

VSP using distributed acoustic sensing at the CaMI Field Research Station in Newell County, AB – August 2018

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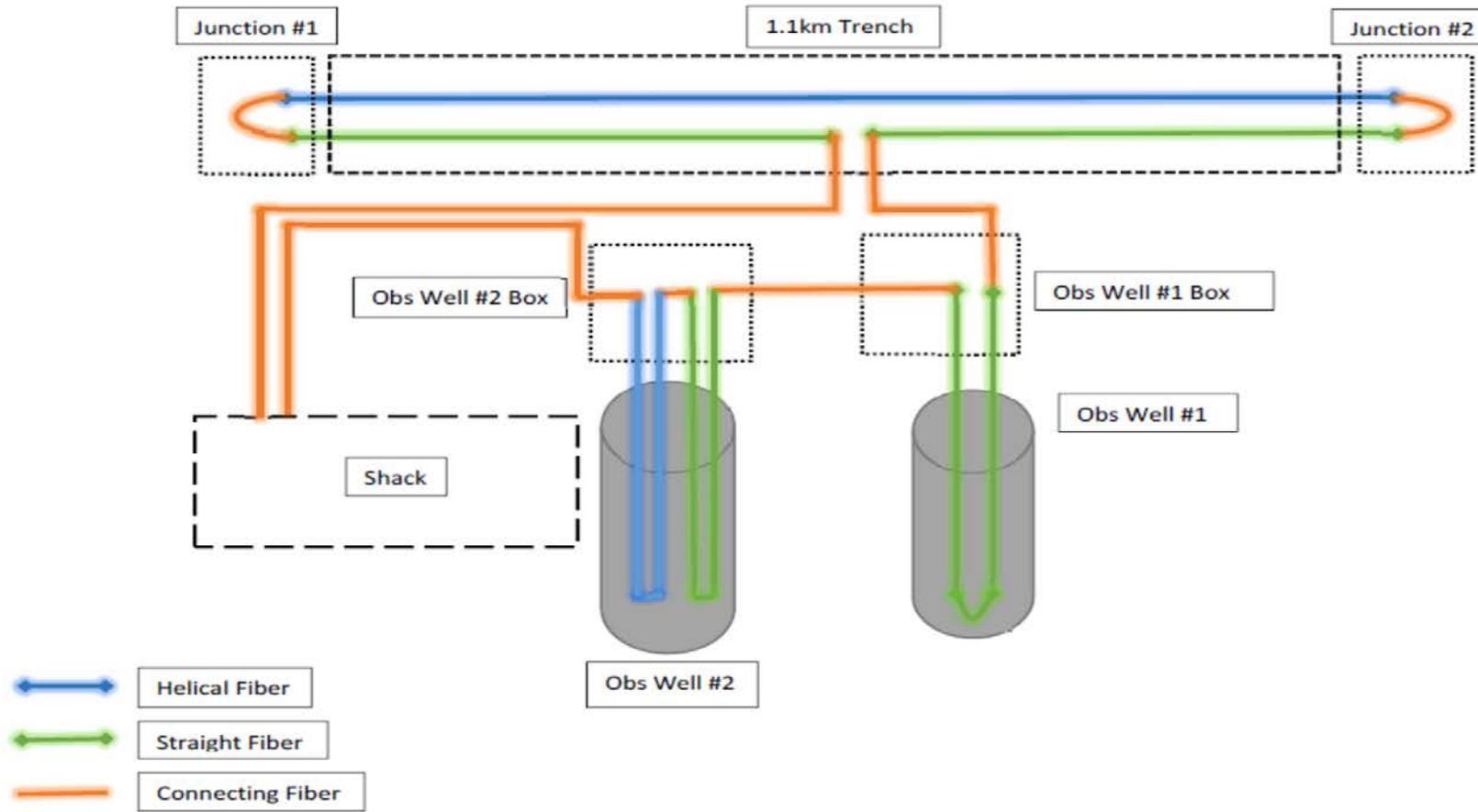


CaMI Field Research Station

Experiment

Examples

Conclusions



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Figure 1: A schematic of the fibre at the site in Newell County, AB.



The experiment was conducted at the CaMI Field Research Station in Newell County, AB in August 2018.

The experiment consisted of 448 shots over 110 source locations, number 101 to 210, along 1 full line.

The wells reach a depth of approximately 300m.

Processing is applied to the raw backscatter data to obtain the optical phase, and then each shot is cross-correlated with the pilot sweep and then stacked.

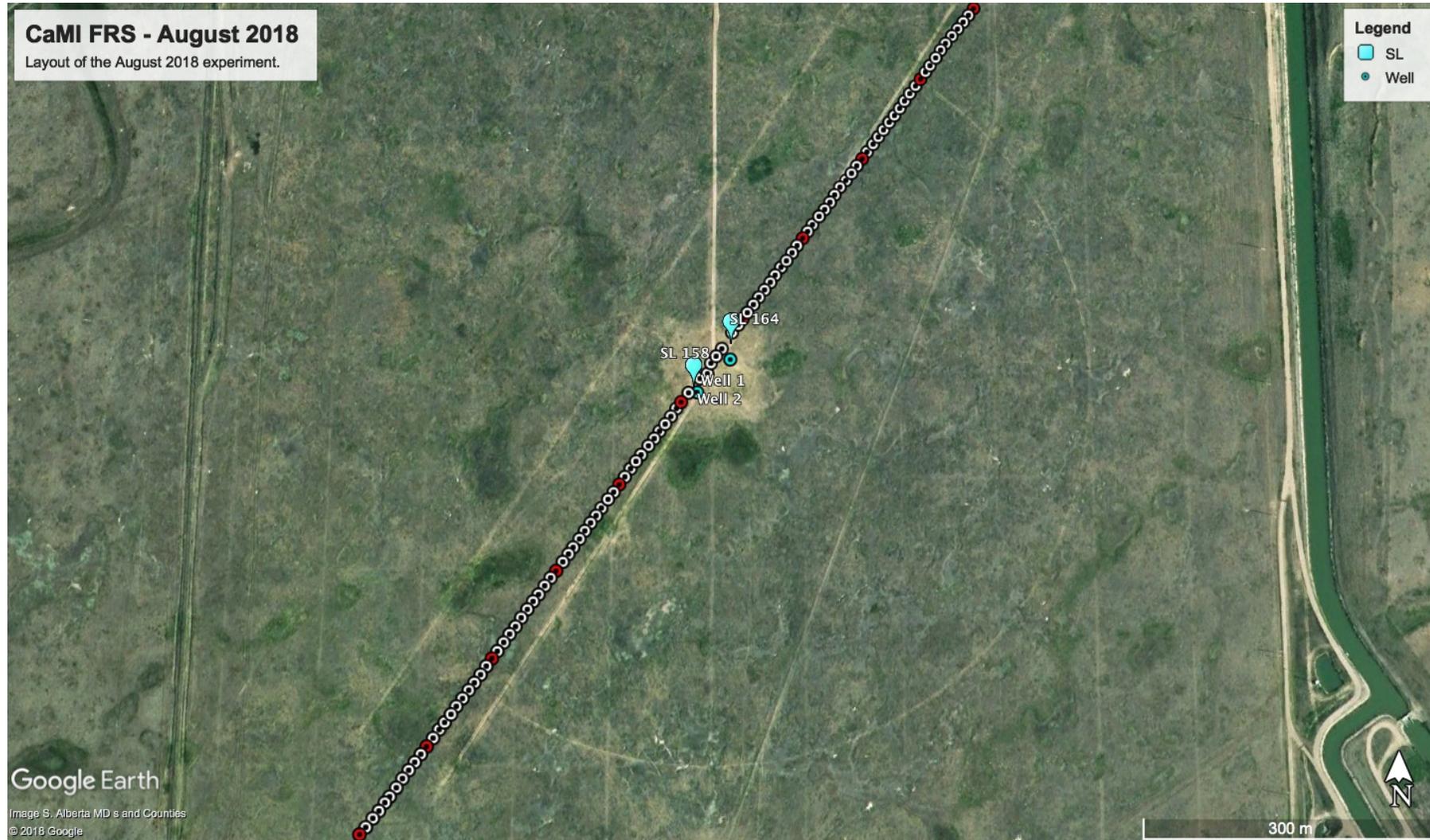


Figure 2: An aerial view of experiment at the site in Newell County, AB.



Line 13, Source Location 155

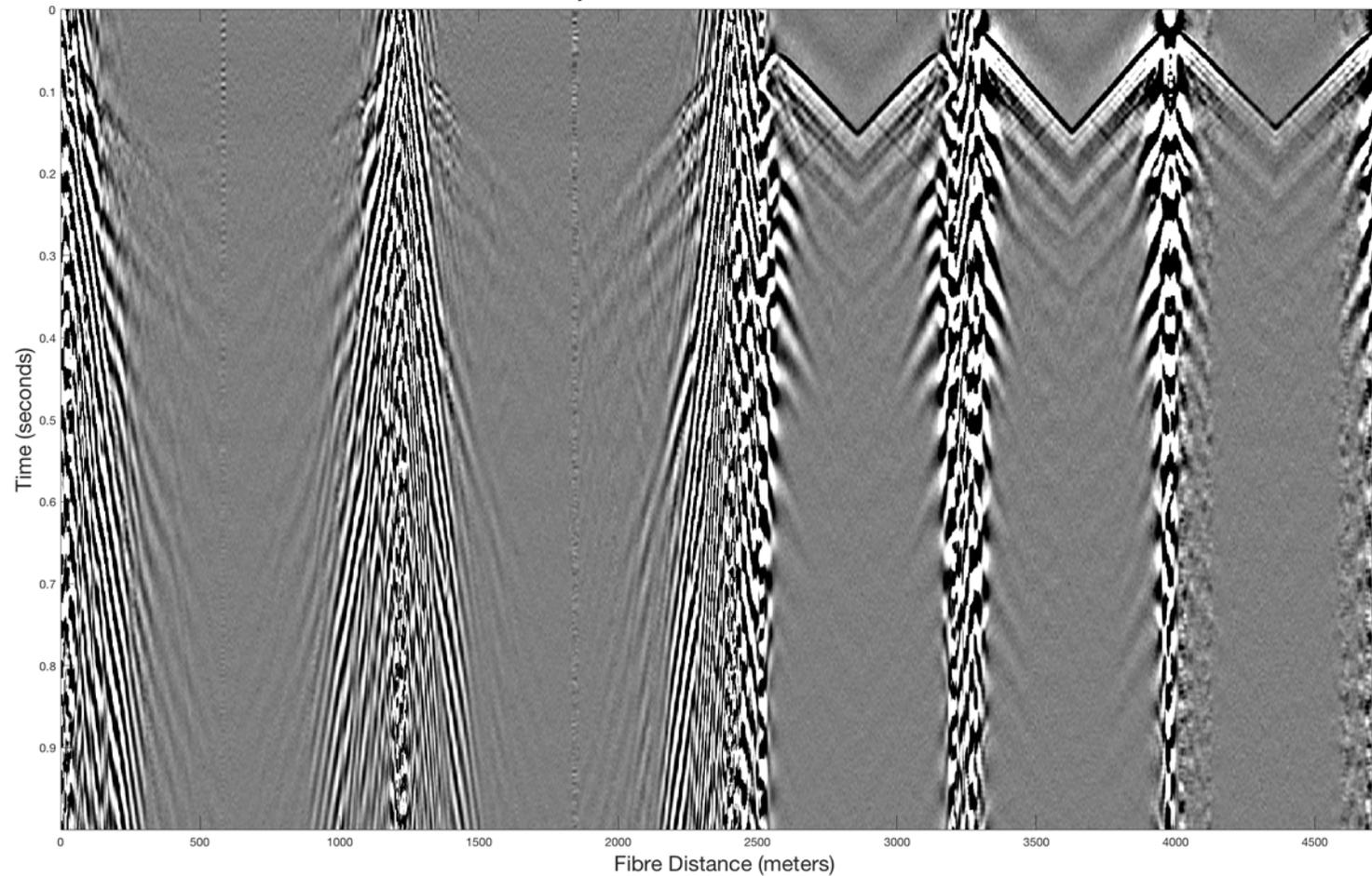


Figure 3: Full fibre data for line 13 flag 155.



Wells 1 and 2 - Source Location 101

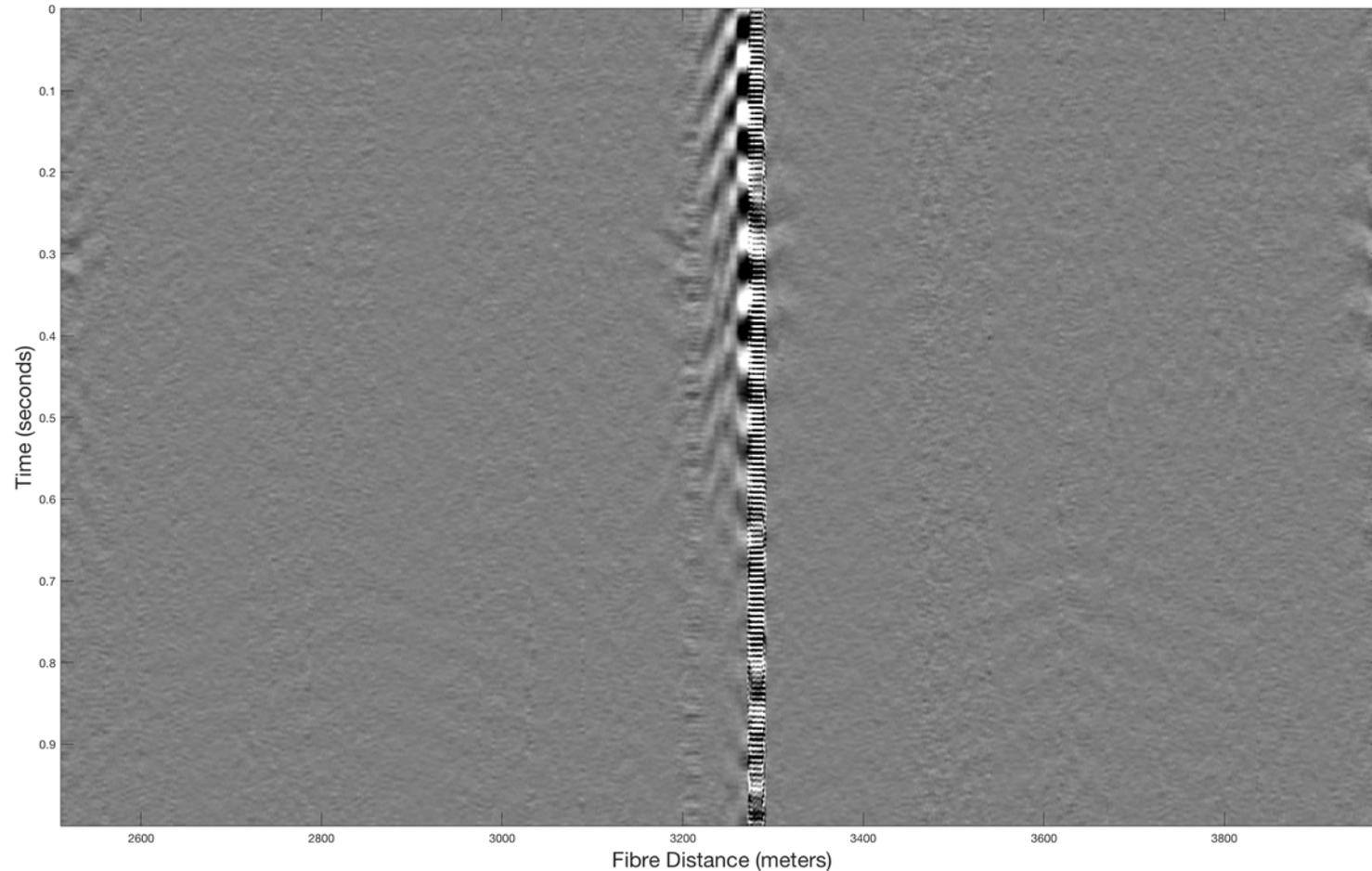


Figure 4: The straight-fibre from well 1 to the straight fibre in well 2 acquired when the vibroseis truck was at source locations 101.



Wells 1 and 2 - Source Location 112

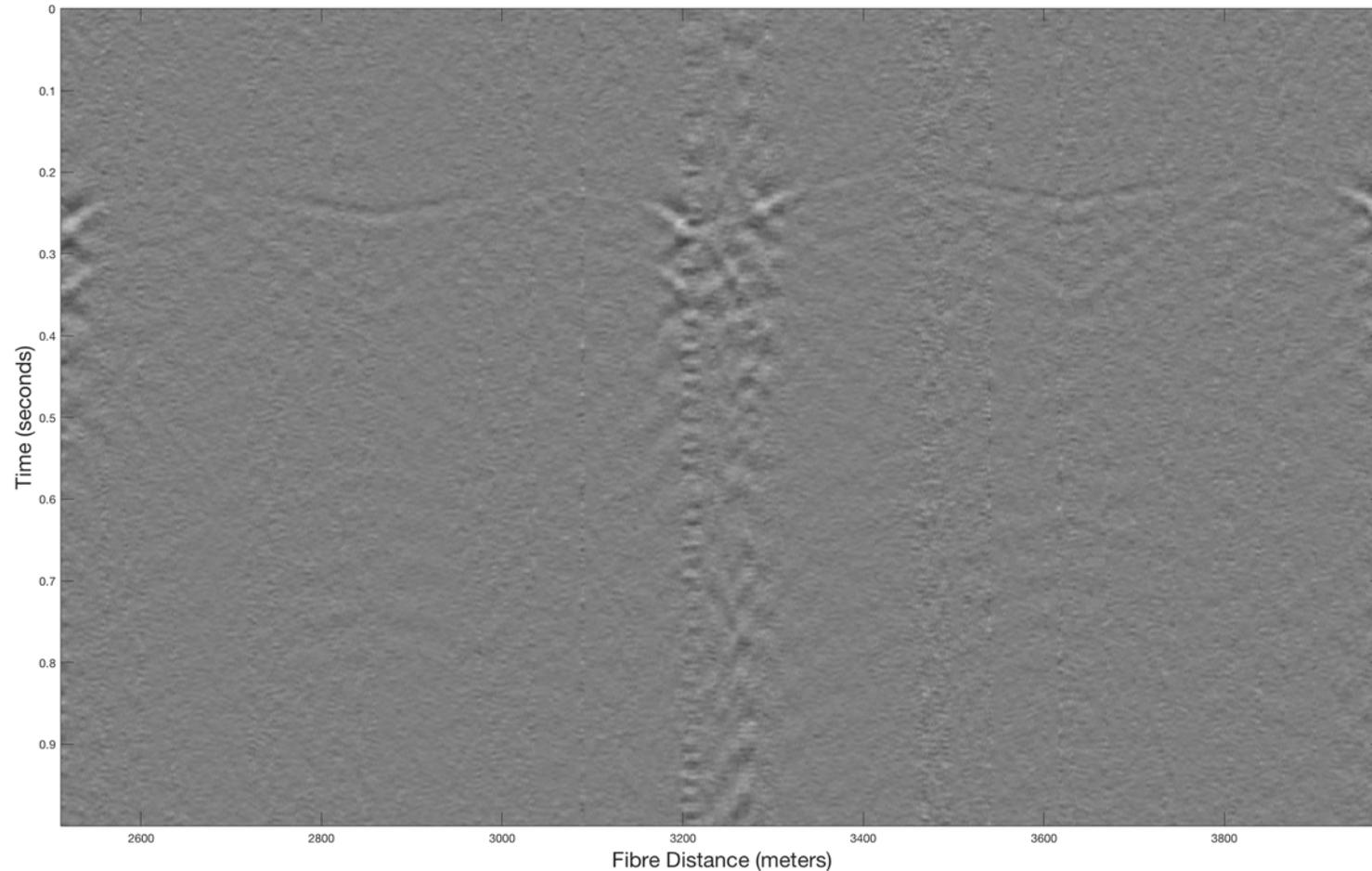


Figure 5: The straight-fibre from well 1 to the straight fibre in well 2 acquired when the vibroseis truck was at source locations 112.



Wells 1 and 2 - Source Location 123

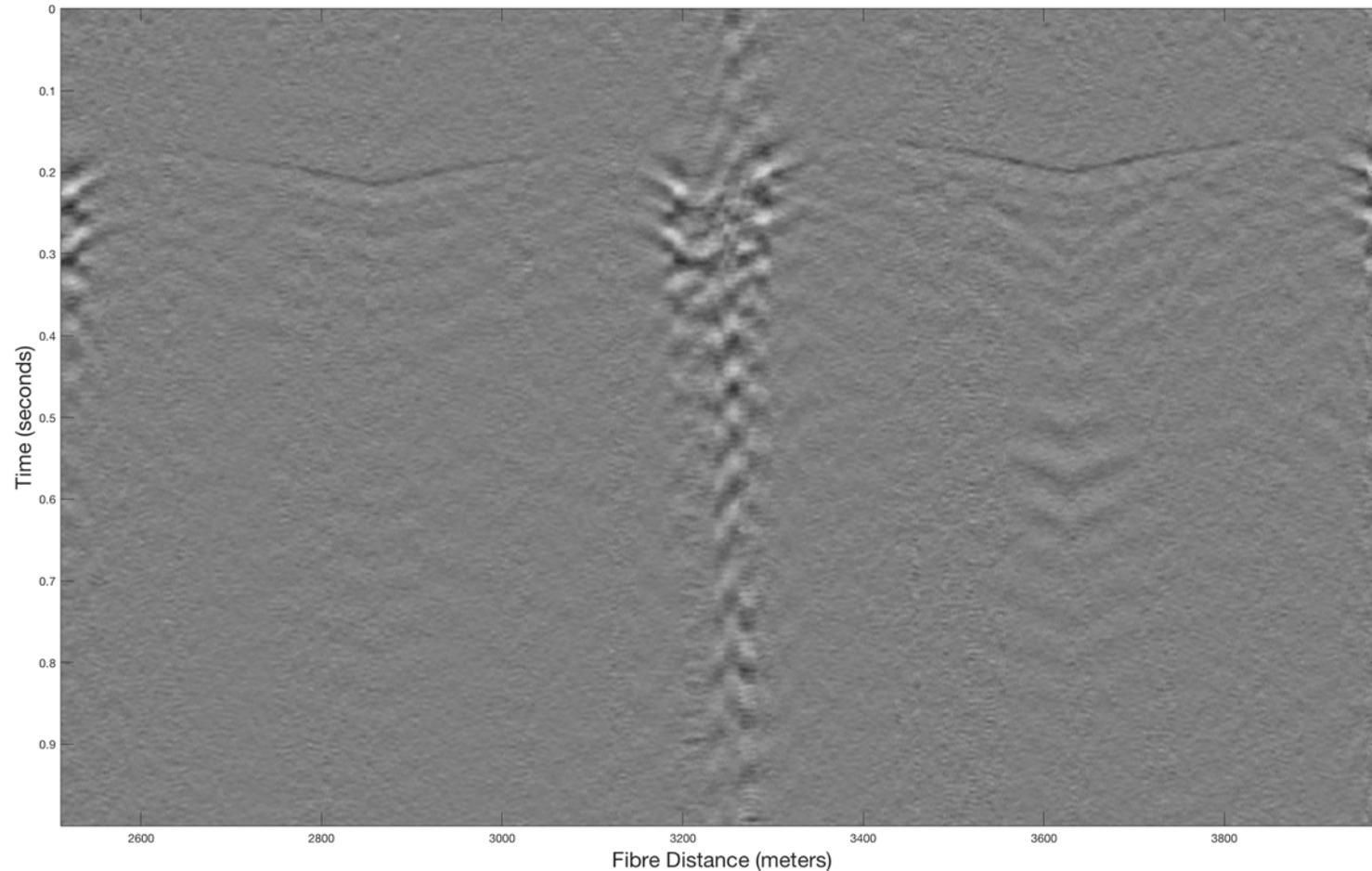


Figure 6: The straight-fibre from well 1 to the straight fibre in well 2 acquired when the vibroseis truck was at source locations 123.



Wells 1 and 2 - Source Location 134

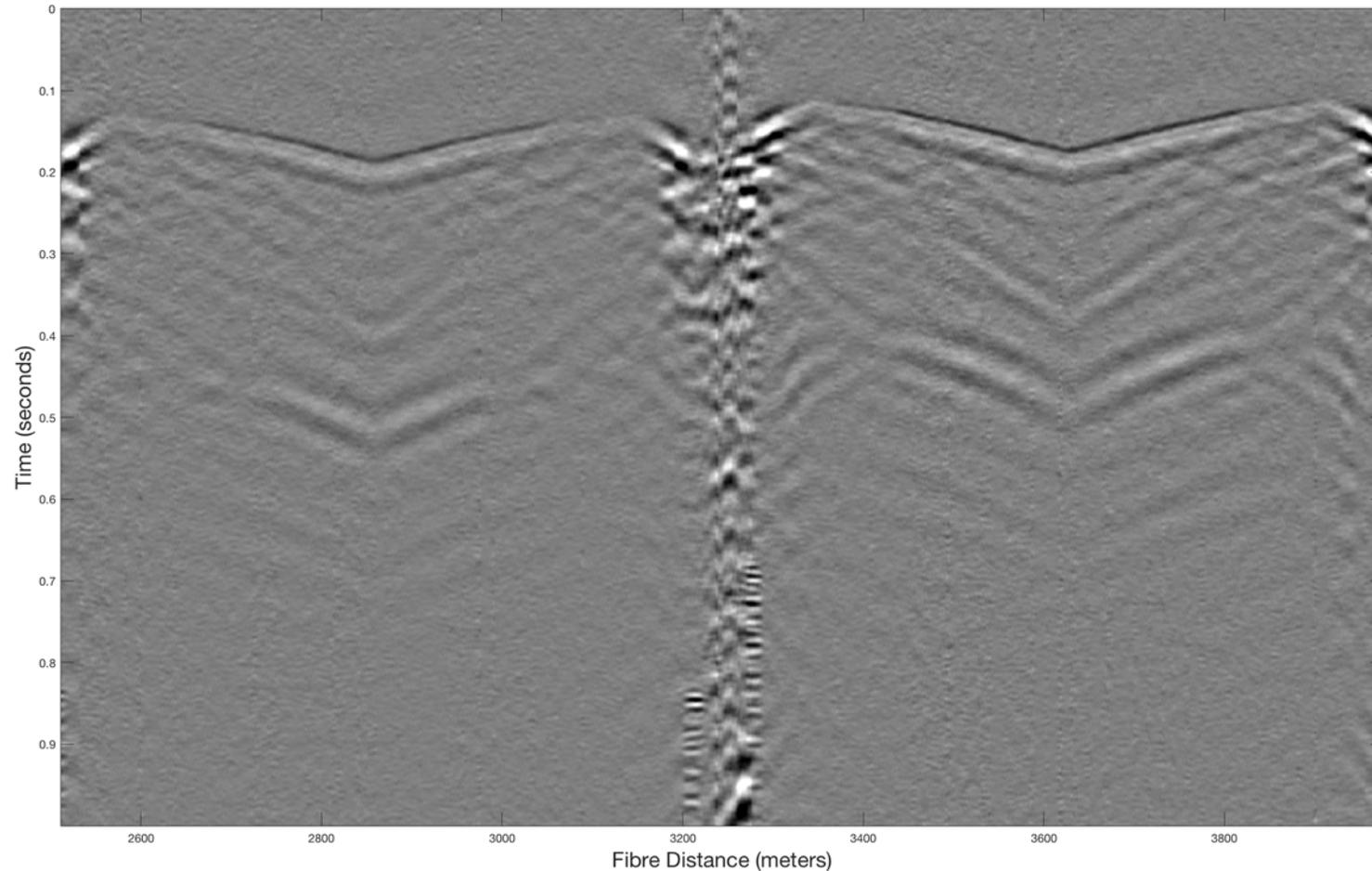


Figure 7: The straight-fibre from well 1 to the straight fibre in well 2 acquired when the vibroseis truck was at source locations 134.



Wells 1 and 2 - Source Location 145

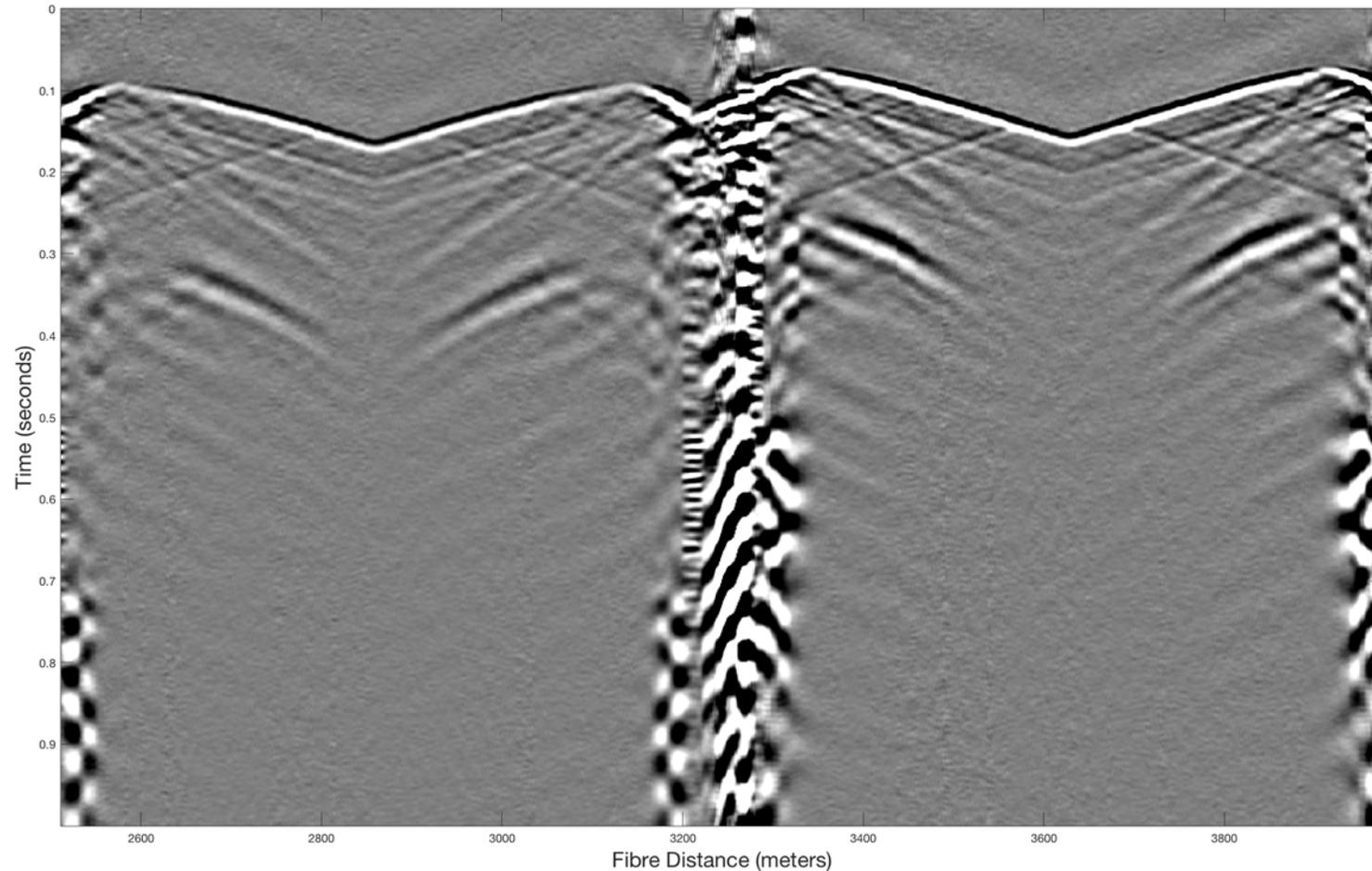


Figure 8: The straight-fibre from well 1 to the straight fibre in well 2 acquired when the vibroseis truck was at source locations 145.



Wells 1 and 2 - Source Location 156

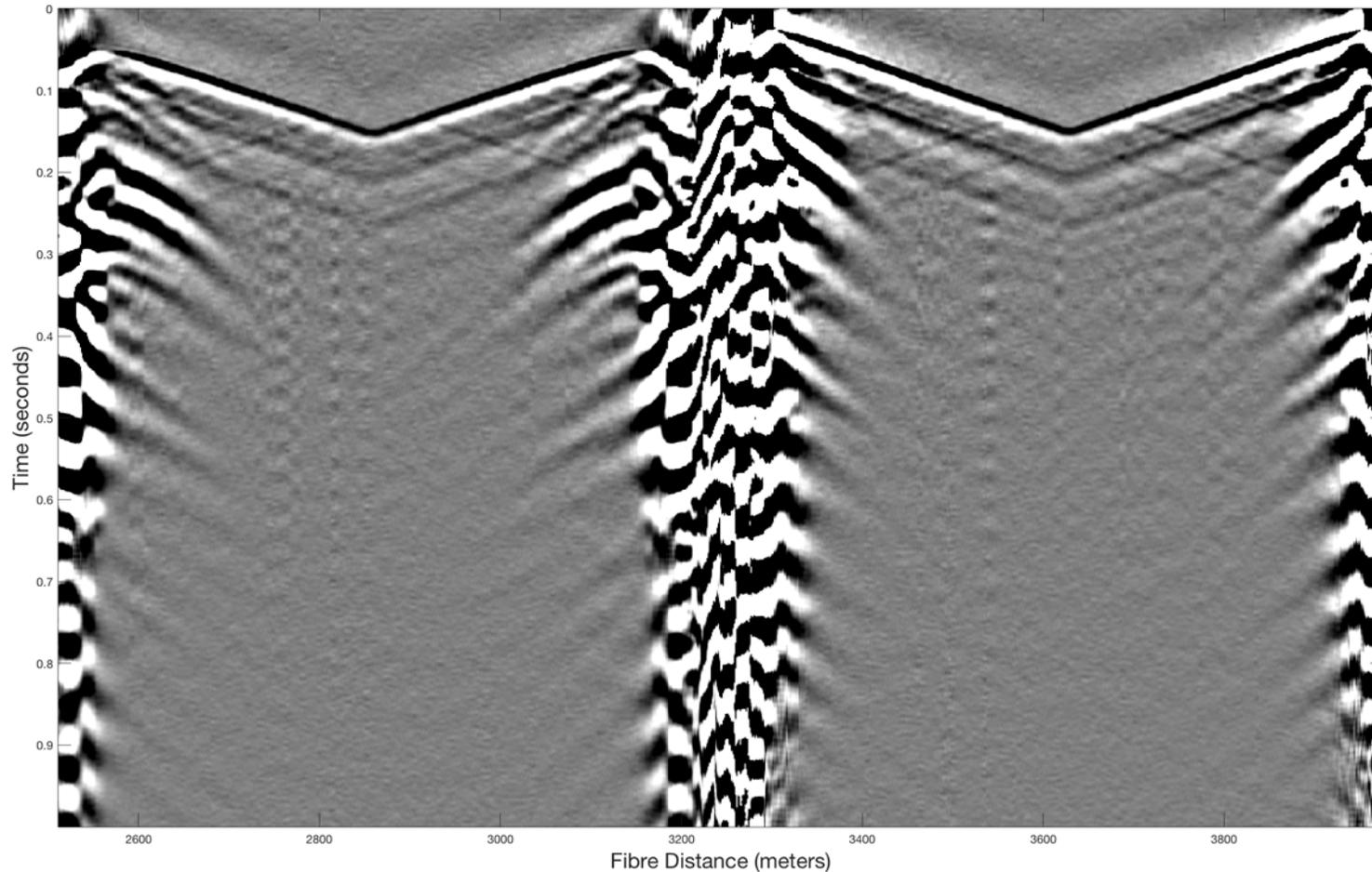


Figure 9: The straight-fibre from well 1 to the straight fibre in well 2 acquired when the vibroseis truck was at source locations 156.



Wells 1 and 2 - Source Location 167

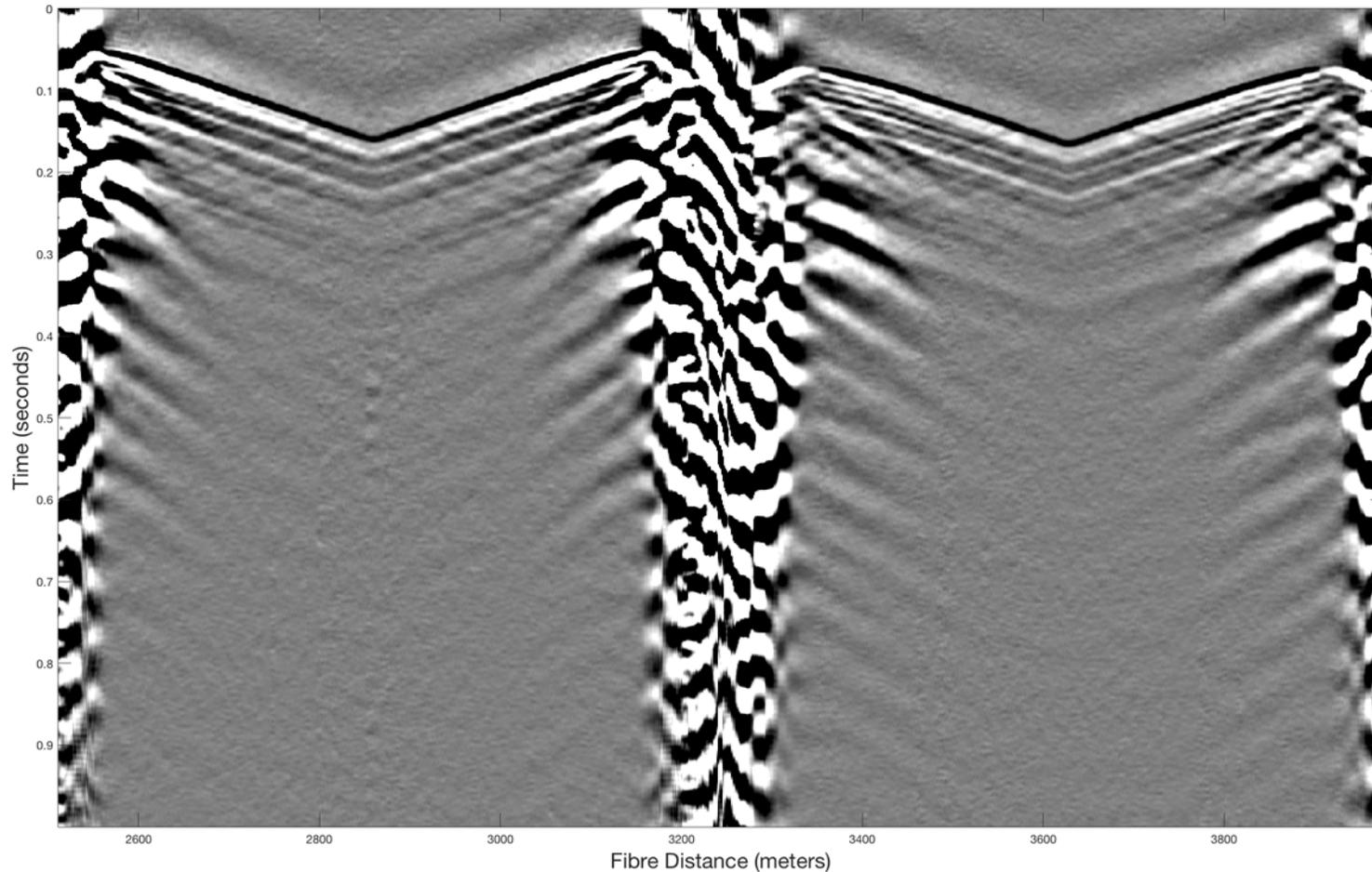


Figure 10: The straight-fibre from well 1 to the straight fibre in well 2 acquired when the vibroseis truck was at source locations 167.



Wells 1 and 2 - Source Location 178

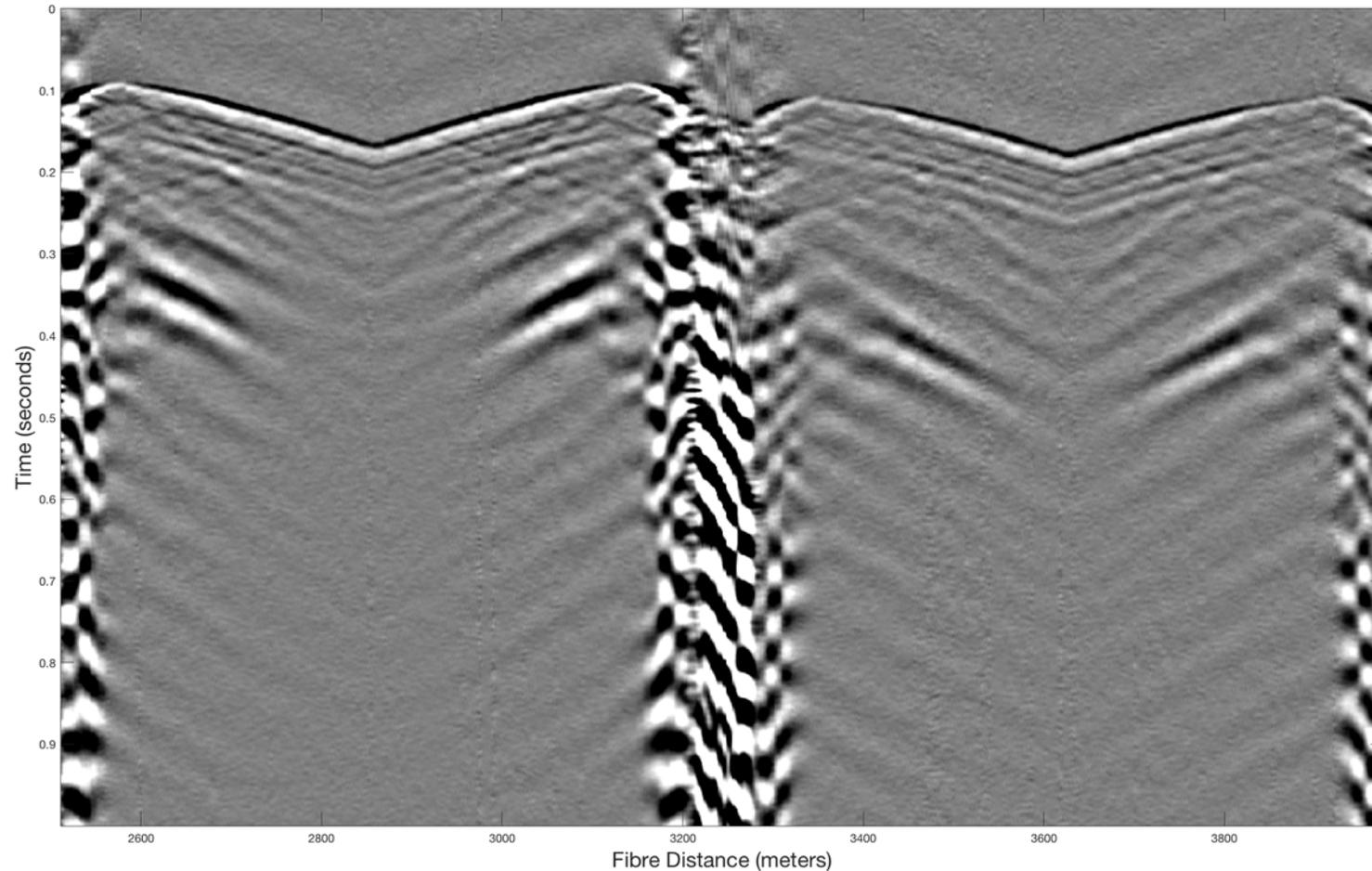


Figure 11: The straight-fibre from well 1 to the straight fibre in well 2 acquired when the vibroseis truck was at source locations 178.



Wells 1 and 2 - Source Location 189

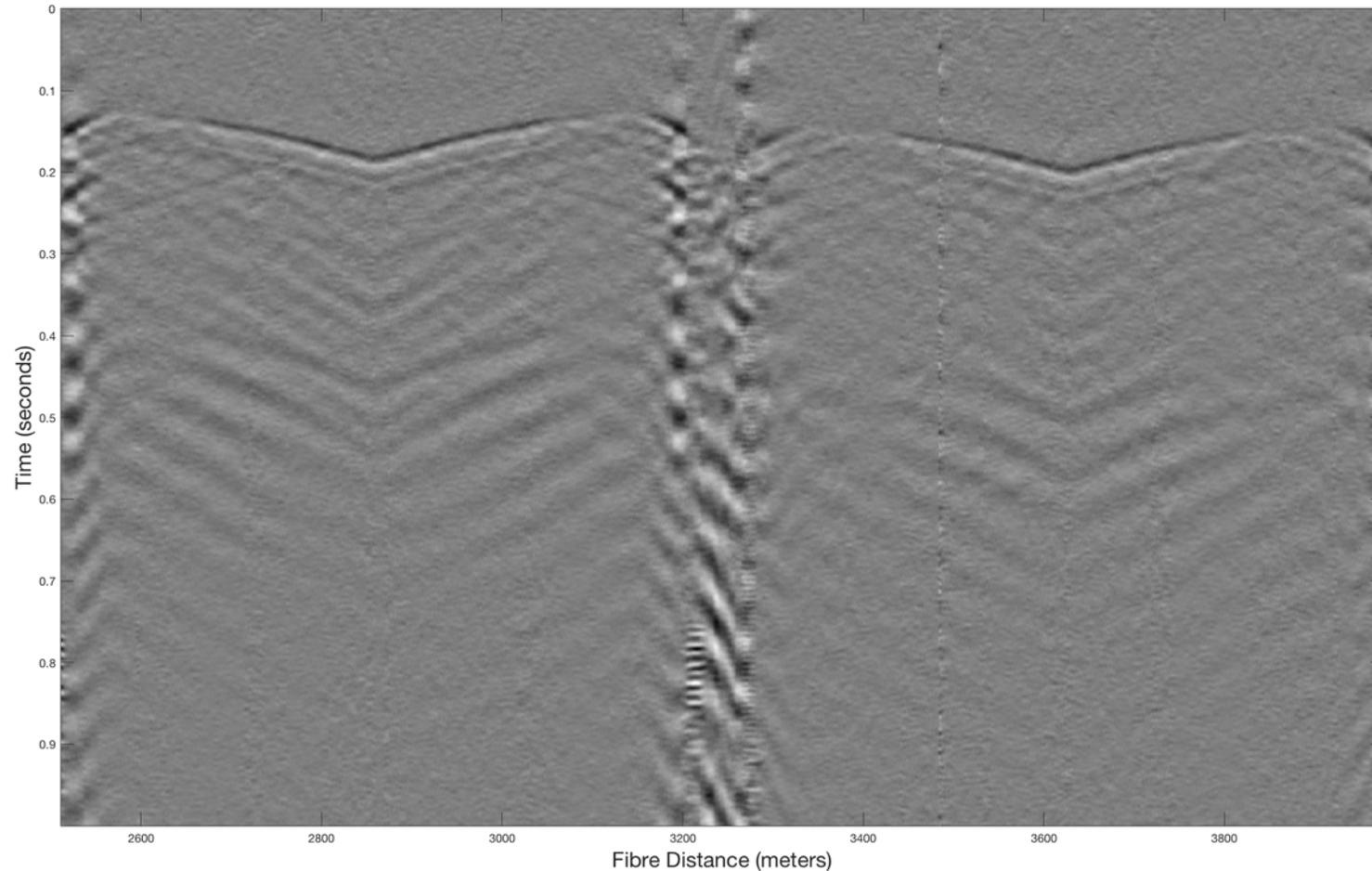


Figure 12: The straight-fibre from well 1 to the straight fibre in well 2 acquired when the vibroseis truck was at source locations 189.



Wells 1 and 2 - Source Location 200

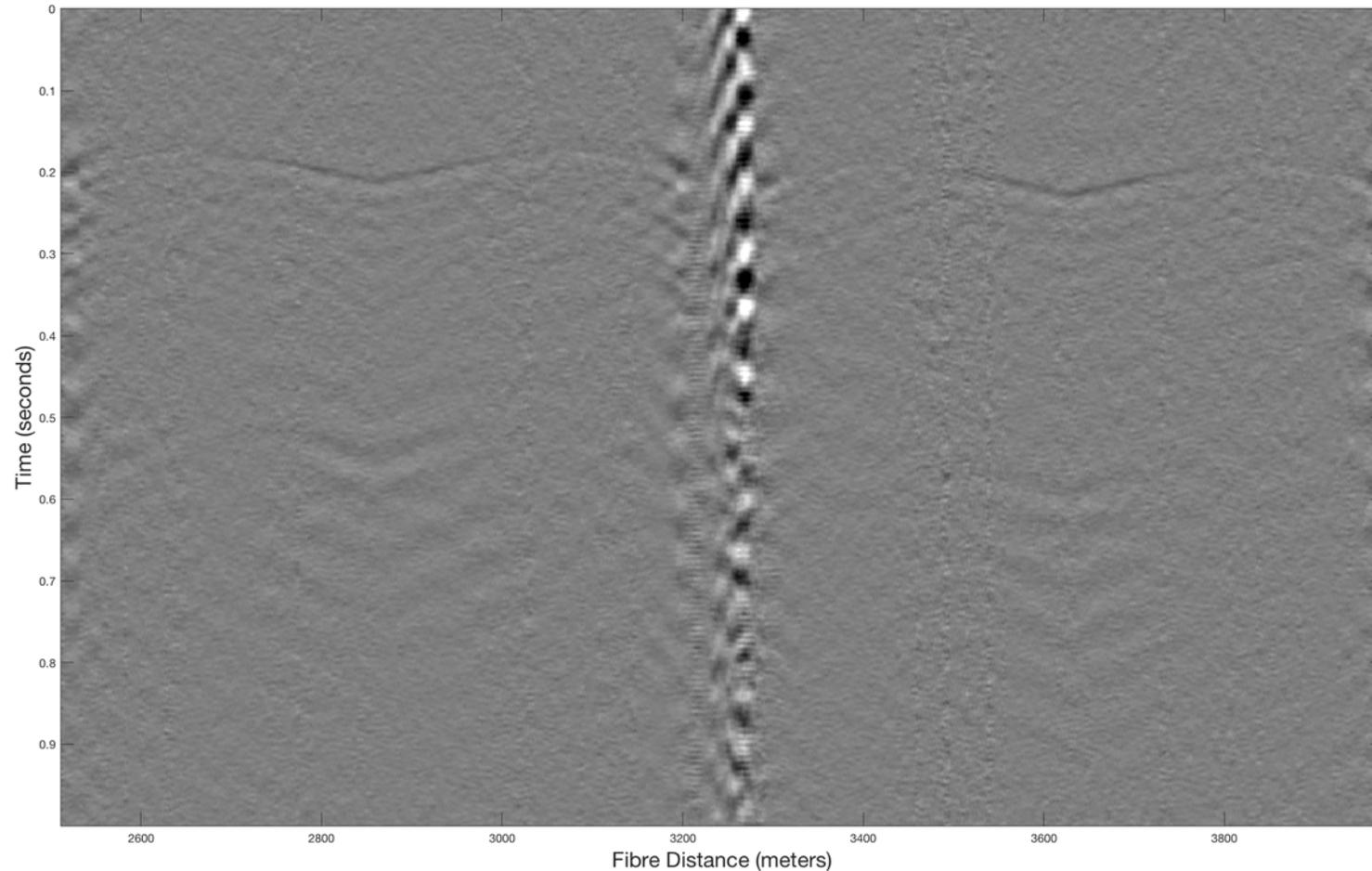


Figure 13: The straight-fibre from well 1 to the straight fibre in well 2 acquired when the vibroseis truck was at source locations 200.



Wells 1 and 2 - Source Location 210

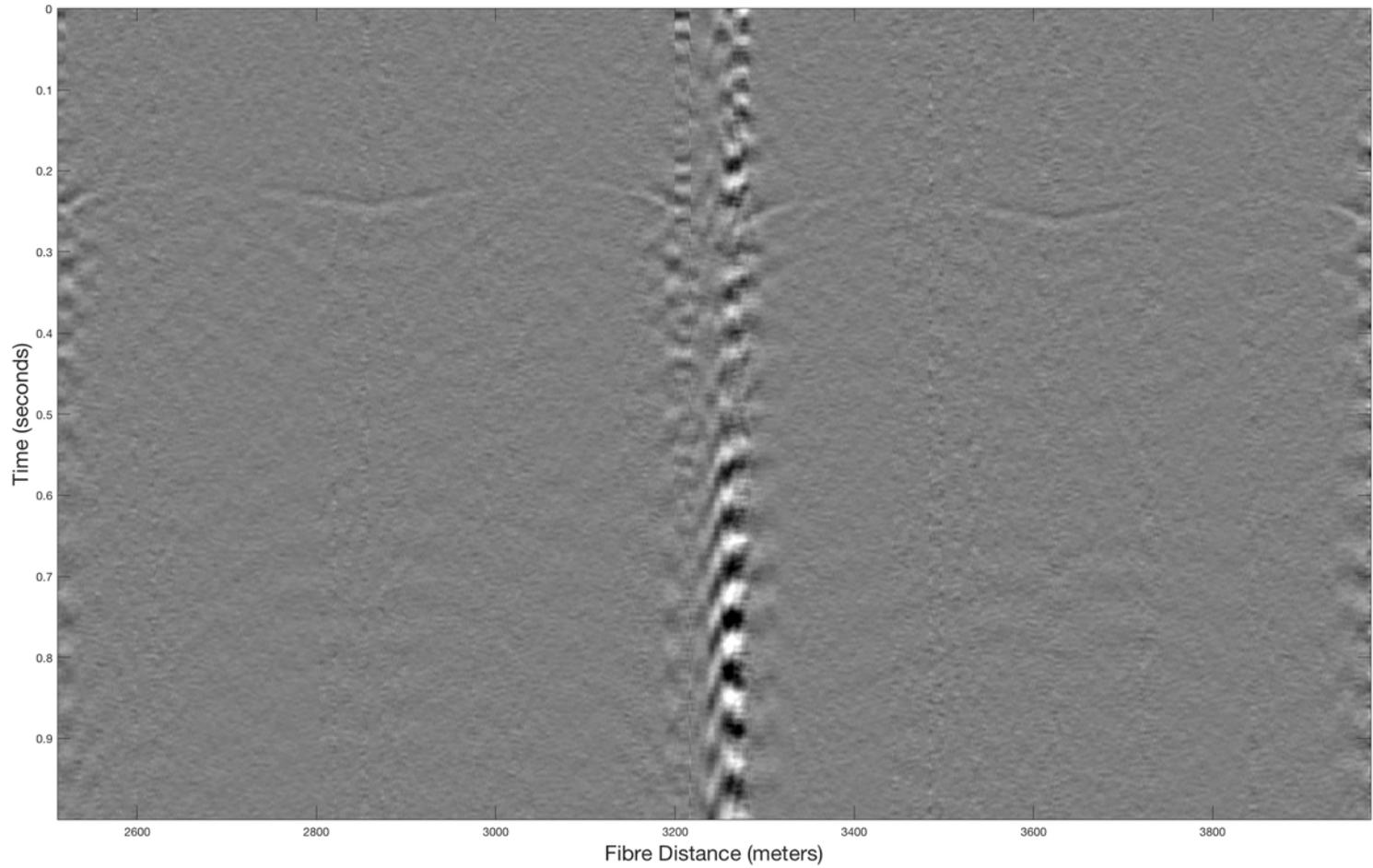


Figure 14: The straight-fibre from well 1 to the straight fibre in well 2 acquired when the vibroseis truck was at source locations 210.

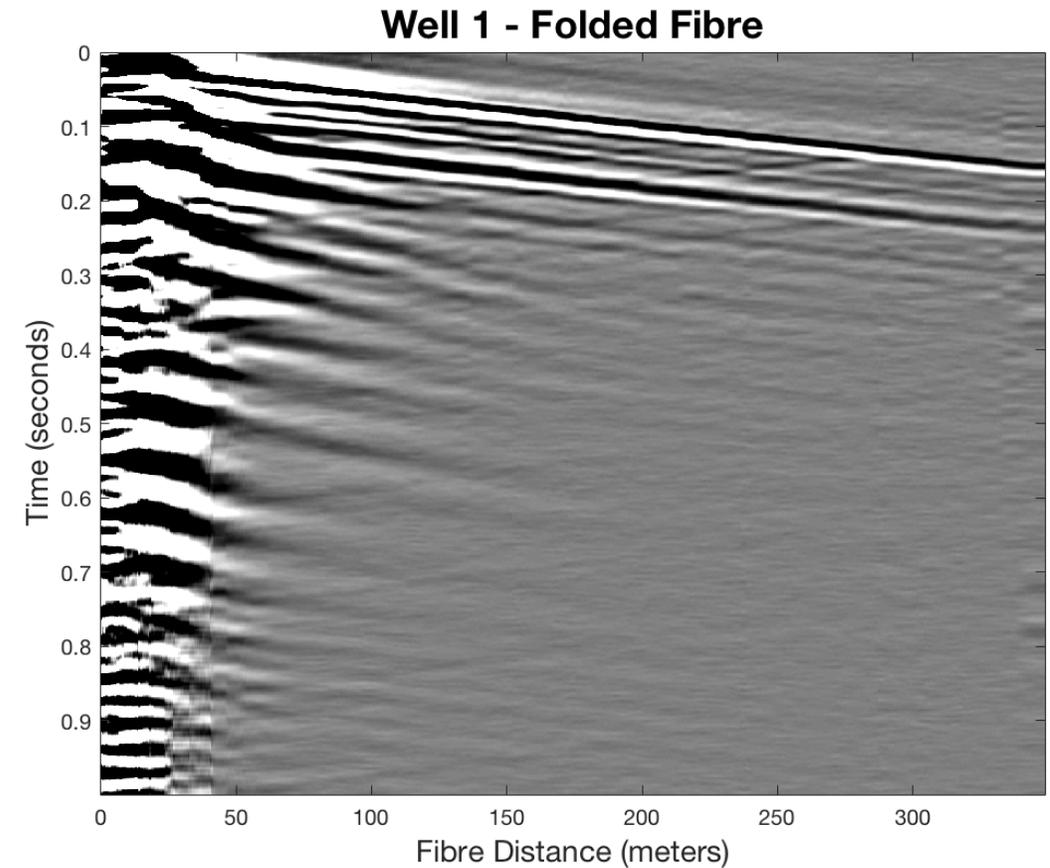
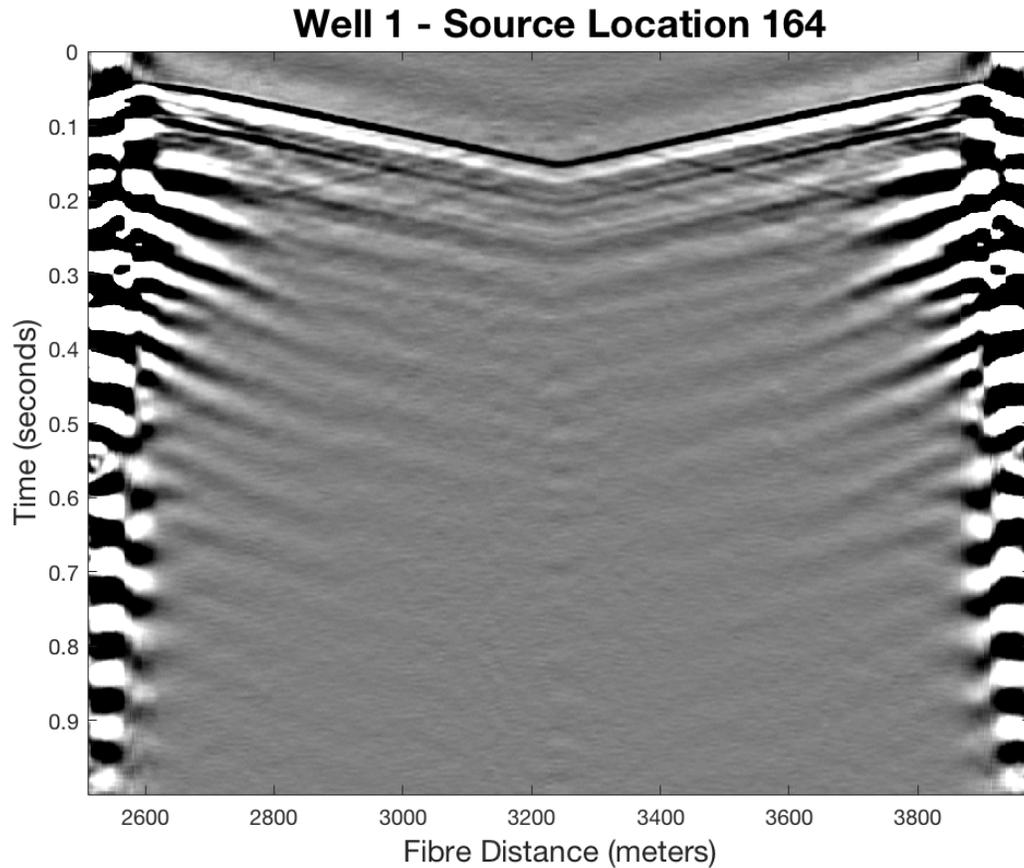


Figure 15: (Left) Well 1 when the vibroseis truck is at Source Location 164. (Right) The straight fibre in Well 1 folded.

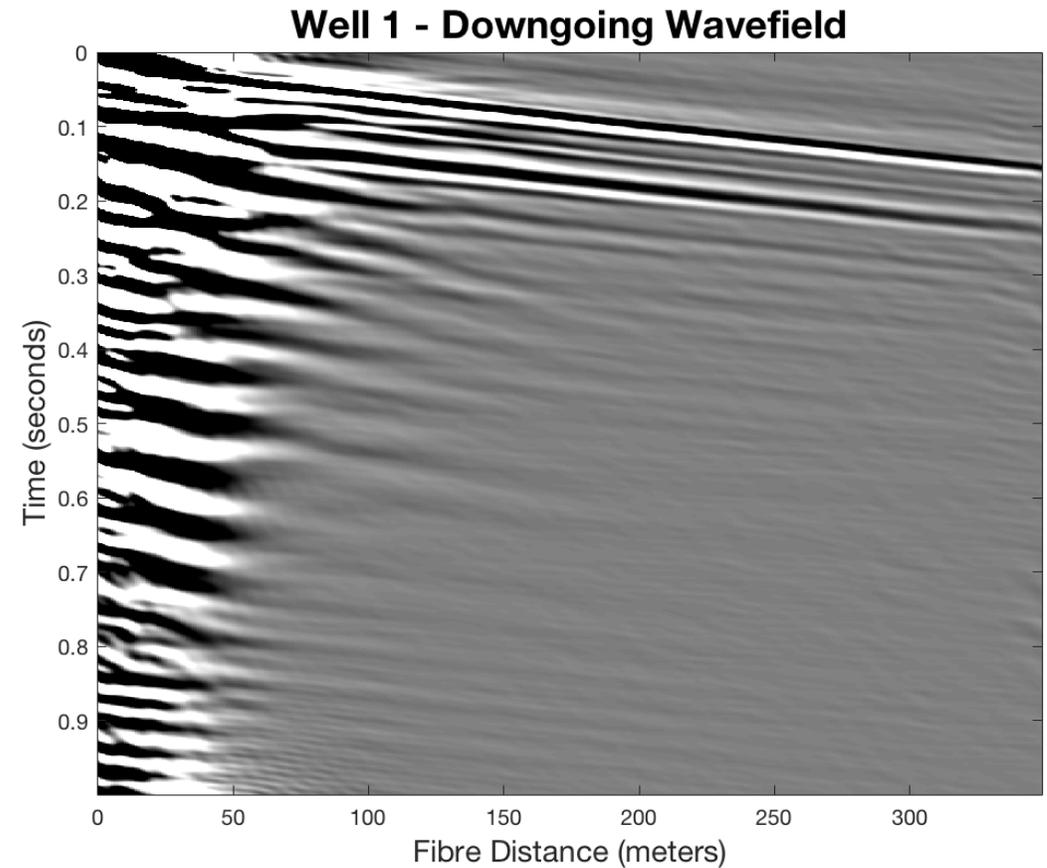
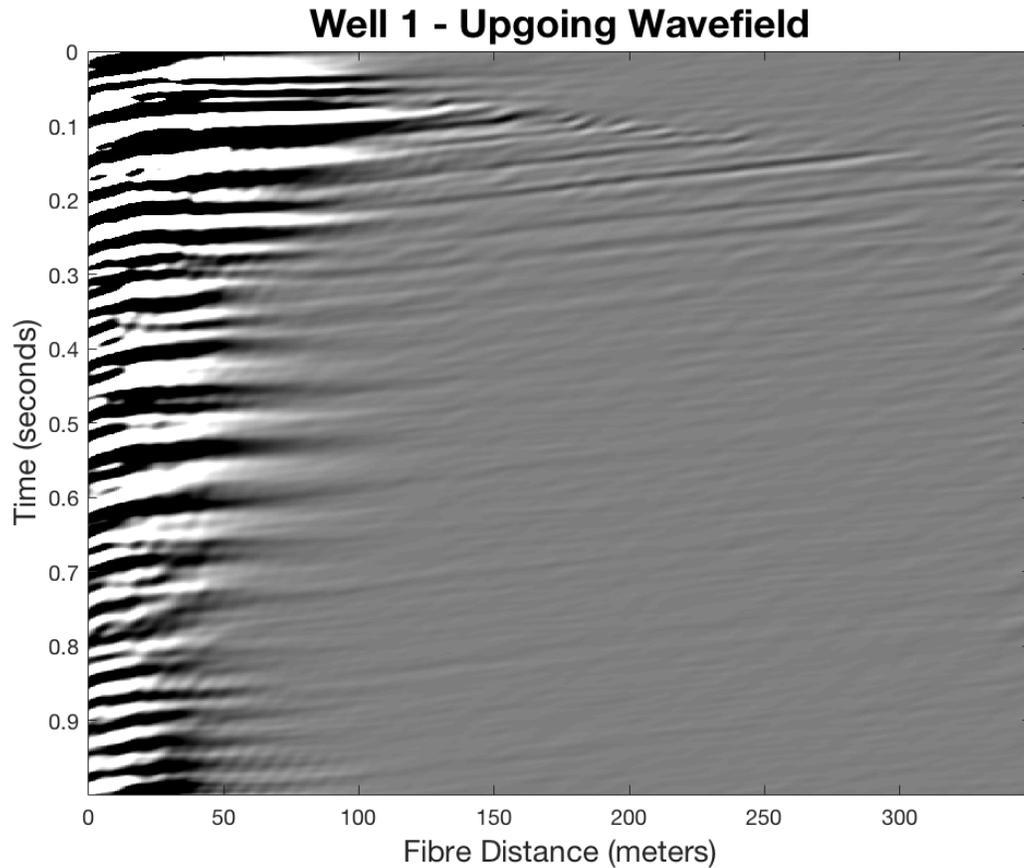


Figure 16: (Left) The upgoing wavefield for Well 1. (Right) The downgoing wavefield for Well 1.

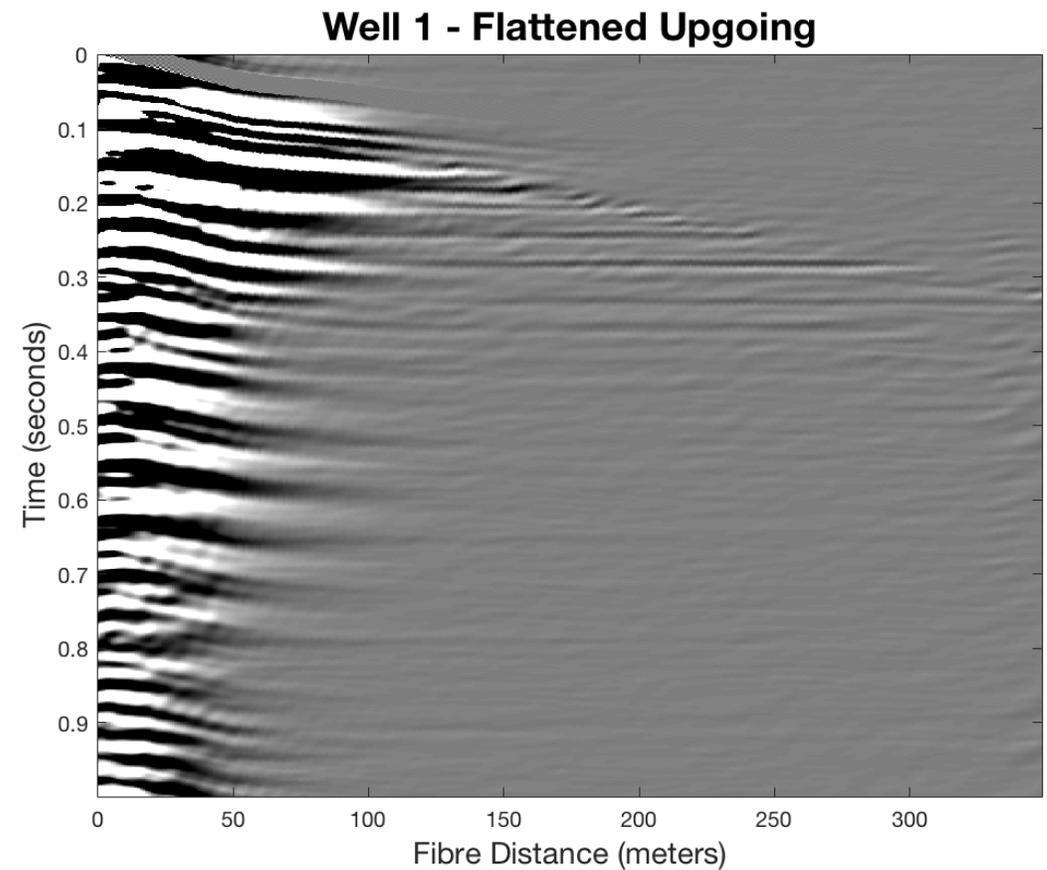
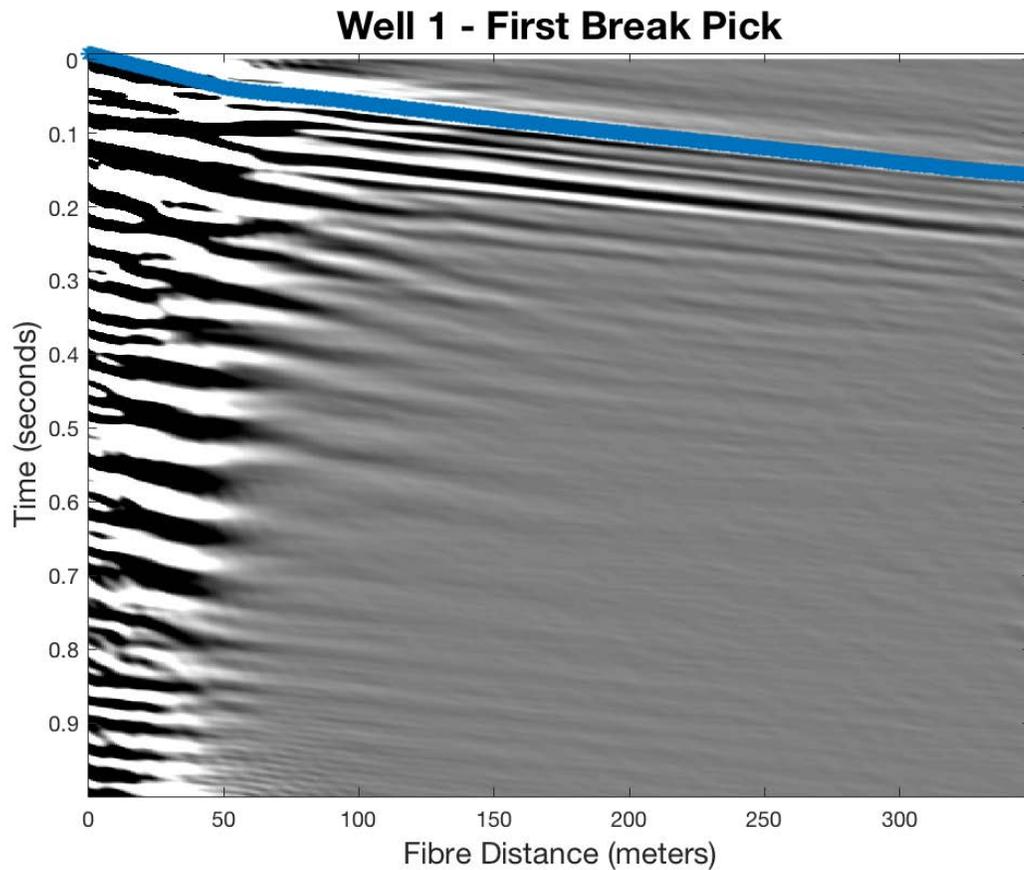


Figure 17: (Left) The first-break picks for Well 1 at source location 164. (Right) The flattened upgoing wavefield for Well 1.

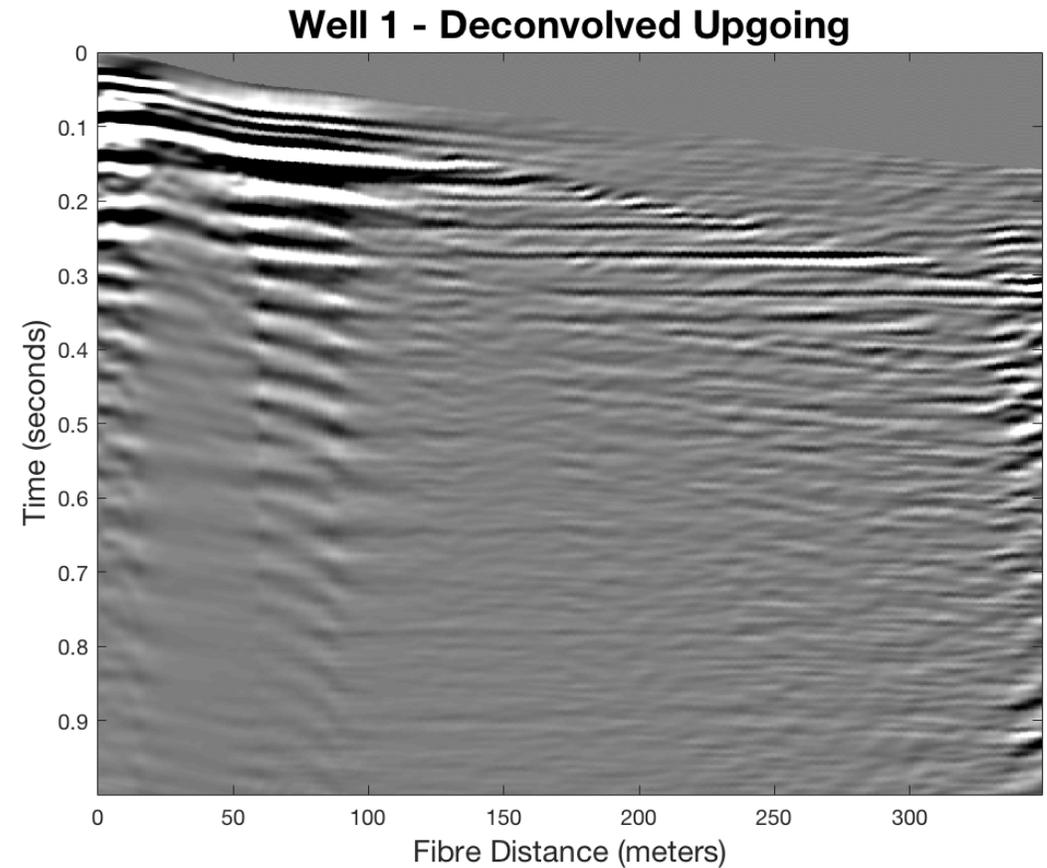
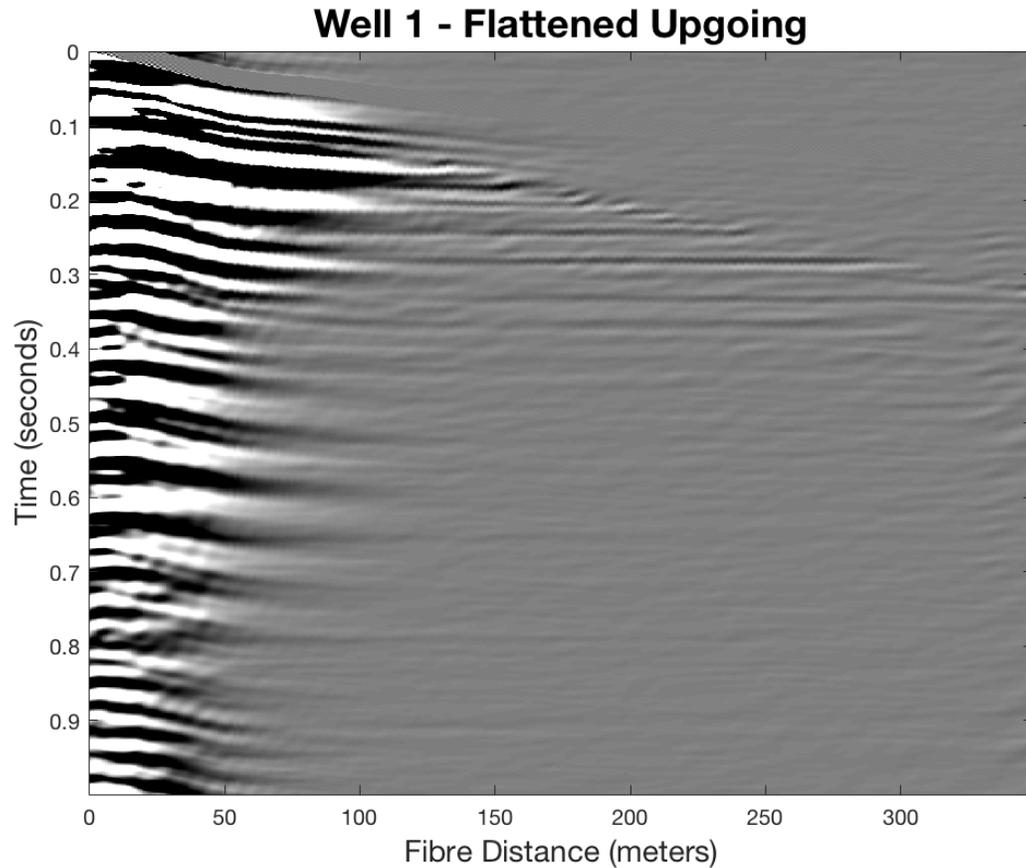


Figure 18: (Left) The flattened upgoing wavefield for Well 1.
(Right) The deconvolved upgoing wavefield for Well 1.

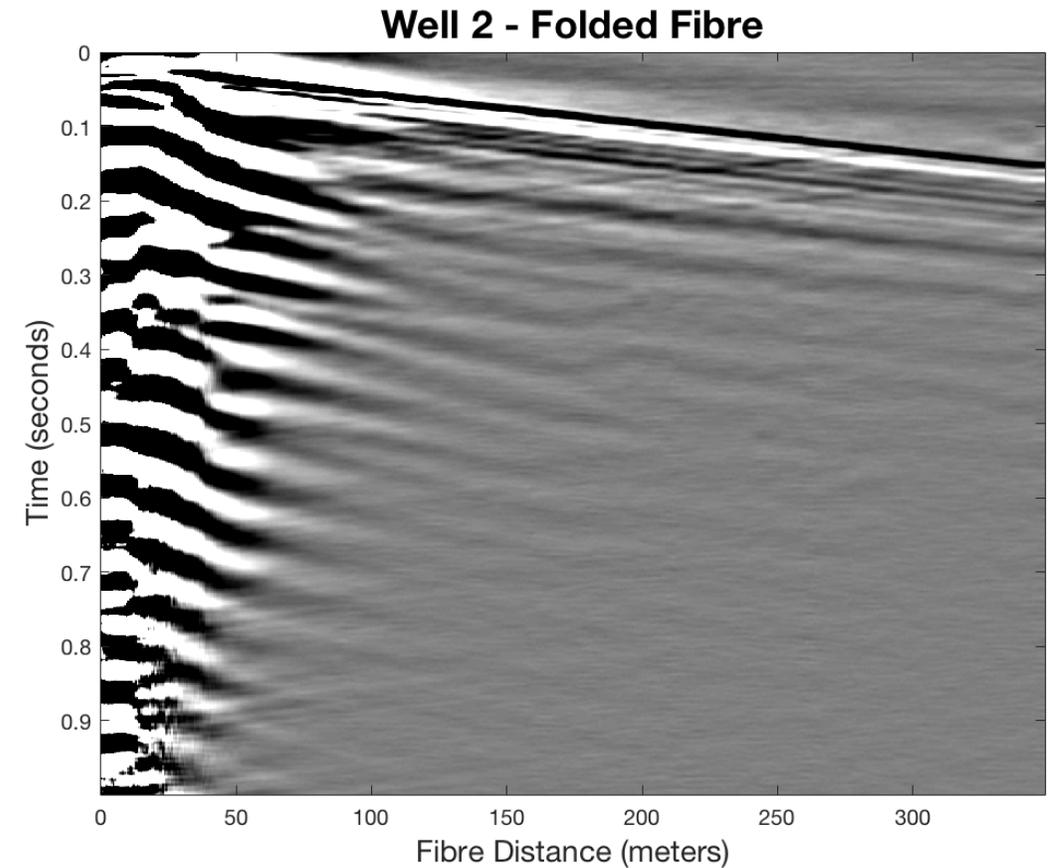
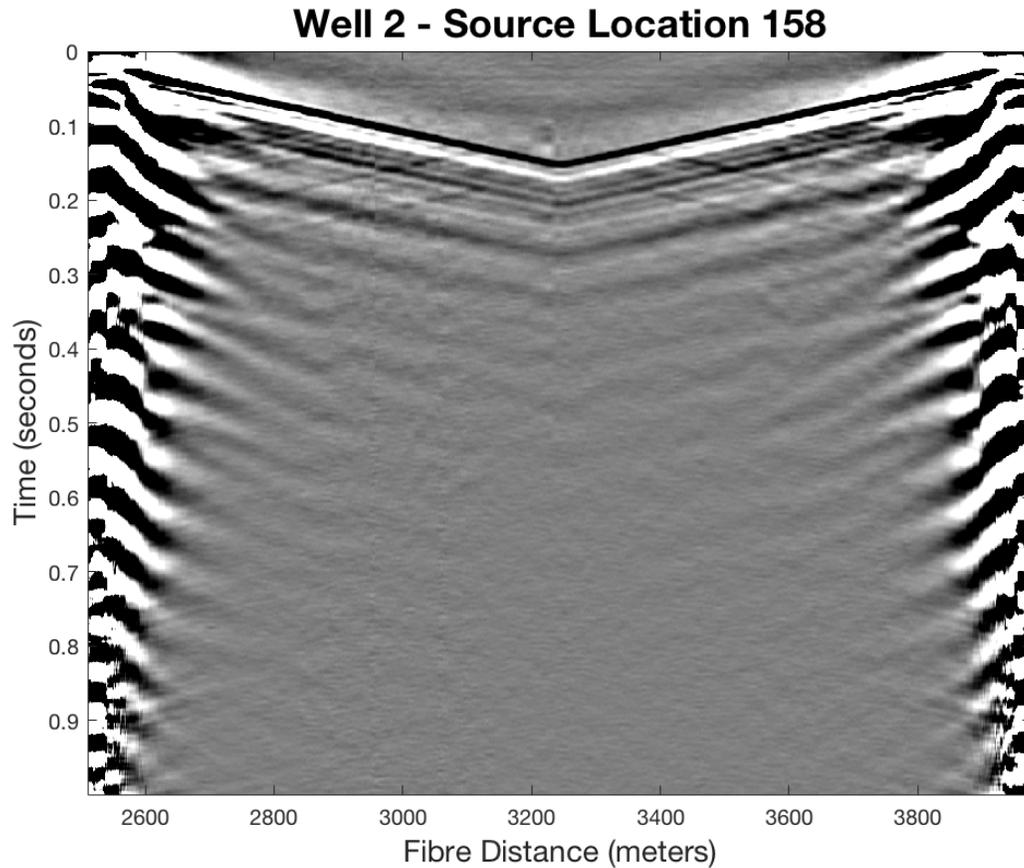


Figure 19: (Left) Well 2 when the vibroseis truck is at Source Location 158. (Right) The straight fibre in Well 2 folded.

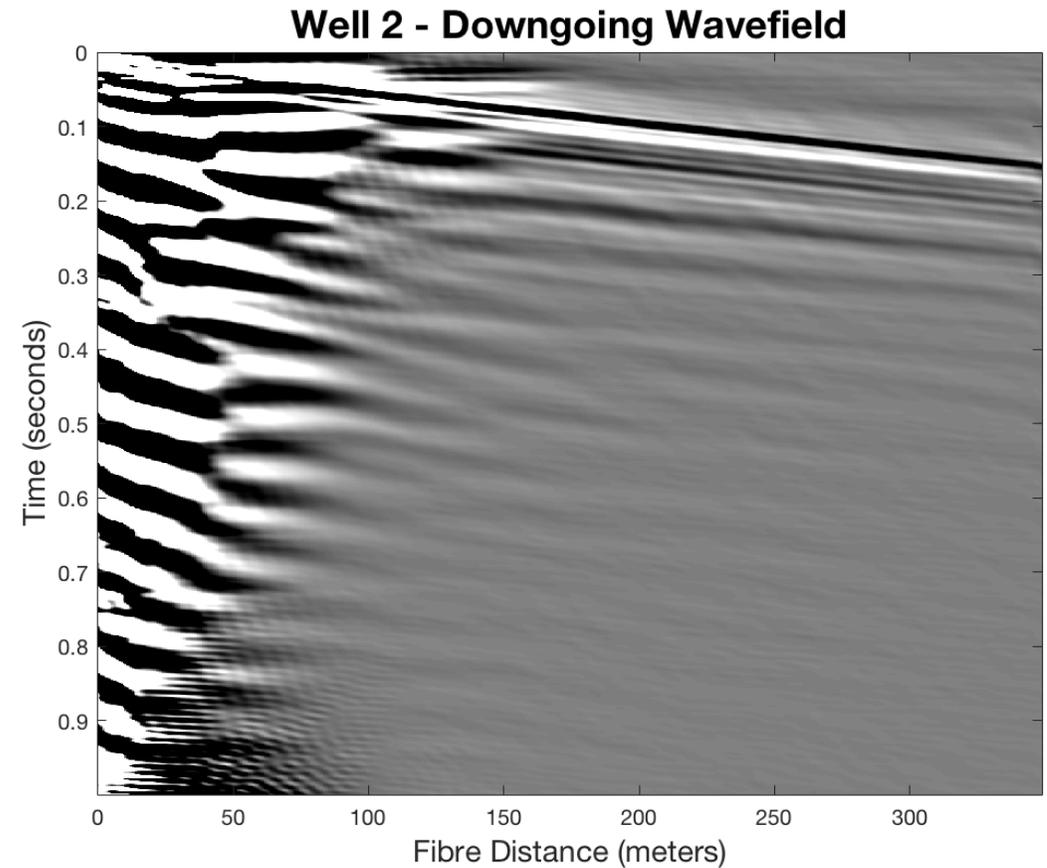
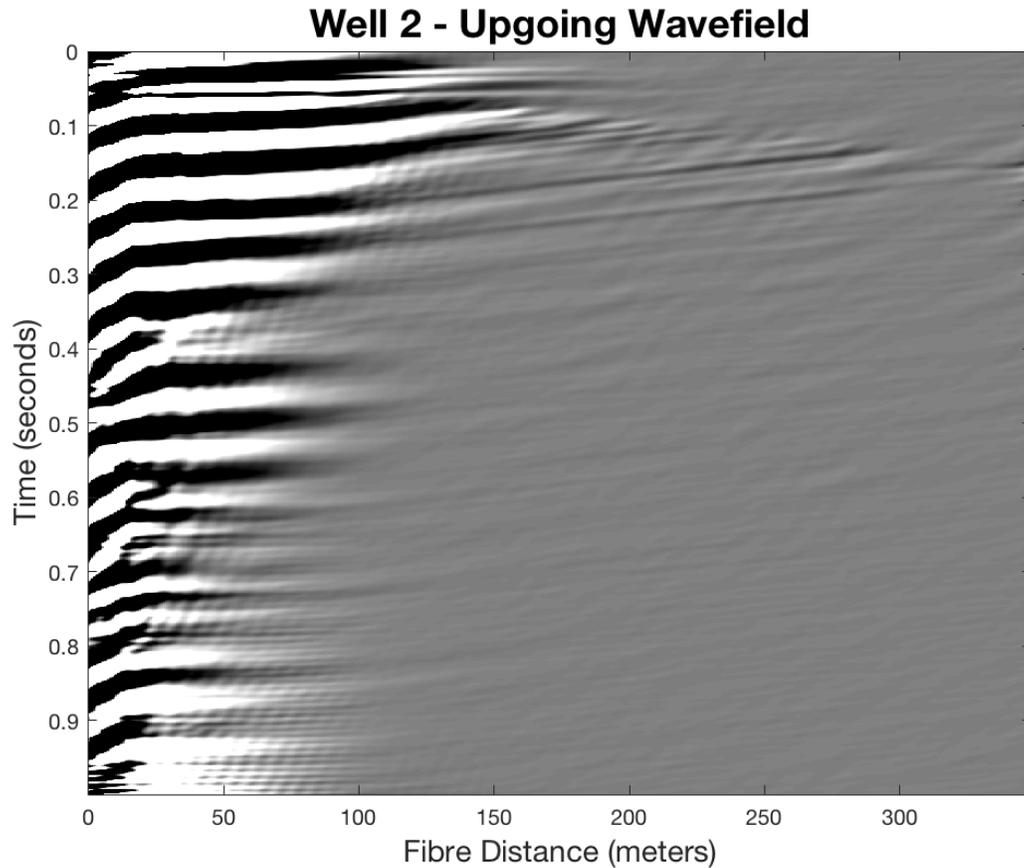


Figure 20: (Left) The upgoing wavefield for Well 2. (Right) The downgoing wavefield for Well 2.

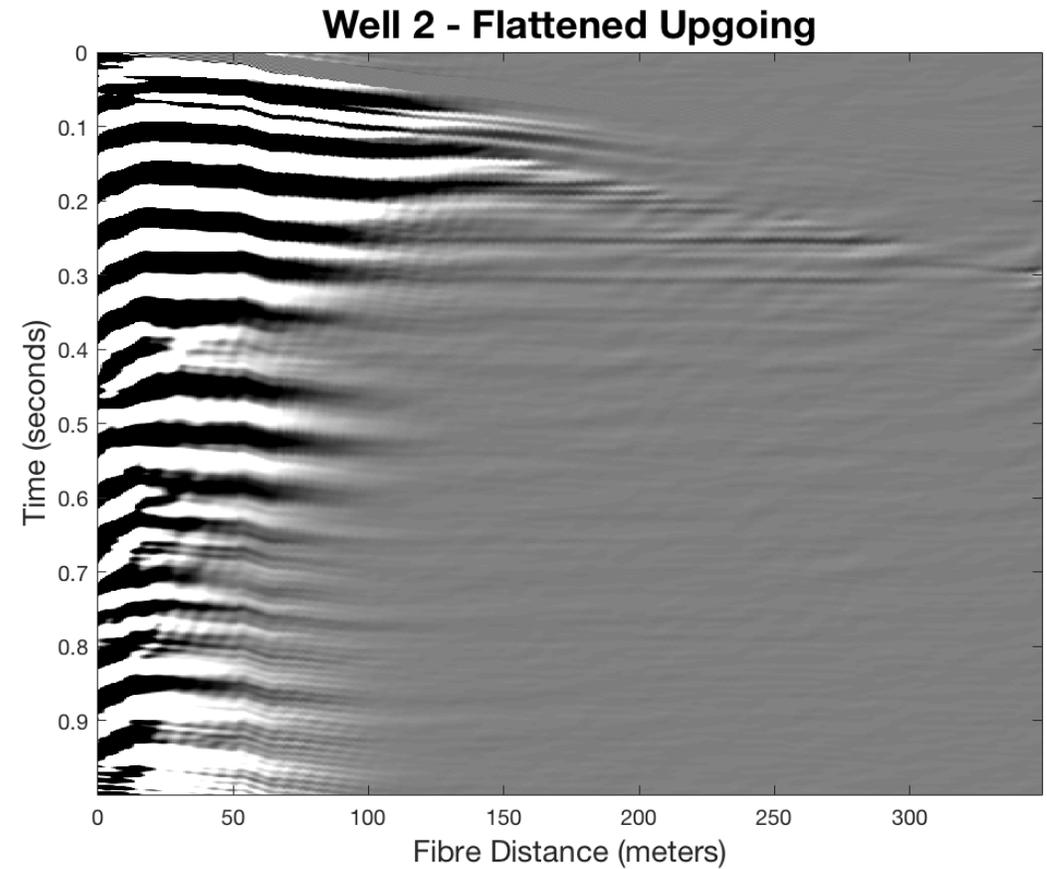
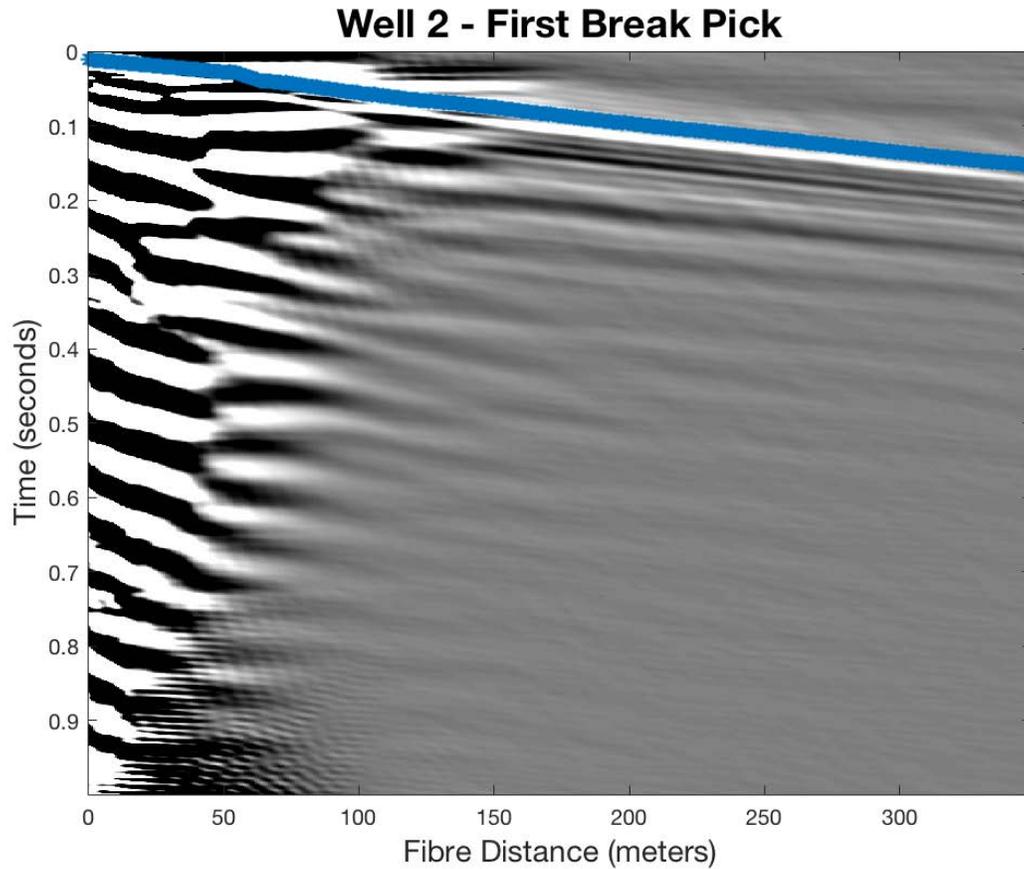


Figure 21: (Left) The first-break picks for Well 2 at source location 158. (Right) The flattened upgoing wavefield for Well 2.

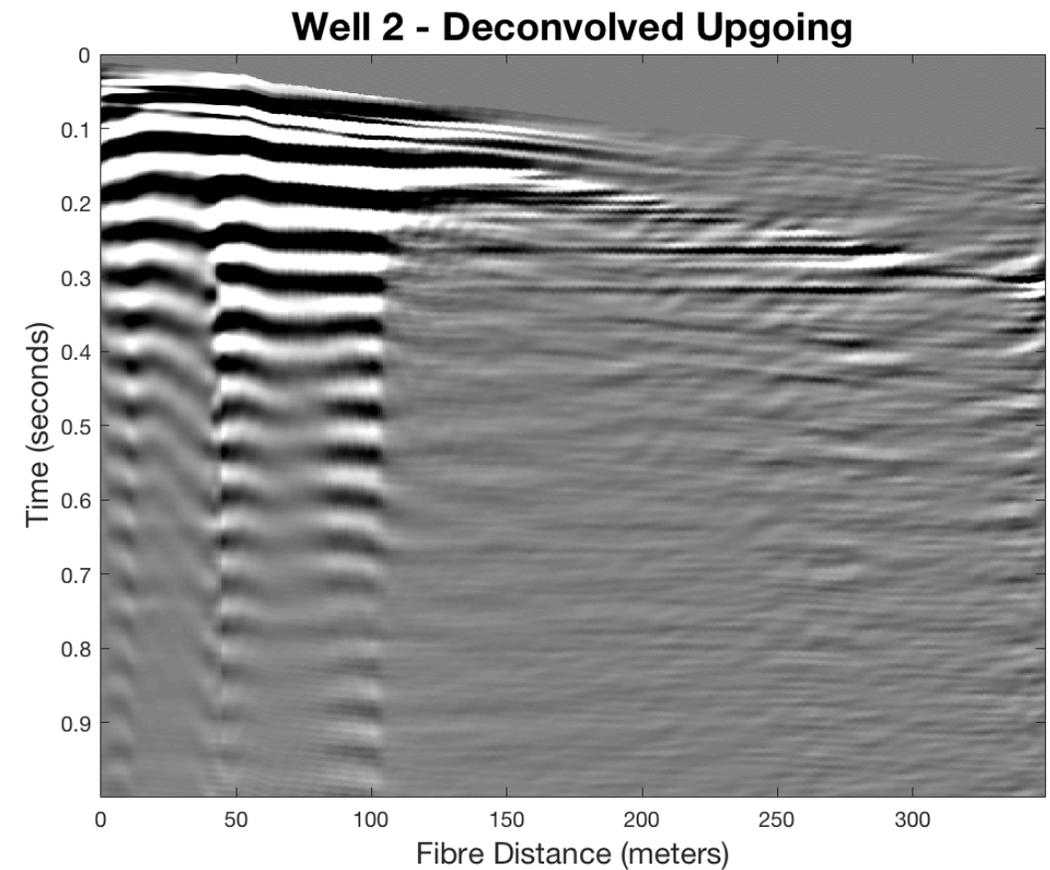
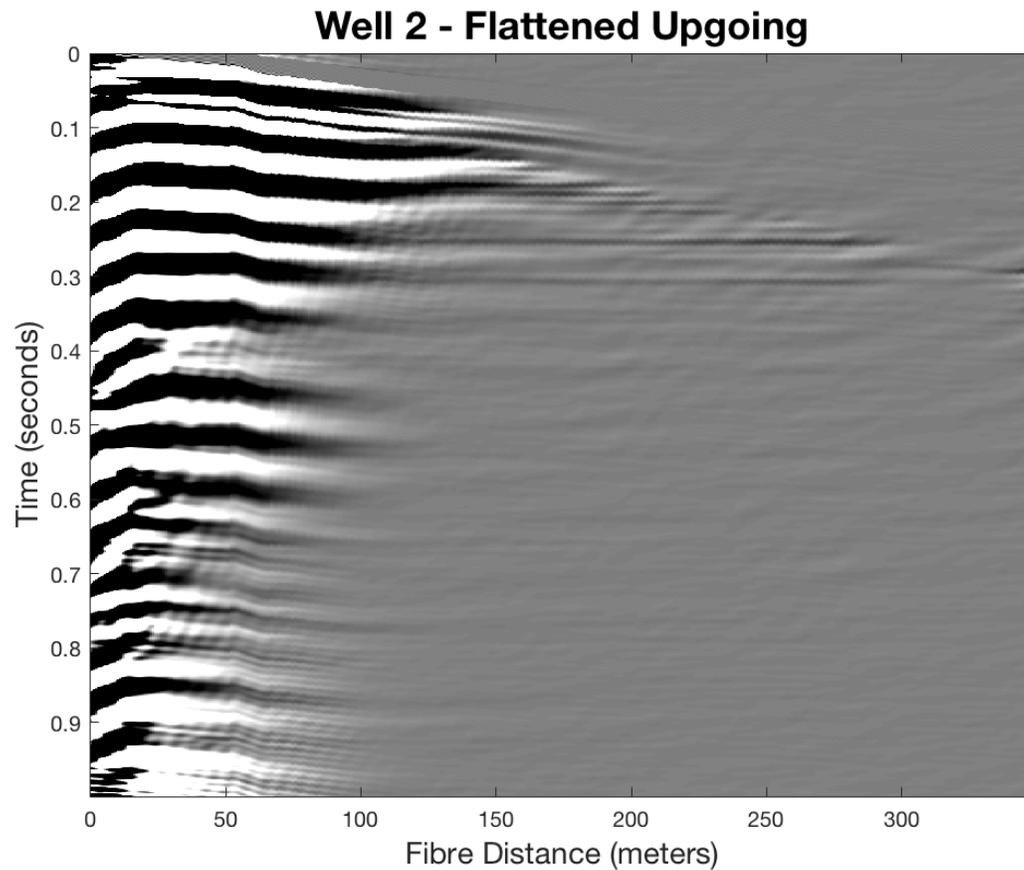


Figure 22: (Left) The flattened upgoing wavefield for Well 2.
(Right) The deconvolved upgoing wavefield for Well 2.



We discussed the CaMI FRS schematic of the fibre optic cable.

We considered the data collected from CaMI FRS in August 2018 by looking at 11 of the 110 source locations.

We also showed the results of the VSP for Well 1 at Source Location 164 and Well 2 at Source Location 158.



Acknowledgements

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Thank you for listening! Any questions?