

Reflection seismic 1 script

Educational Material

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Stacking

- Statics
- Residual statics in combination with the velocity analysis
- Muting

⇒ Approximated zero offset section

Statics

Correction for Topography

“Uphole”-Statics using shots in Borehole

Refraction-Statics

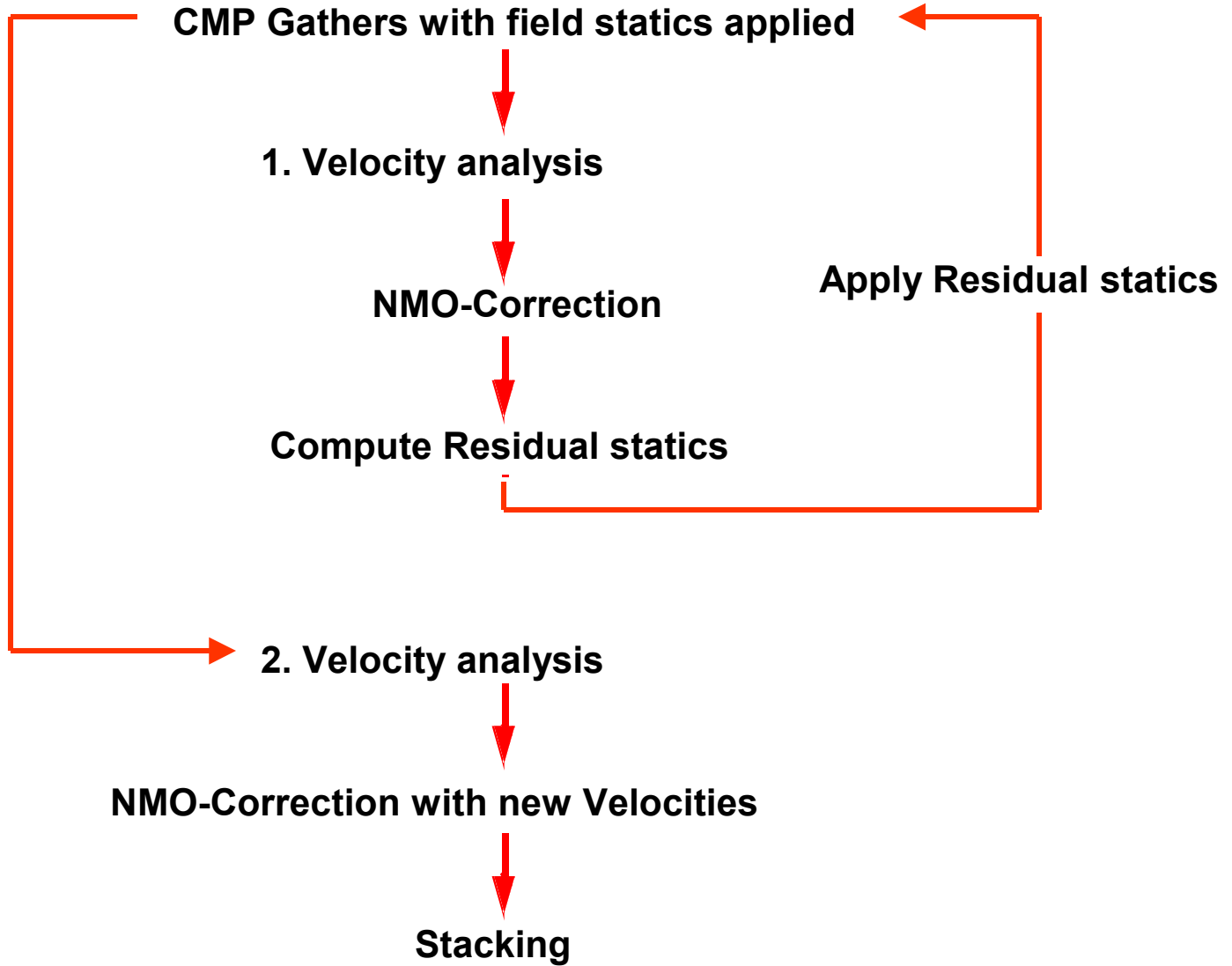
Methods to determine the corrections

Delay-Time

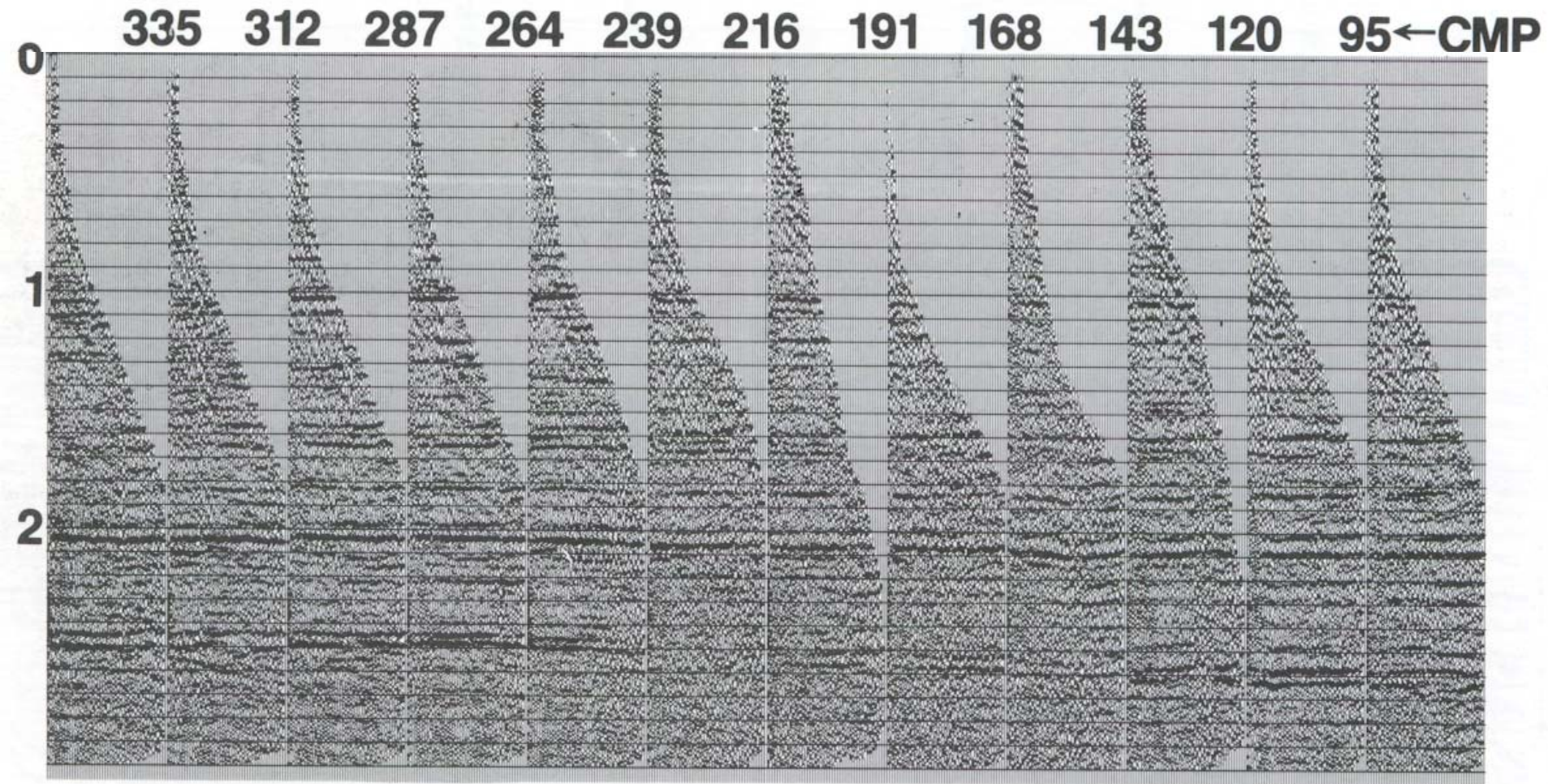
GRM (“generalised reciprocal method”)

DRM (“diminishing residual matrices”)

Residual statics



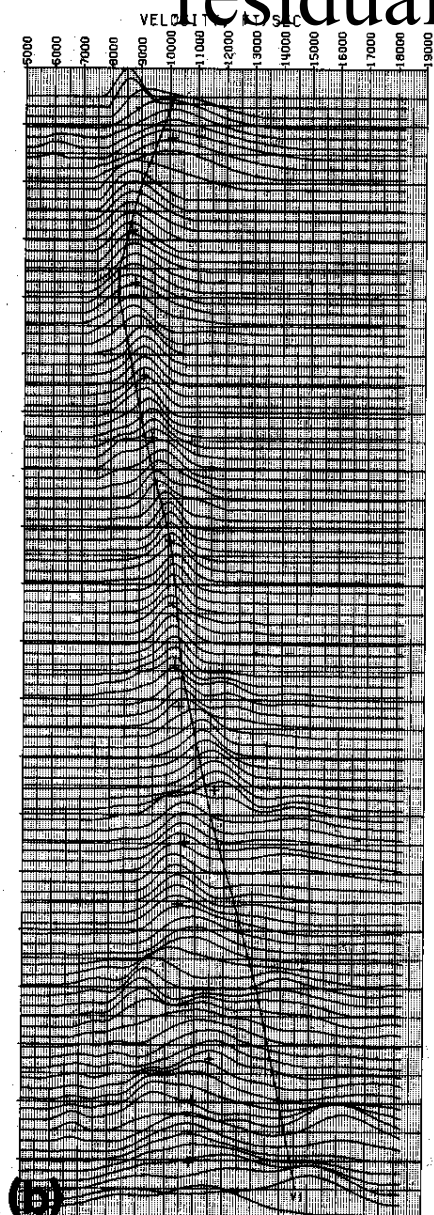
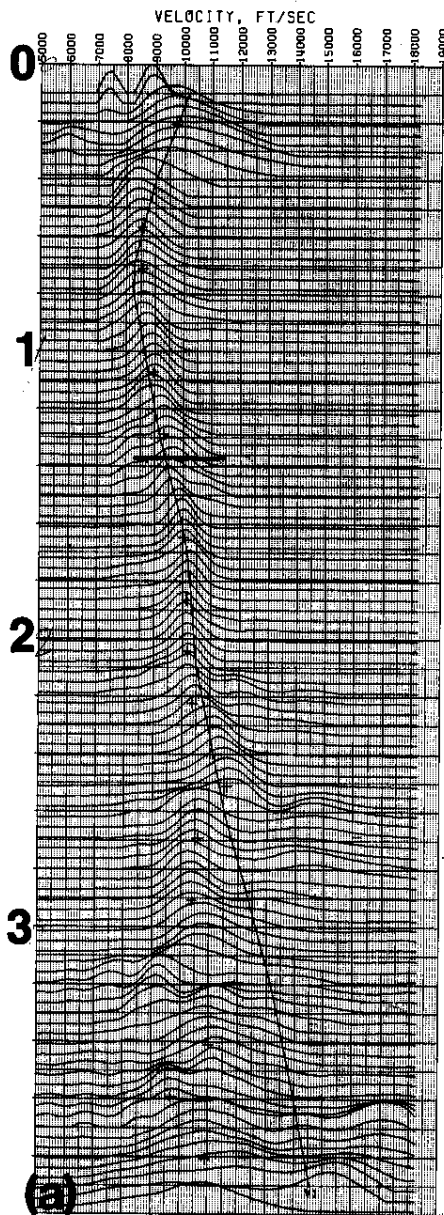
NMO corrected data before and after residual corrections



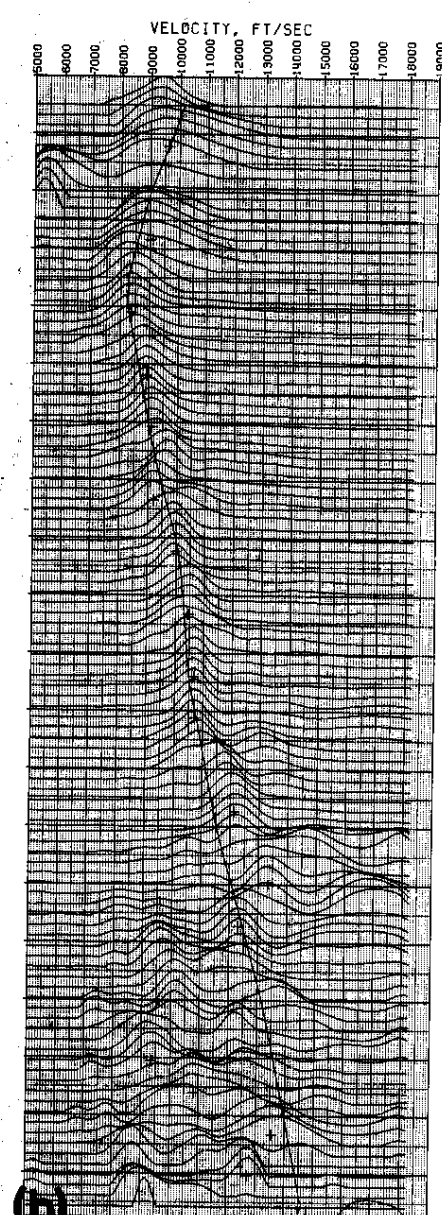
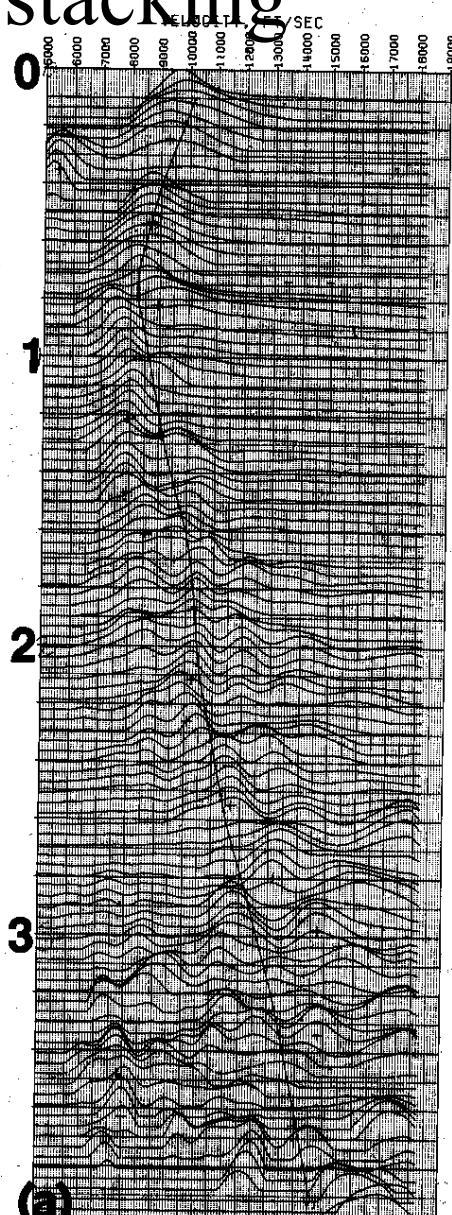
(b)

Velocity spectra before (a) and after (b)

residual stacking

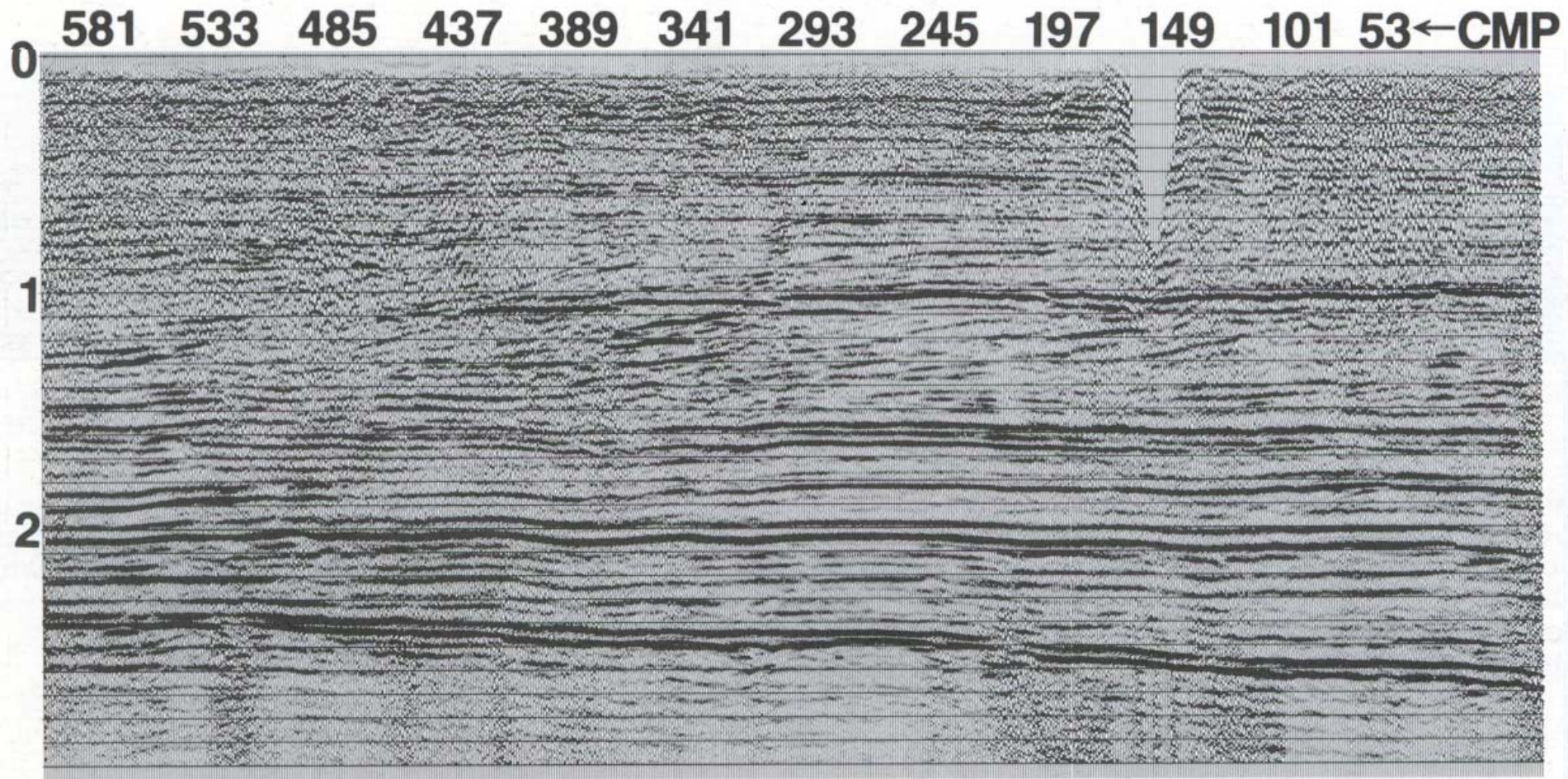


CMP 297



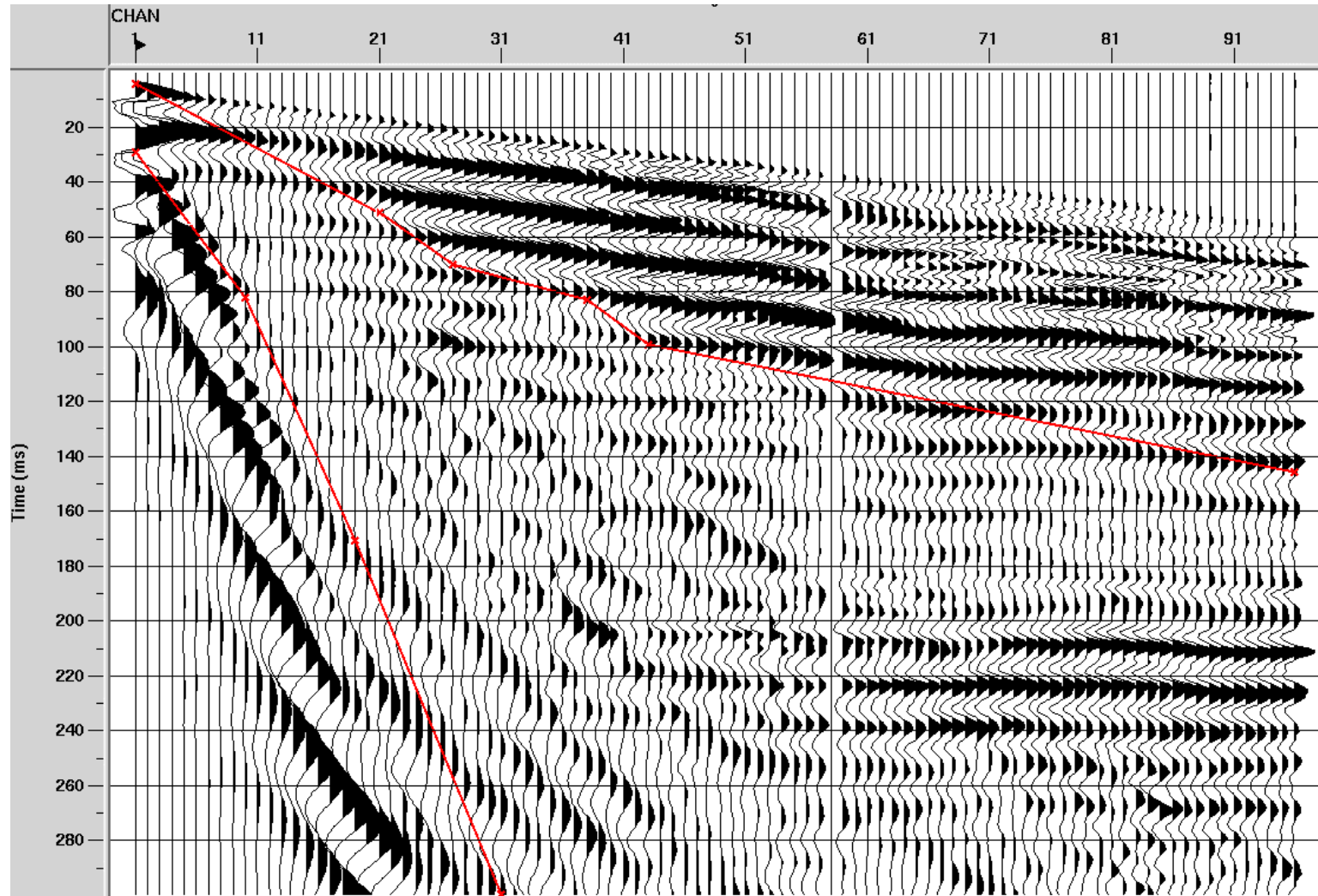
CMP 188

CMP stacks without and with residual stacking

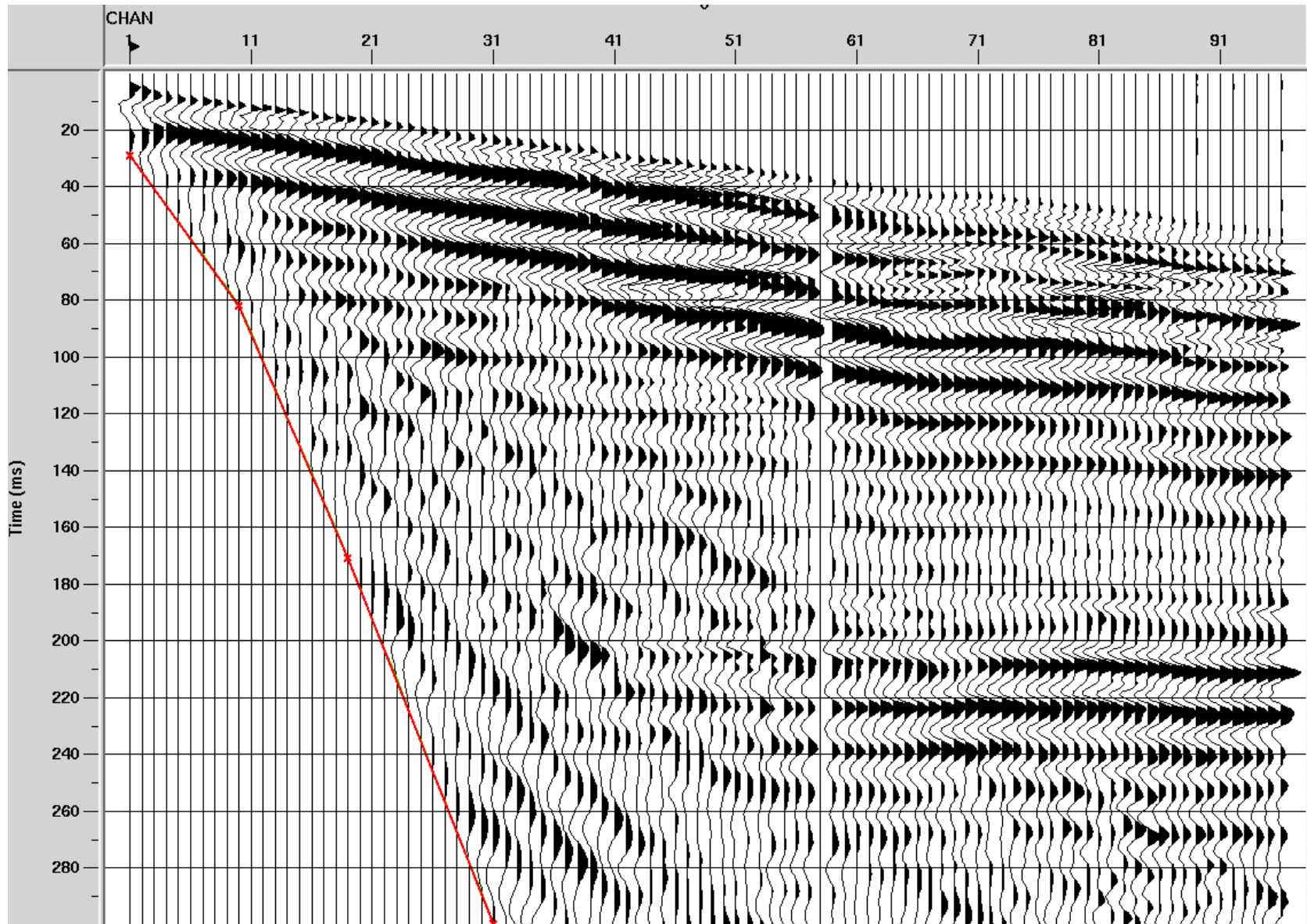


(b)

Muting



bottom mute (interface waves)



Methods to Stack

Mean stack

$$S_{t,mean} = \frac{1}{n} \sum_{i=1}^n w_{i,t}$$

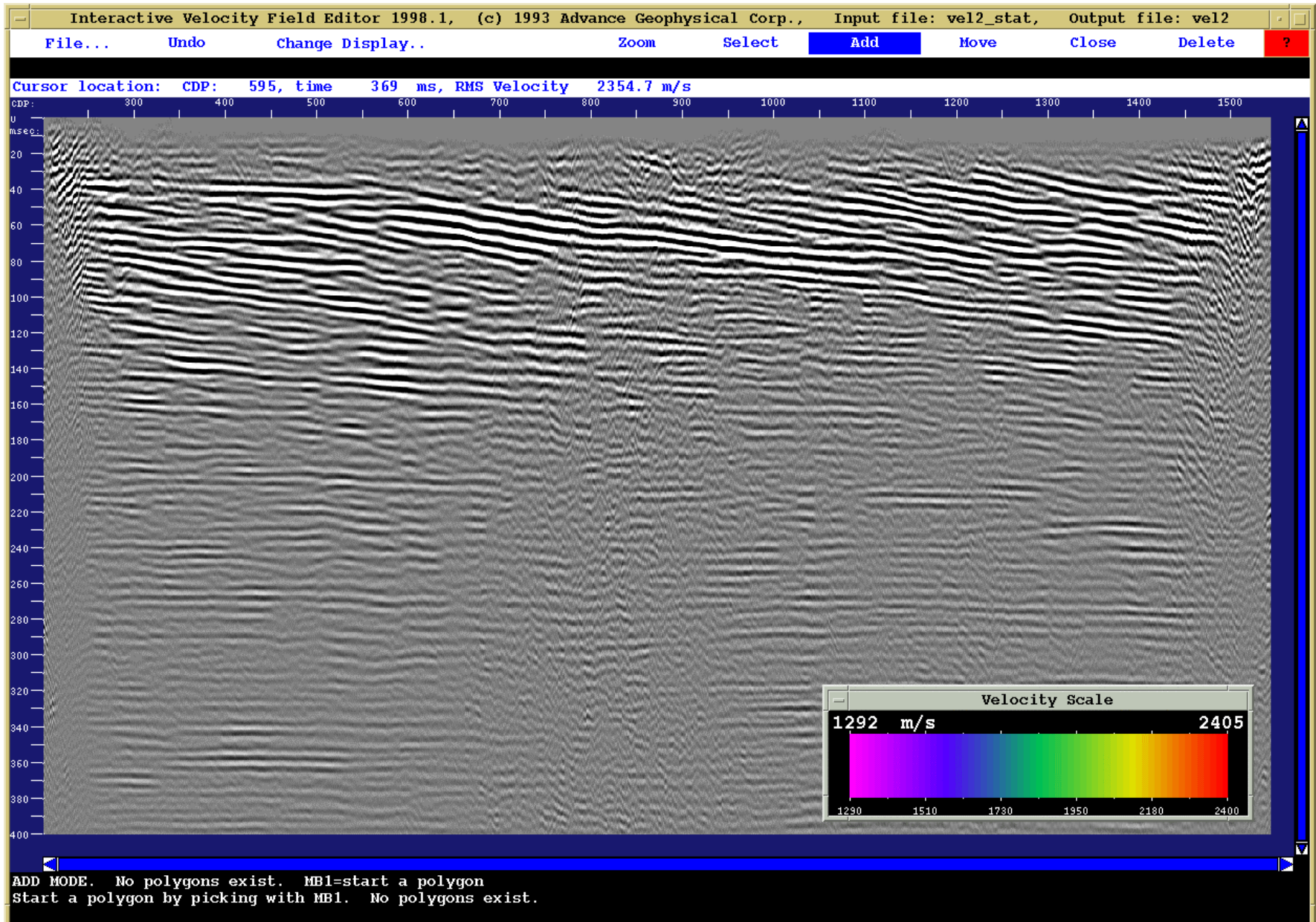
Weighted Stack

$$S_{t,meanweighted} = \frac{1}{n} \sum_{i=1}^n \alpha_i w_{i,t}$$

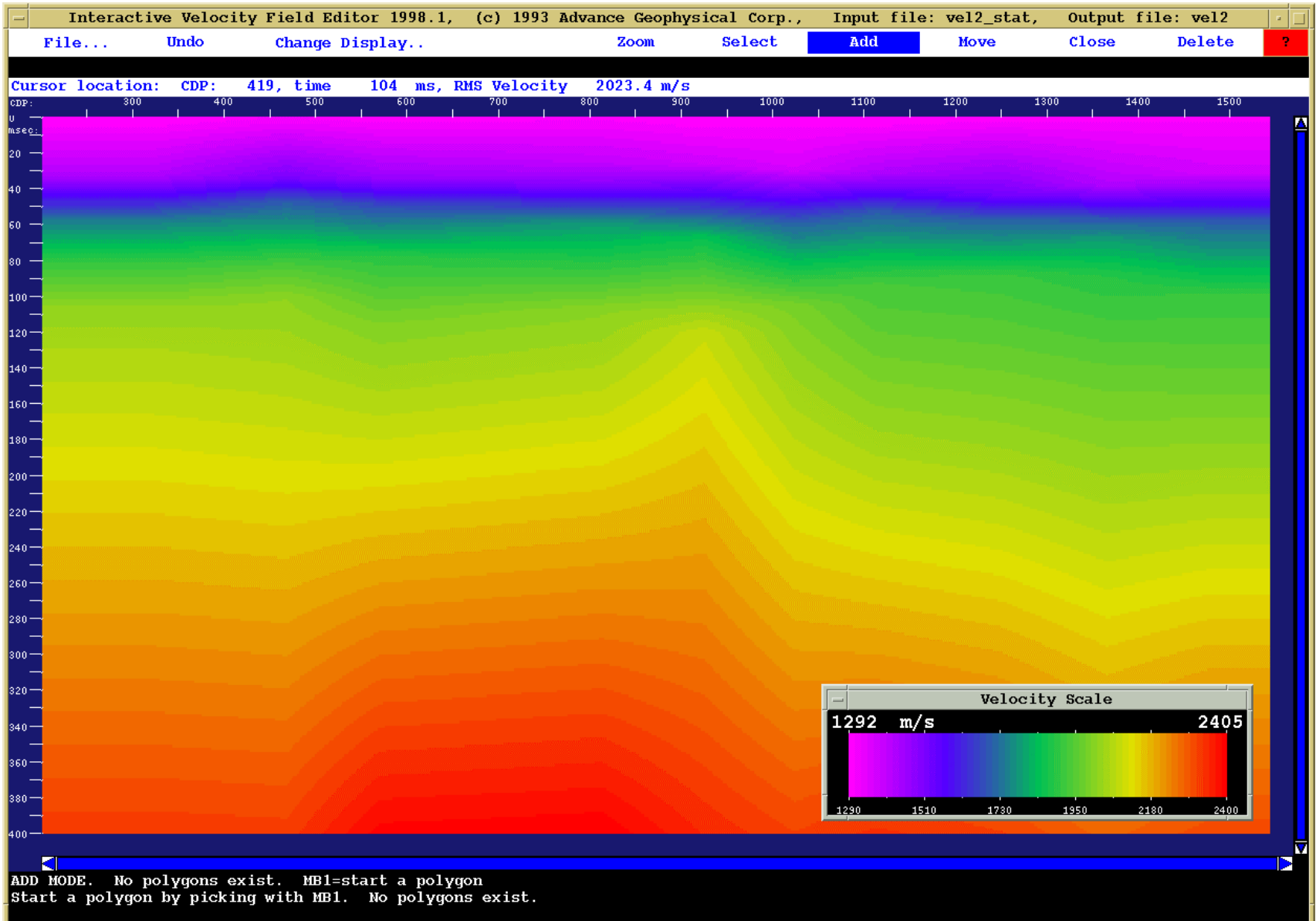
Diversity Stack/Min-Max-exclude

Certain traces are muted and not included in the stacking procedure

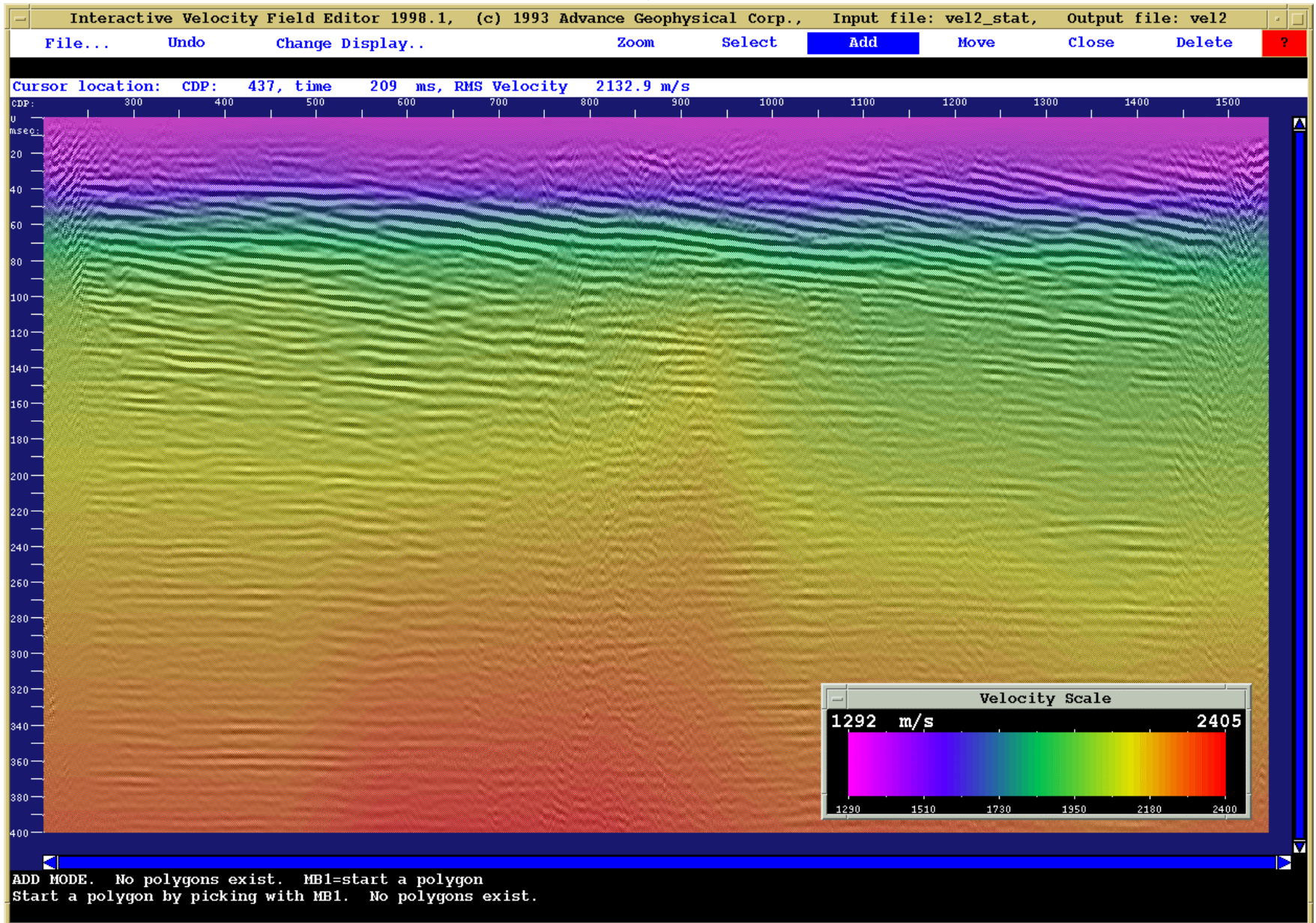
stacked section



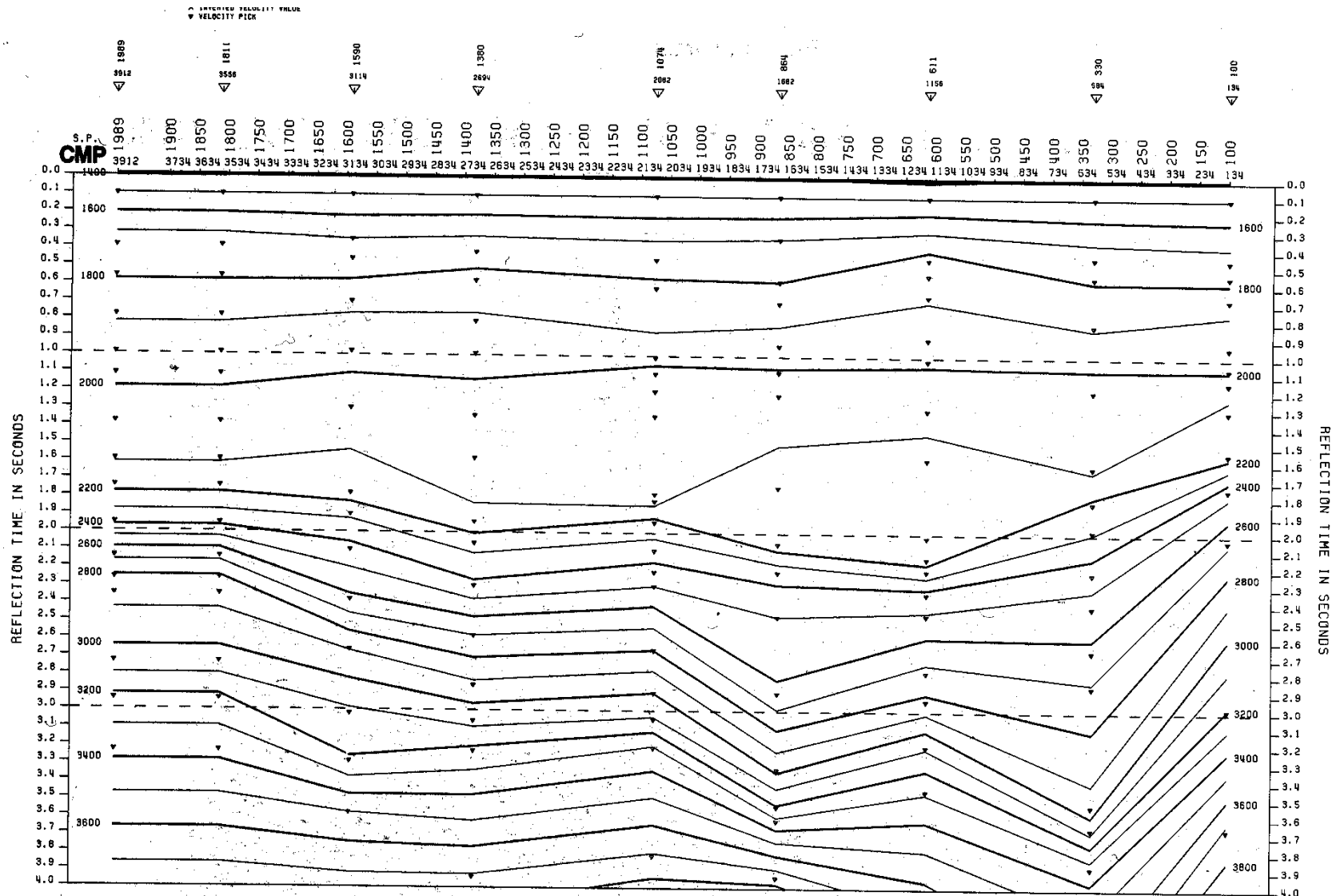
Velocity model



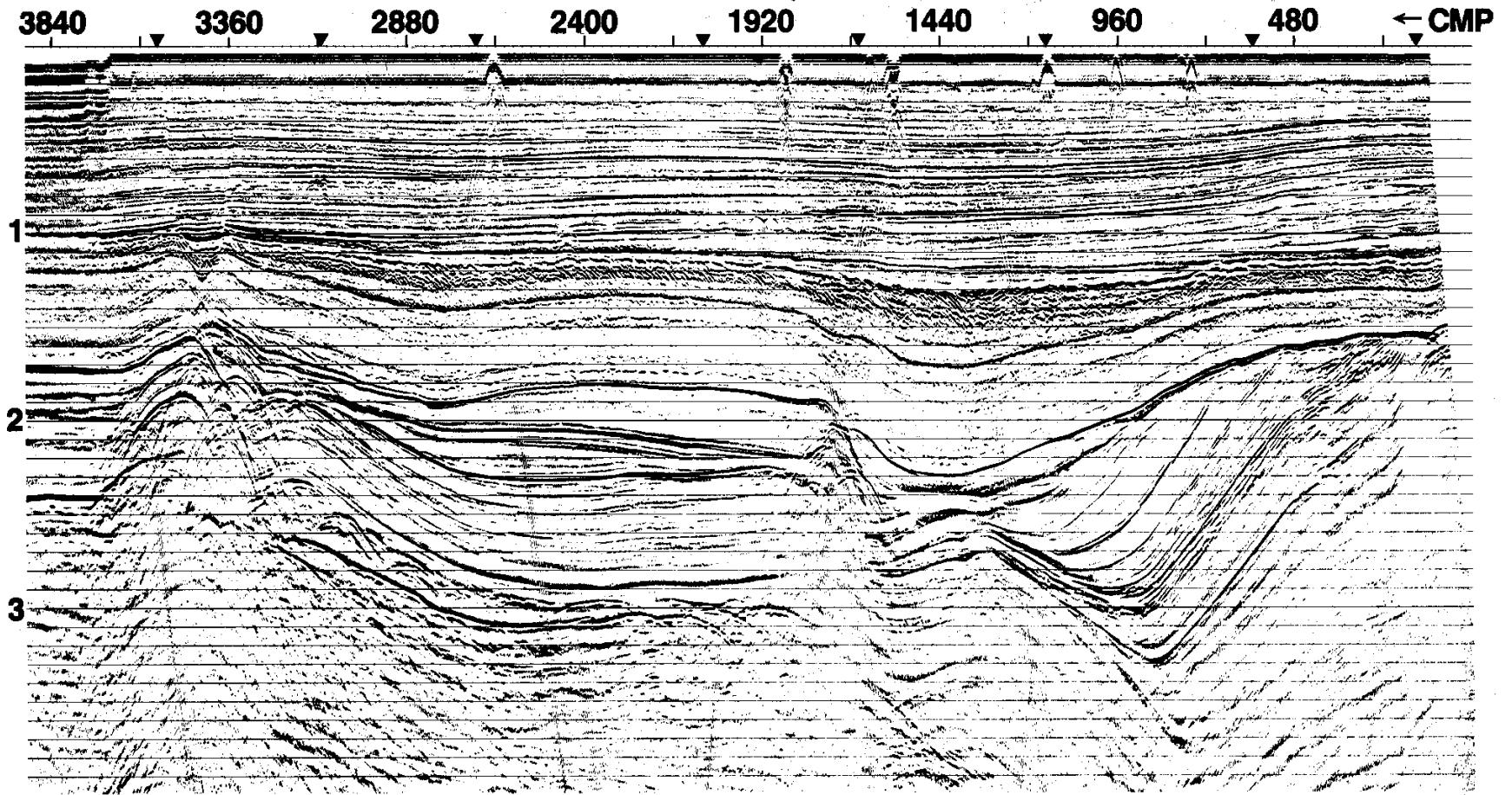
Velocity model



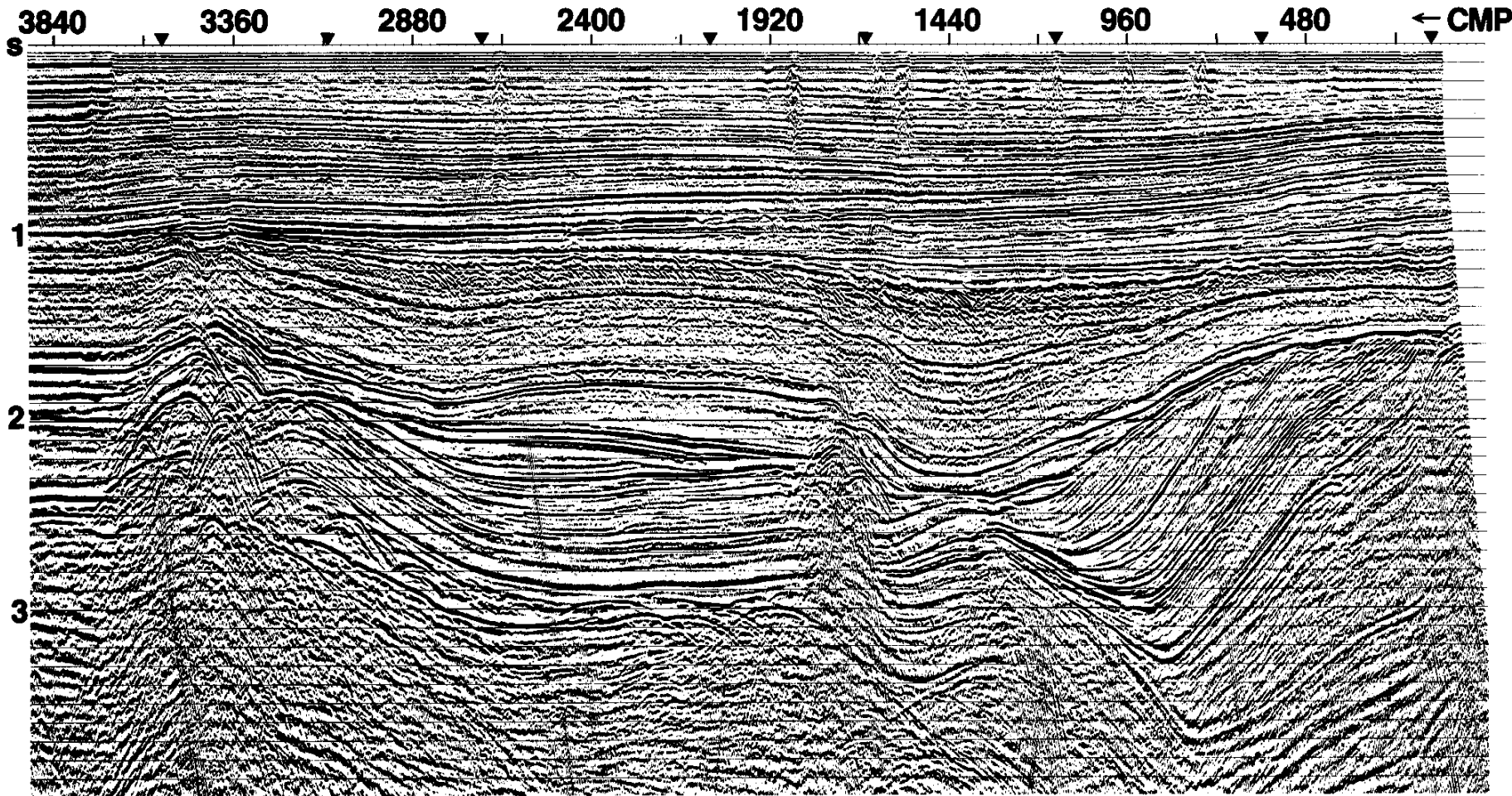
Stacking velocity field



CMP stack



CMP stack using gain function



Migrated CMP stack

