

UGOU021 Post Migration Radon Testing Report

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

13 JANUARY 2021

Energie Beheer Nederland B.V.

2D Seismic PreSTM Processing, Onshore Netherlands

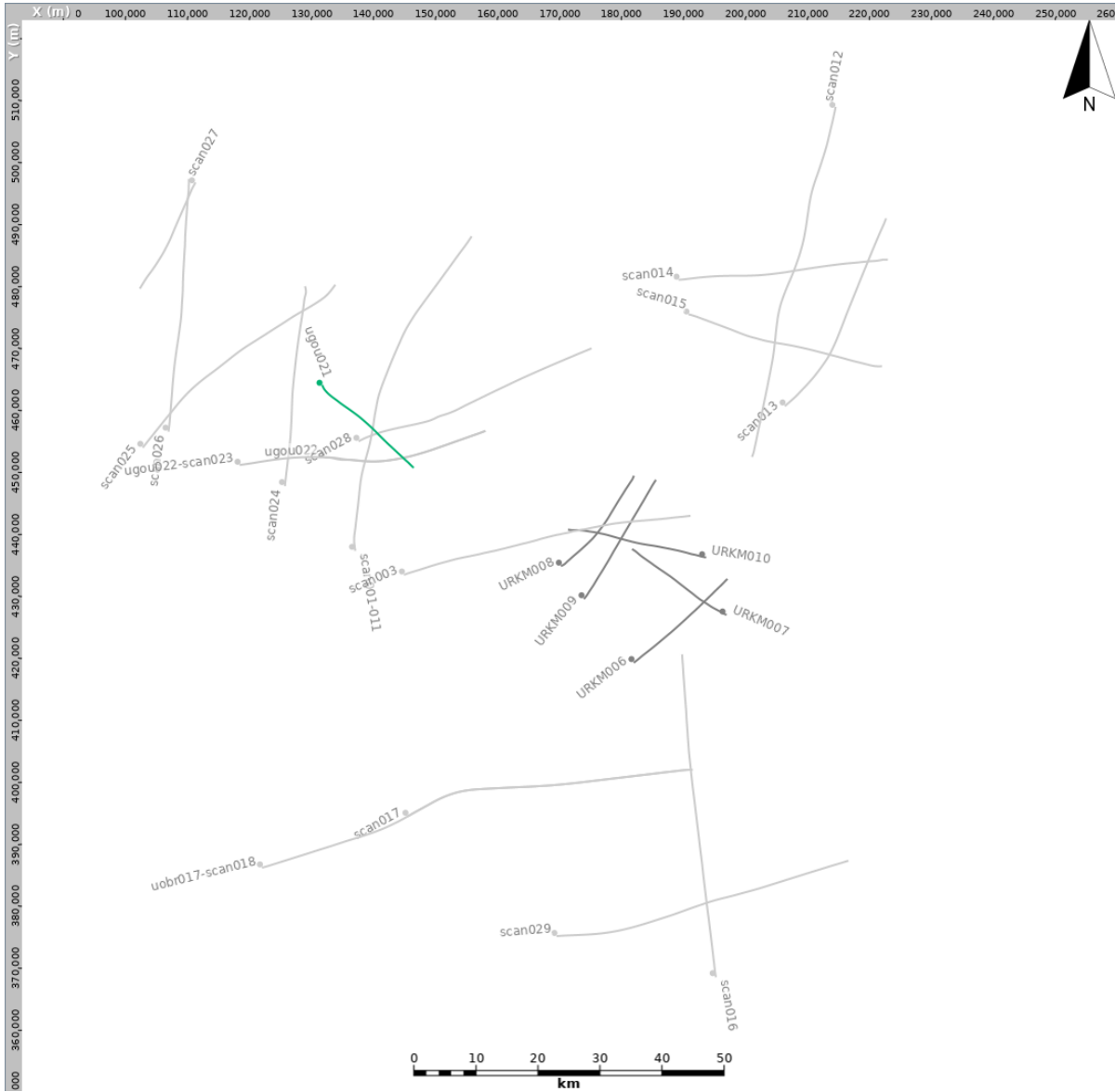
- The same post migration processing was applied as was used for the previous set of SCAN lines (EBN project: GTO-19-C031-01, DUGRef: sCAnPr_005).
- It was noted that there was some leakage in the post migration Radon.
- A dip filter was applied to the Radon noise model to remove flat energy in the noise model.

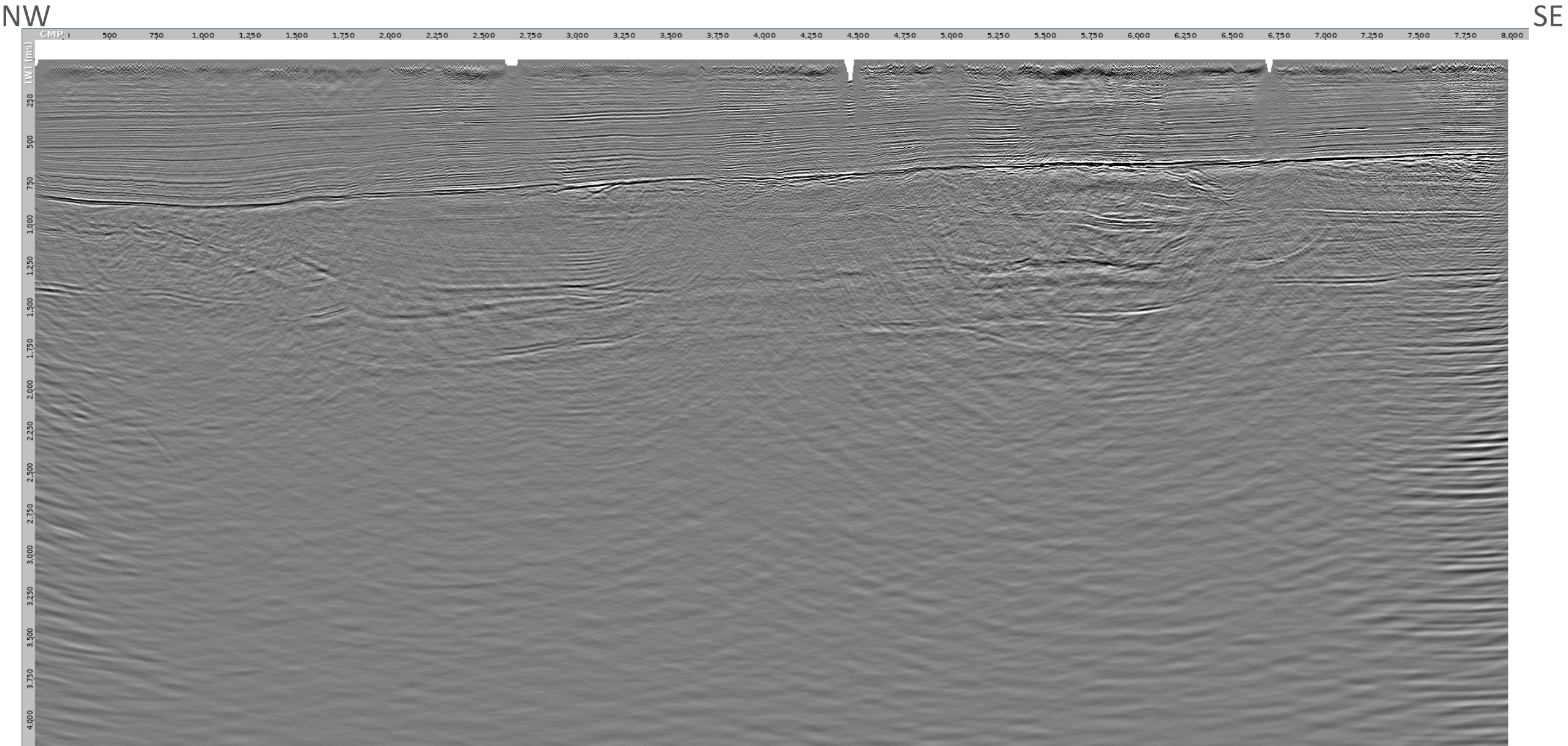
Processing sequence

- 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:
- Refraction statics: Delay time using $V_0 = 1000$ m/s $V_R = 1700$ m/s $SRD = NAP$
- 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 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
- Residual statics: Surface consistent using MASTT
- Velocity analysis: 1 km interval
- Residual statics: Surface consistent using MASTT
- SCAC 2: Source and receiver designed on NMO corrected gathers over 200-2200 ms

Processing sequence (continued)

- Remove spherical divergence: T
- Low cut filter: 2.5 Hz low cut filter
- Migration (PreSTM 1): Isotropic 4th order curved ray Kirchhoff using smoothed (5000-300-3) stacking velocities
- Velocity analysis: Remove PreSTM 1 velocities and pick 2nd order velocities at 1 km intervals and 500 m where require
Effective Eta picked automatically every 250 m
- Migration (PreSTM 2): Kirchhoff VTI migration using smoothed (2000-200-2) 2nd order picked velocities
and auto picked effective Eta
- Migration (PreSTM 3): Kirchhoff VTI migration using smoothed (500-100-2) 2nd order picked velocities
and auto picked effective Eta
- Radon: Using polygon subtraction
- Noise attenuation: Dip filter on CDPs
- Stack: 1/N with 45 degree mute





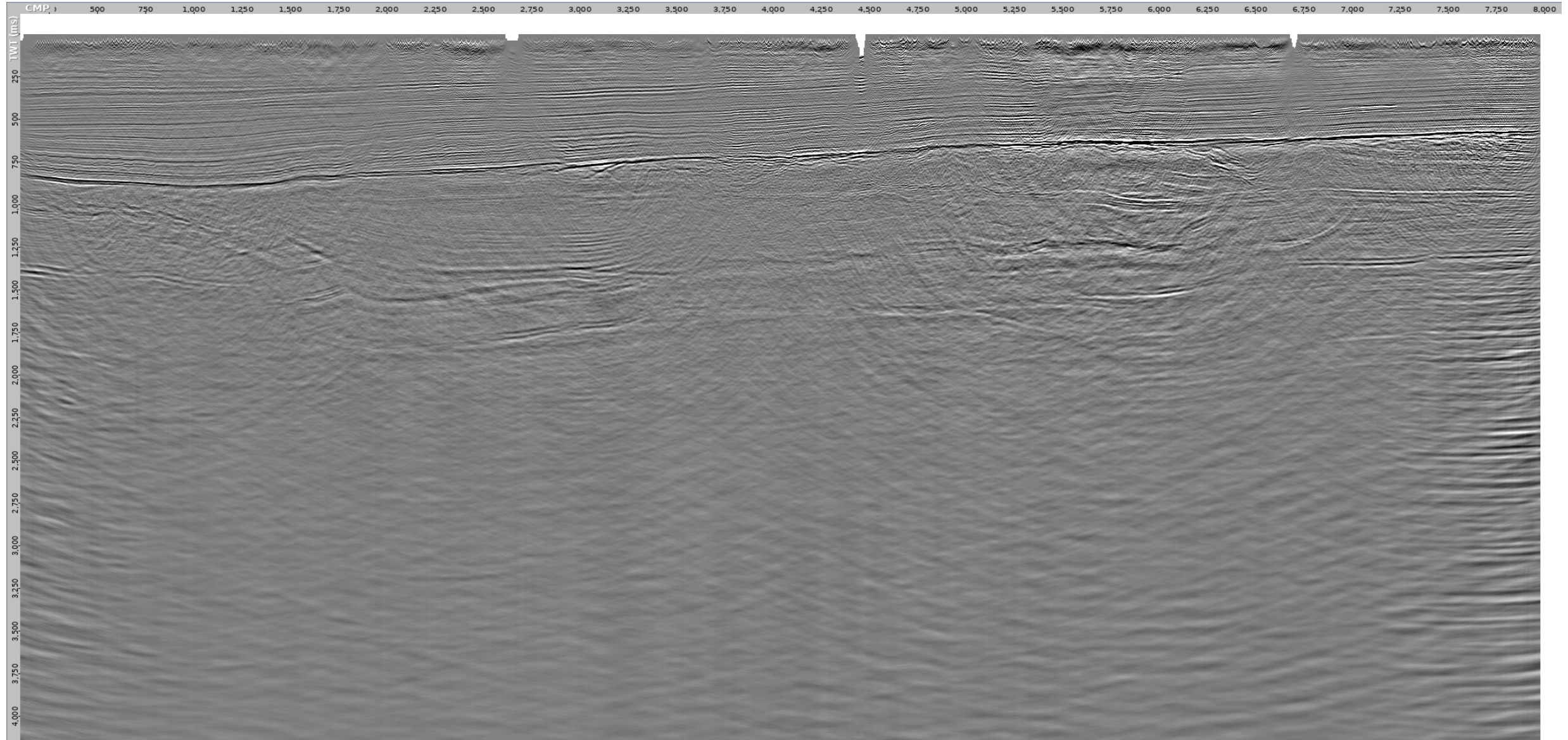
UGOU021 stack with original Radon on CDPs

At floating datum



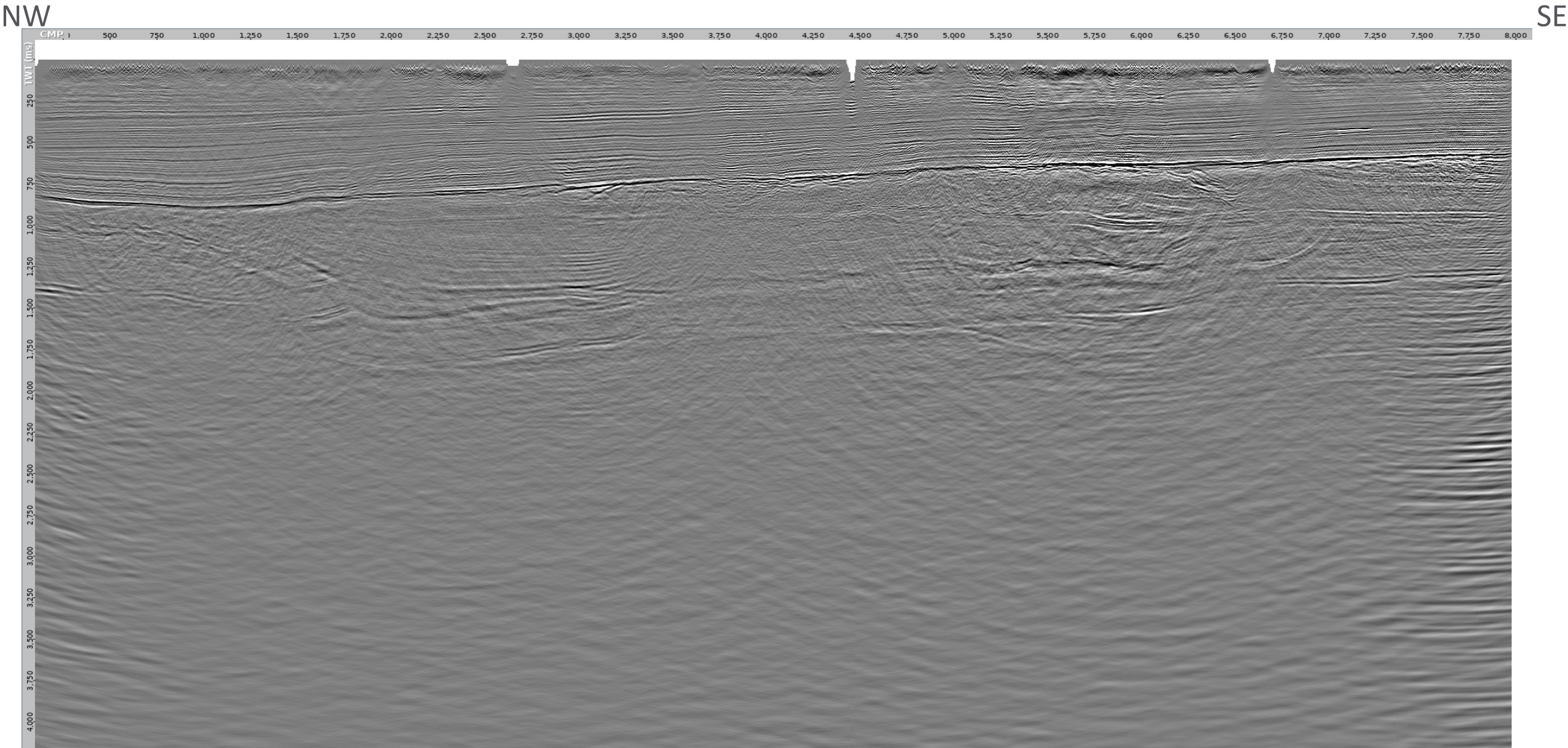
NW

SE



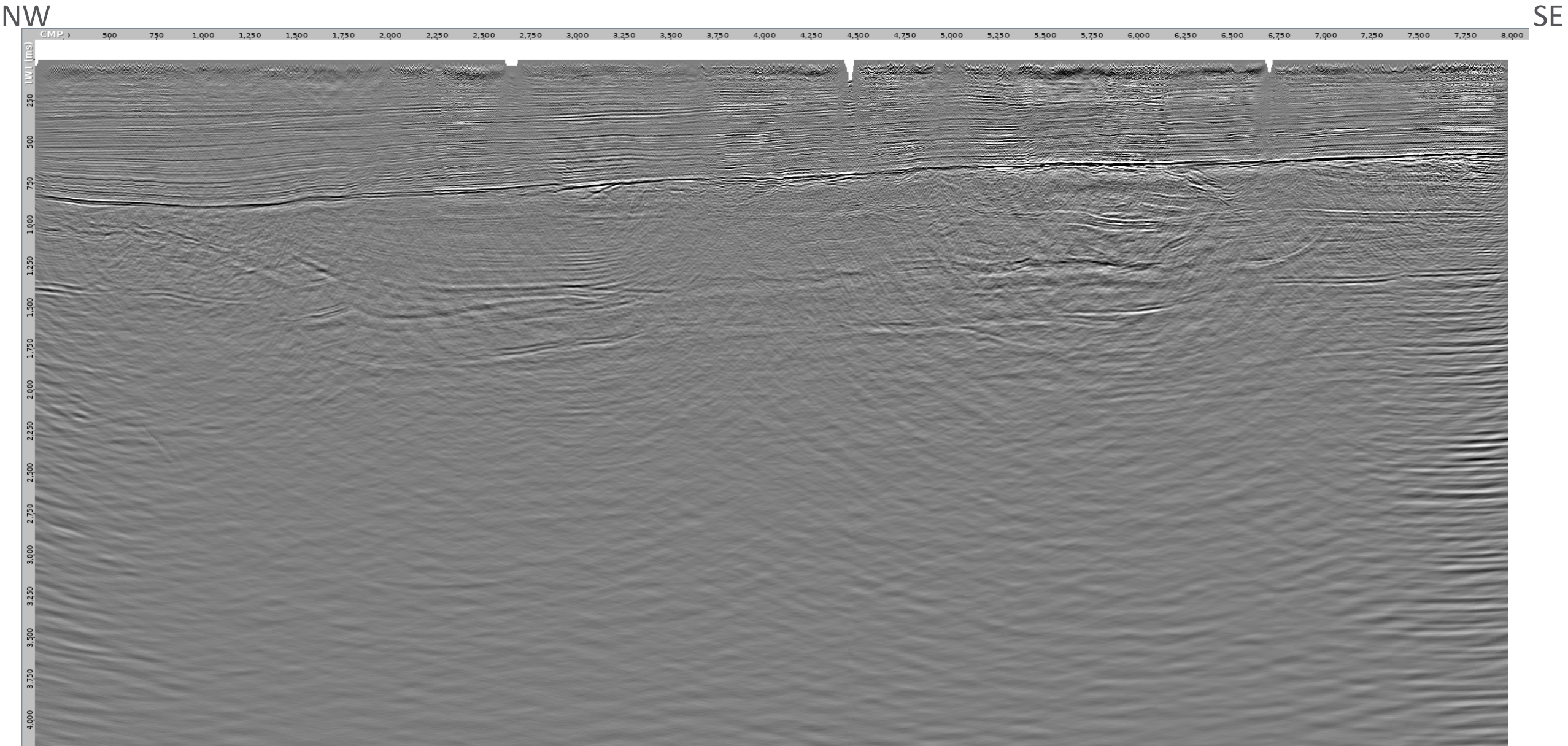
UGOU021 stack with updated Radon on CDPs

At floating datum



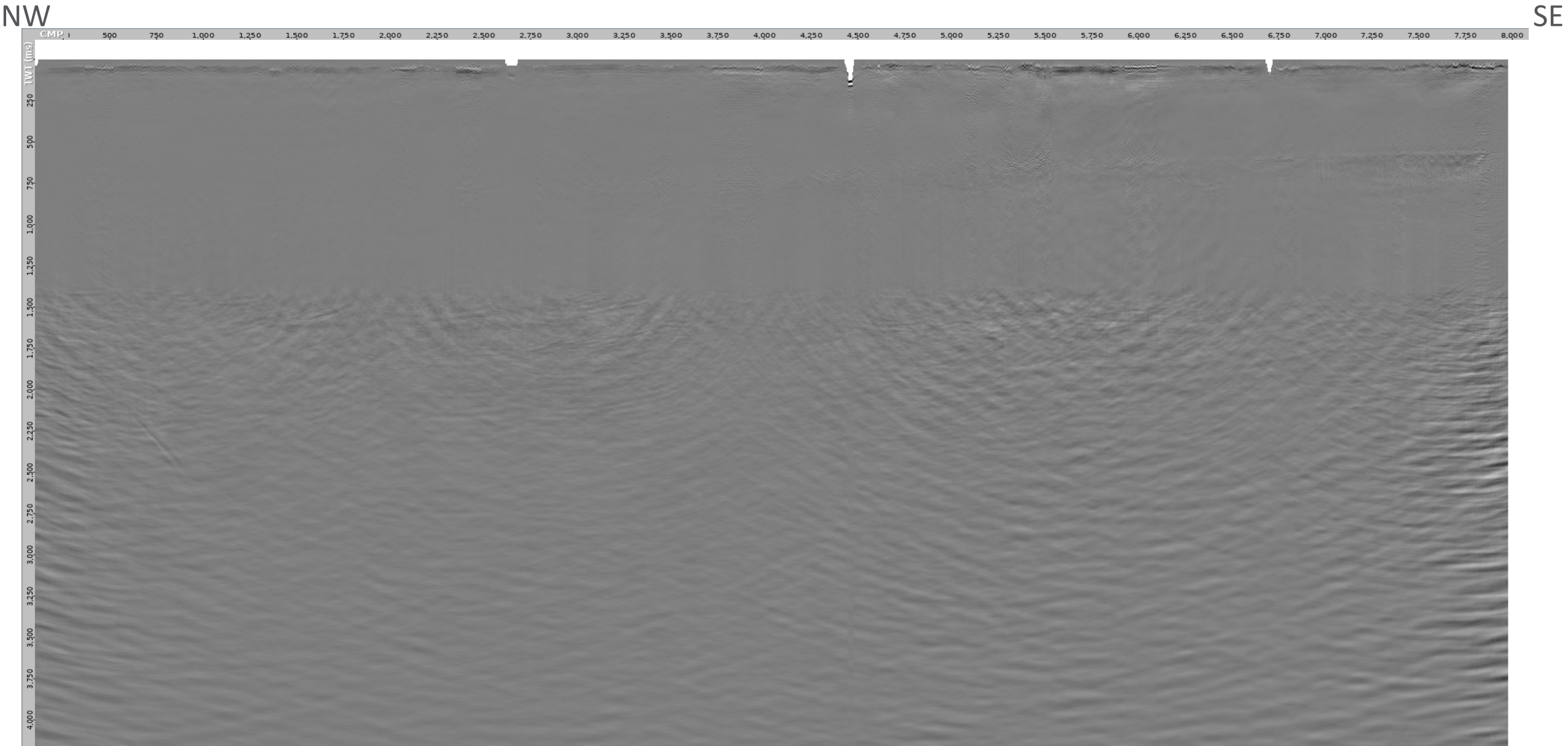
UGOU021 PreSTM 3 raw stack

At floating datum



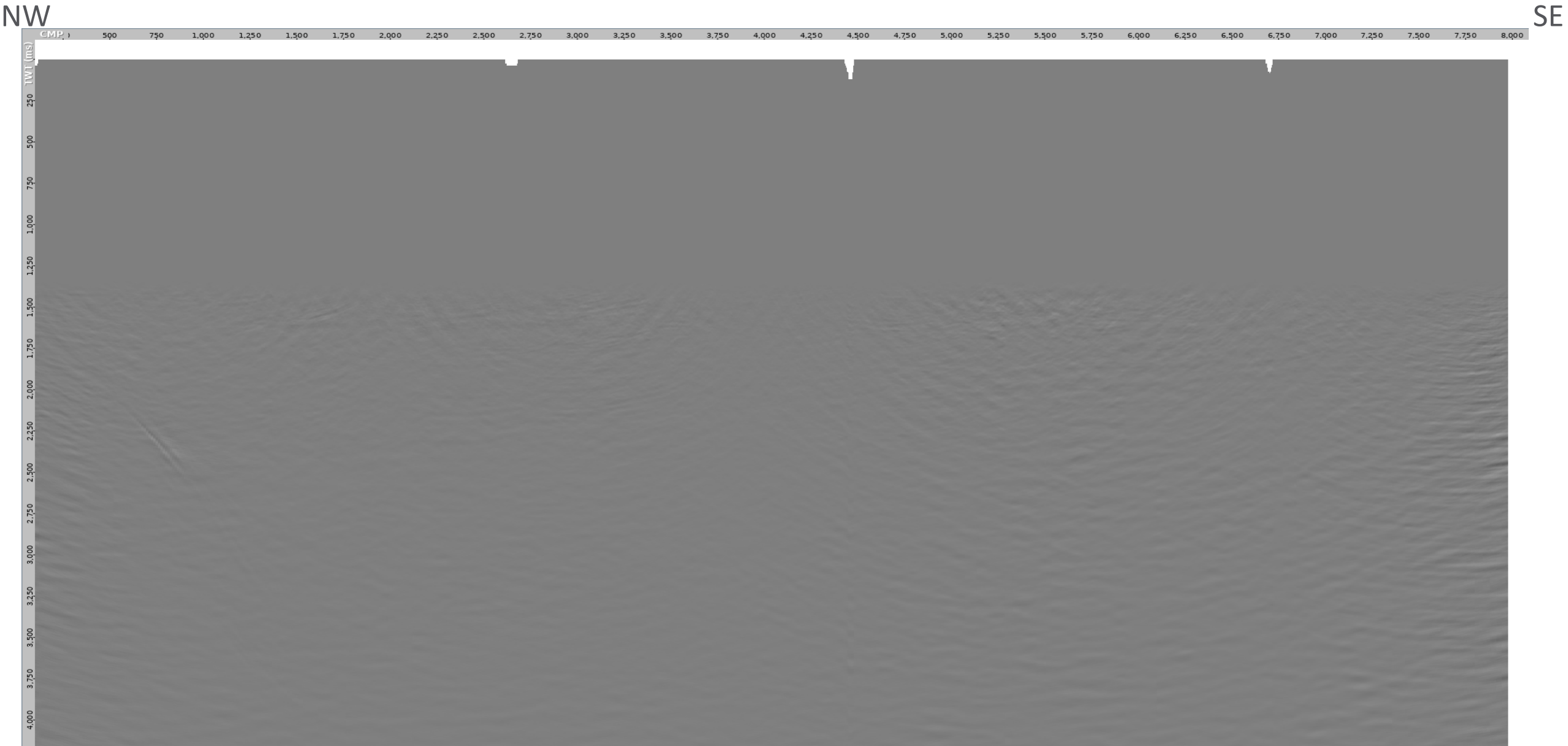
UGOU021 stack with original Radon on CDPs difference

At floating datum



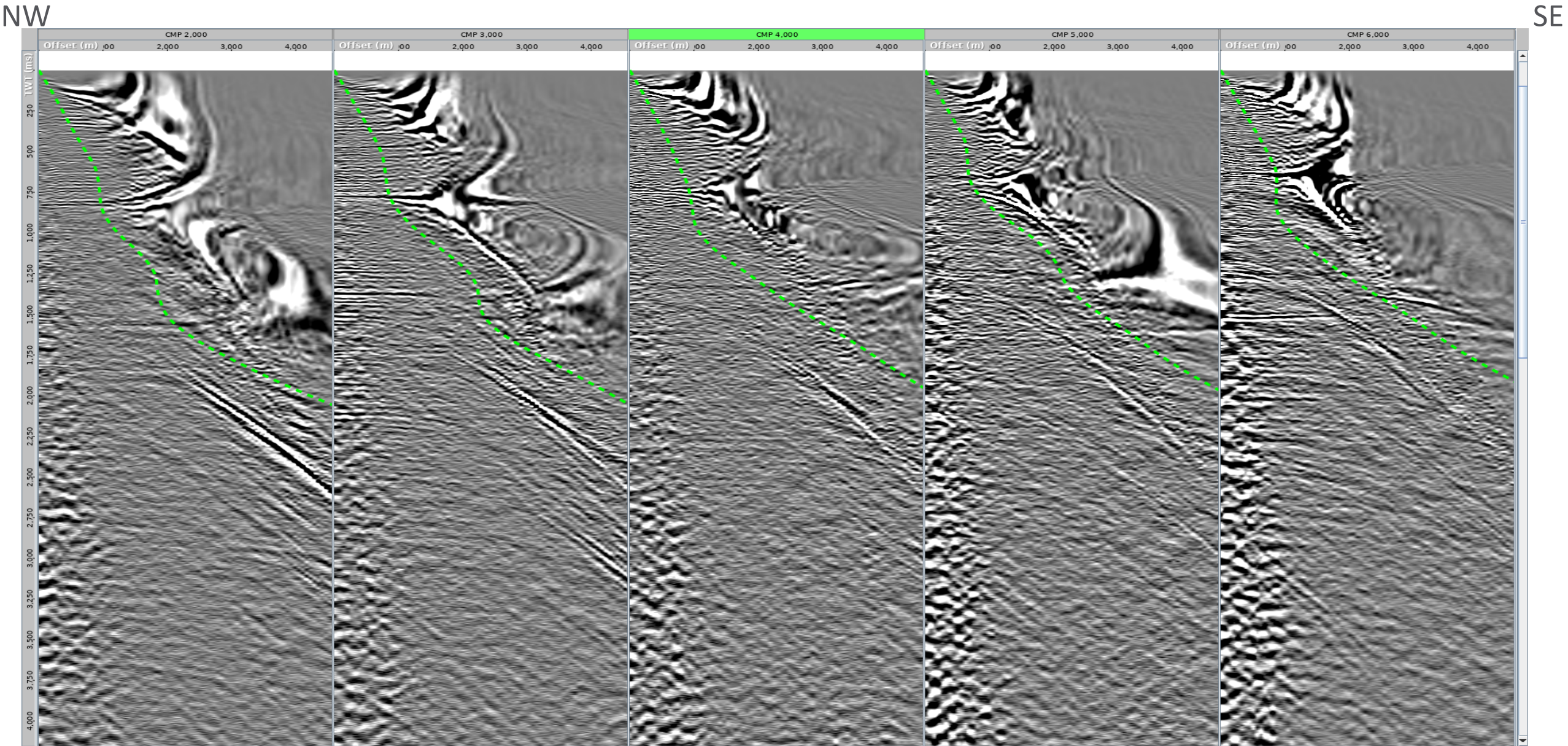
UGOU021 stack with updated Radon

At floating datum



UGOU021 raw migration CDPs

At floating datum



45 degree mute overlain

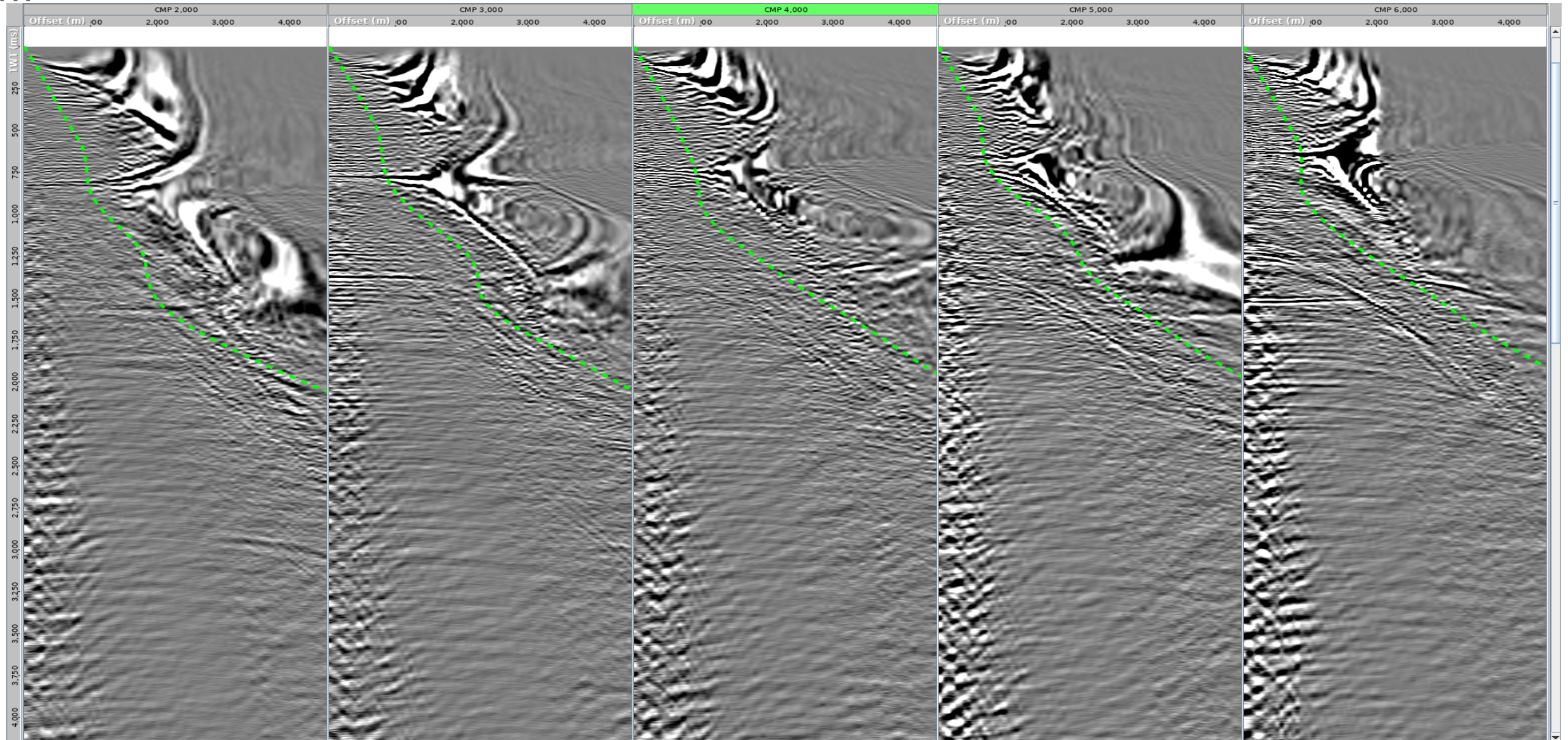
UGOU021 CDPs with Radon

At floating datum



NW

SE



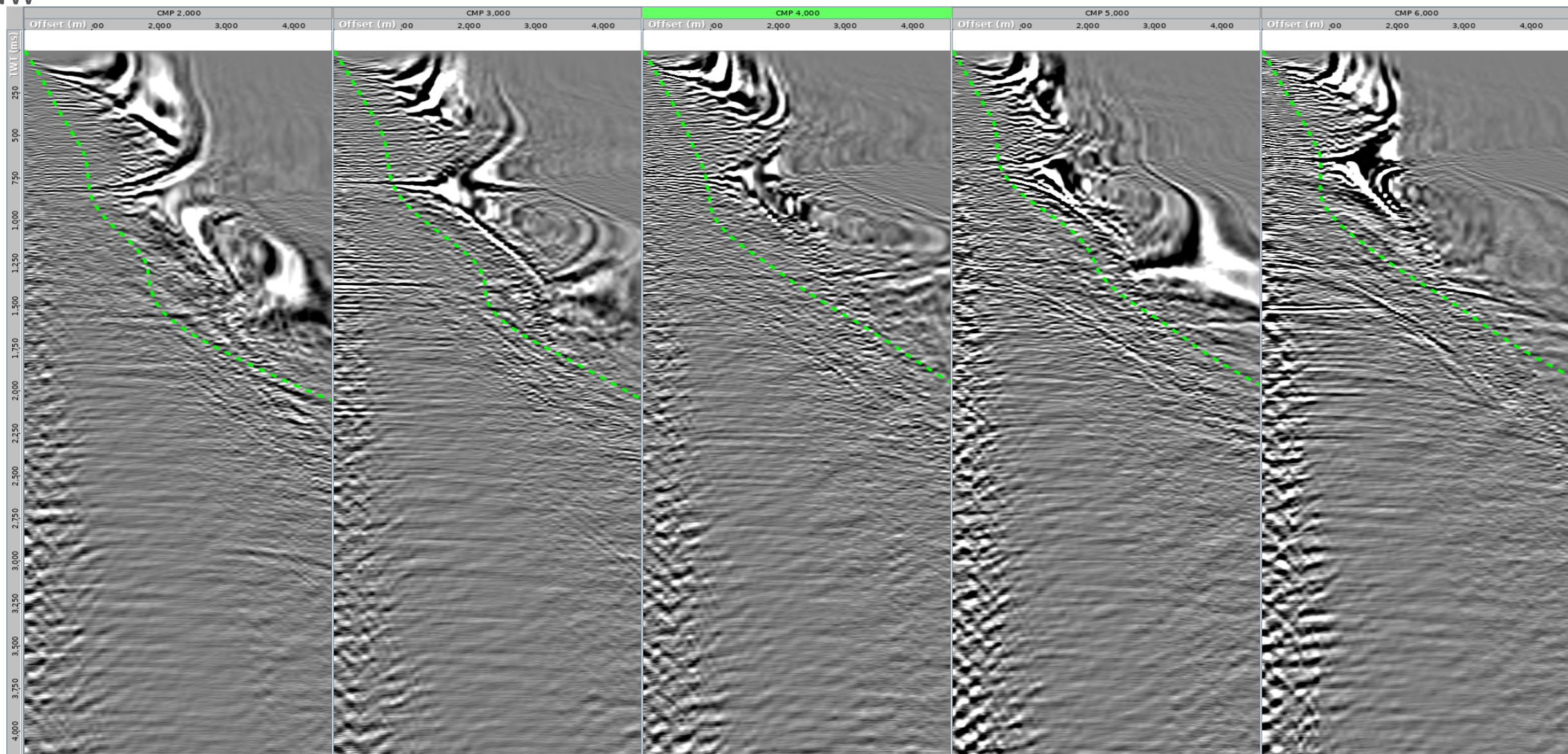
45 degree mute overlain

At floating datum



NW

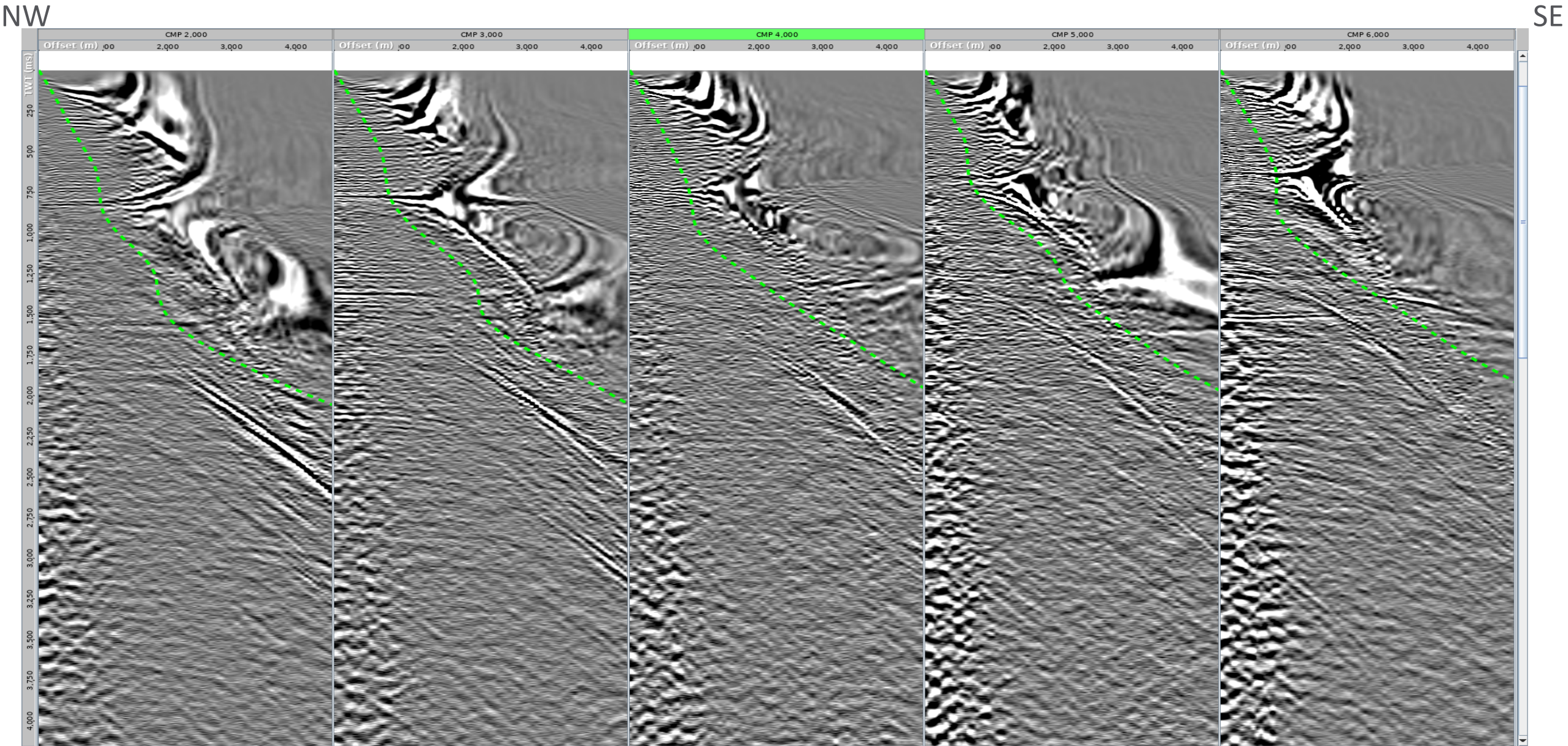
SE



45 degree mute overlain

UGOU021 raw migration CDPs

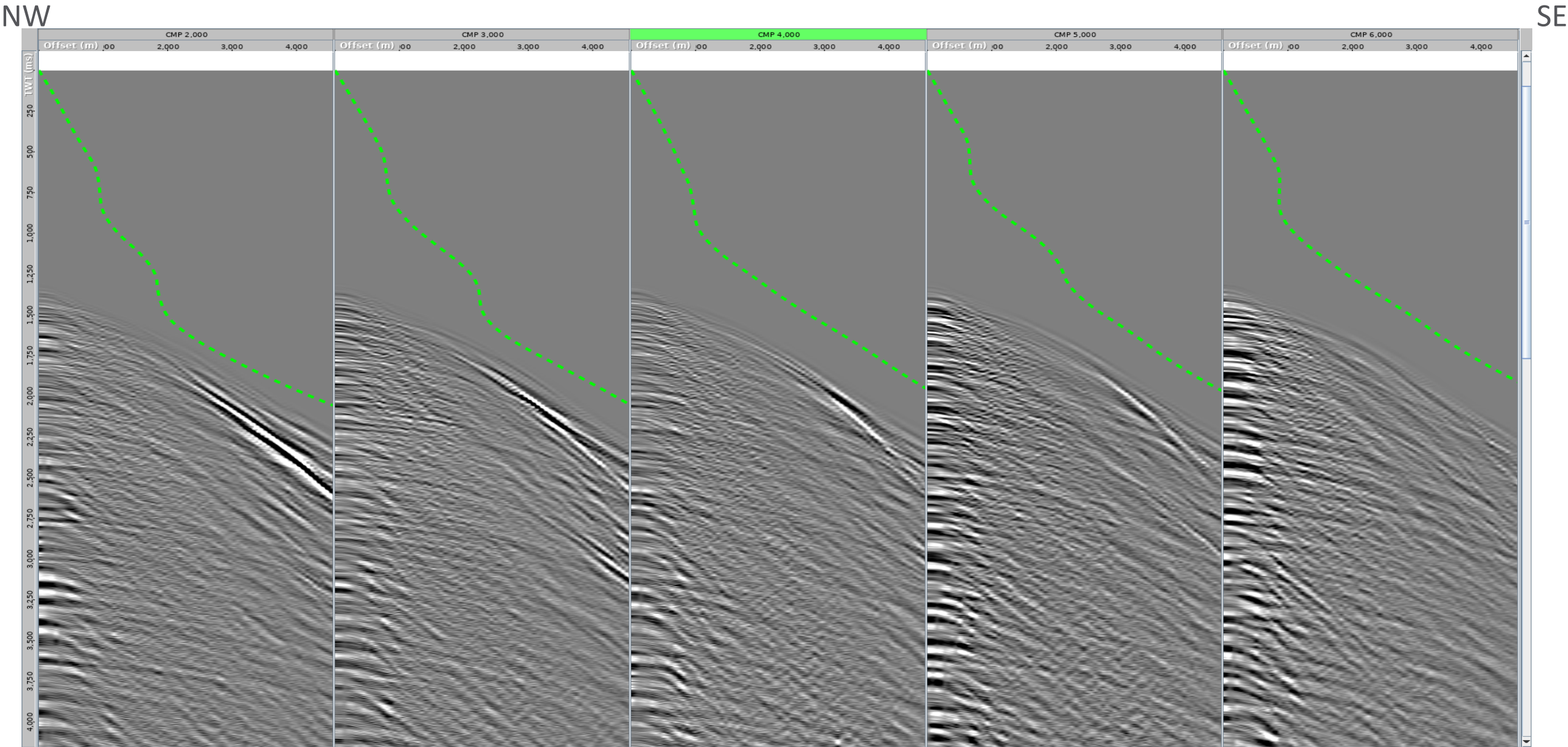
At floating datum



45 degree mute overlain

UGOU021 CDPs original Radon difference

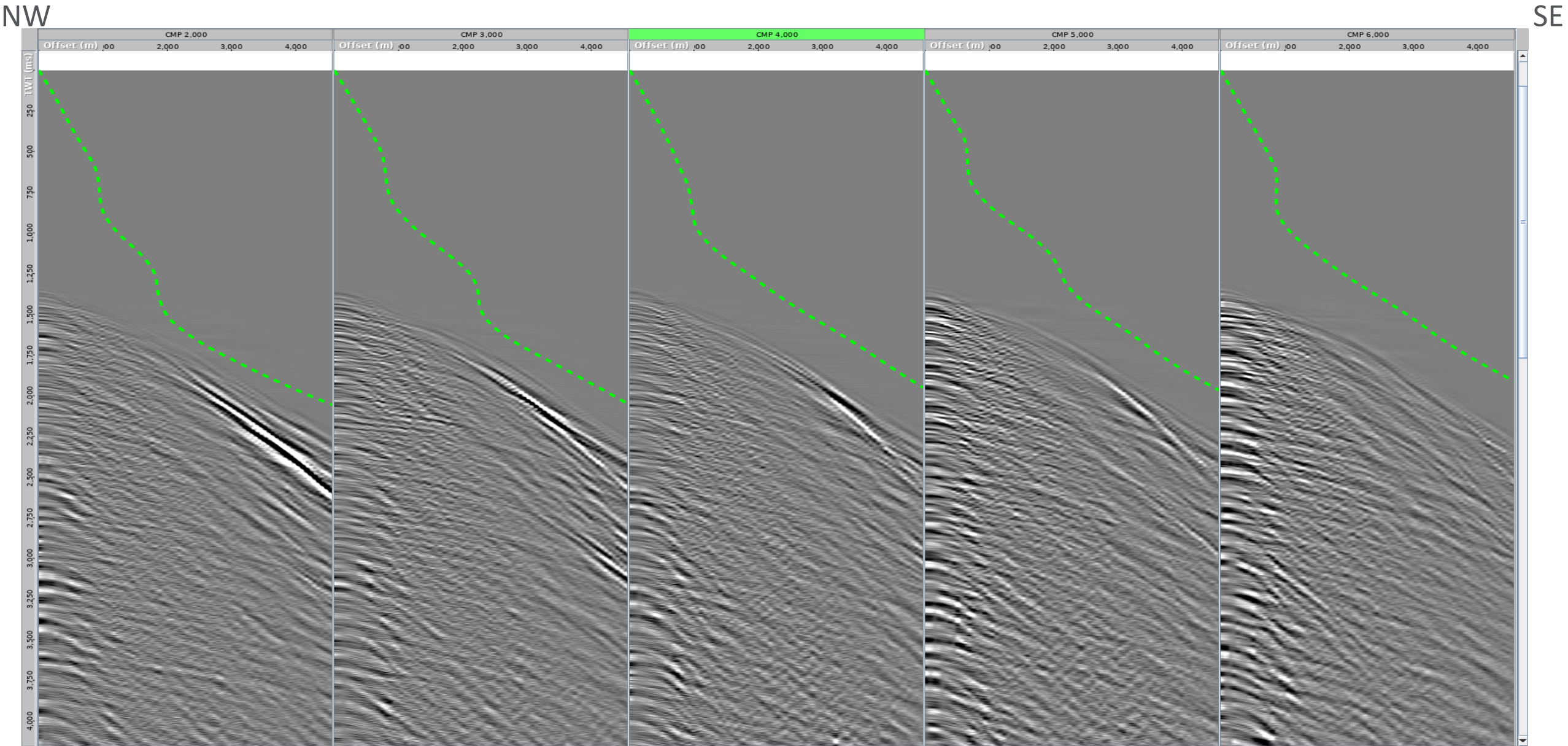
At floating datum



45 degree mute overlain

UGOU021 CDPs with updated Radon difference

At floating datum



45 degree mute overlain