UOBR017-SCAN018 PreSTM 3 Report

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

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2D Seismic PreSTM Processing, Onshore Netherlands

Introduction

- This report documents the results of running the PreSTM 3 migration.

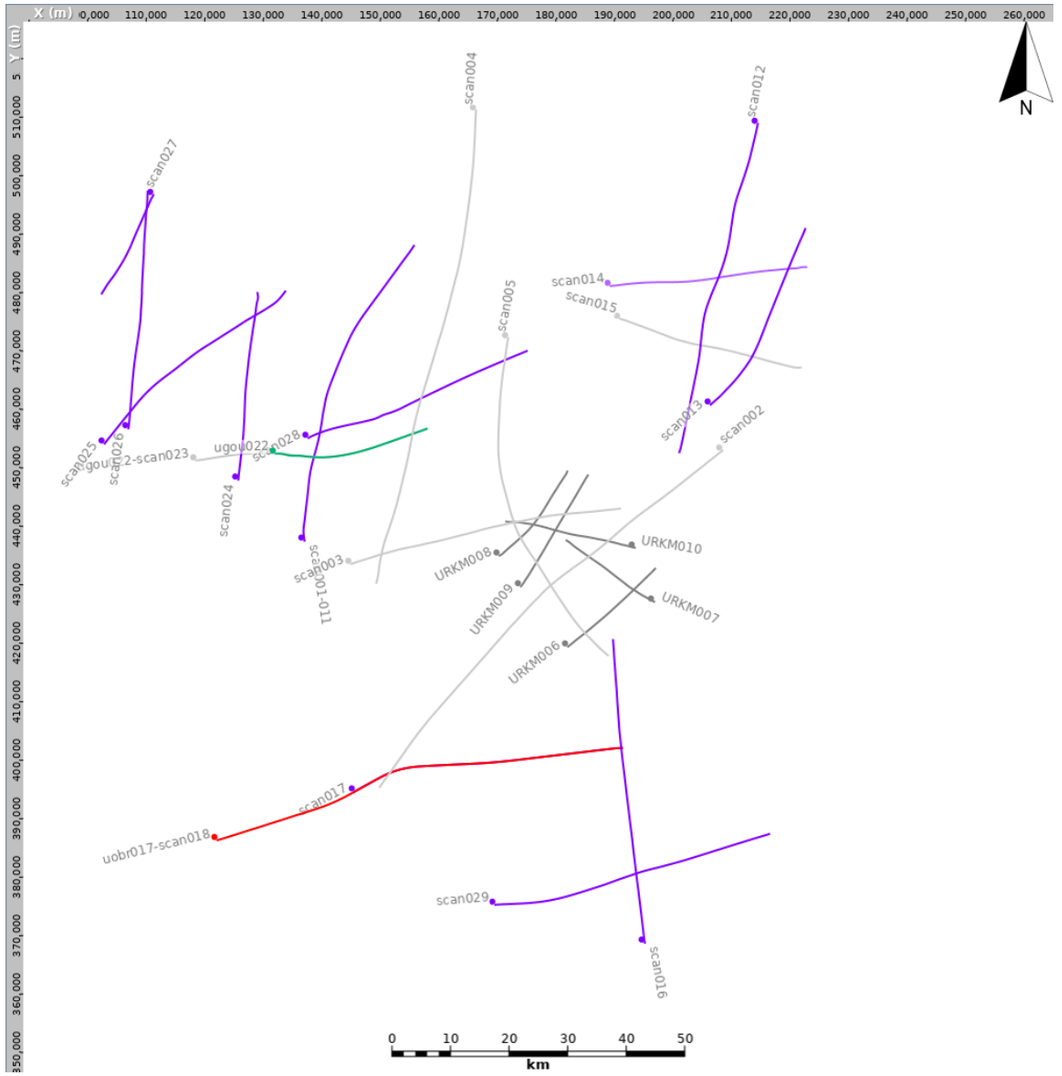
Processing sequence

Data reformat:	SEGY to internal format
Geometry:	Crooked line with 2.5 m CDP interval
Weak shots:	0-500 m offsets only (not applied for 016)
Spherical divergence correction:	T
Geophone response correction:	
Refraction statics:	Delay time using V0 = 1000 m/s VR = 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 required Effective Eta picked automatically every 250 m
○ Migration (PreSTM 2):	Kirchhoff VTI migration using smoothed (2000-200-10) 2nd order picked velocities and auto picked effective Eta
○ Migration (PreSTM 3):	Kirchhoff VTI migration using smoothed (500-100-2) 2nd order time-tomography and auto picked effective Eta
○ Conversion to zero phase:	
○ Trace drop:	Far offsets dropped to match migration input gather
○ Stack:	1/N (1/√N for scaled stacks) with 45° mute
○ Bandpass filter:	2-6-120-150 Hz on selected stacks only
○ Scaling:	1000 ms AGC on selected stacks only
○ <u>Migration parameters:</u>	3 km aperture TV dip: 0-45° 1250-45° 2500-30° Anti-alias constant = 2
○ <u>Smoothing parameters:</u>	Horizontal half width (m) – vertical half width (ms) – relative weight at max time

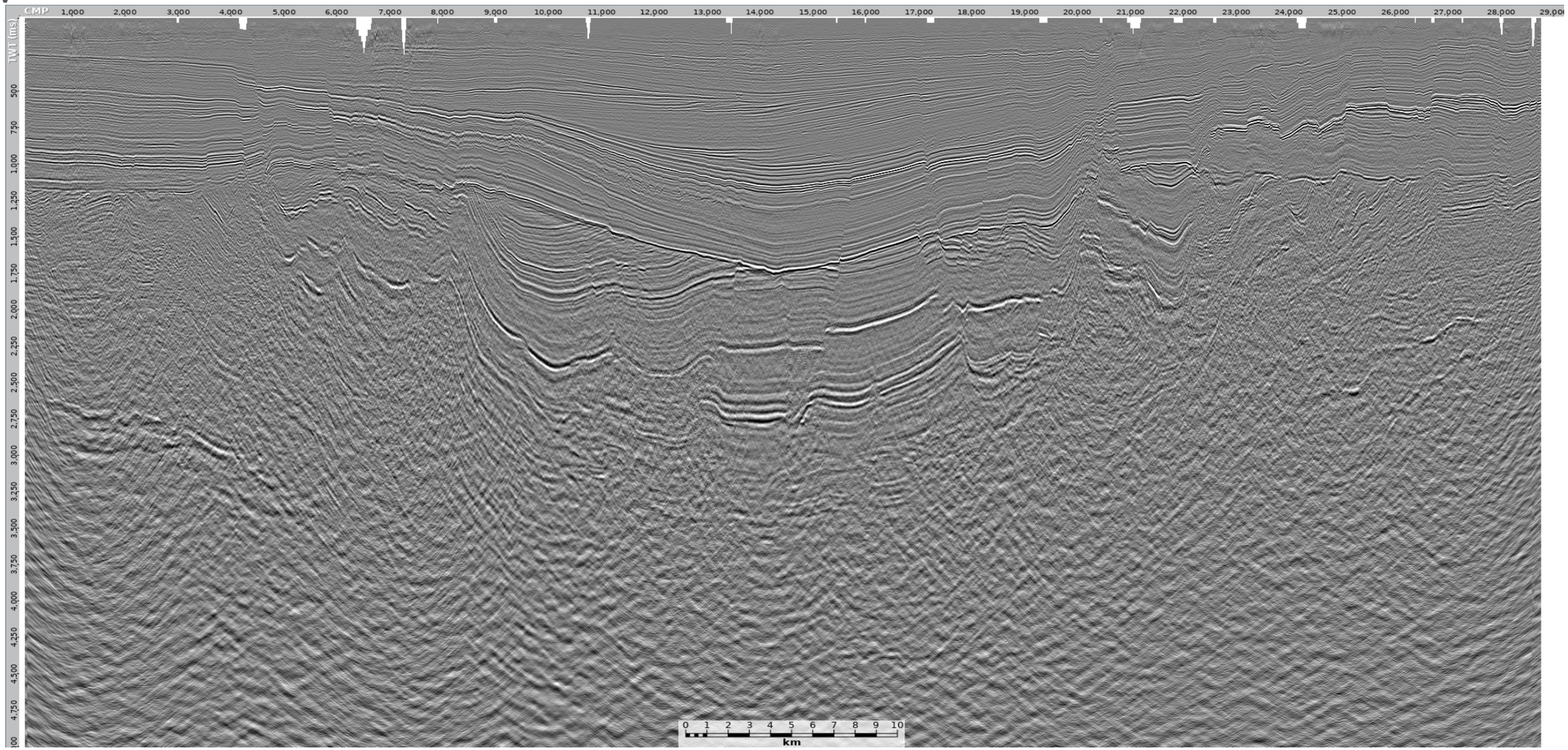
Map


X (m)
Y (m)
N
scan027
scan004
scan012
scan014
scan015
scan005
scan013
scan002
scan025
scan026
ugou022-scan023
scan028
scan024
scan003
scan001-011
URKM008
URKM010
URKM009
URKM007
URKM006
scan017
uobr017-scan018
scan029
scan016
0 10 20 30 40 50
km

UOBR017-SCAN018 PreSTM 2 true amplitude stack

At floating datum with 2-6-120-150 Hz filter and 1000 ms post-stack scaling

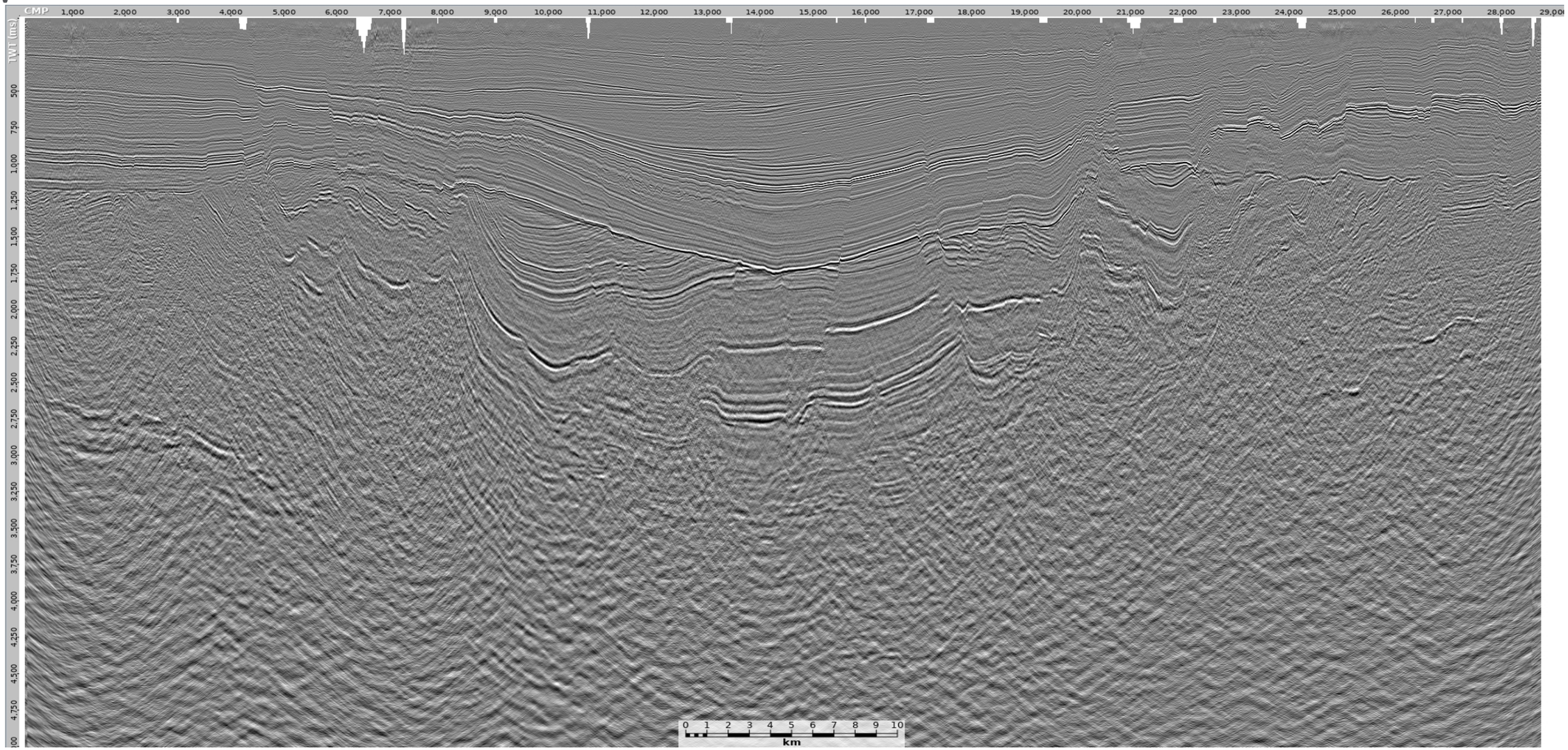
W E



UOBR017-SCAN018 PreSTM 3 true amplitude stack

At floating datum with 2-6-120-150 Hz filter and 1000 ms post-stack scaling

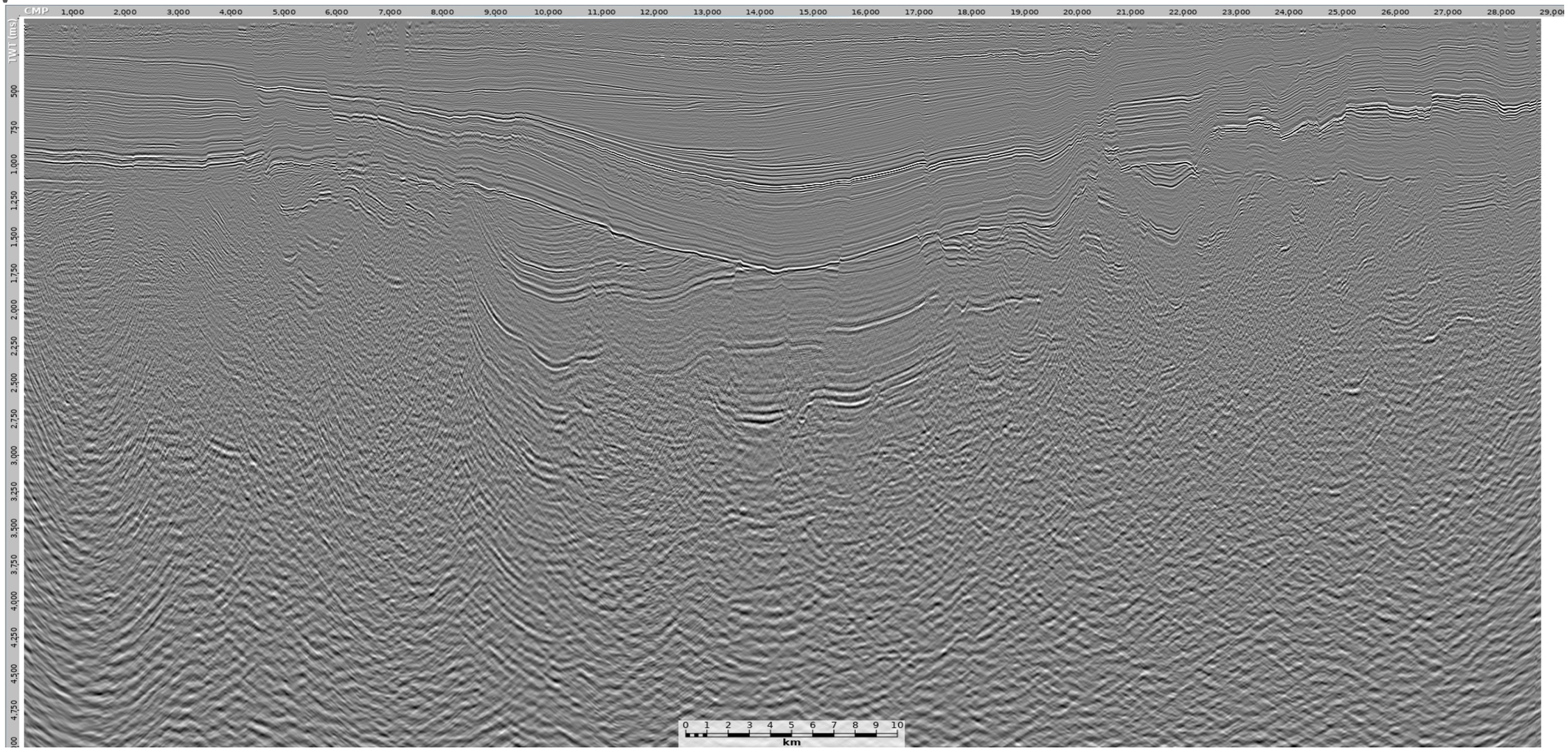
W E



UOBR017-SCAN018 fast-track true amplitude stack

At floating datum with 2-6-120-150 Hz filter and 1000 ms post-stack scaling

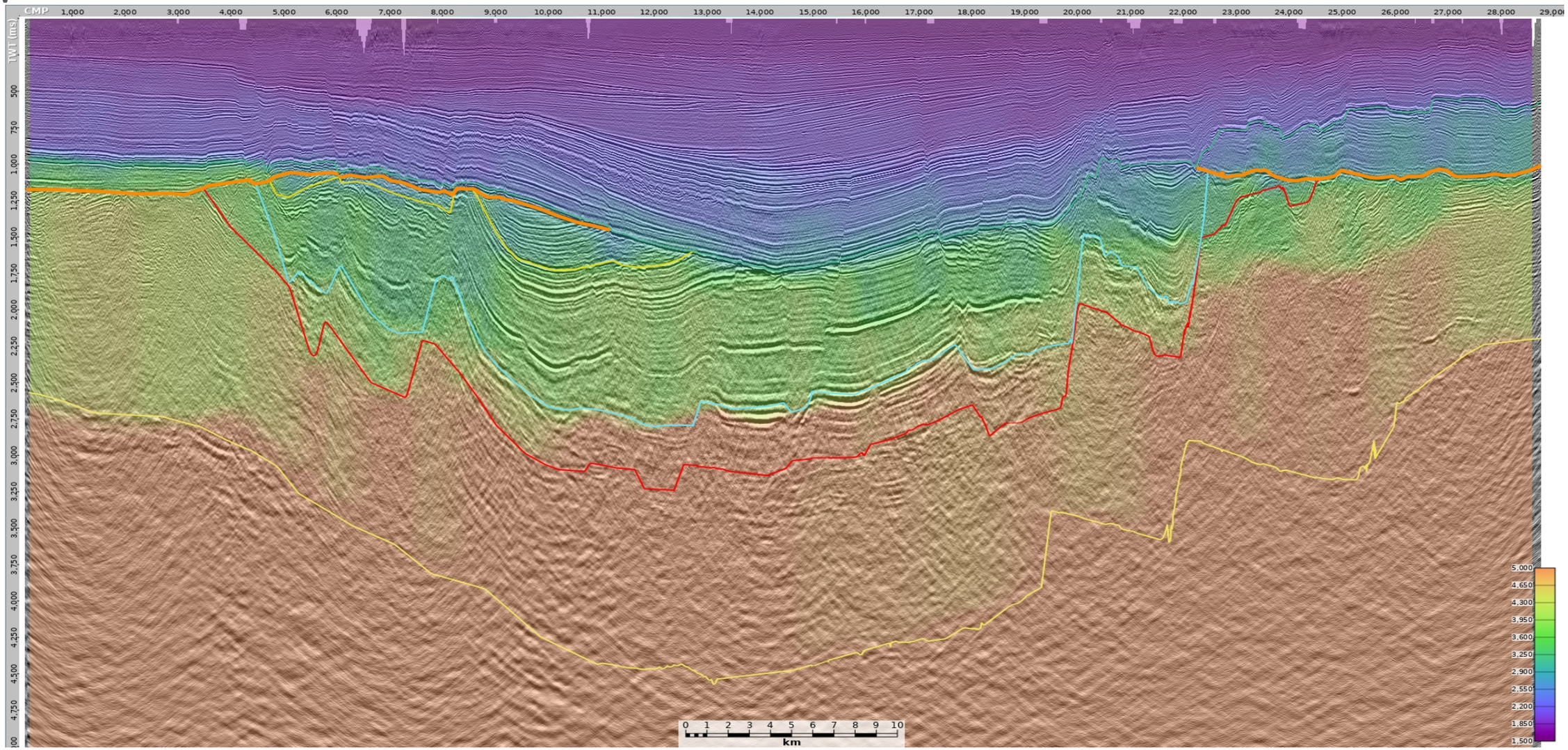
W E



UOBR017-SCAN018 PreSTM 2 stack with interval velocity overlay

At floating datum - stack has 500 ms pre-stack AGC applied

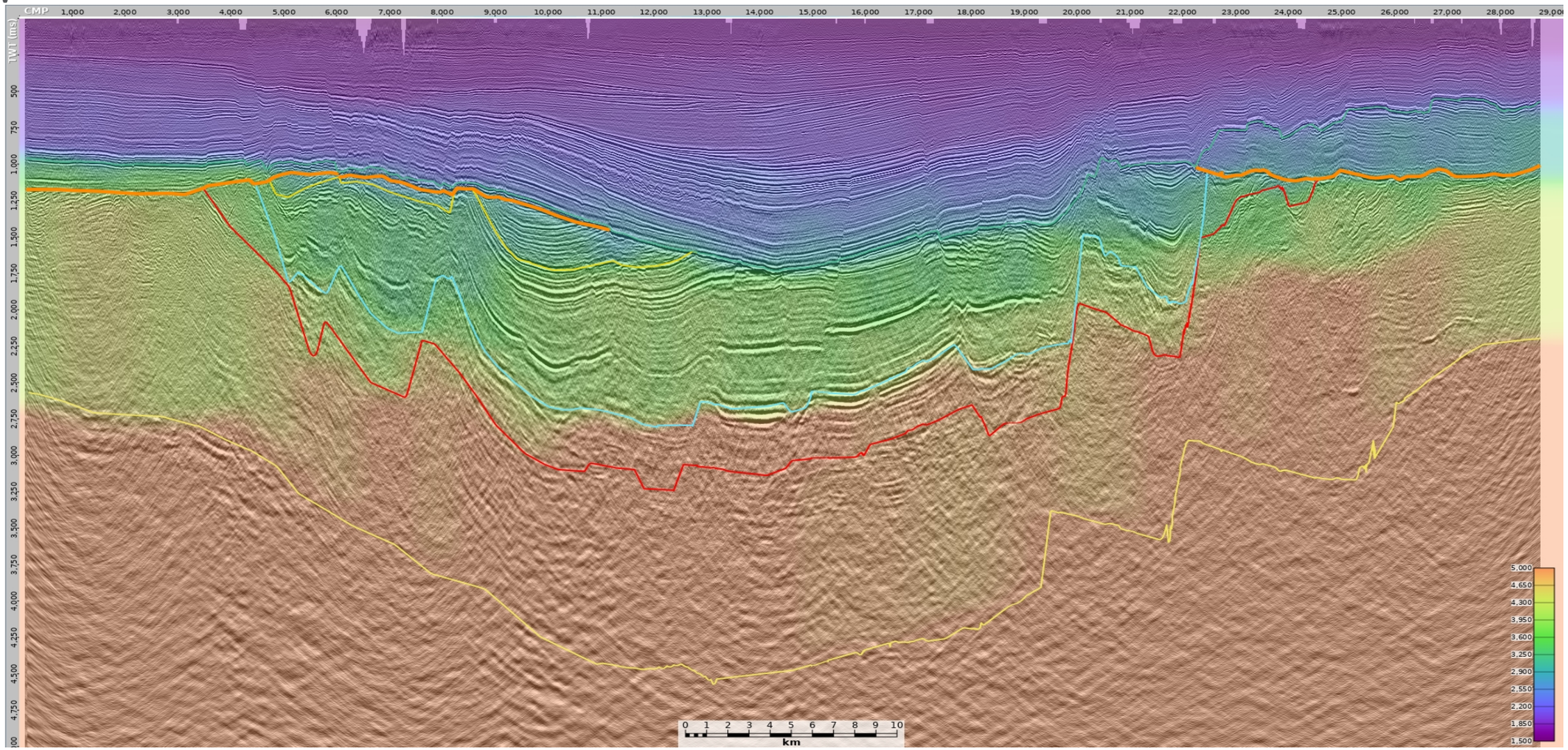
W E



UOBR017-SCAN018 PreSTM 3 stack with interval velocity overlay

At floating datum - stack has 500 ms pre-stack AGC applied

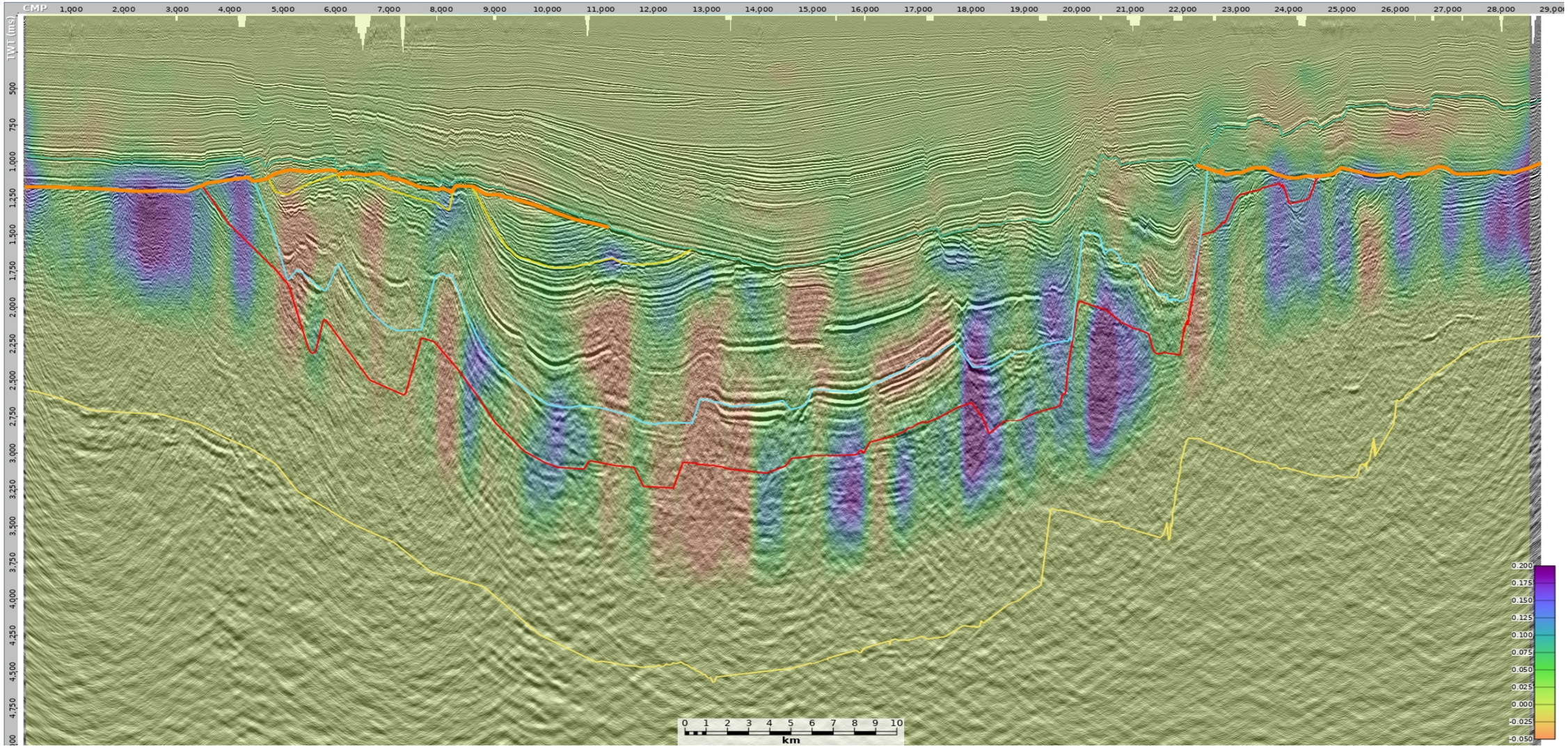
W E



UOBR017-SCAN018 PreSTM 2 stack with Eta overlay

At floating datum - stack has 500 ms pre-stack AGC applied

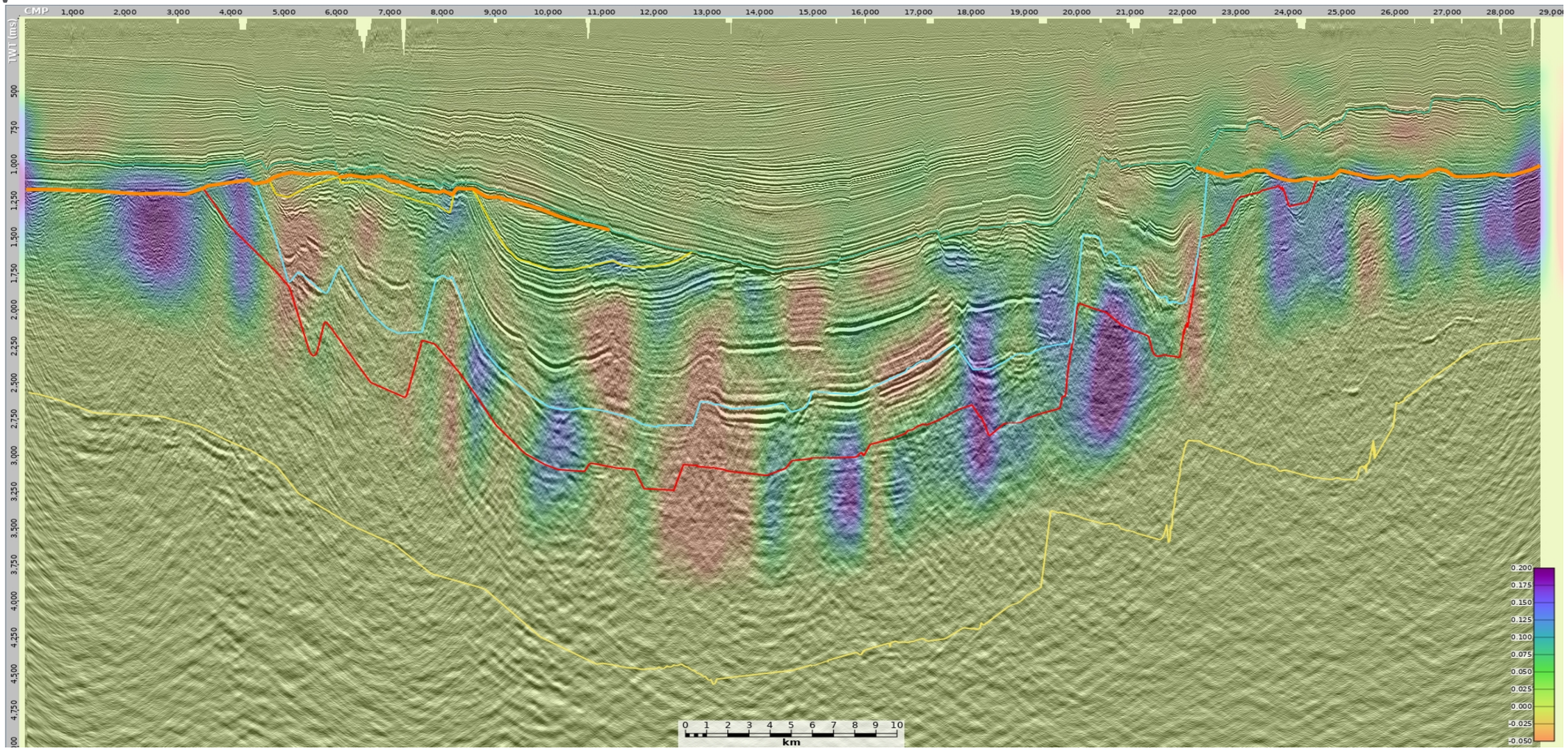
W E



UOBR017-SCAN018 PreSTM 3 stack with Eta overlay

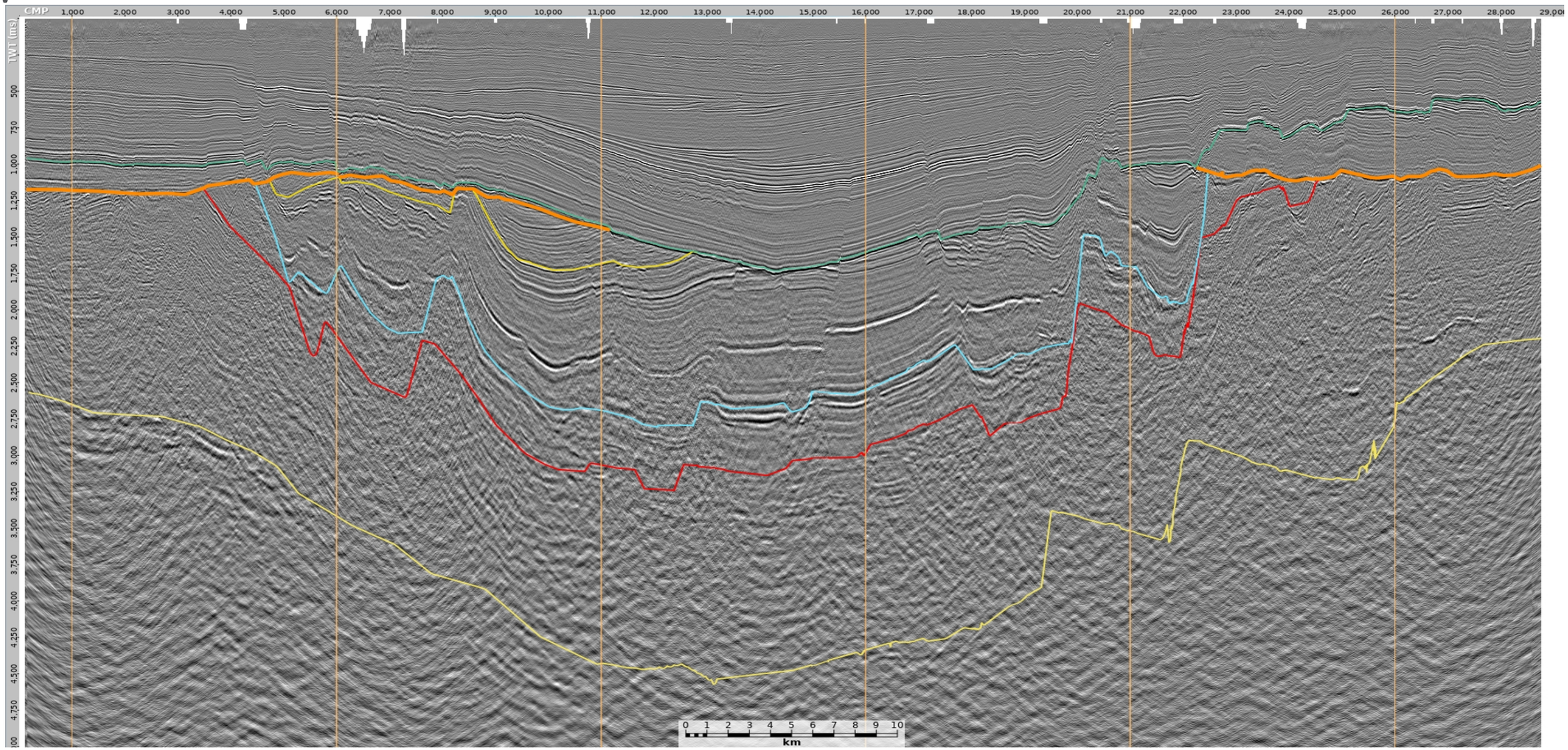
At floating datum - stack has 500 ms pre-stack AGC applied

W E



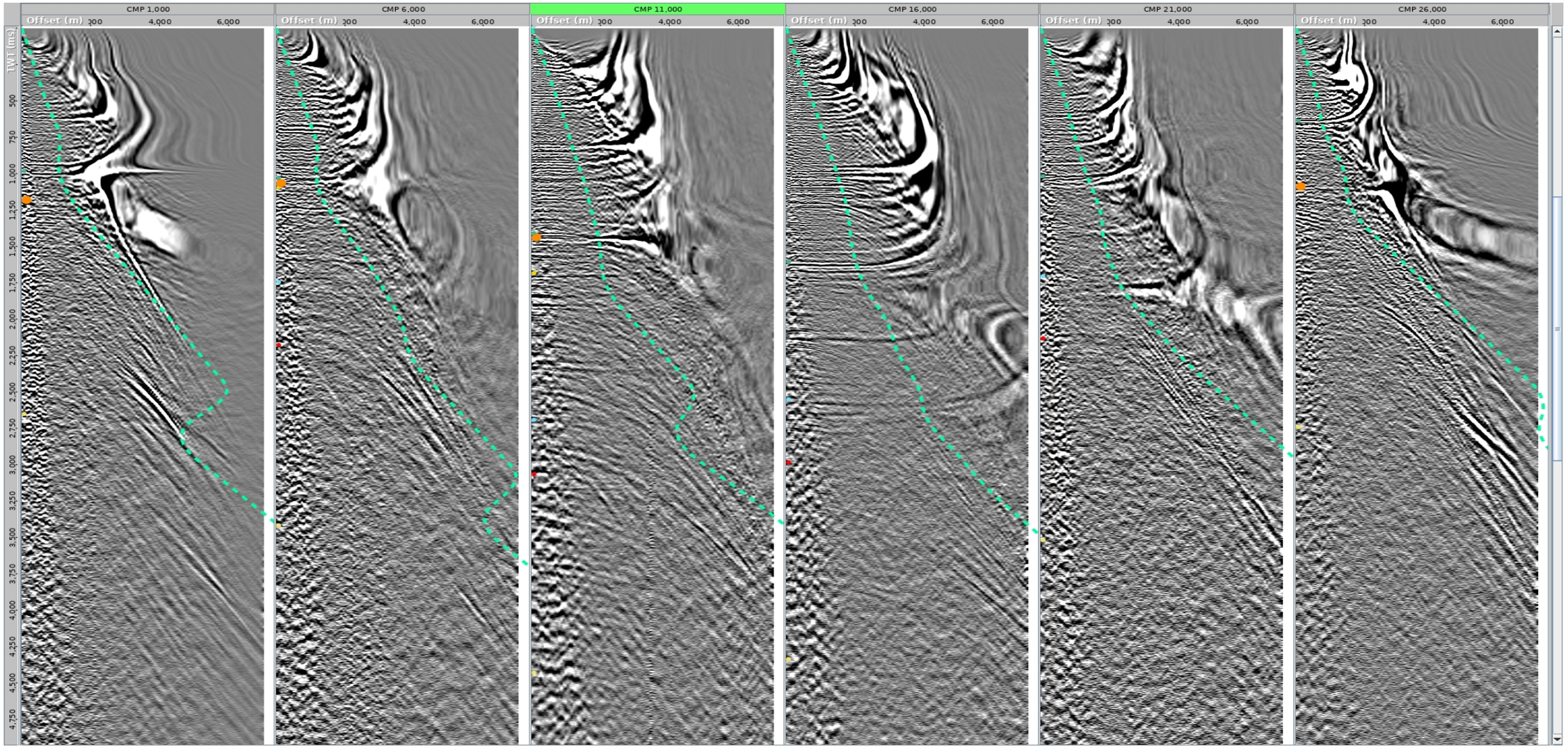
UOBR017-SCAN018 gather locations for subsequent slides

W E



UOBR017-SCAN018 PreSTM 2 gathers

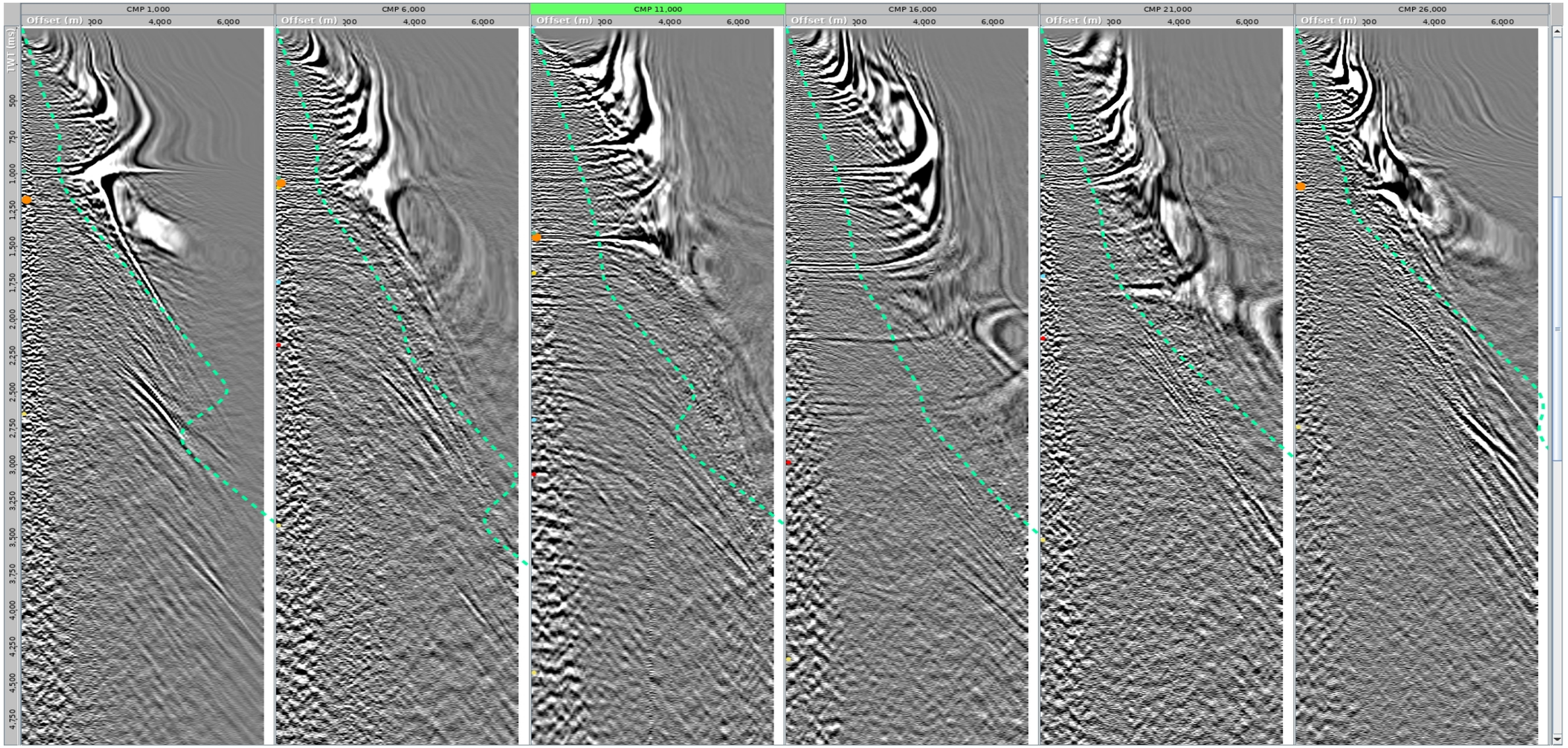
At floating datum



45°

UOBR017-SCAN018 PreSTM 3 gathers

At floating datum



45°