

UGOU022-SCAN023 Initial Processing Report

GTO-19-C031-02 SCAN Acquisition Seismic Processing Order #2

19 NOVEMBER 2020

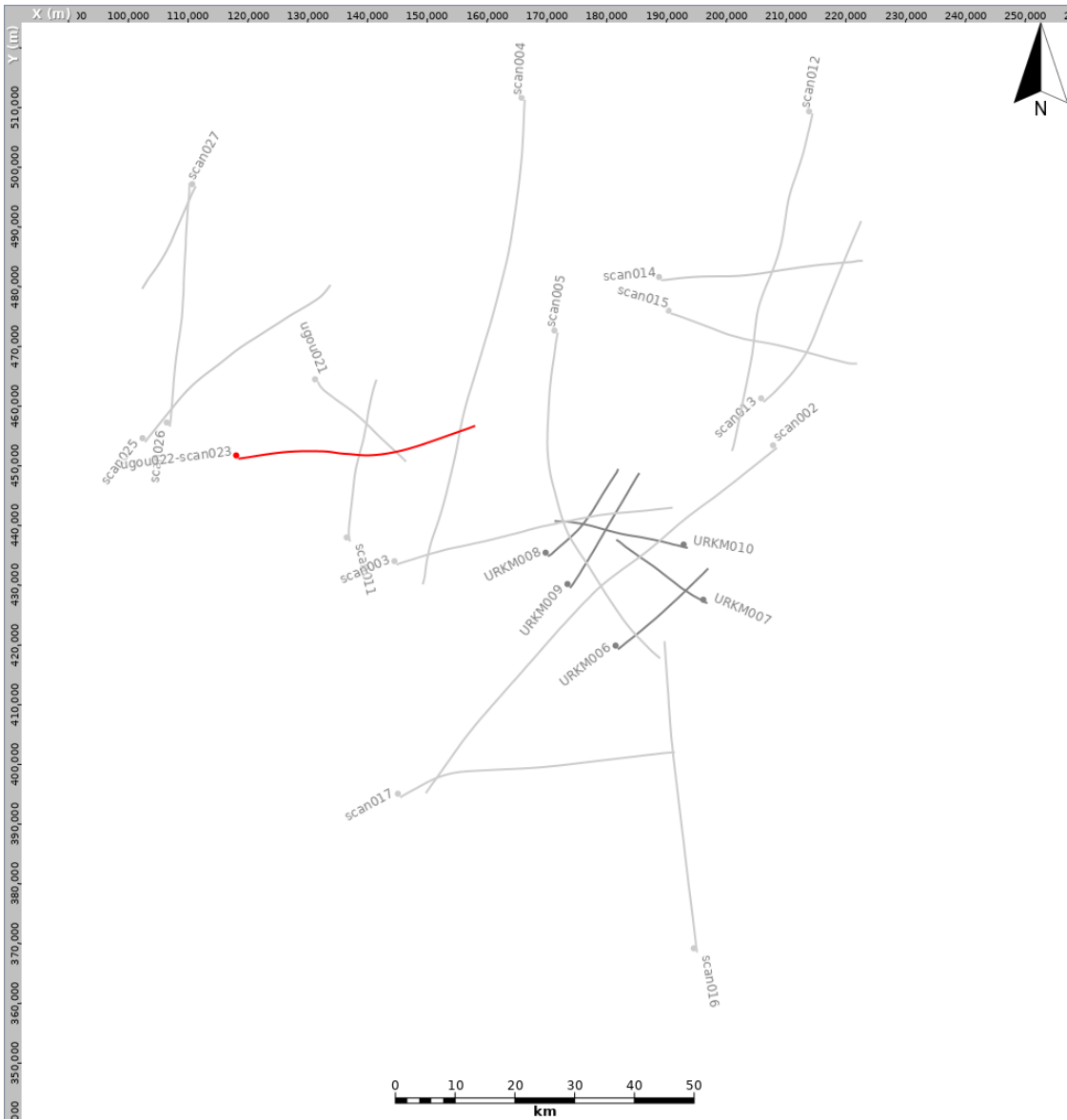
Energie Beheer Nederland B.V.

2D Seismic PreSTM Processing, Onshore Netherlands

- This report shows examples through the initial noise attenuation processing.

Processing sequence

- Data reformat: SEGY to internal format
- Geometry: Crooked line with 2.5 m CDP interval
- Weak shots: 0-500 m offsets only
- Spherical divergence correction: T
- Geophone response correction: No response correction applied for the hydrophones
- Phase rotation: -90 degree phase rotation for hydrophones
- Refraction statics: Delay time using $V_0 = 1000 \text{ m/s}$ $V_R = 1700 \text{ m/s}$ $\text{SRD} = \text{NAP}$
- Noise attenuation: +/-1250 m/s Weiner dip filter
- Edits: Kill invalid shots and receivers
- Noise attenuation: Despike
- Noise attenuation: Wavelet (D20) transform filter (muting the largest 10% of coefficients by 90% in scales 6-10)
- SCAC 1: Source and receiver components designed on NMO corrected gathers over 200-2200 ms
- Noise attenuation: TFDN
- Inverse Q: $Q = 100$ phase and amplitude using 40 Hz reference frequency and 12 dB gain stabilisation
- DBS: Surface consistent with 160 ms operator length with 16 ms predictive gap
0.1% white noise stabilisation - Design window: 200-3000 ms
- Velocity analysis: 1 km interval
- Noise attenuation: 1.75 ms/tr (2857 m/s) dip filter and wavelet transform filter on shots
- Stack: 1/N with 55° mute
- Static: Static to shift from floating to final datum (NAP)

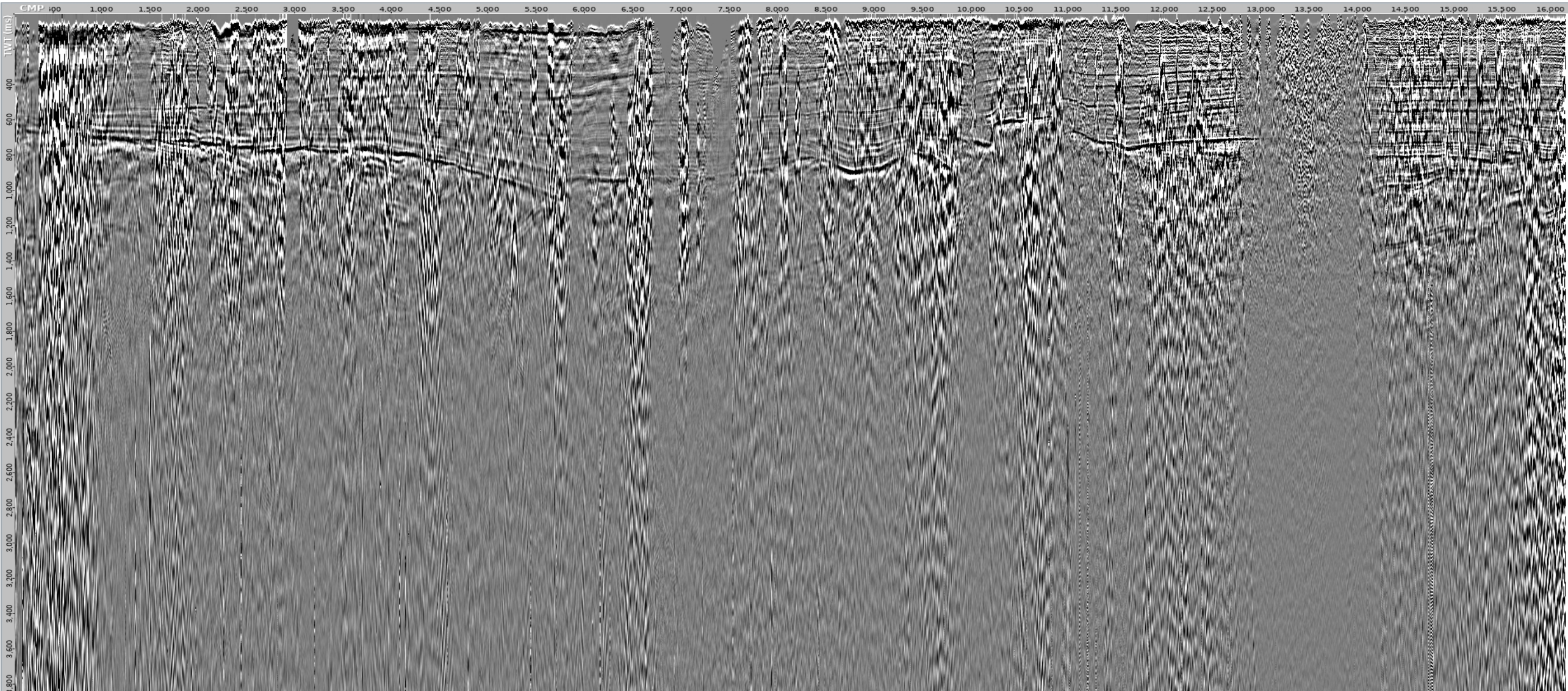


STACKS



W

E



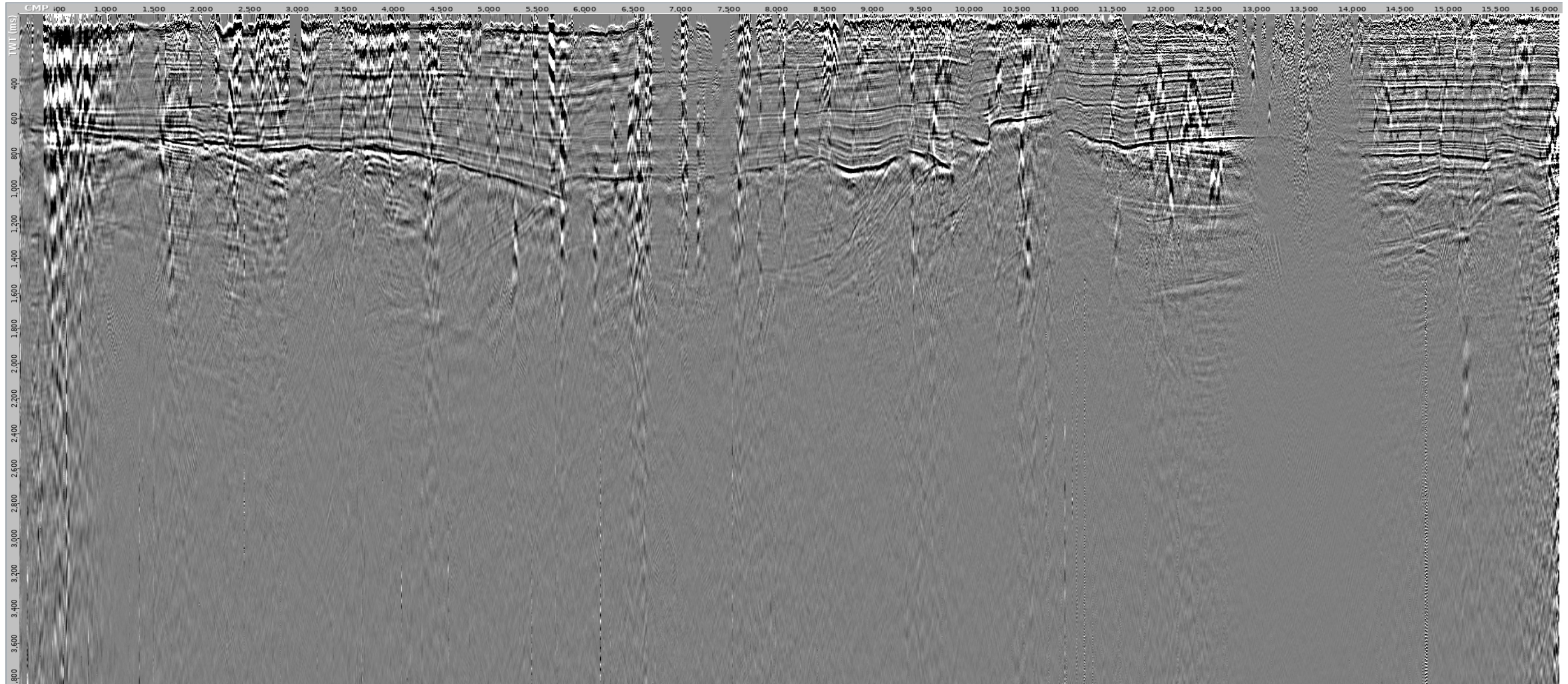
UGOU022-SCAN023 stack with dip filter on shots

No DBS applied



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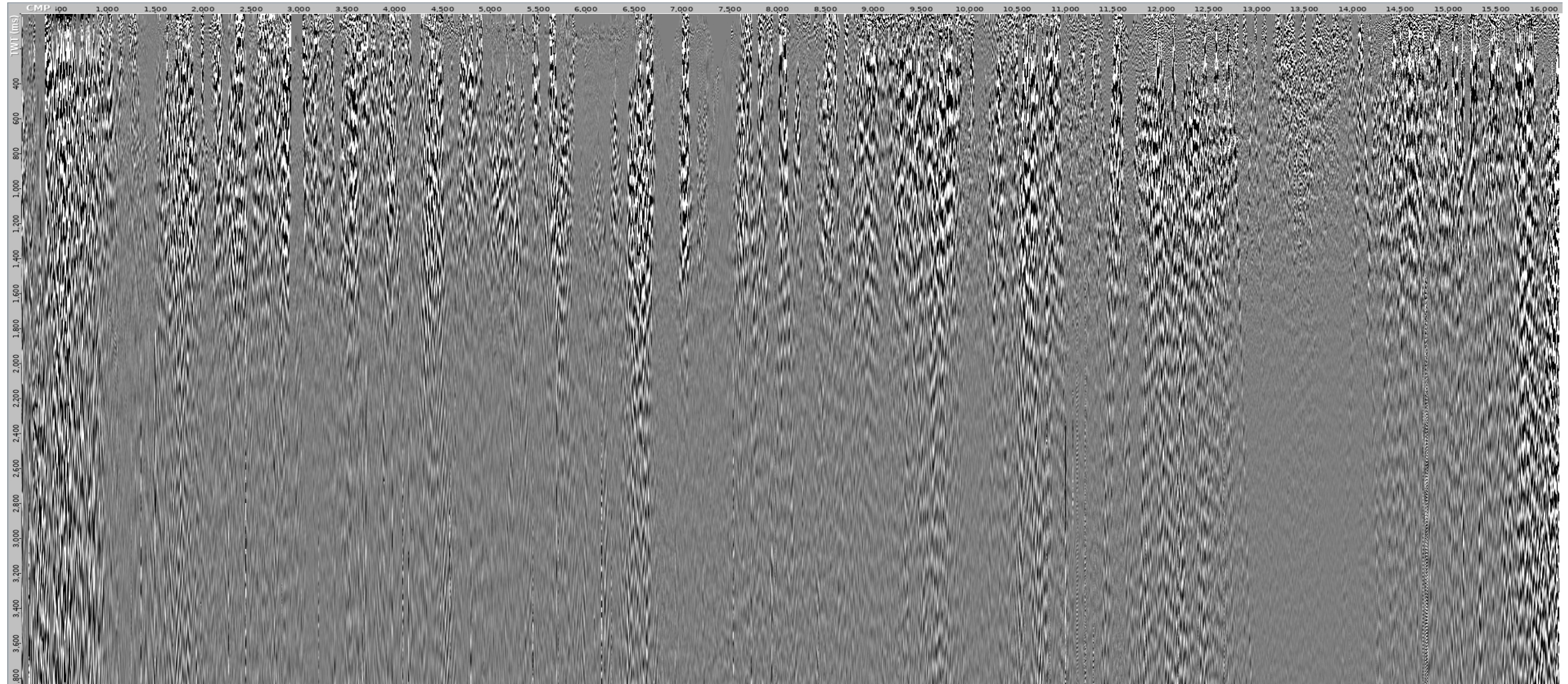
UGOU022-SCAN023 stack difference after dip filter on shots

No DBS applied



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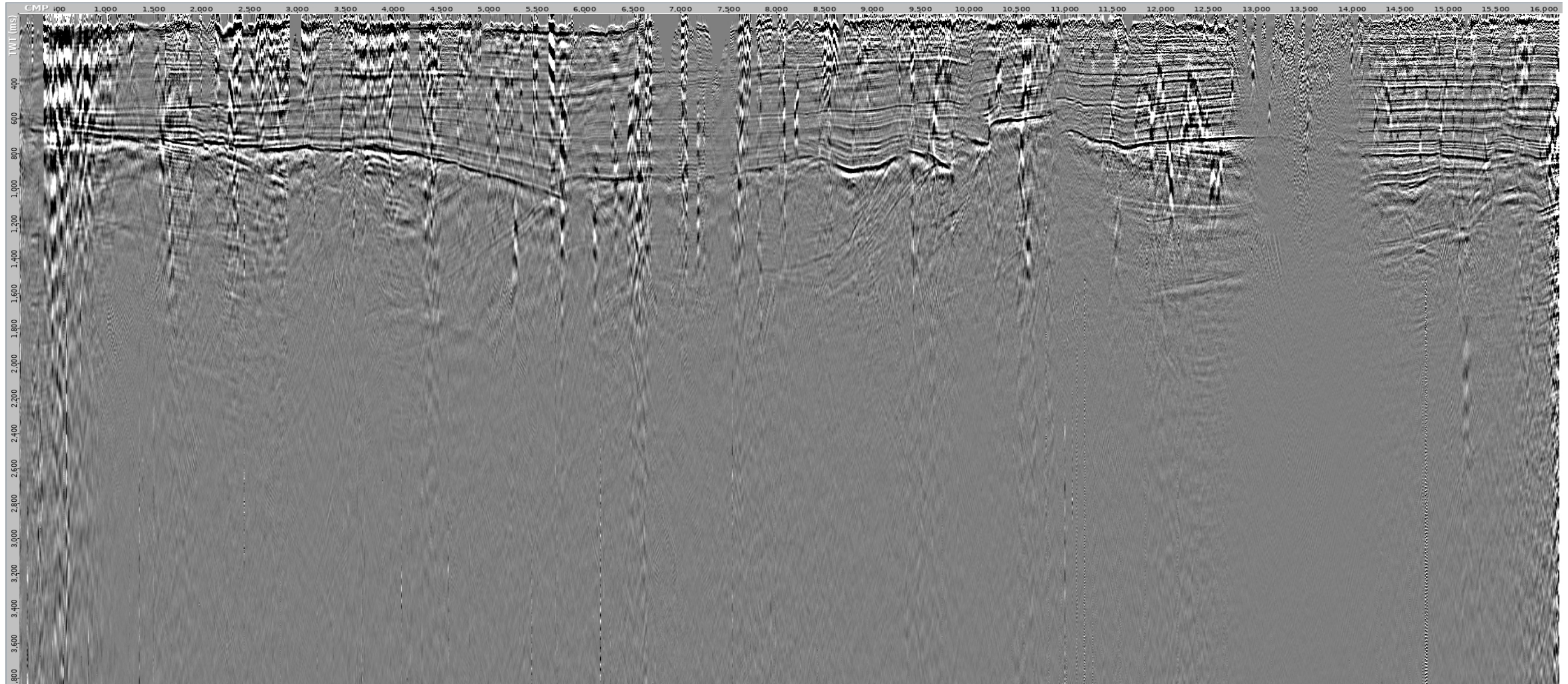
UGOU022-SCAN023 stack with dip filter on shots (REPEAT SLIDE)

No DBS applied



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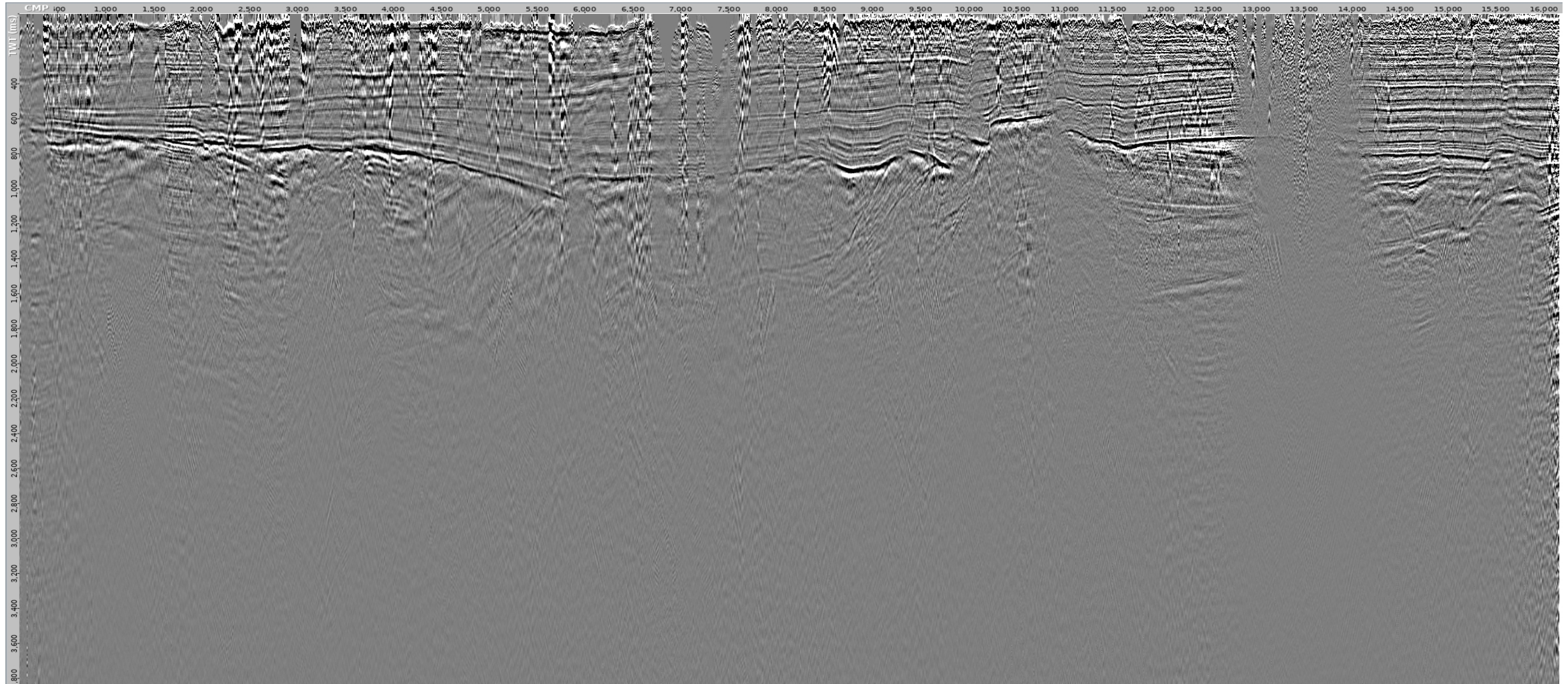
UGOU022-SCAN023 stack with wavelet transform filter on shots

No DBS applied



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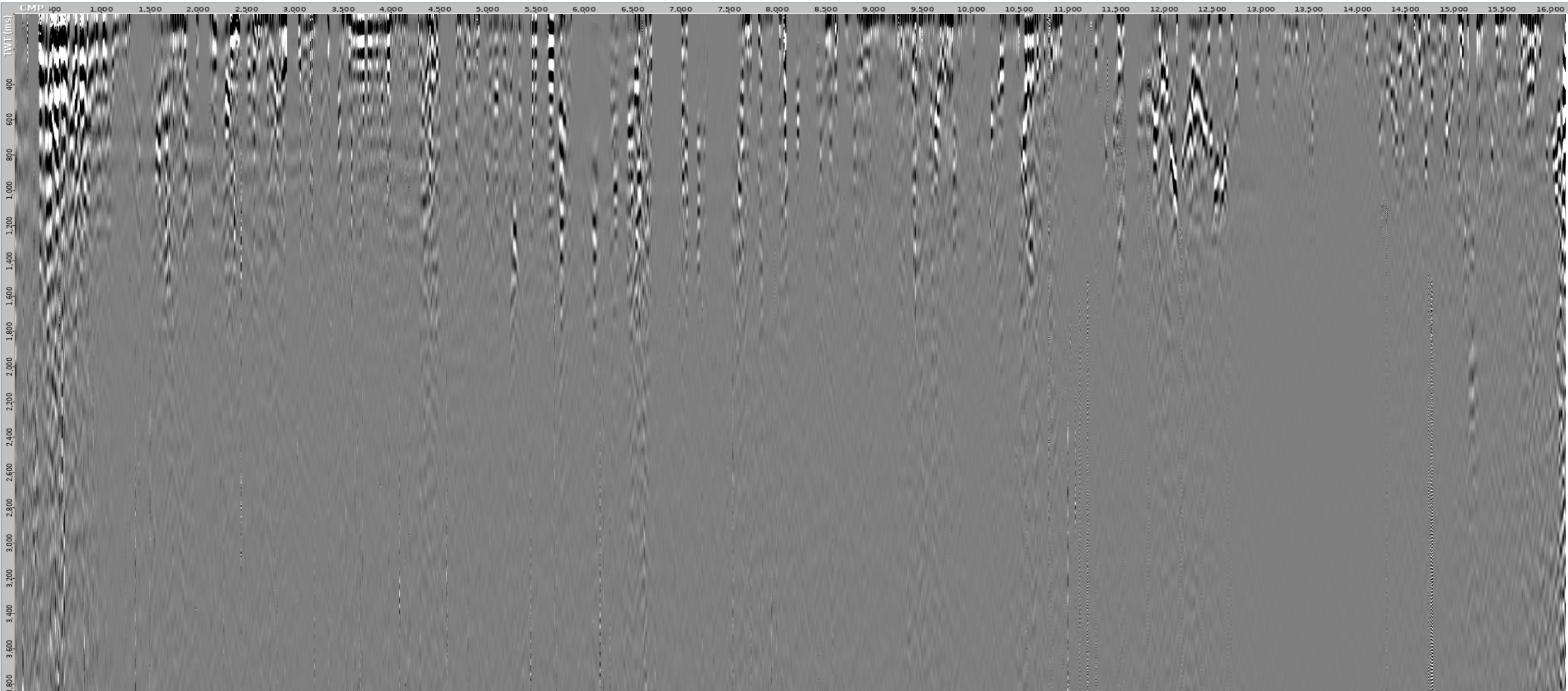
UGOU022-SCAN023 stack difference after wavelet transform filter on shots

No DBS applied



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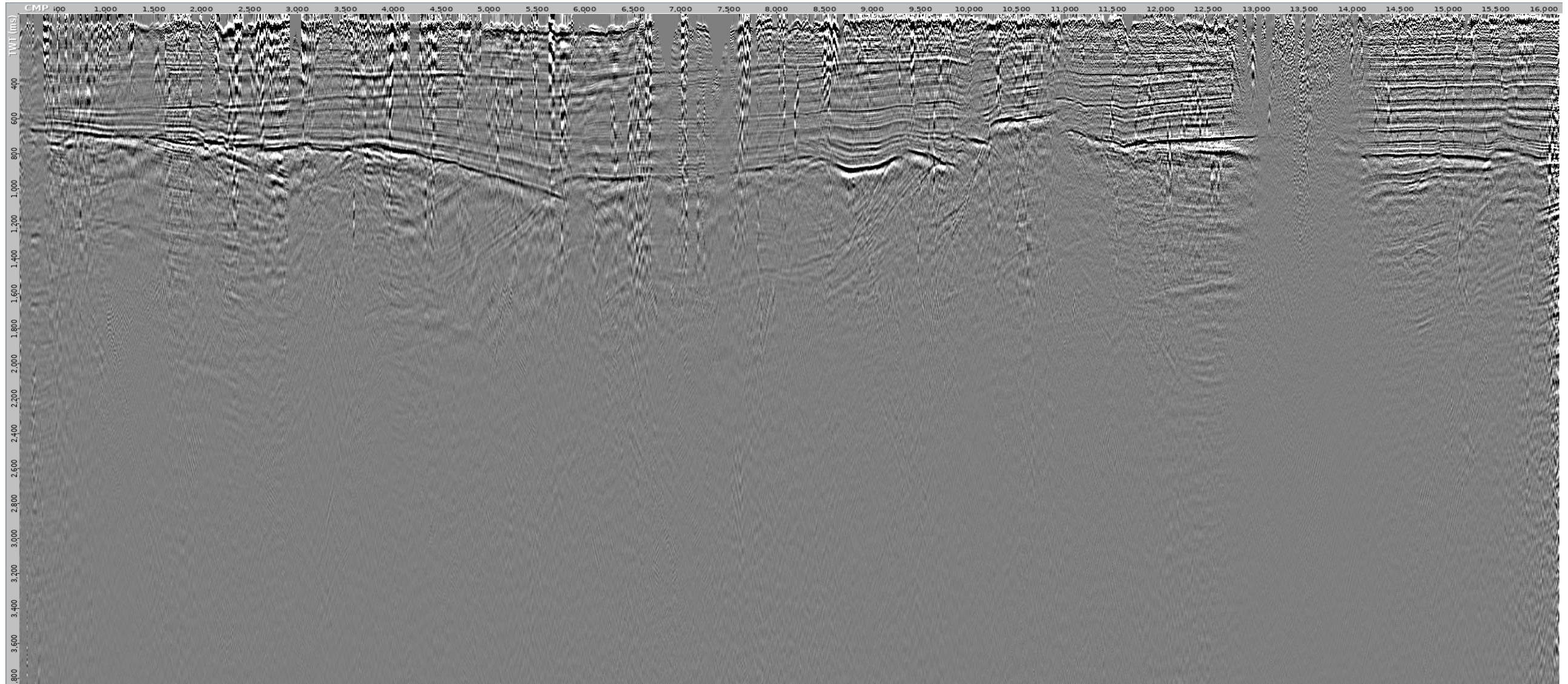
UGOU022-SCAN023 stack with wavelet transform filter on shots (REPEAT)

No DBS applied



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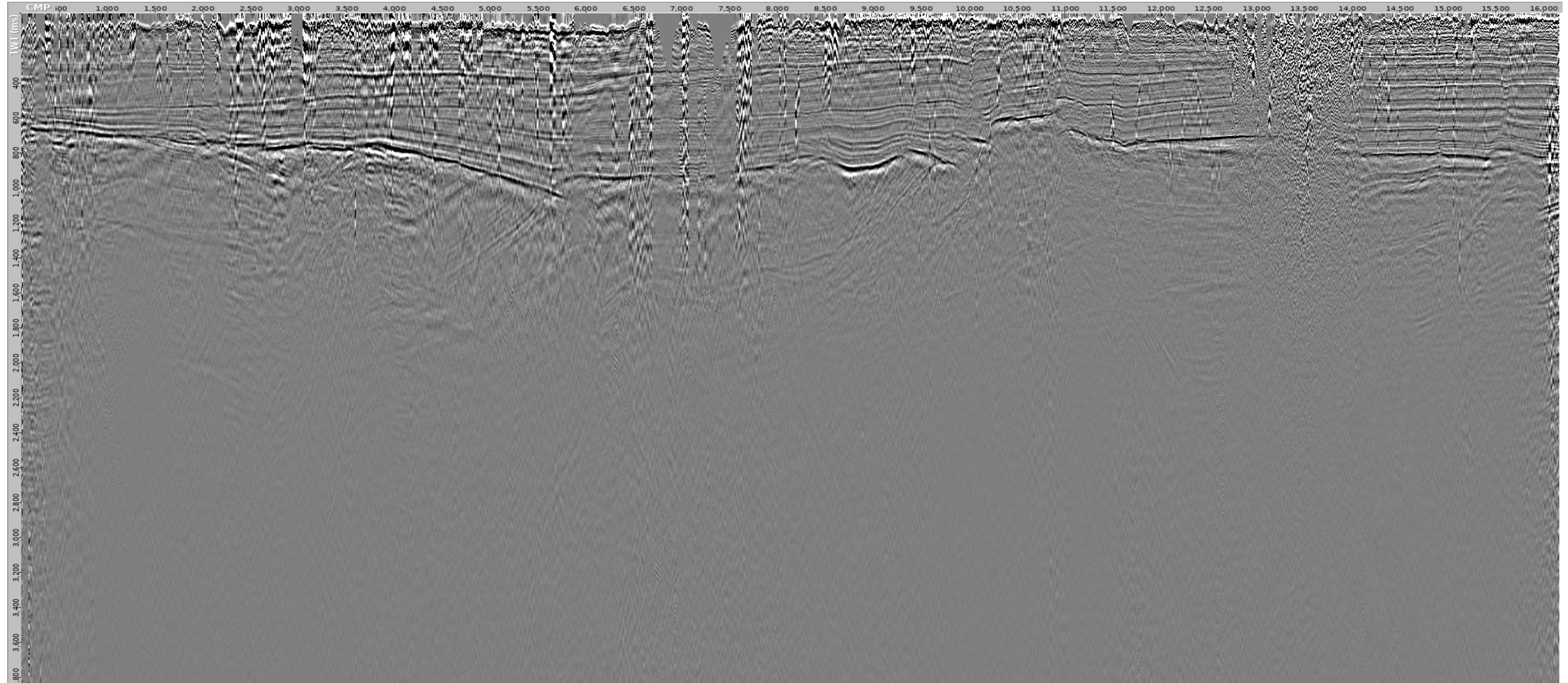
UGOU022-SCAN023 stack with initial pass of surface consistent amplitude correction (SCAC1)

No DBS applied



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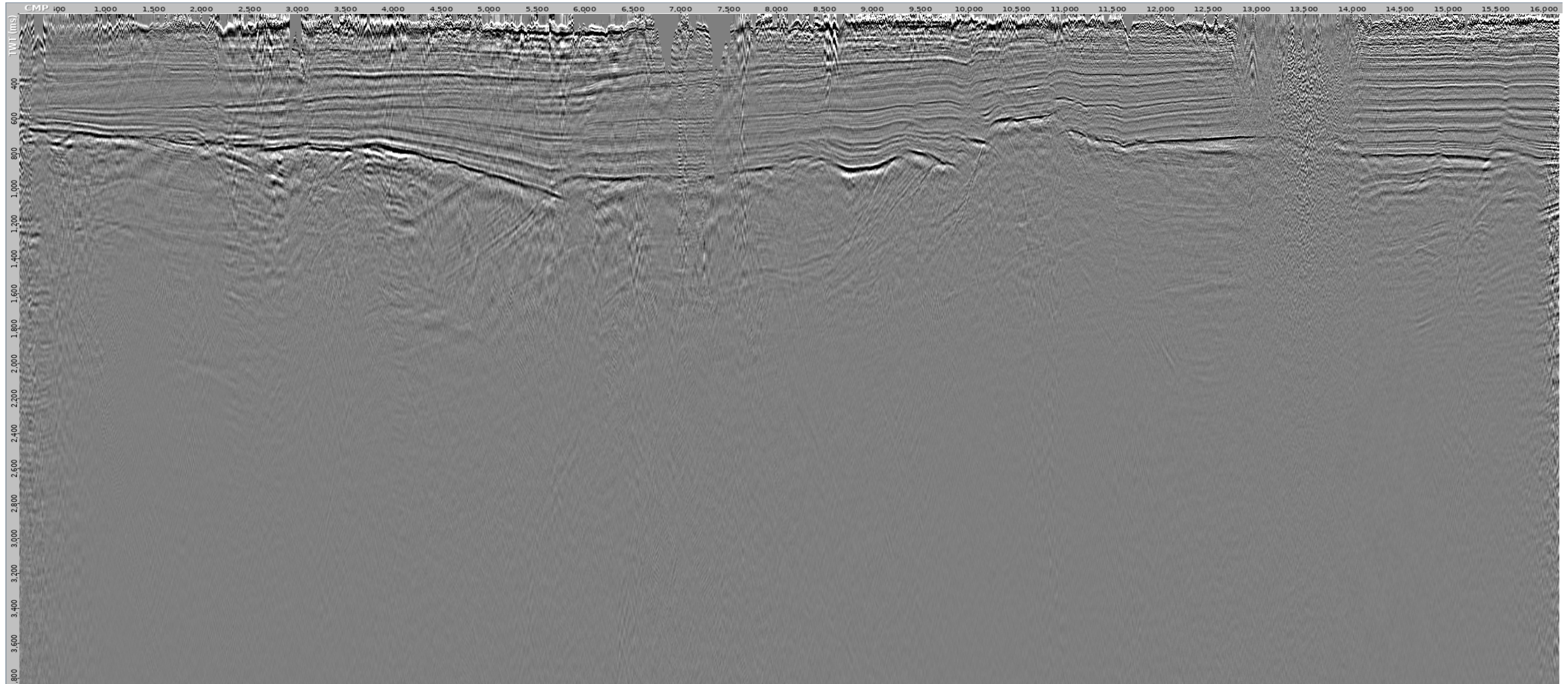
UGOU022-SCAN023 SCAC1 stack with TFDN on shots

No DBS applied



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UGOU022-SCAN023 SCAC1 stack showing difference after TFDN on shots

No DBS applied



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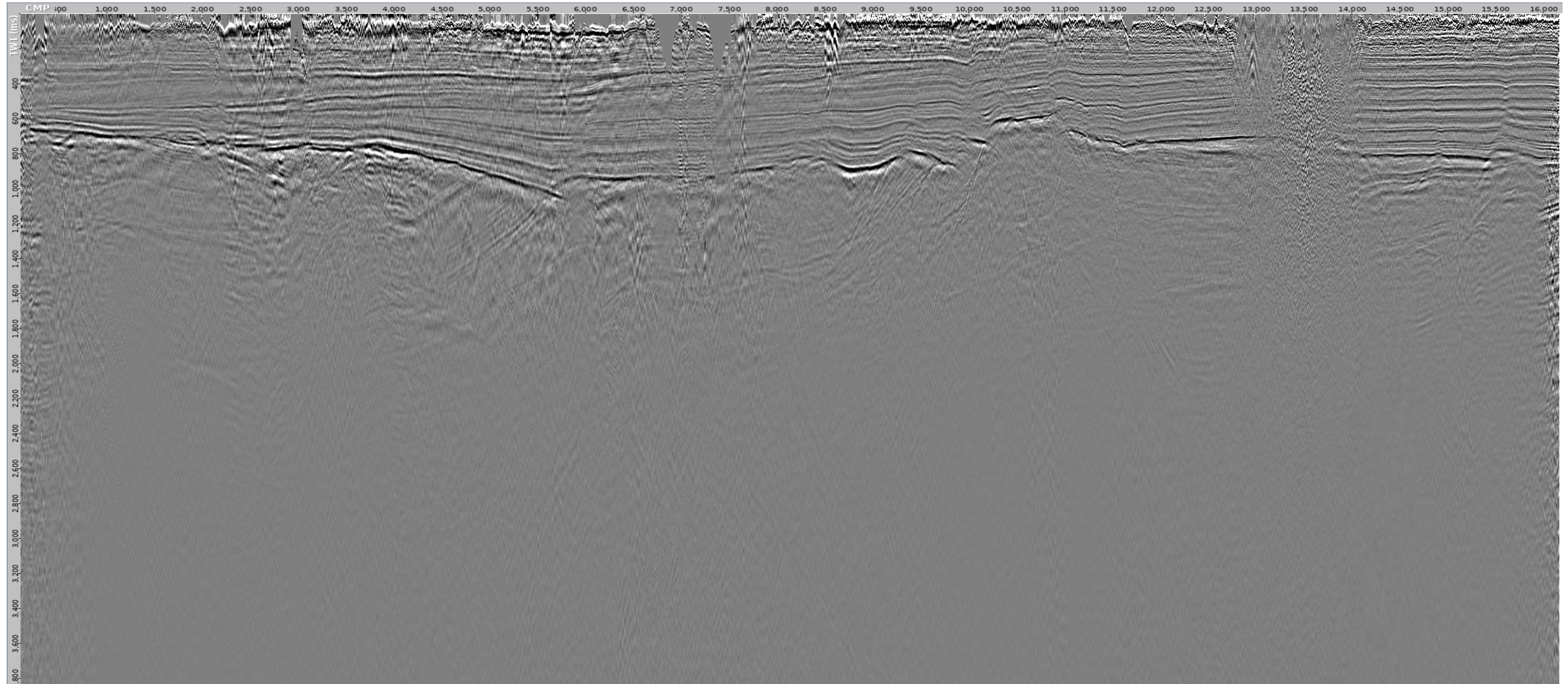
UGOU022-SCAN023 SCAC1 stack with TFDN on shots (REPEAT SLIDE)

No DBS applied



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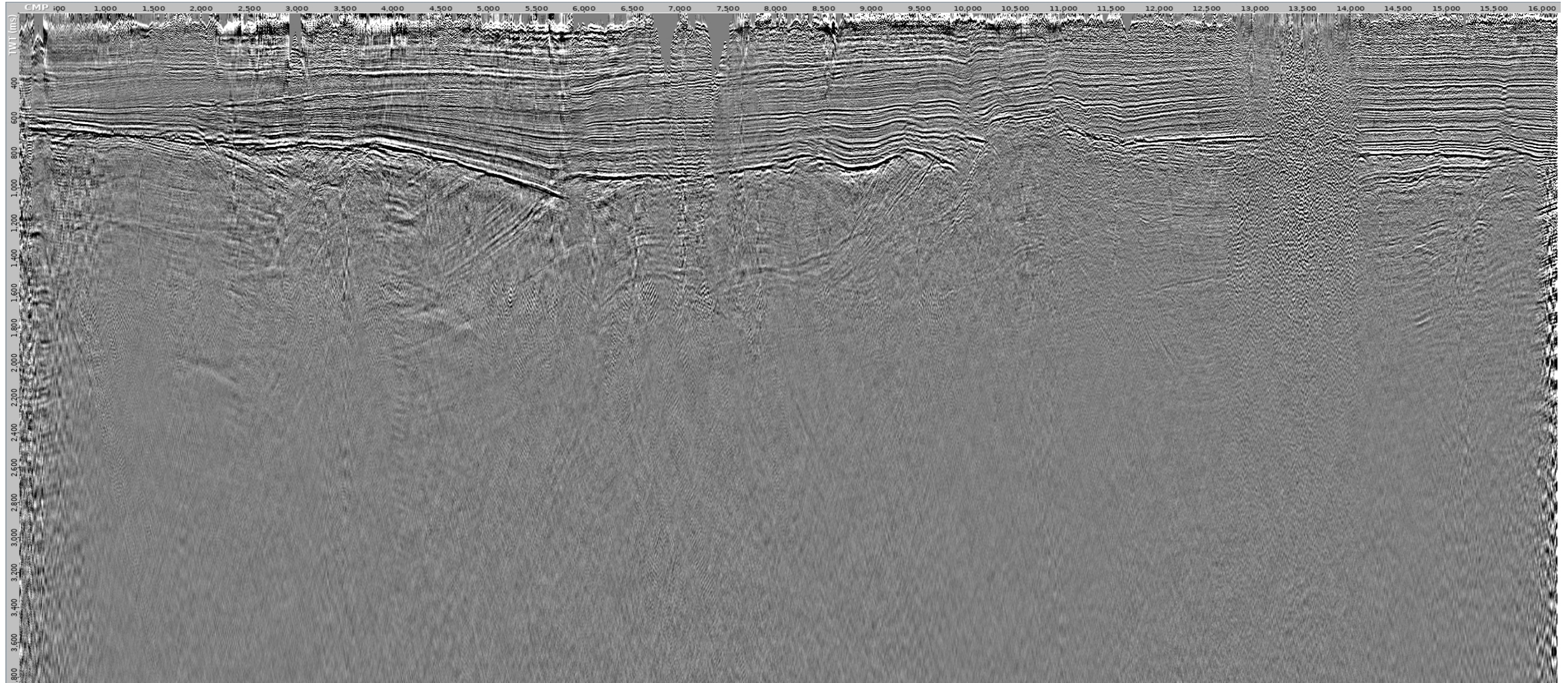


UGOU022-SCAN023 stack with surface consistent deconvolution



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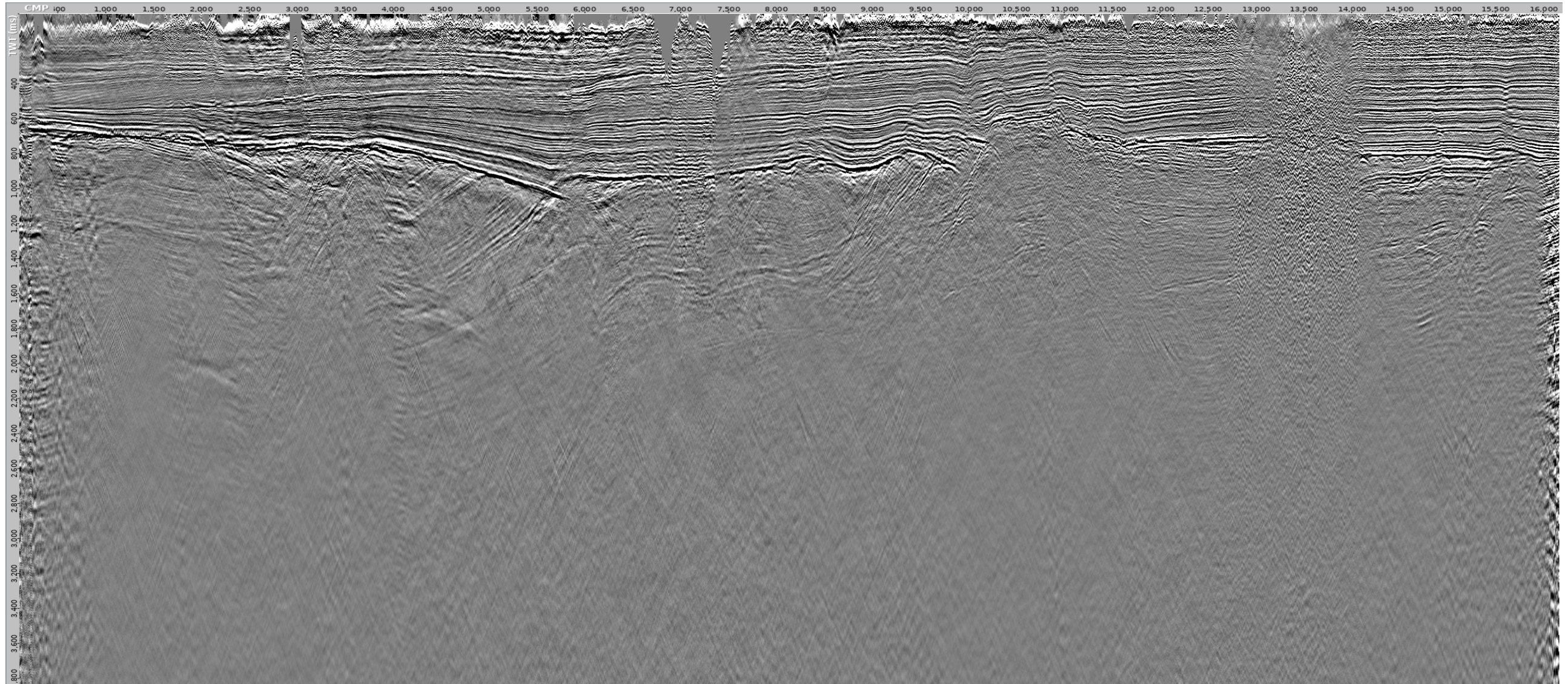


UGOU022-SCAN023 stack with 3rd pass noise attenuation on shots



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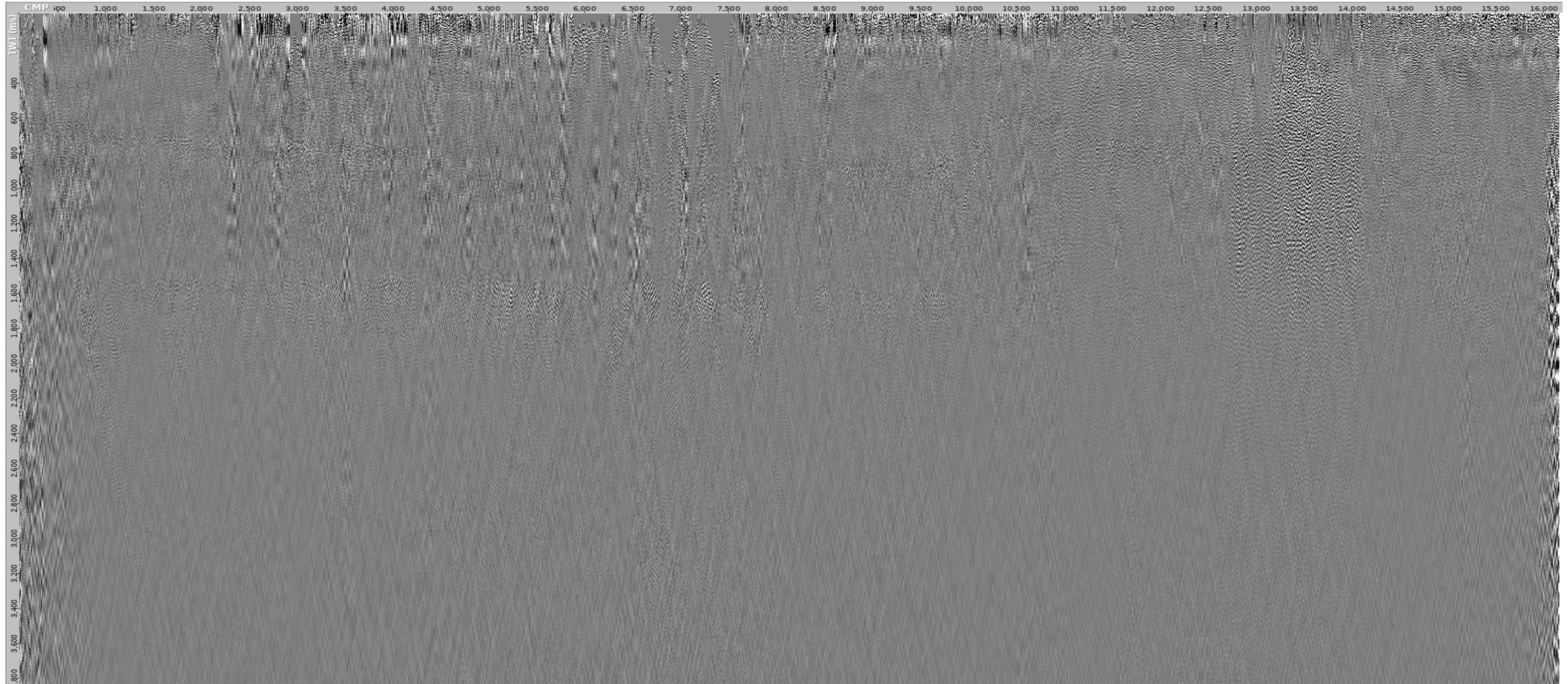


UGOU022-SCAN023 stack difference after 3rd pass noise attenuation on shots



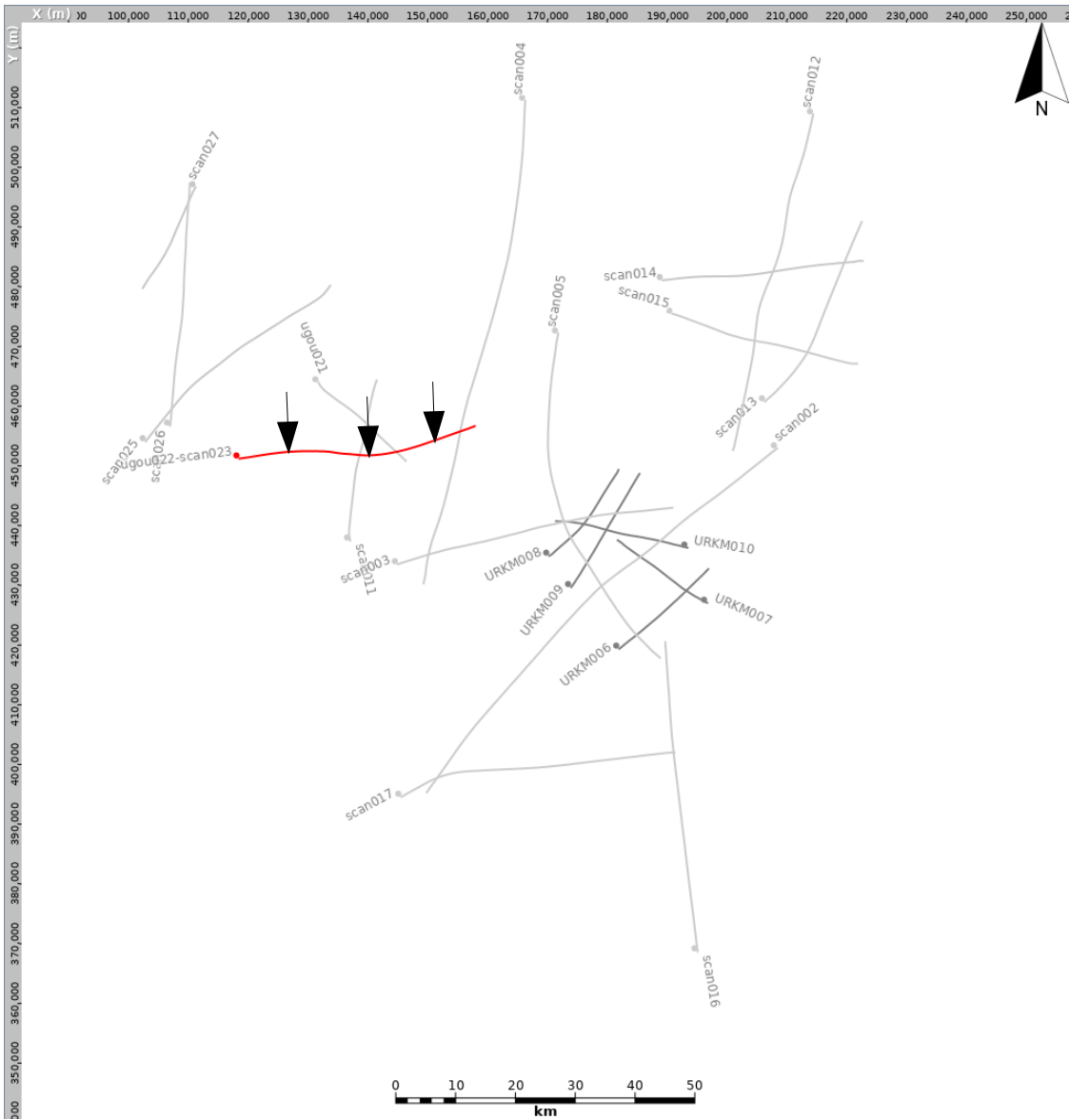
W

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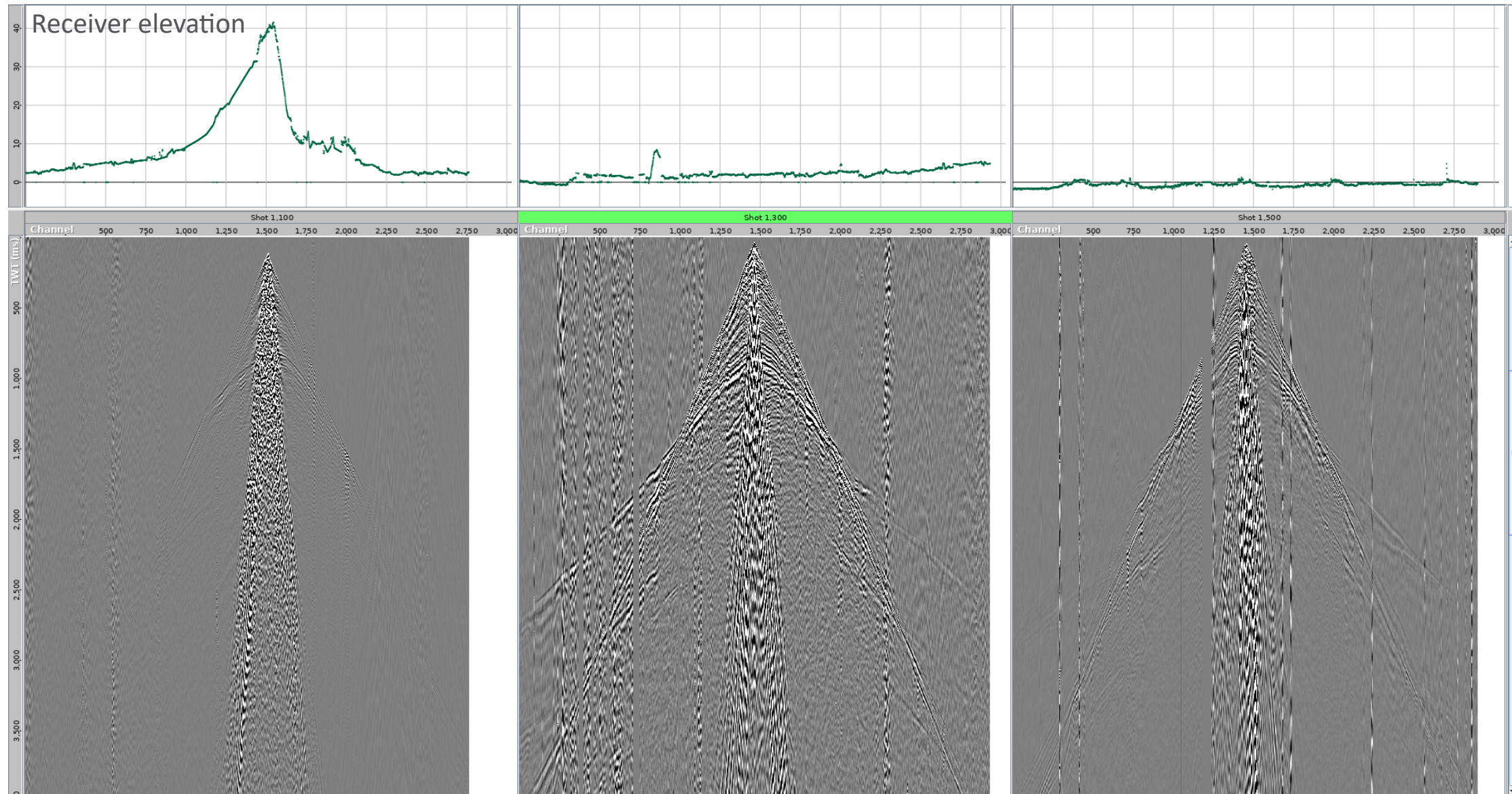


SHOTS

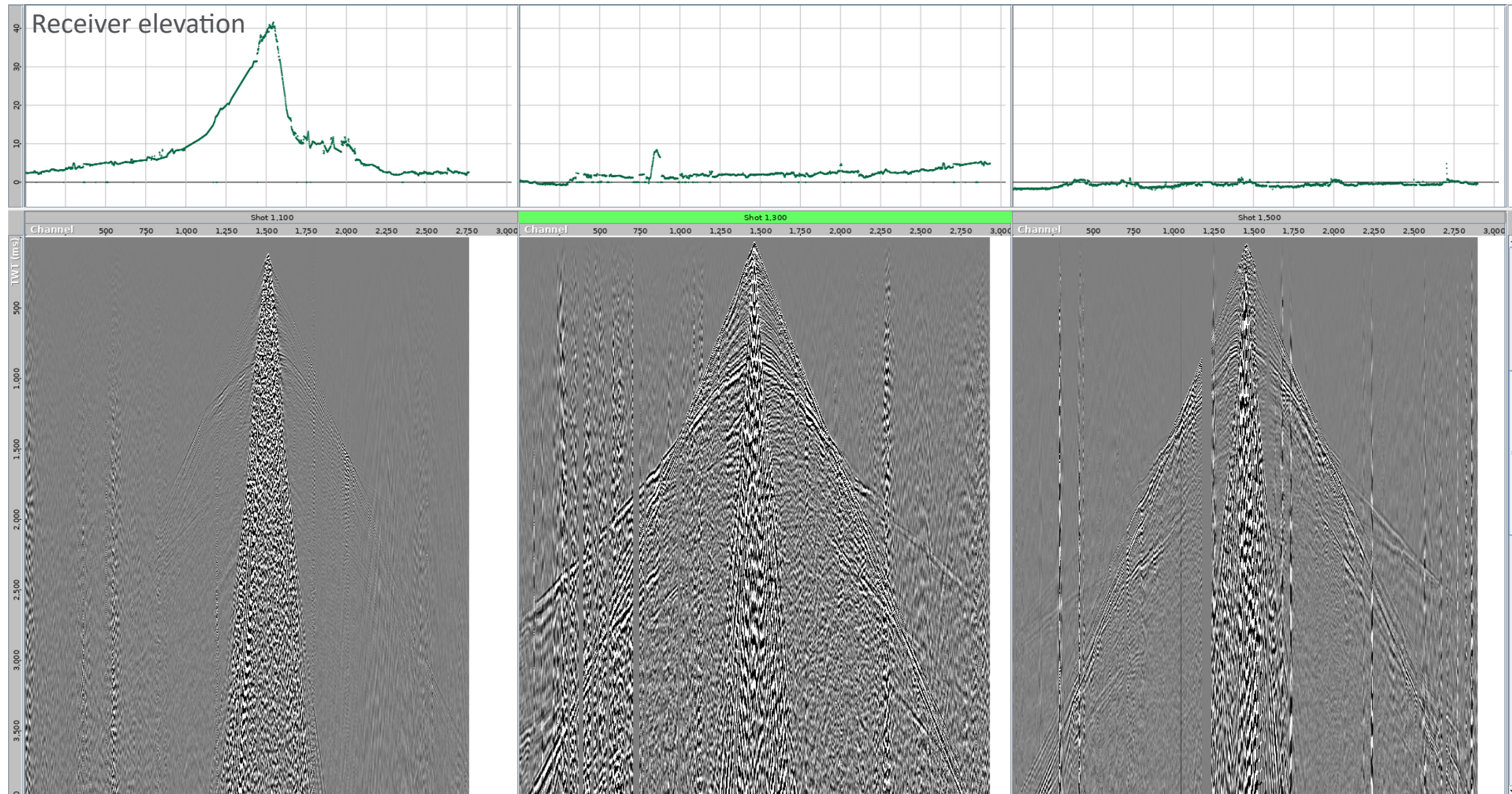
Map with the approximate location of displayed shots



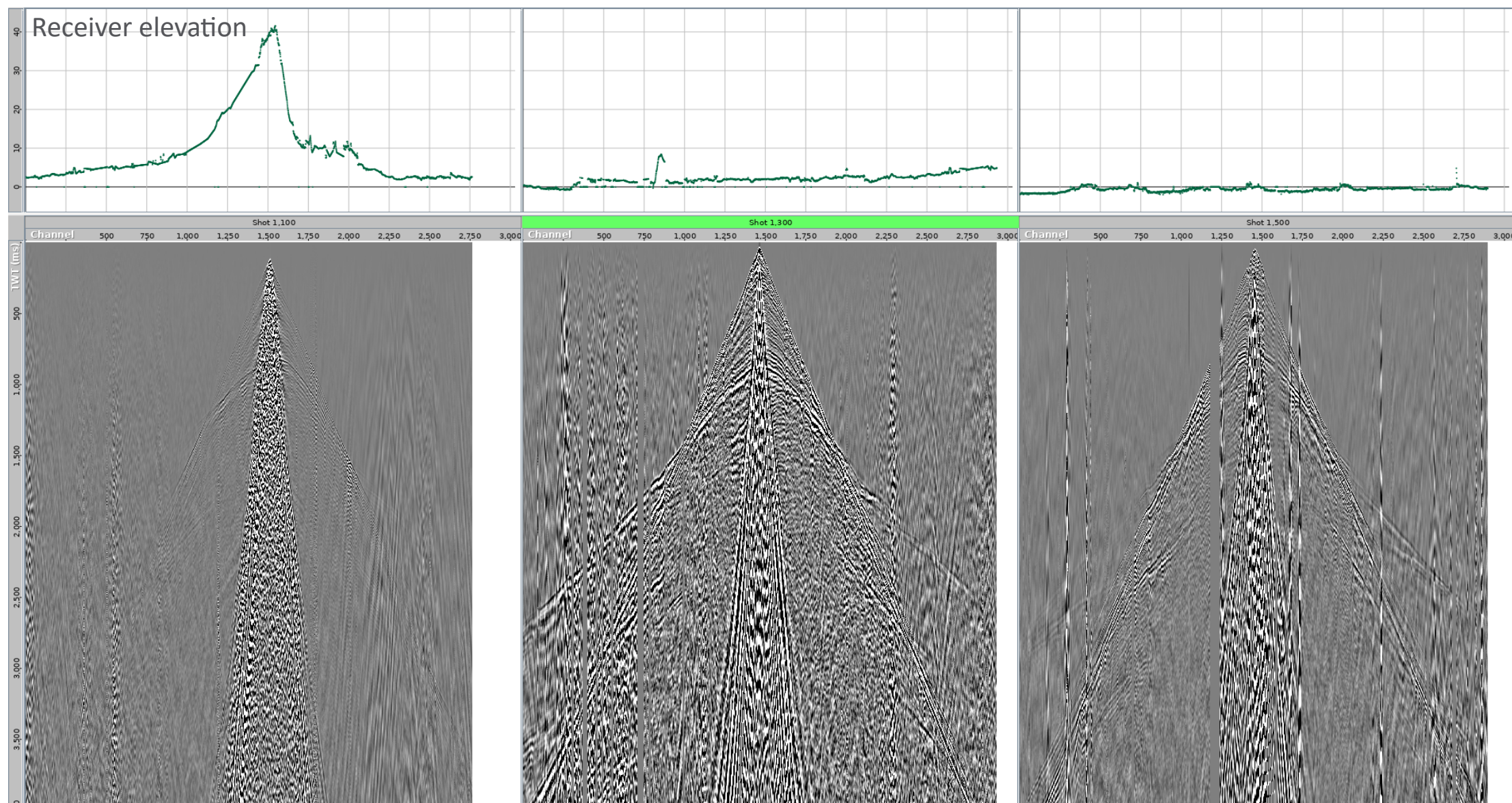
UGOU022-SCAN023 raw shots with geometry



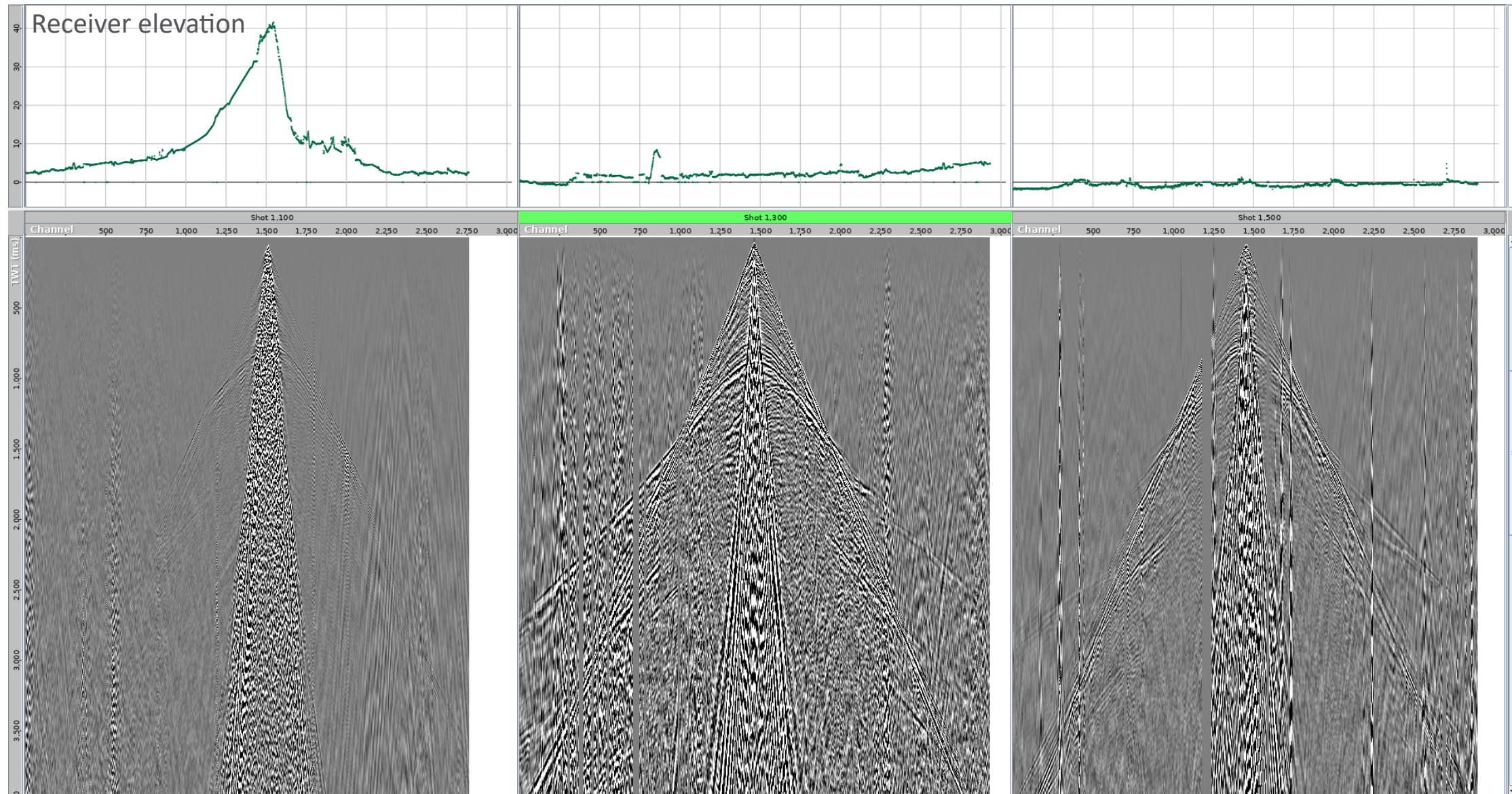
UGOU022-SCAN023 raw shots with true amplitude recovery (T)



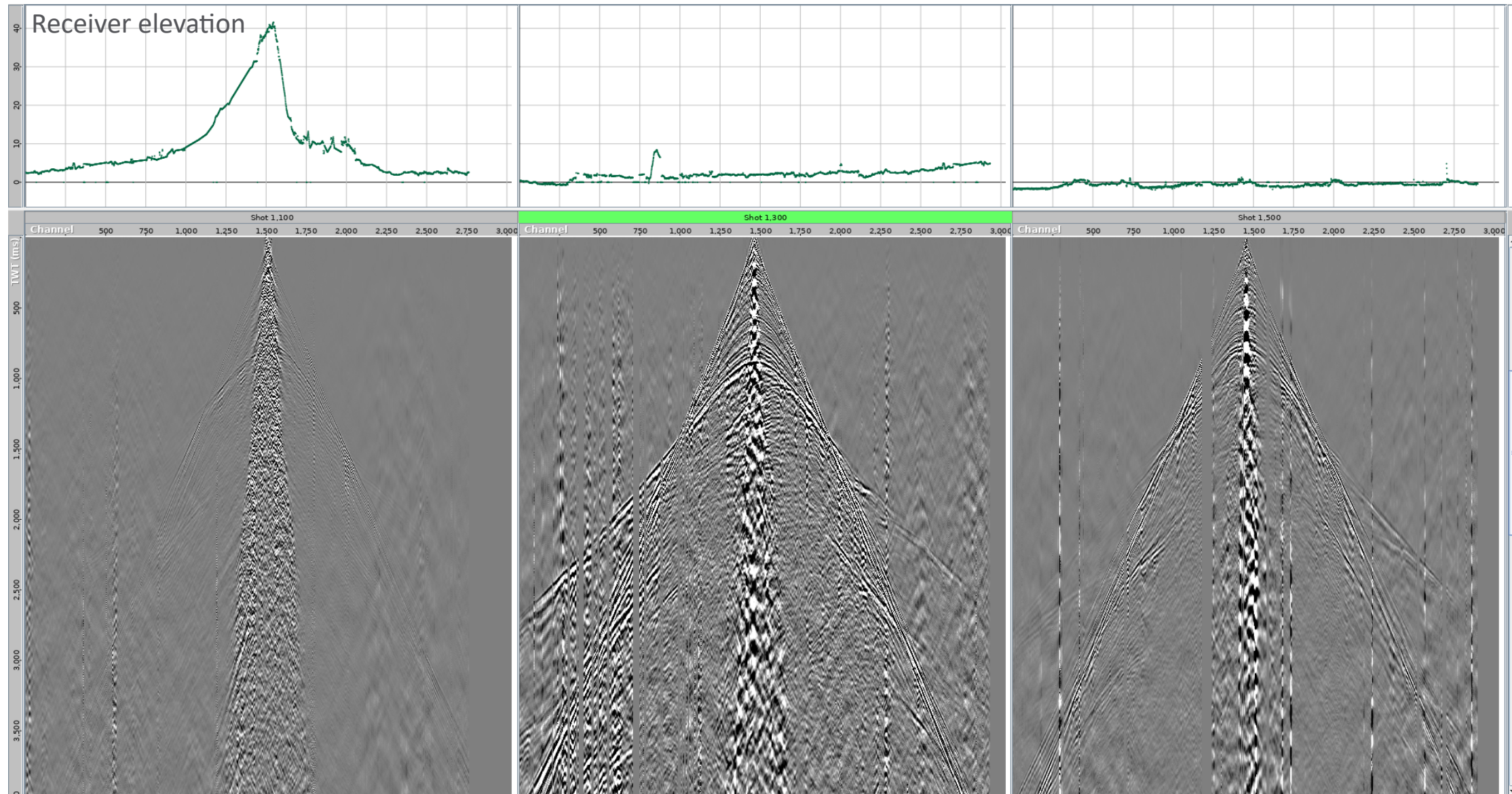
UGOU022-SCAN023 raw shots with true geophone response correction



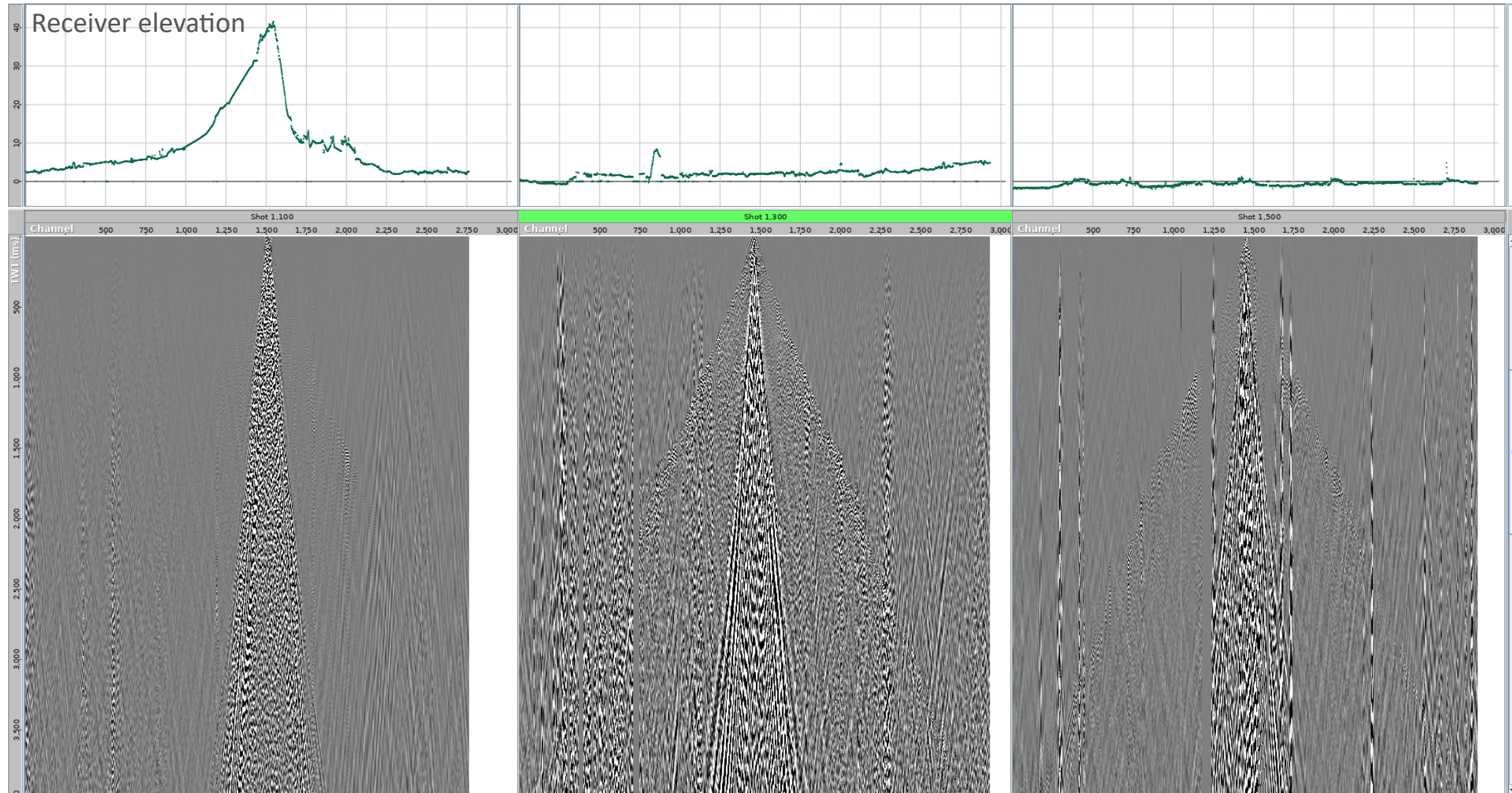
UGOU022-SCAN023 raw shots with deviation from mean statics applied



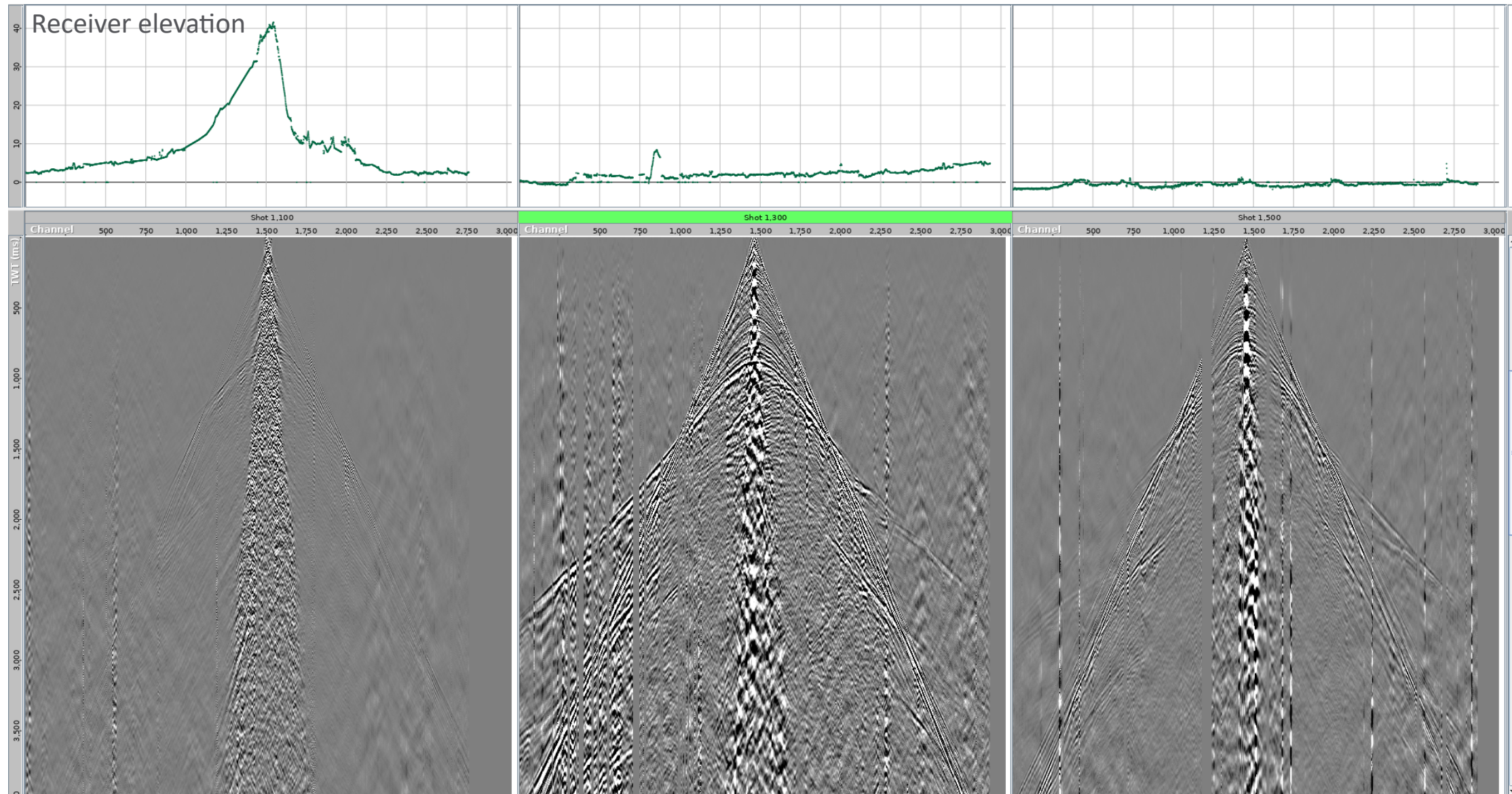
UGOU022-SCAN023 shots after the initial dip filter



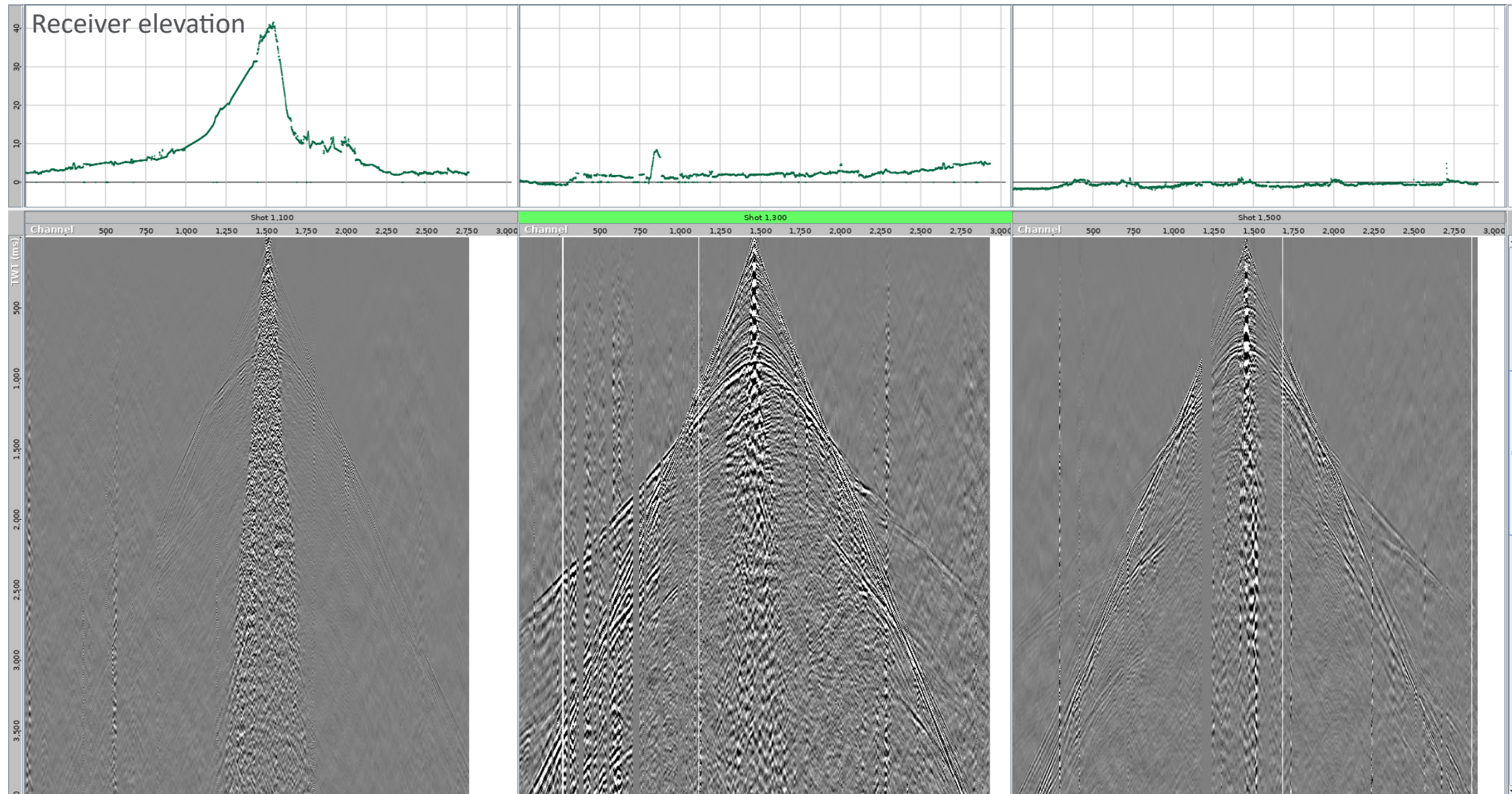
UGOU022-SCAN023 shots showing difference after the initial dip filter



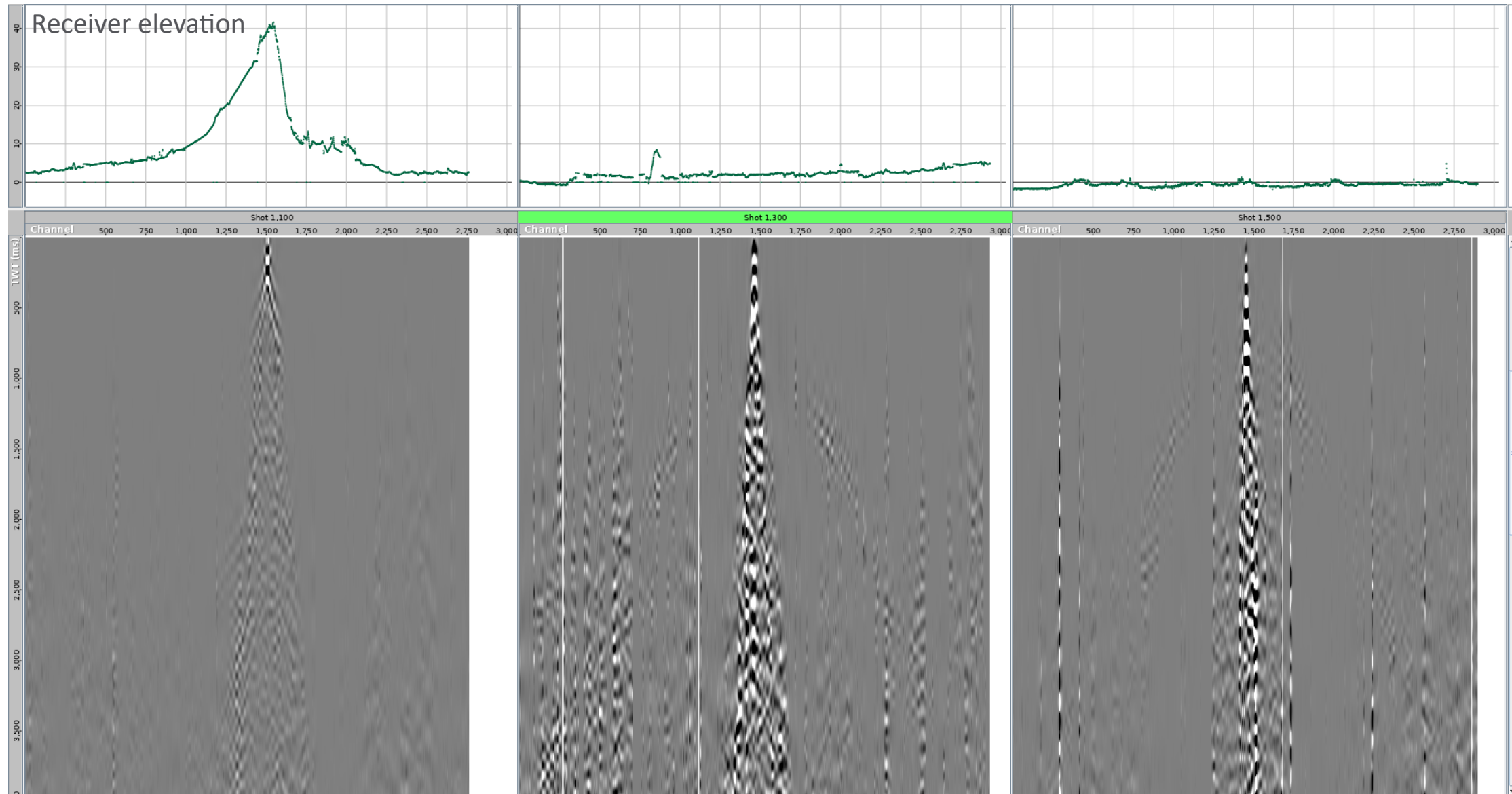
UGOU022-SCAN023 shots after the initial dip filter (REPEAT)



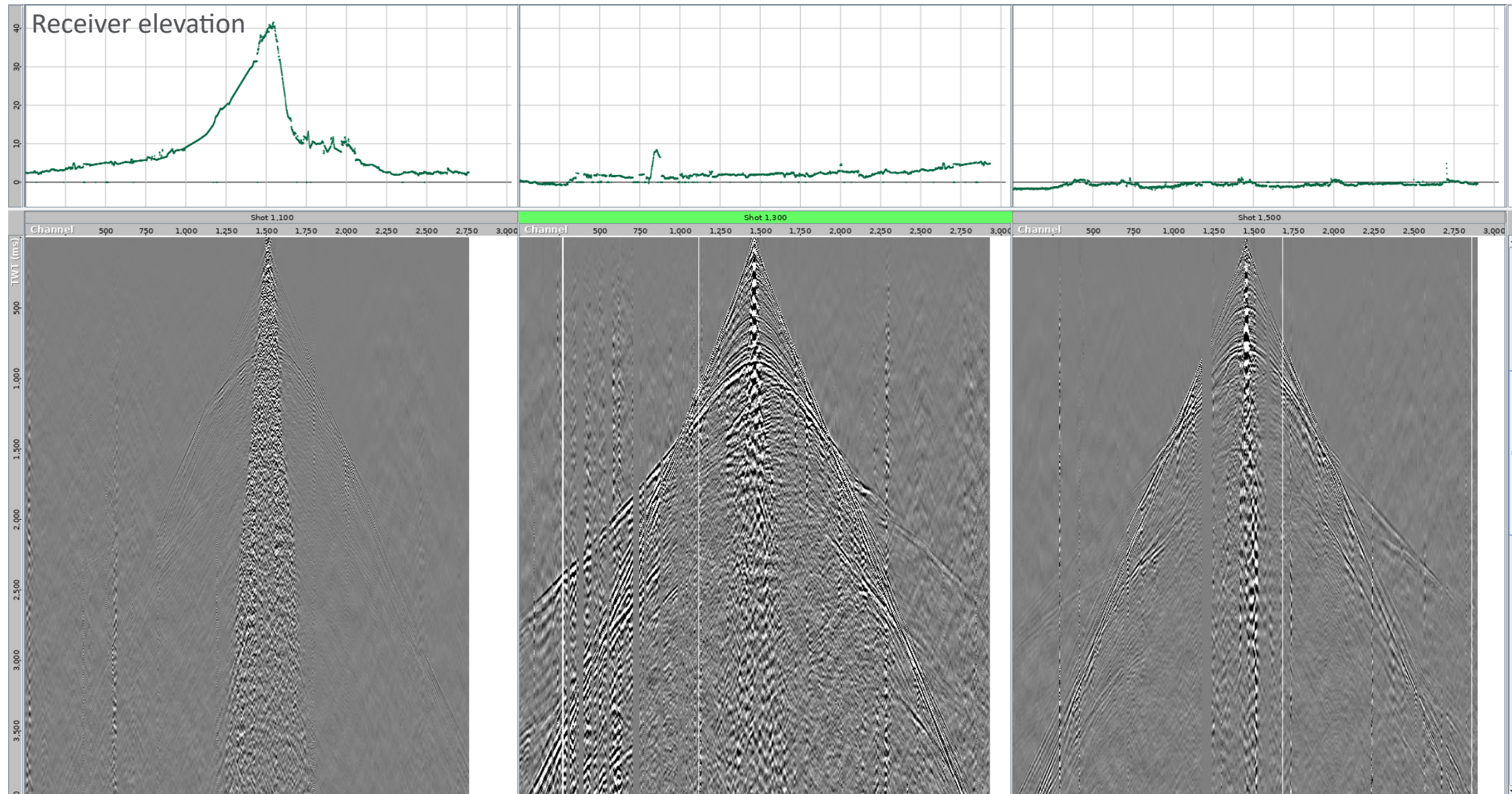
UGOU022-SCAN023 shots after despiking and wavelet transform filter on shots



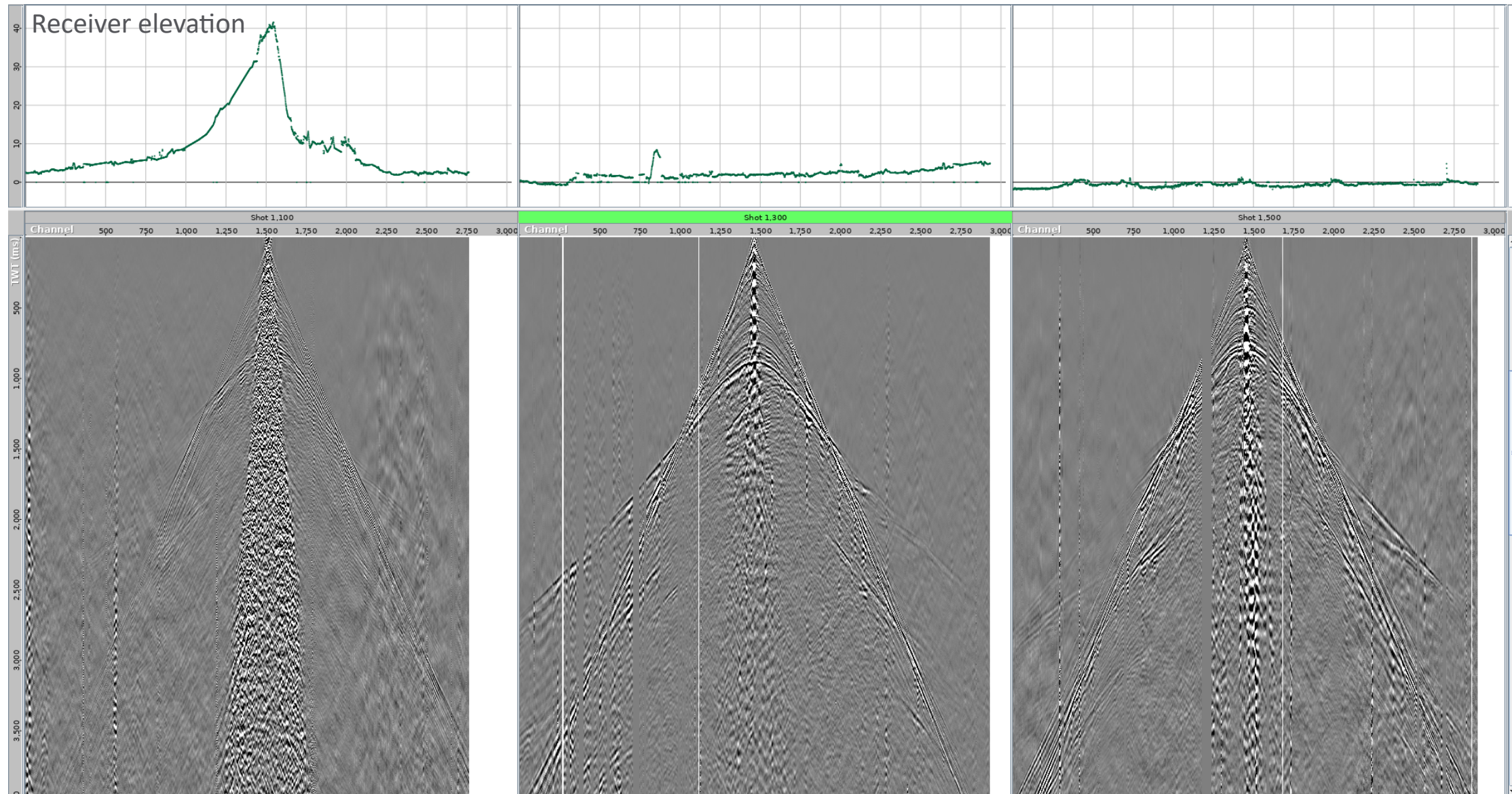
UGOU022-SCAN023 shots showing difference after despiking and wavelet transform filter on shots



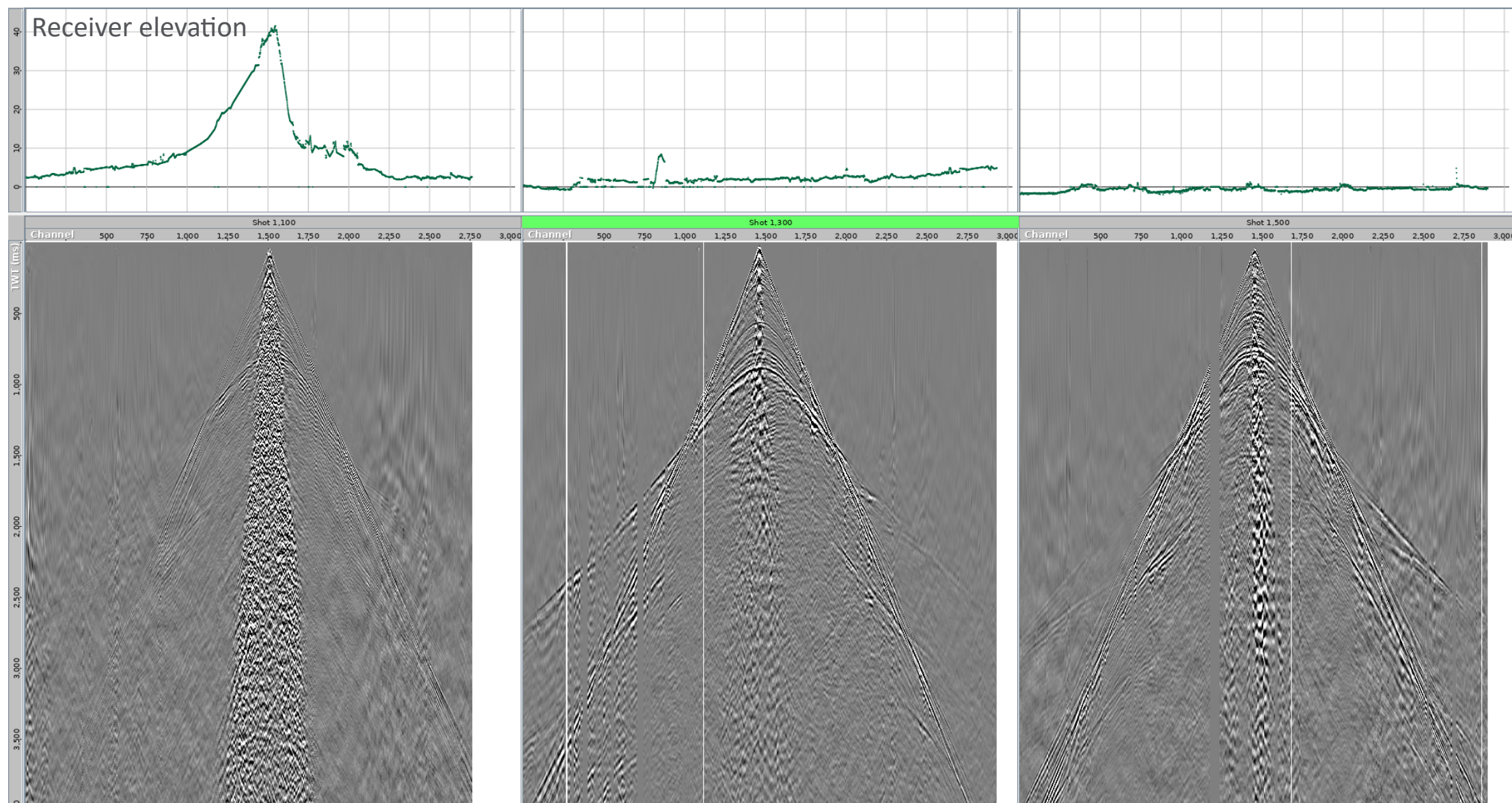
UGOU022-SCAN023 shots after despiking and wavelet transform filter on shots (REPEAT)



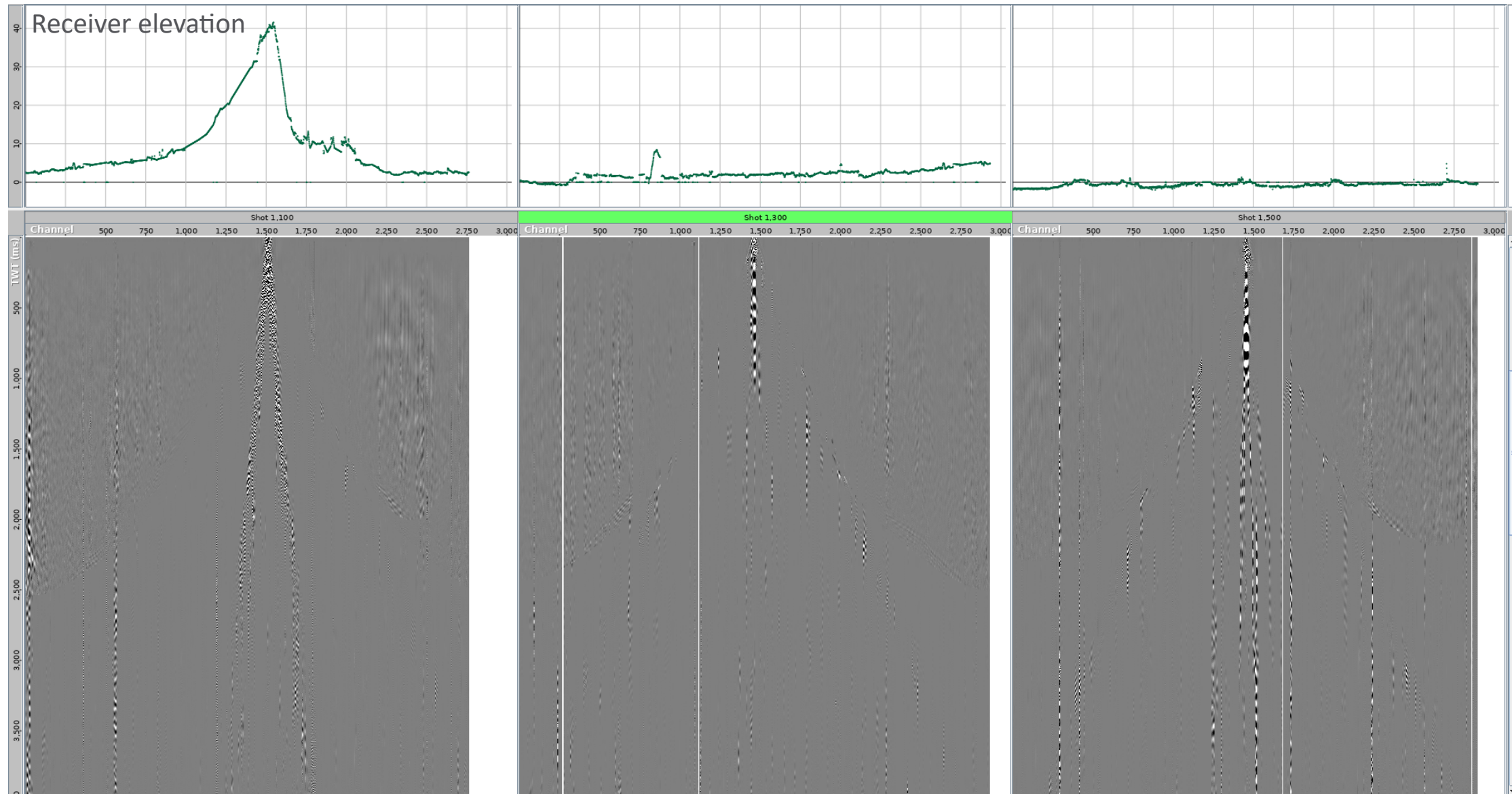
UGOU022-SCAN023 shots with initial pass of SCAC



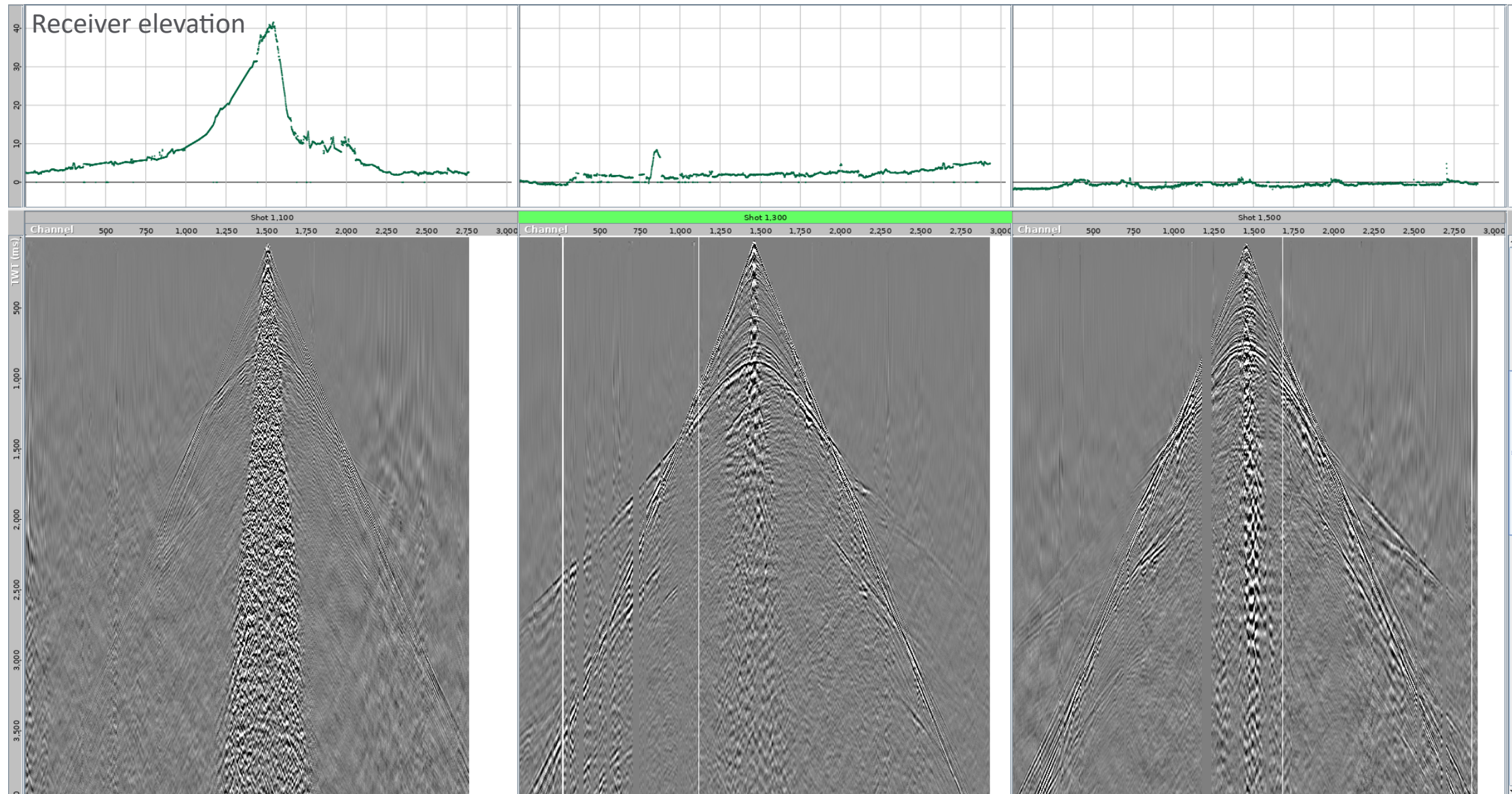
UGOU022-SCAN023 shots with TFDN on shots



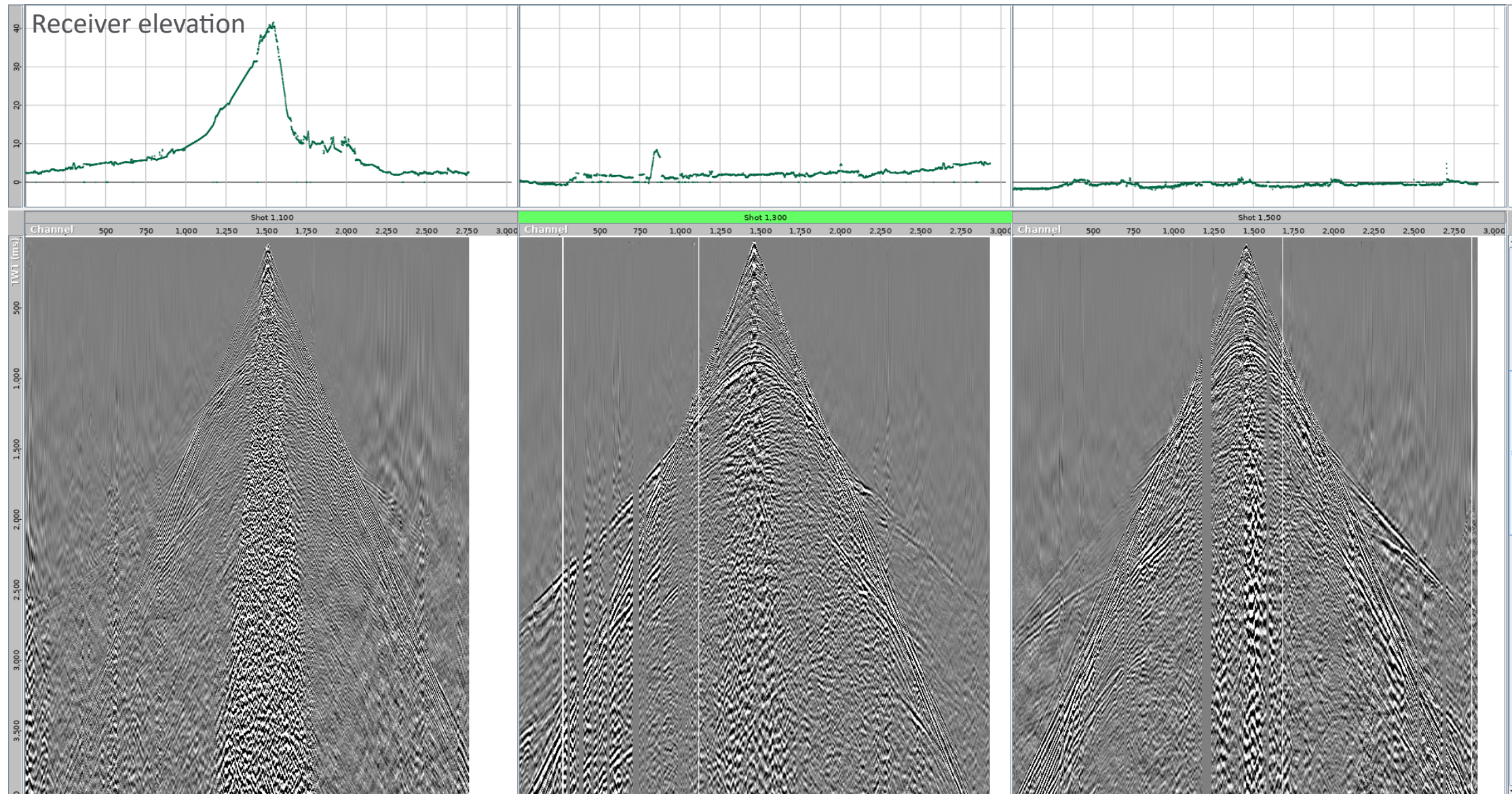
UGOU022-SCAN023 shots showing difference after TFDN on shots



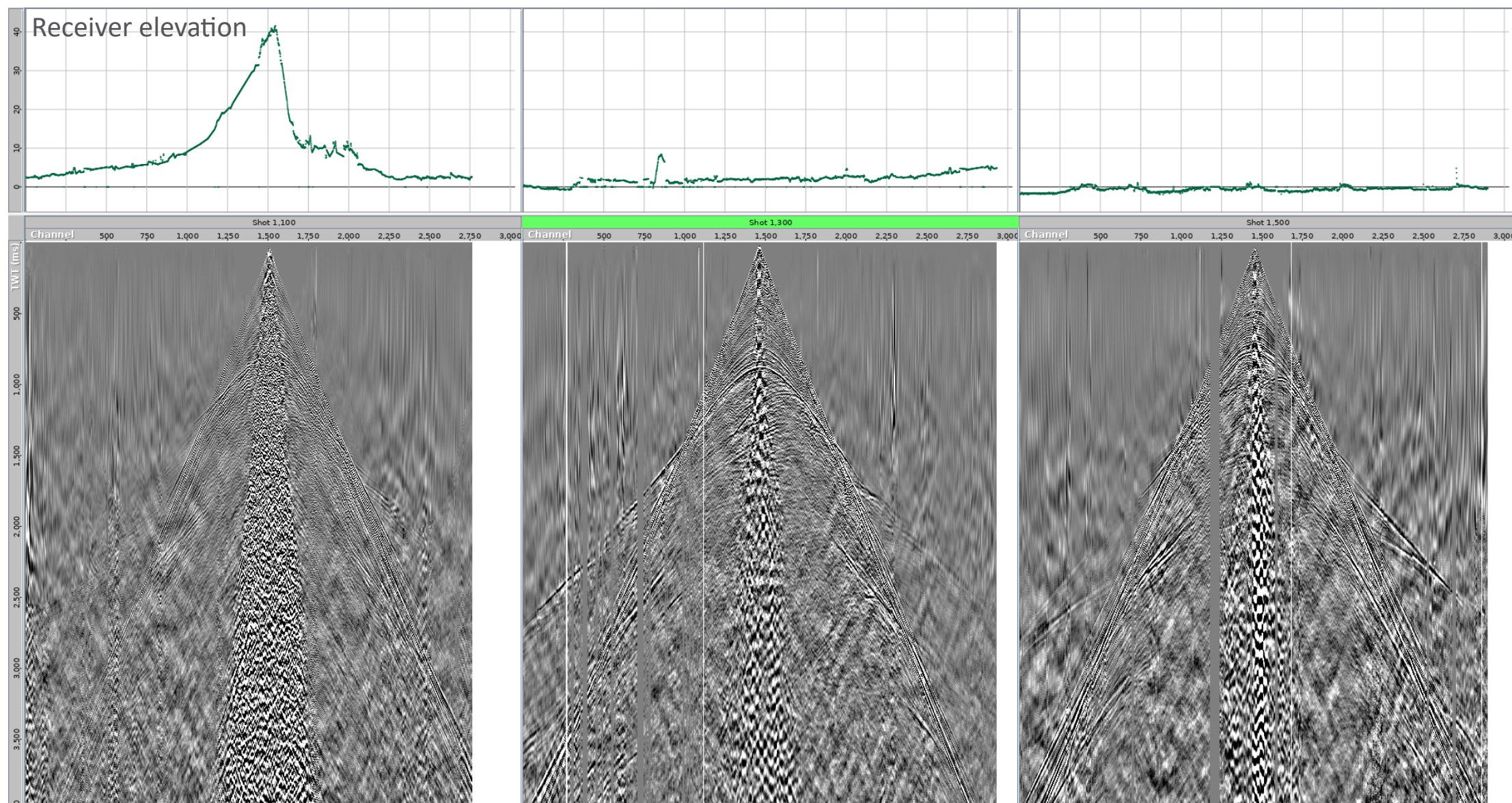
UGOU022-SCAN023 shots with TFDN on shots (REPEAT SLIDE)



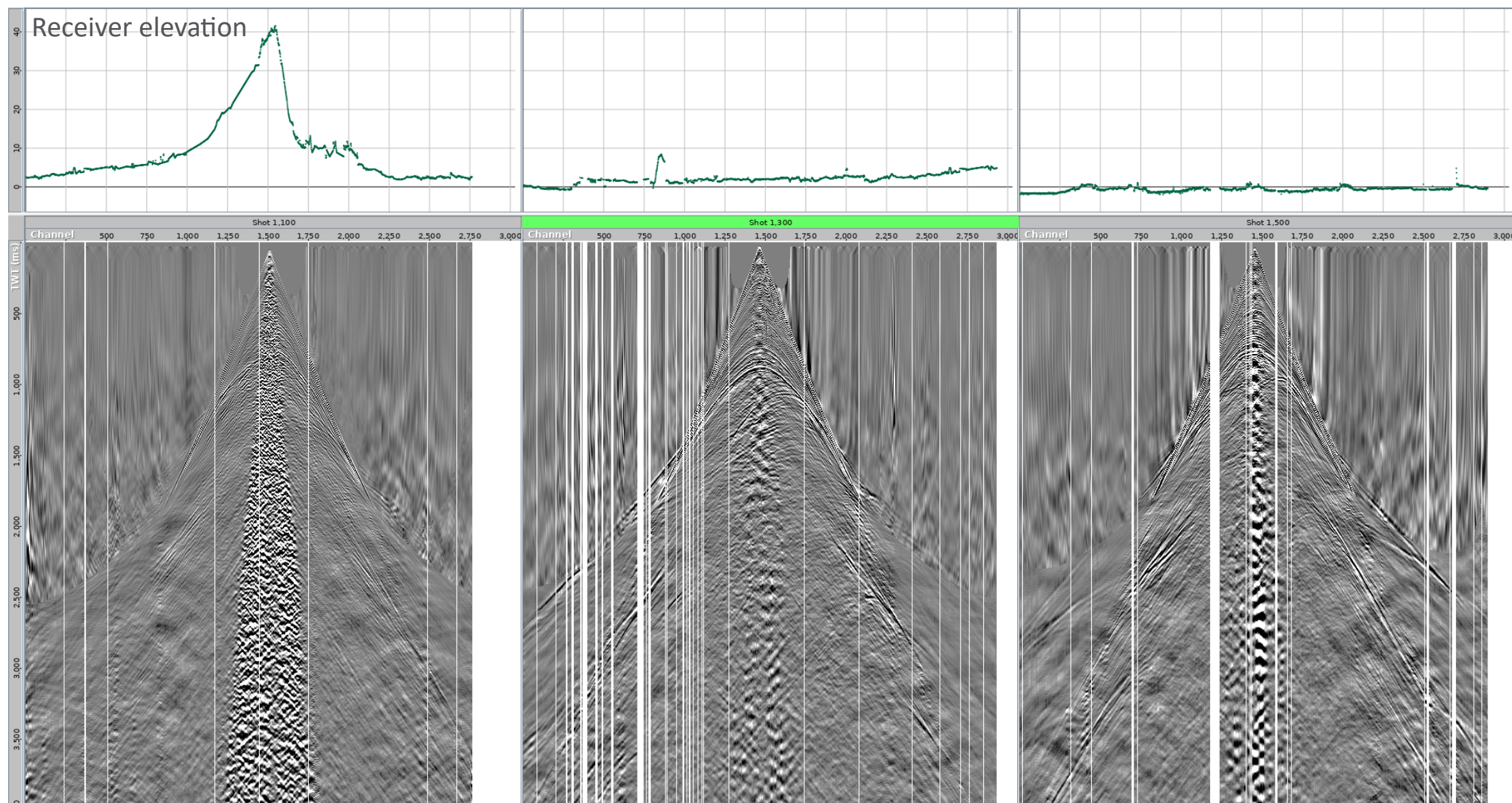
UGOU022-SCAN023 shots with phase and amplitude Q compensation



UGOU022-SCAN023 shots with surface consistent DBS



UGOU022-SCAN023 shots with noise attenuation after SC DBS



UGOU022-SCAN023 shots showing difference after noise attenuation after SC DBS

