

Reflection seismic 1

Educational Material

Author(s): Kruk, Jan van der

Publication date: 2001

Permanent link: https://doi.org/10.3929/ethz-a-004363847

Rights / license: In Copyright - Non-Commercial Use Permitted

Stacking

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

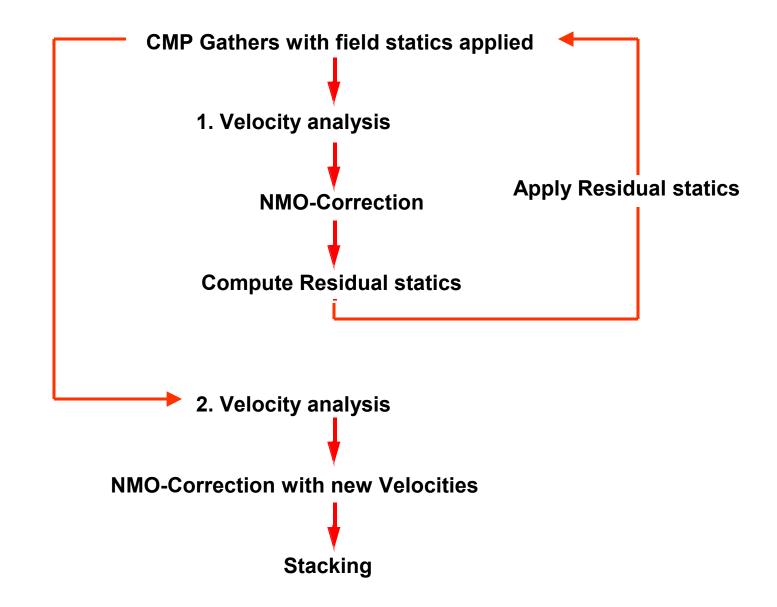
 \Rightarrow Approximated zero offset section

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")

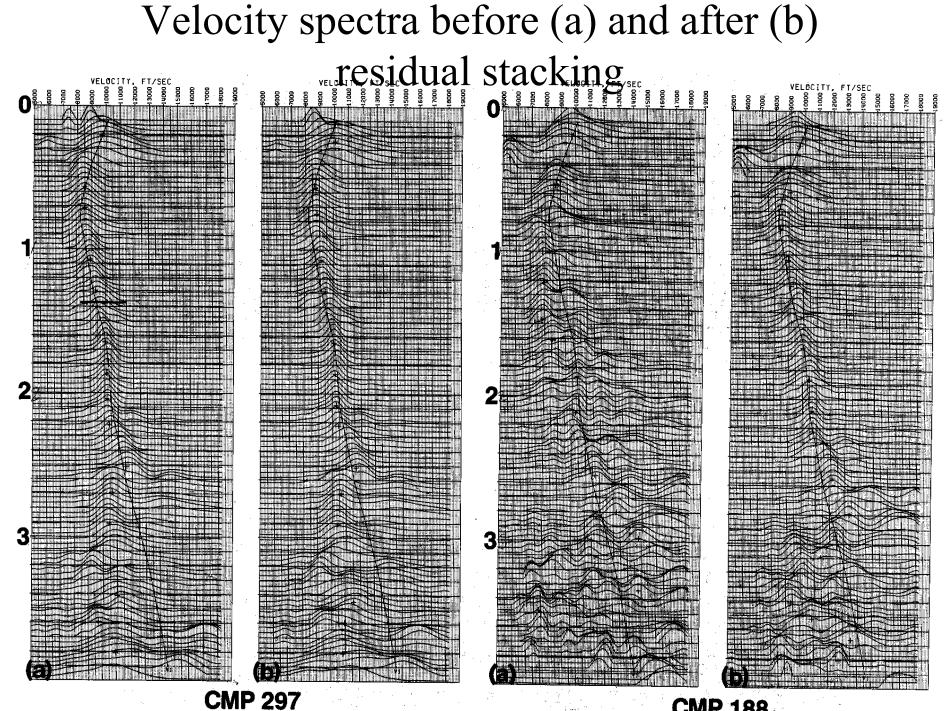
Residual statics



NMO corrected data before and after residual corrections

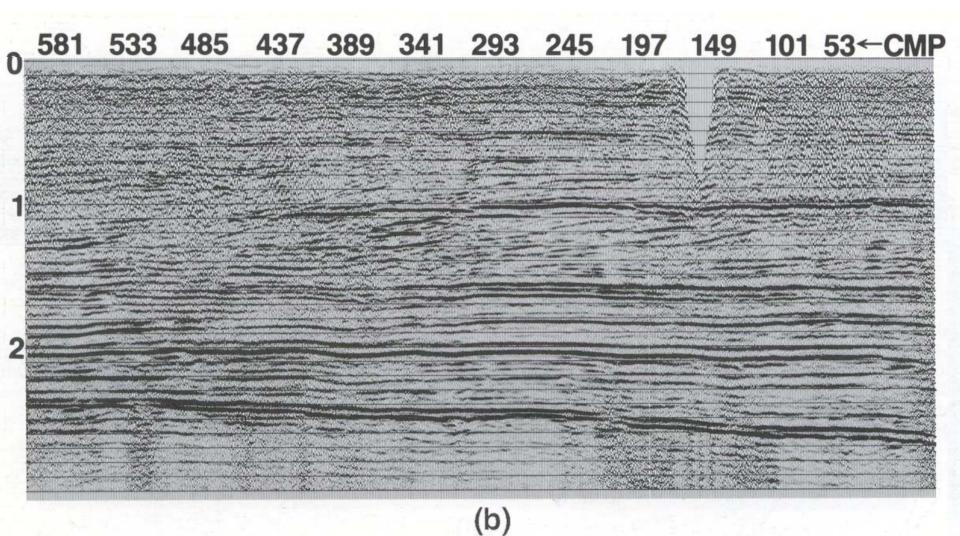
| 0 | 335 | 312 | 287 | 264 | 239 | 216 | 191 1 | 68 | 143 | 120 | <u>95←CMP</u> |
|---|-----|-----|-----|-----|-----|-----|-------|-----------|-----|-----|---------------|
| | | | | | | | | | | | |
| 2 | | | | | | | | | | | |

(b)

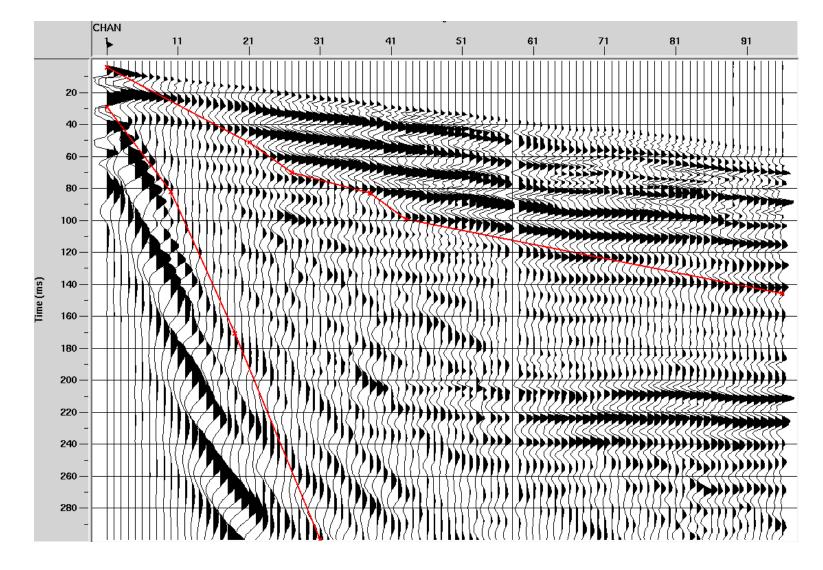


CMP 188

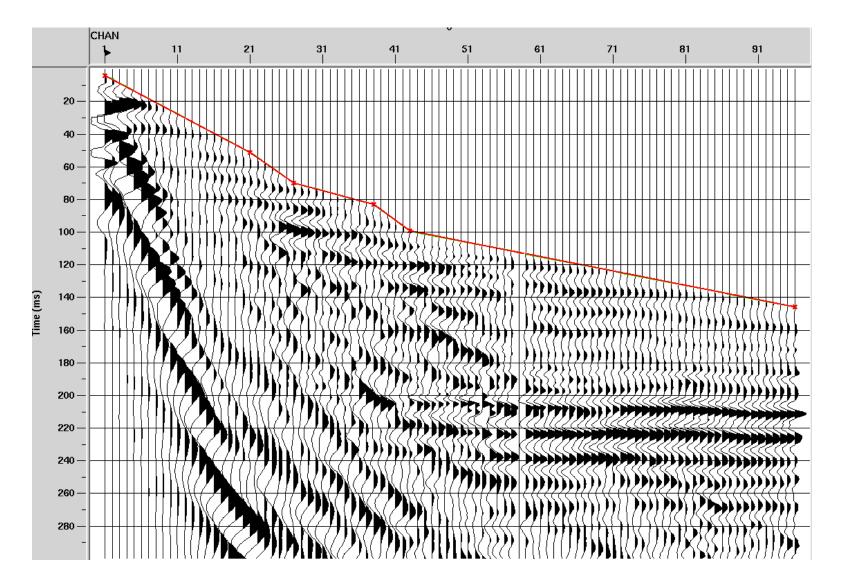
CMP stacks without and with residual stacking



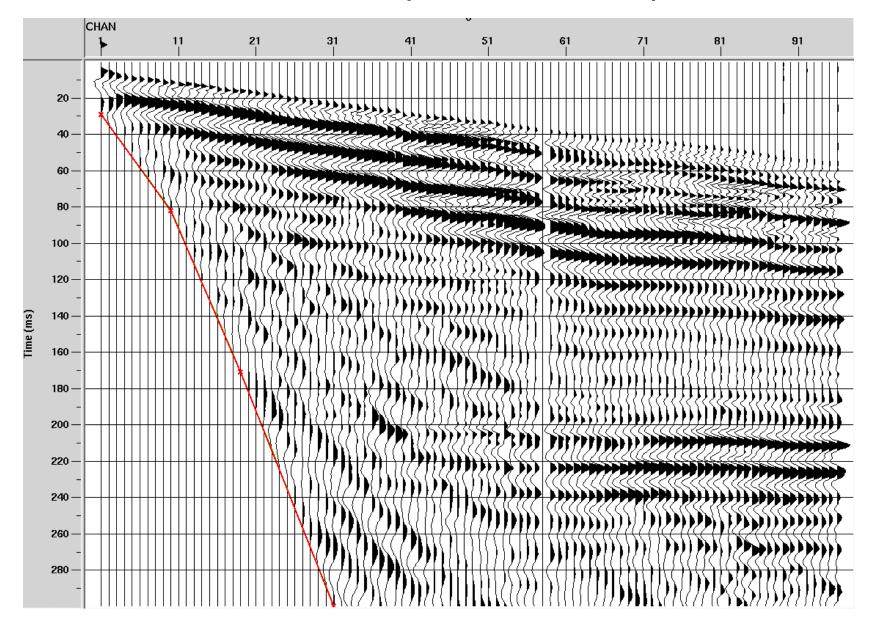
Muting



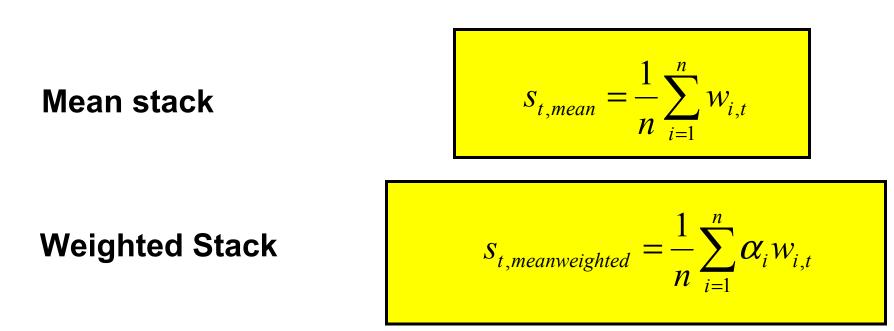
top mute (refractions)



bottom mute (interface waves)



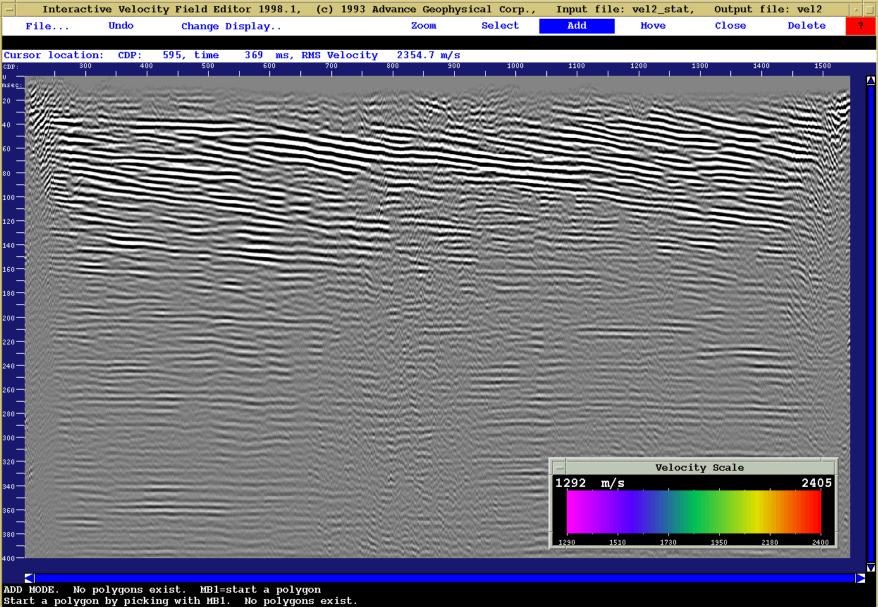
Methods to Stack



Diversity Stack/Min-Max-exclude

Certain traces are muted and not included in the stacking procedure

stacked section

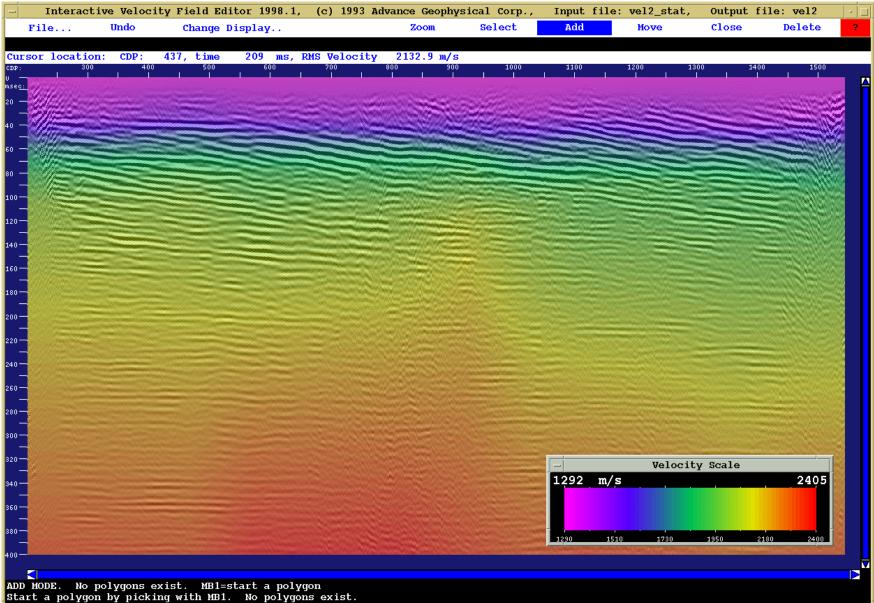


Velocity model

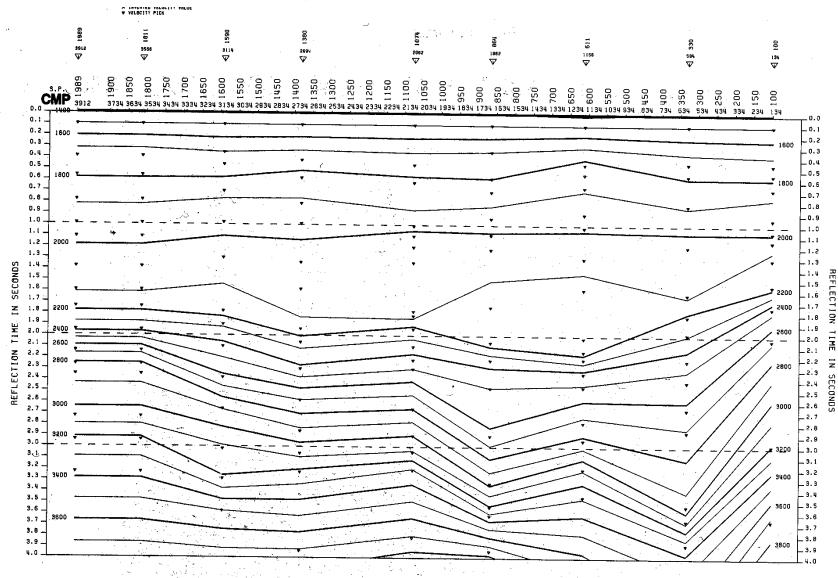
| - | Interact | ive Veloci | ty Field Ed | itor 1998.1, | (c) 1993 | Advance Geophys | ical Corp., | Input file: | vel2_stat, | Output file | a: vel2 | • 🗆 |
|---|------------|-------------|------------------|------------------|--------------------|-------------------------|-------------|-------------|------------|-------------|---------|-----|
| F | ile | Undo | Change I | Display | | Zoom | Select | Add | Move | Close | Delete | ? |
| | | | | | | | | | | | | |
| Curso | or locatio | | 419, time 500 | 104 ms, k 600 | MS Velocity 700 | y 2023.4 m/s 800 900 | 1000 | 1100 | 1200 1300 | 1400 | 1500 | |
| U mse <u>c:</u> | | | | | | | | | | I | | |
| 20 - | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | |
| - | | | | | | | | | | | | |
| 60 — _ | | | | | | | | | | | | |
| 80 — | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| - | | | | | | | | | | | | |
| 120- | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| - | | | | | | | | | | | | |
| 180 - | | | | | | | | | | | | |
| 200 — | | | | | | | | | | | | |
| 220- | | | | | | | | | | | | |
| 240 | | | | | | | | | | | | |
| - | | | | | | | | | | | | |
| 260 - | | | | | | | | | | | | |
| 280 — | | | | | | | | | | | | |
| 240 — 260 — 280 — 300 — 300 — | | | | | | | | | | | | |
| _ | | | | | | | | | | | | |
| 320 — — | | | | | | | | - | Velocity | Scale | | |
| 340 — | | | | | | | | 1292 m/s | | | 2405 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | 1290 1510 | 1730 | 1950 2180 | 2400 | |
| 400 — | | | | | | | | | | | | V |
| | | nolvgong ov | vict MR1- | start a polyg | ion | | | | | | | |

Start a polygon by picking with MB1. No polygons exist.

Velocity model

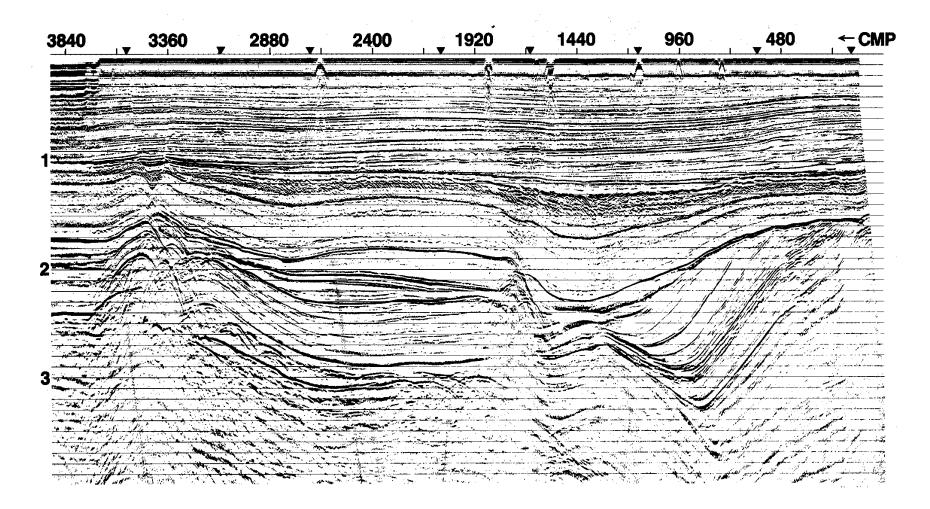


Stacking velocity field



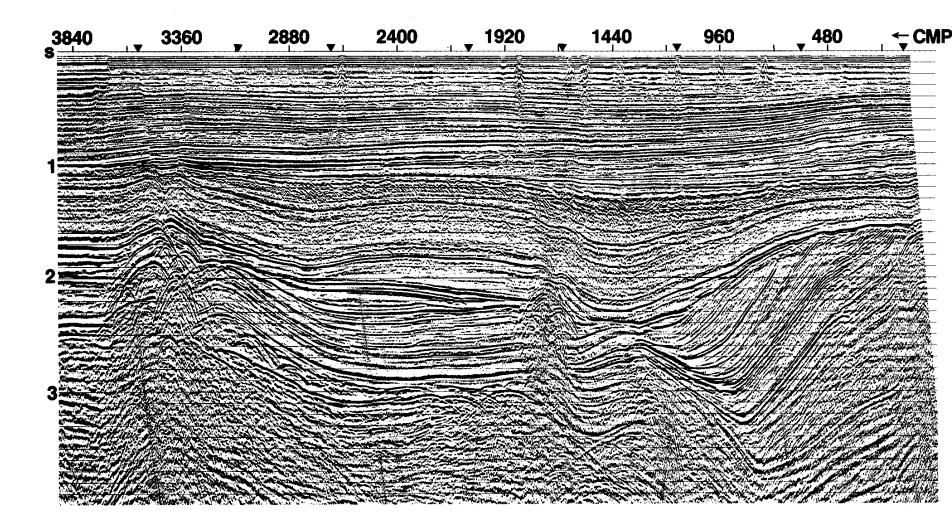
Yilmaz, 1987

CMP stack



Yilmaz, 1987

CMP stack using gain function



Yilmaz, 1987

Migrated CMP stack

