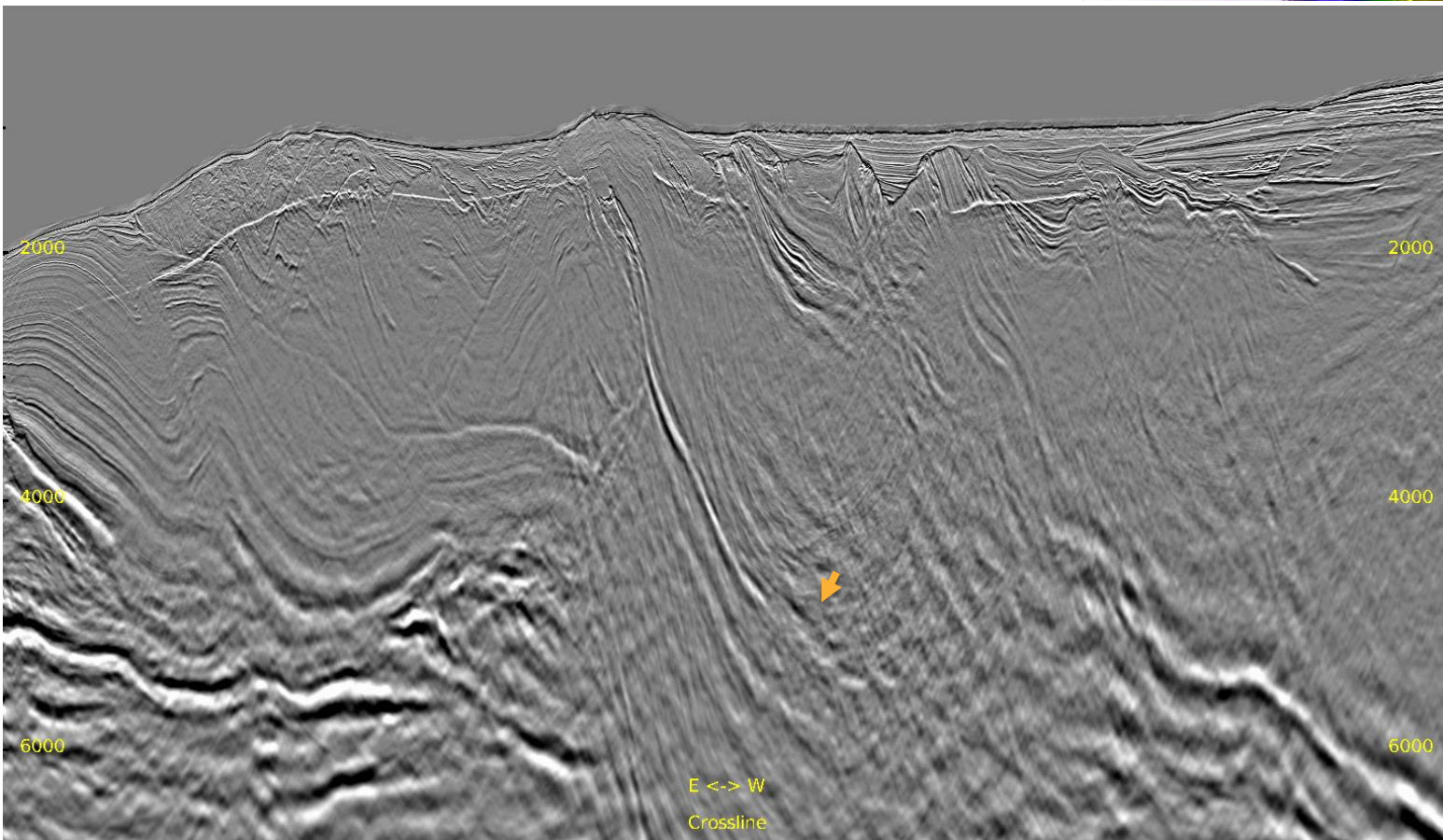
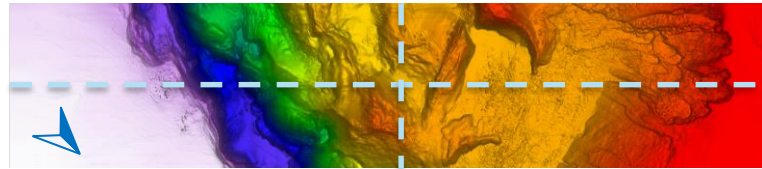
Full Stack: Current Result

Inline 418 & Crossline 3411



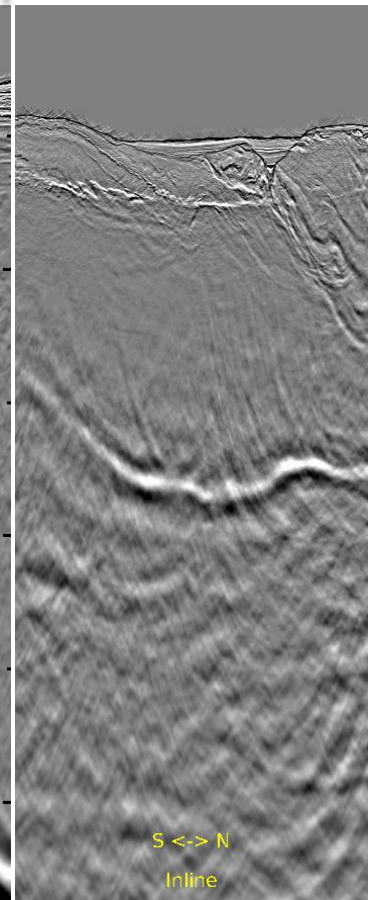
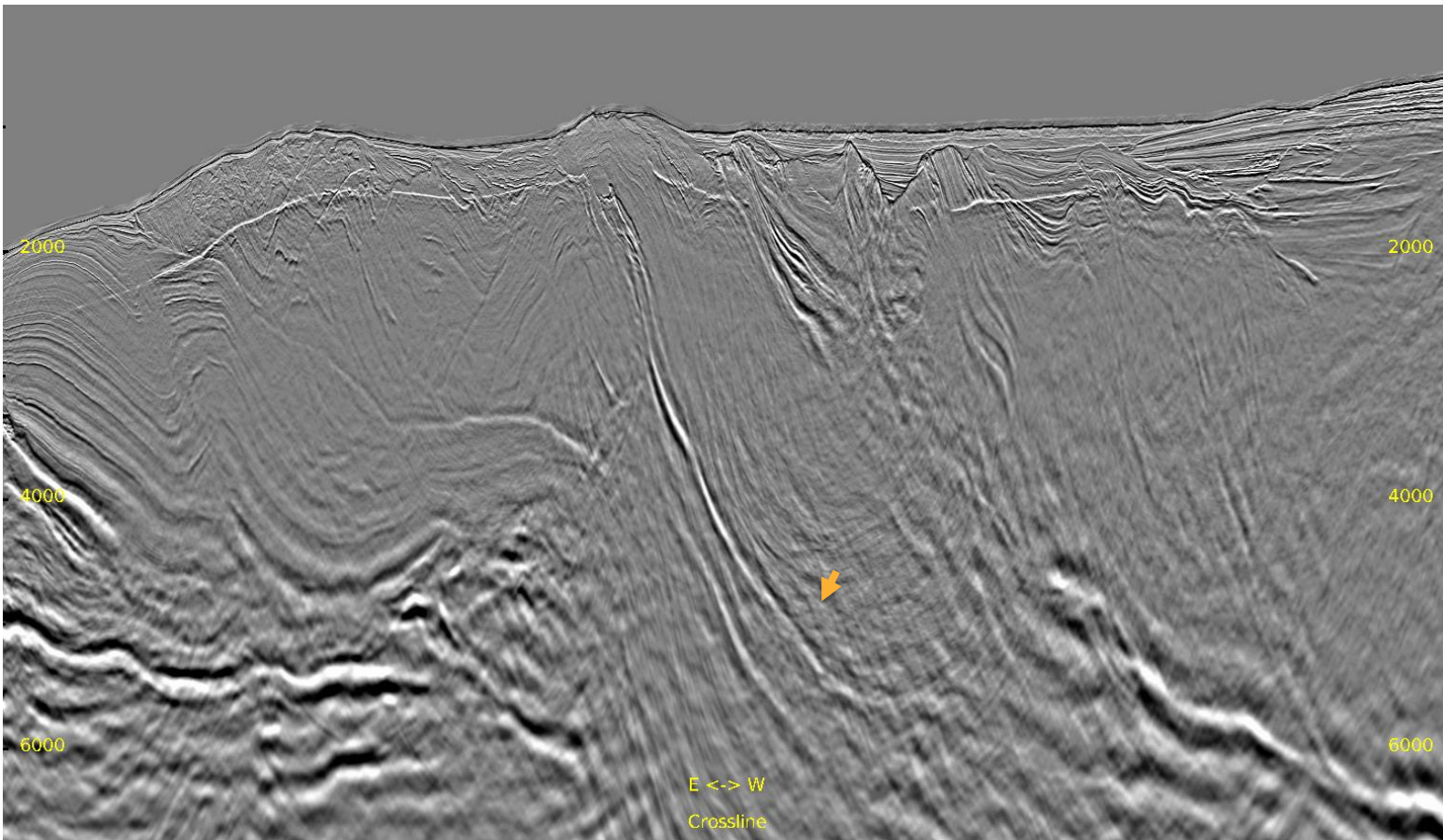
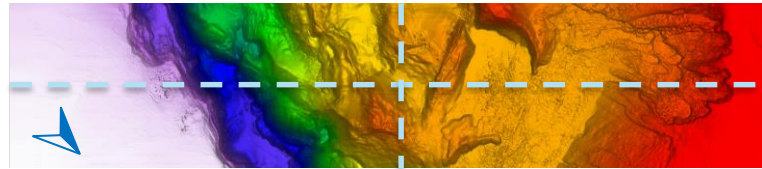
Zoomed Full Stack: IT3 Result

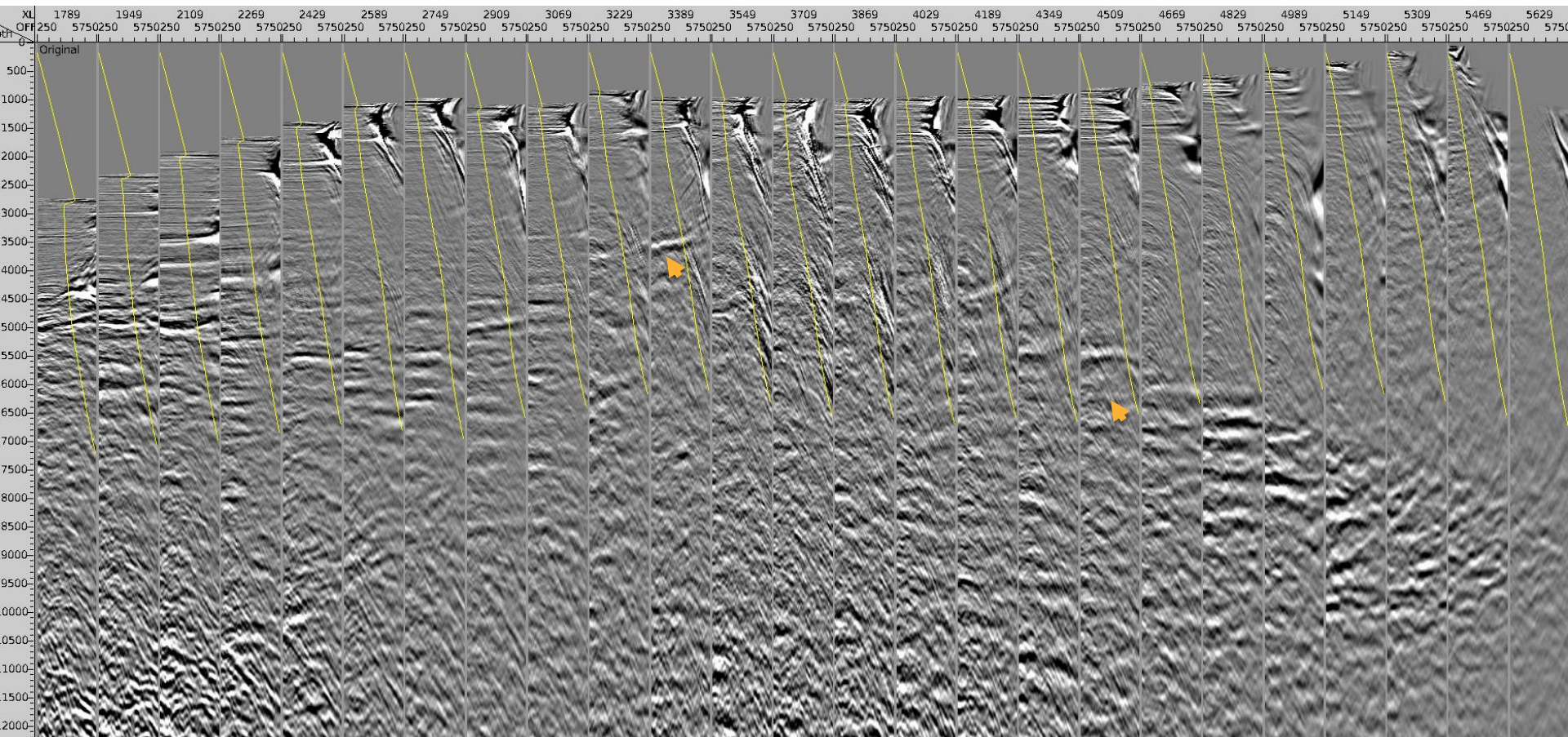
Inline 418 & Crossline 3411



Zoomed Full Stack: Current Result

Inline 418 & Crossline 3411



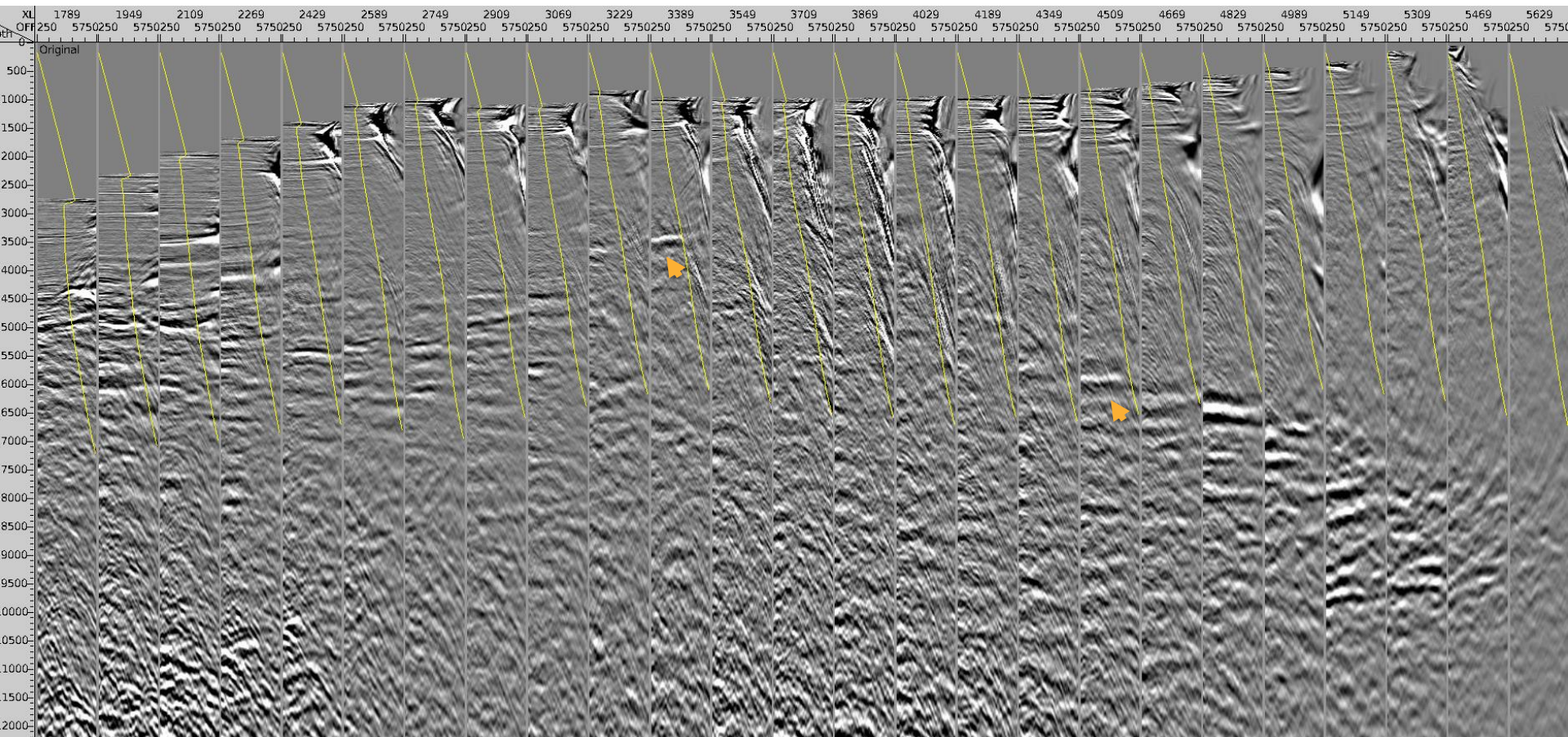




Inline 418 CDP Gathers: Current Result

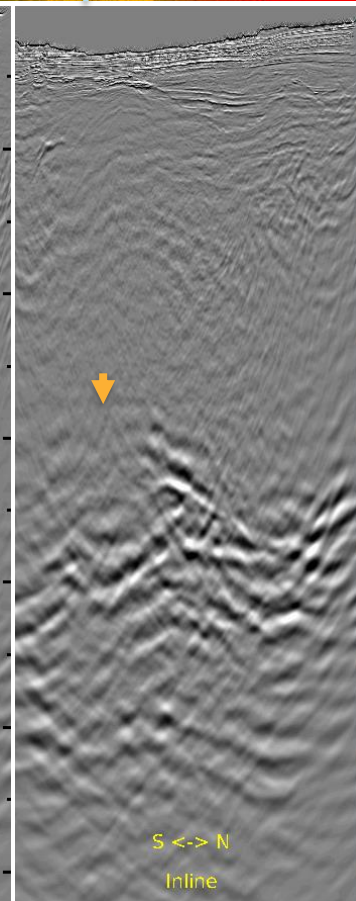
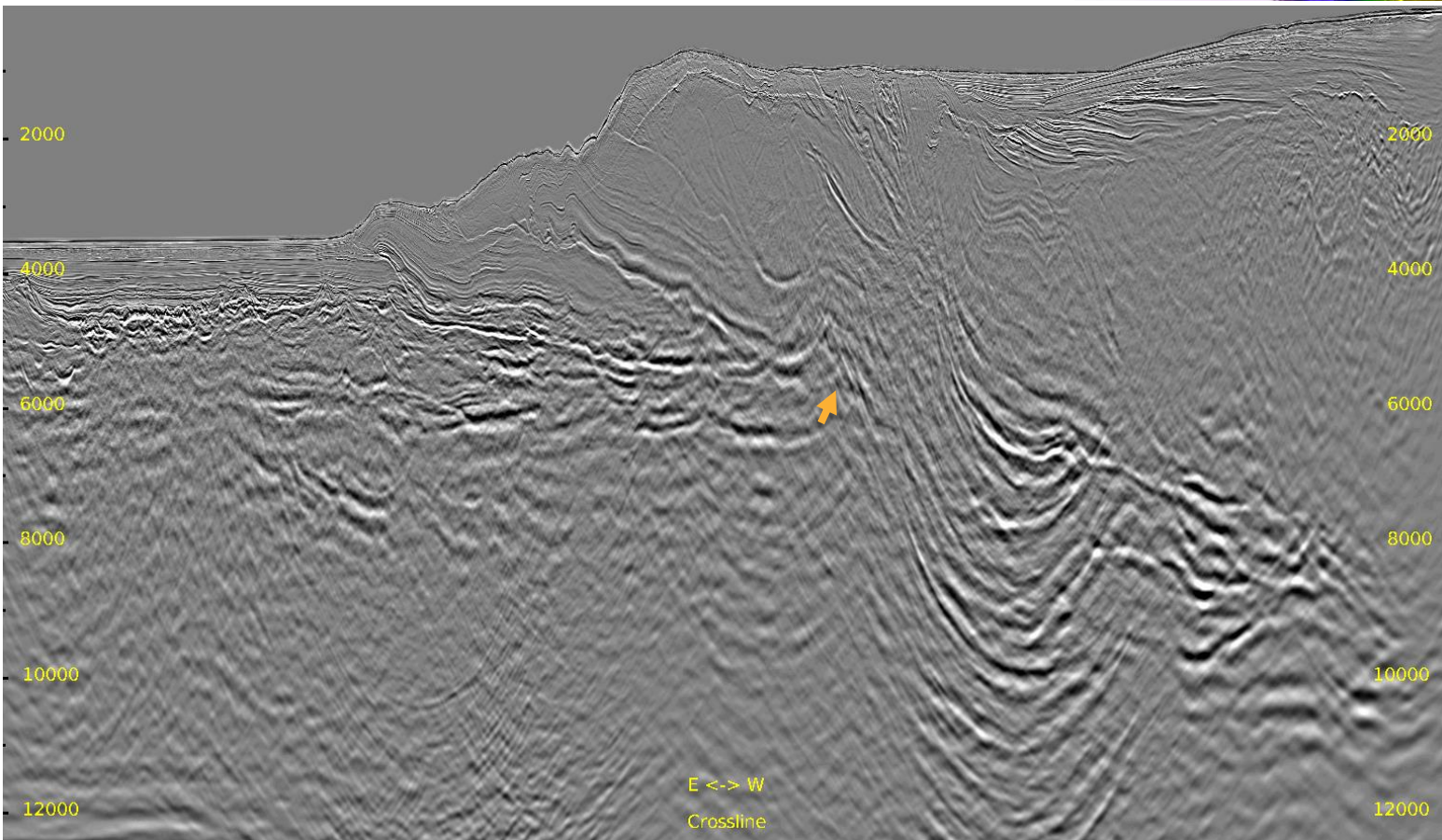
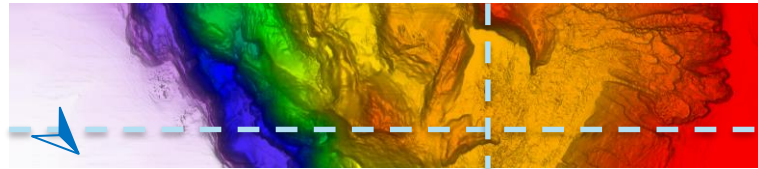
— 35° Mute

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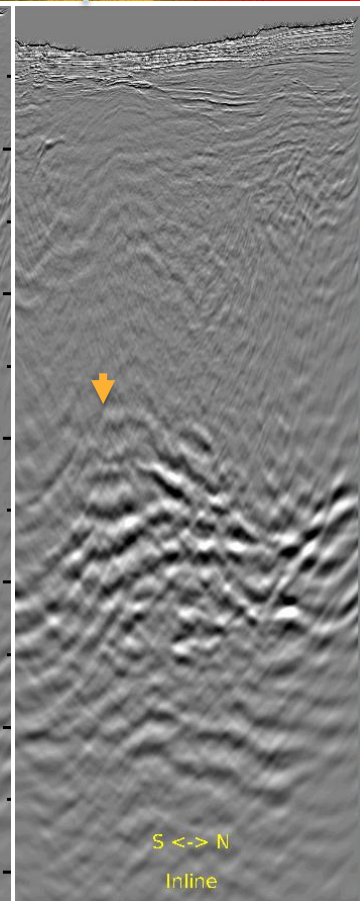
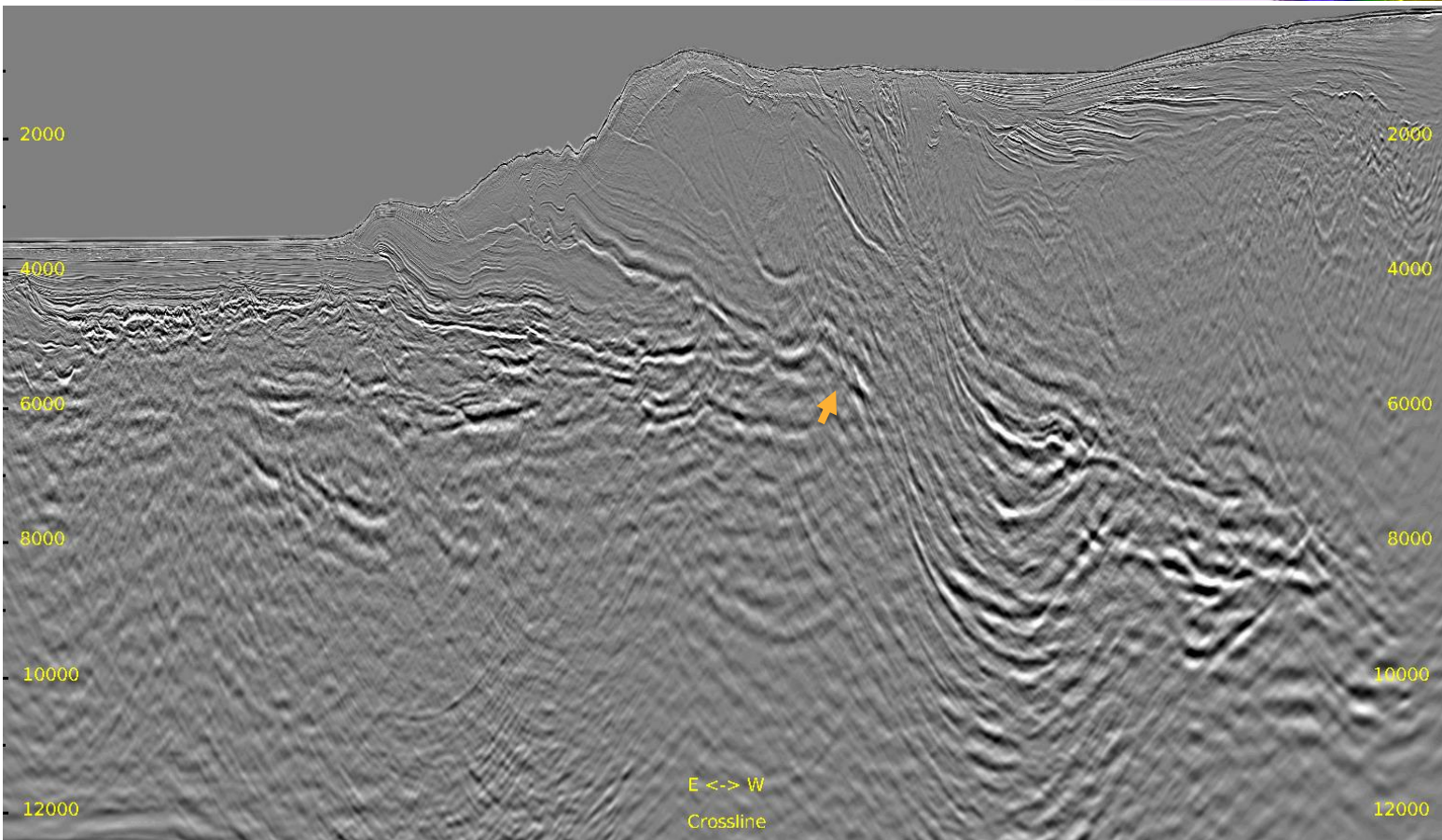
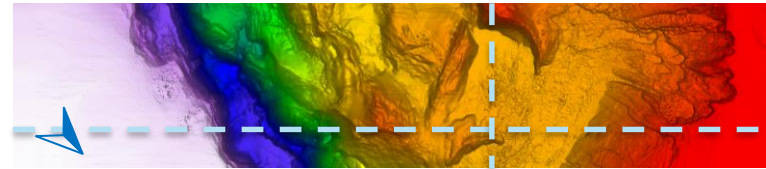
Full Stack: IT3 Result

Inline 620 & Crossline 4880



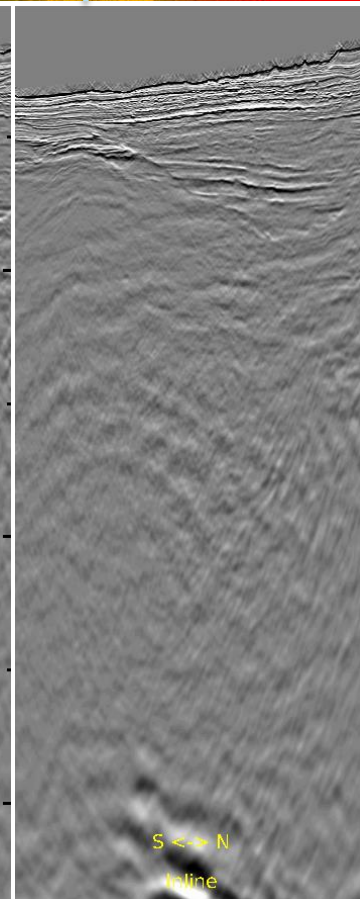
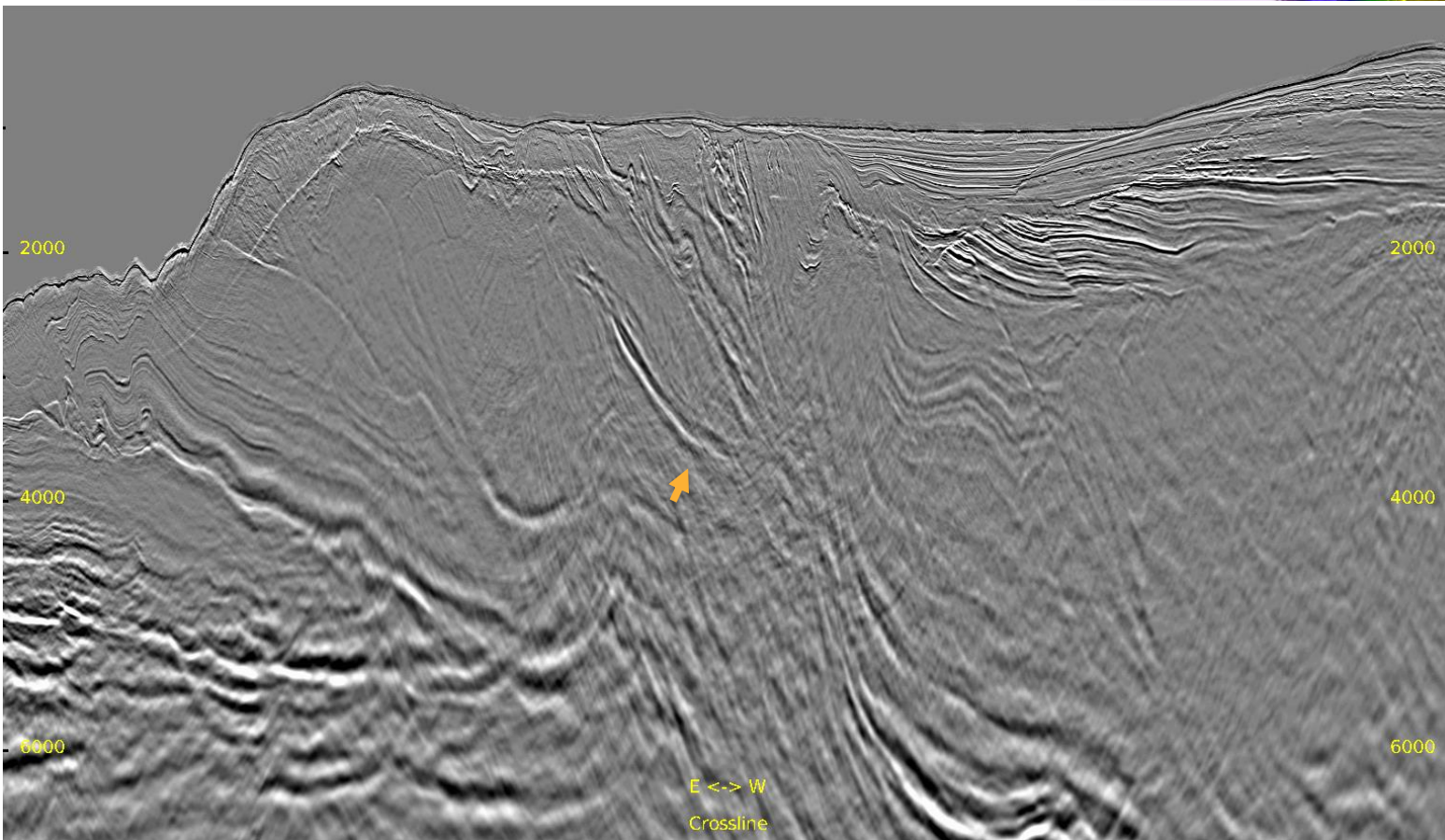
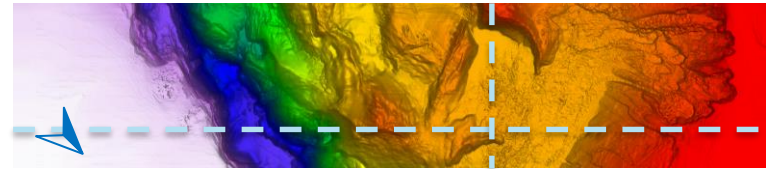
Full Stack: Current Result

Inline 620 & Crossline 4880



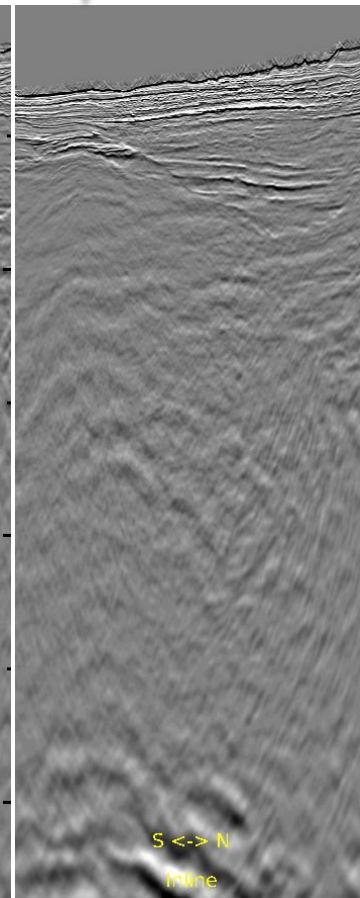
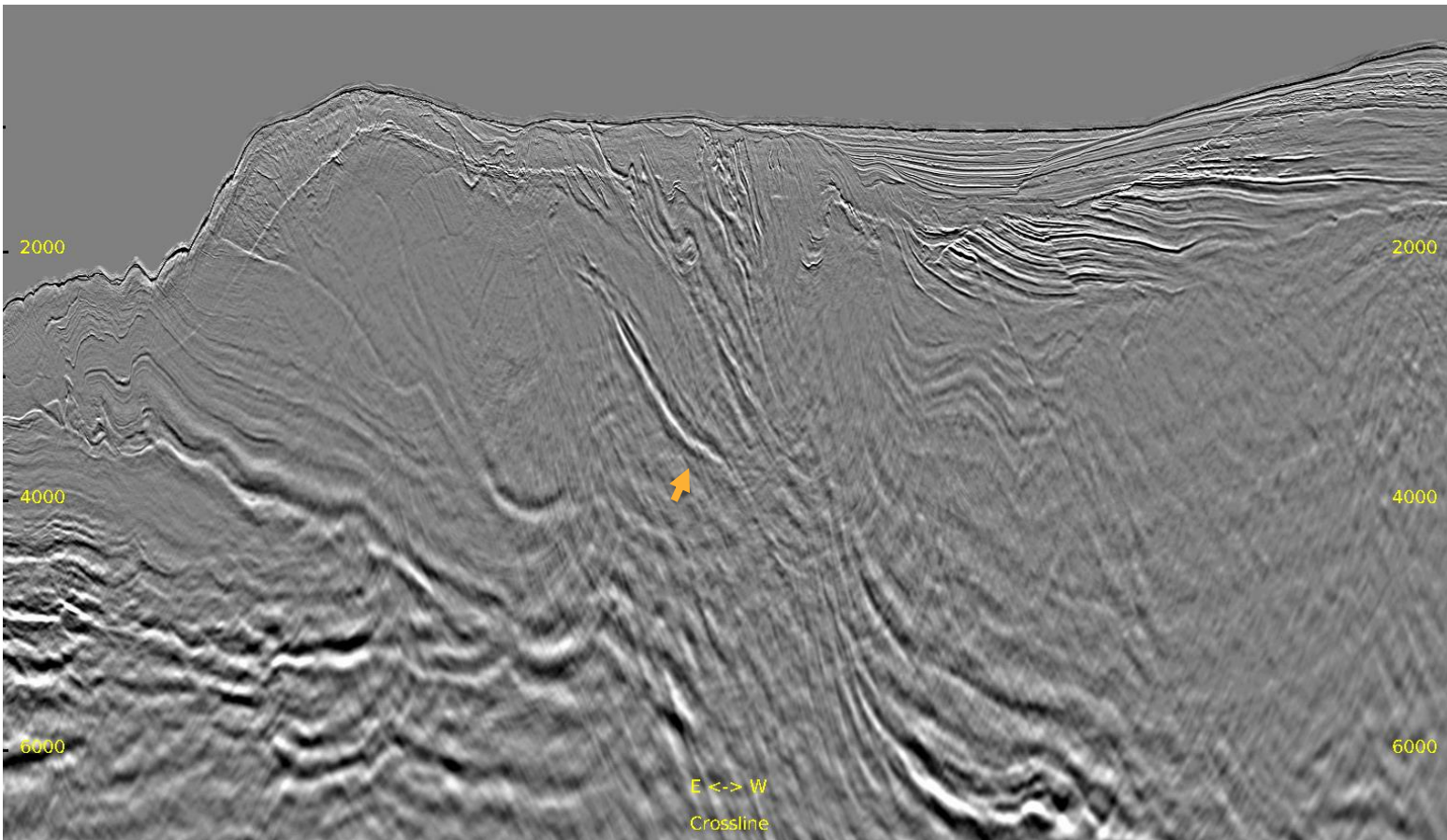
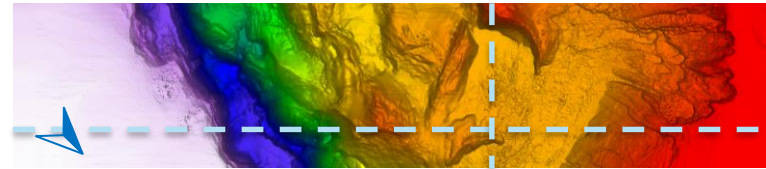
Zoomed Full Stack: IT3 Result

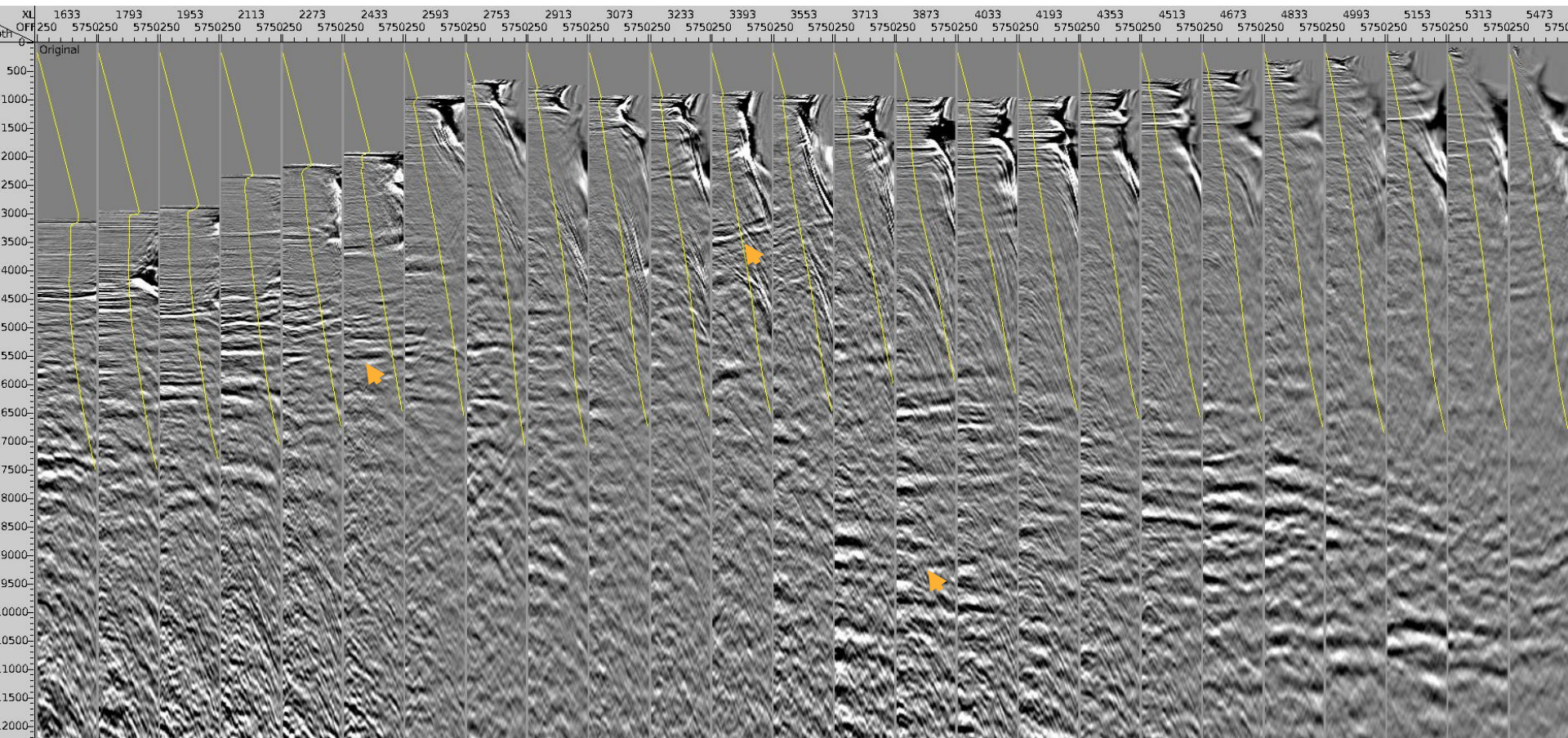
Inline 620 & Crossline 4880



Zoomed Full Stack: Current Result

Inline 620 & Crossline 4880







Inline 620 CDP Gathers: Current Result

— 35° Mute

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