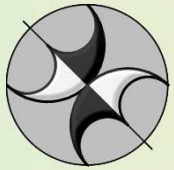
Building Velocity Model by Seismic Data

The velocity analysis for construction the medium velocity model:

- Fitting of RMS velocity by velovity spectra and
- Satleger approach in modification of level-by-level velocities studying.

  Interval velocity is selected from points where an axis of phase coherence on depth gather becomes horizontal. Varying by lateral velocity inside of a layer is fixed and in this way determined velocities do not depend on angles of inclination and curvature of boundary.
- To take into account thin-layering effects inside layers velocity of migration are calculated under Dix's formula.
- Examples of application of the velocity analysis for depth pre-stack migration are shown.



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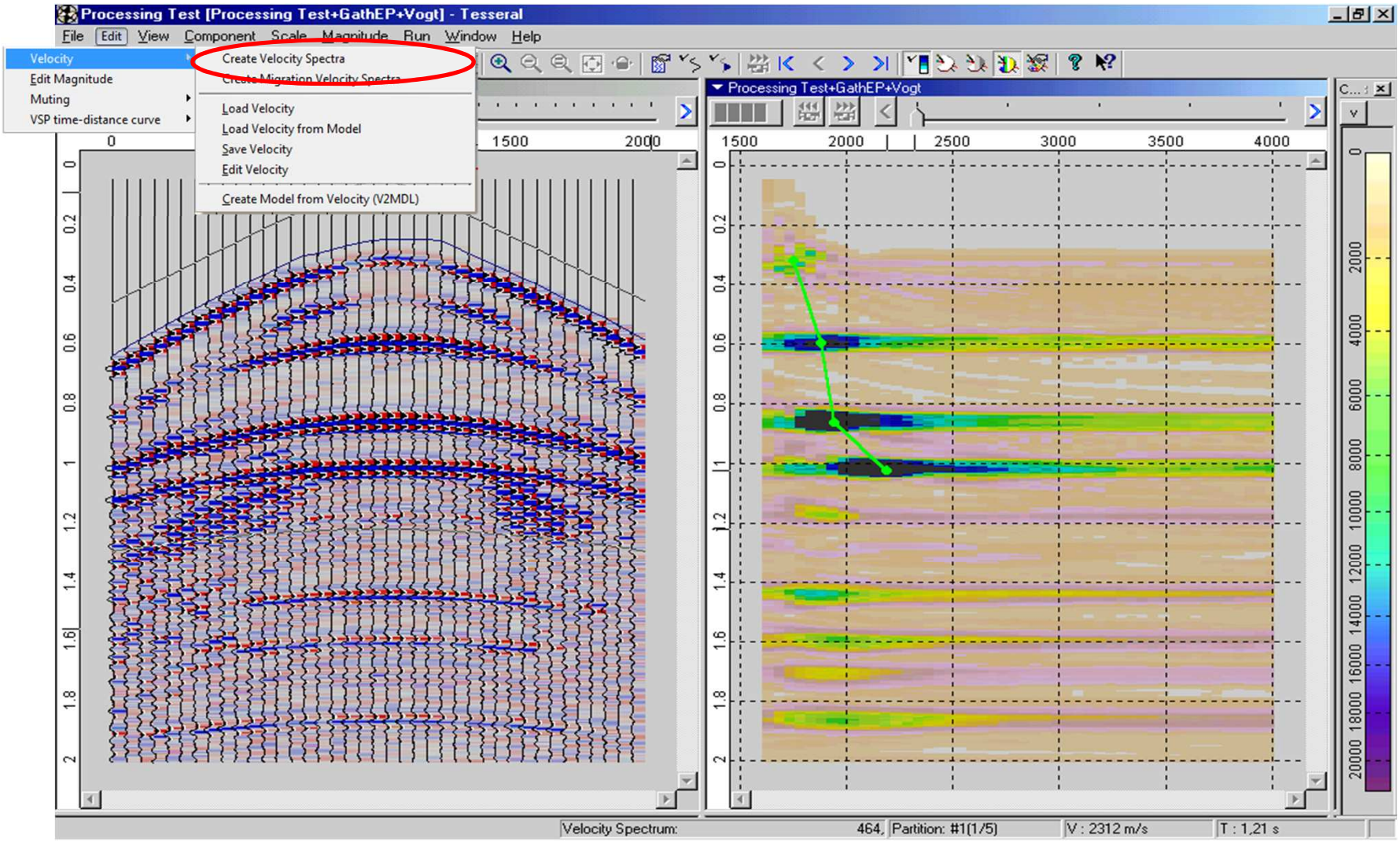
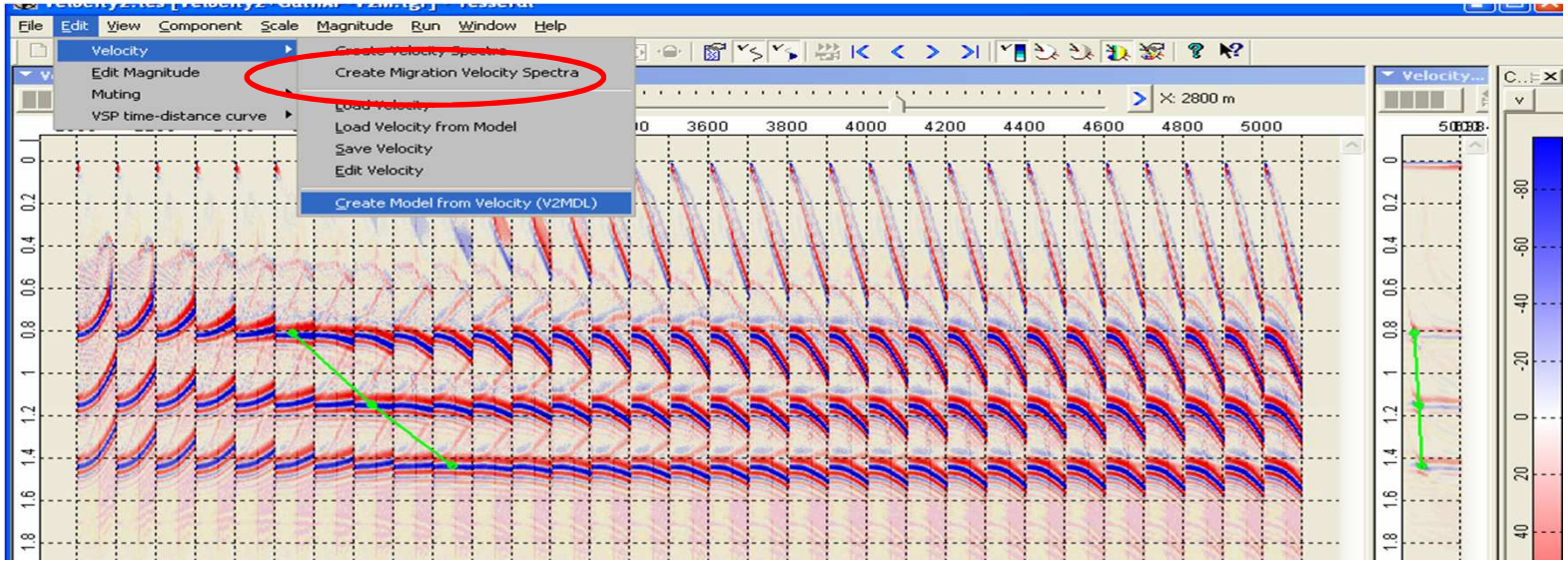
Velocity analysis



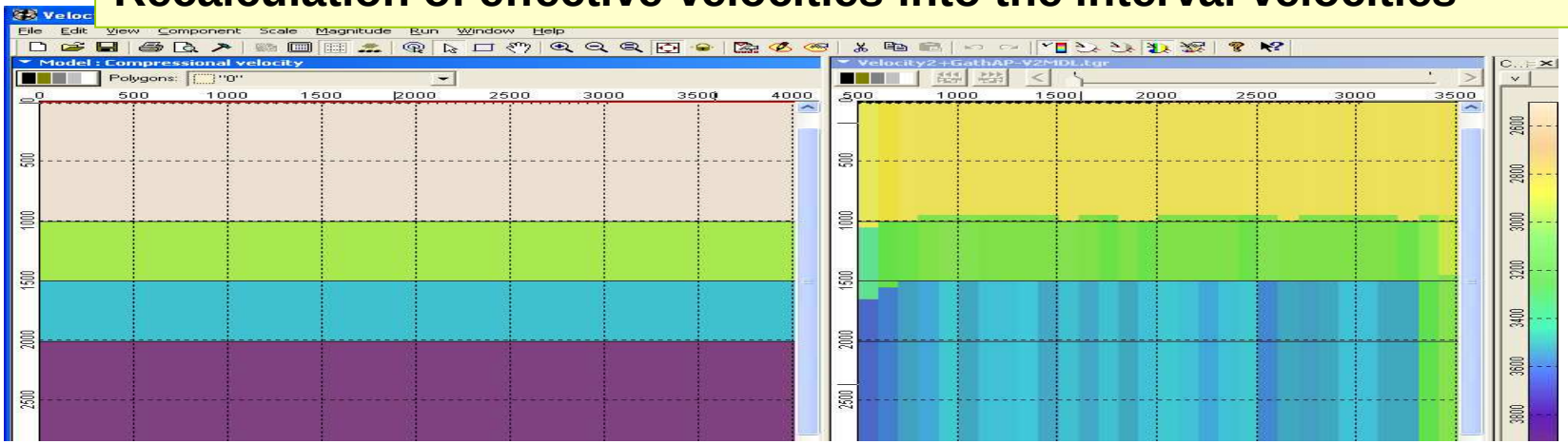
This feature is used for determining RMS velocities for the purposes of generating time cross-section (processing in time domain).

Velocity model building from seismic data



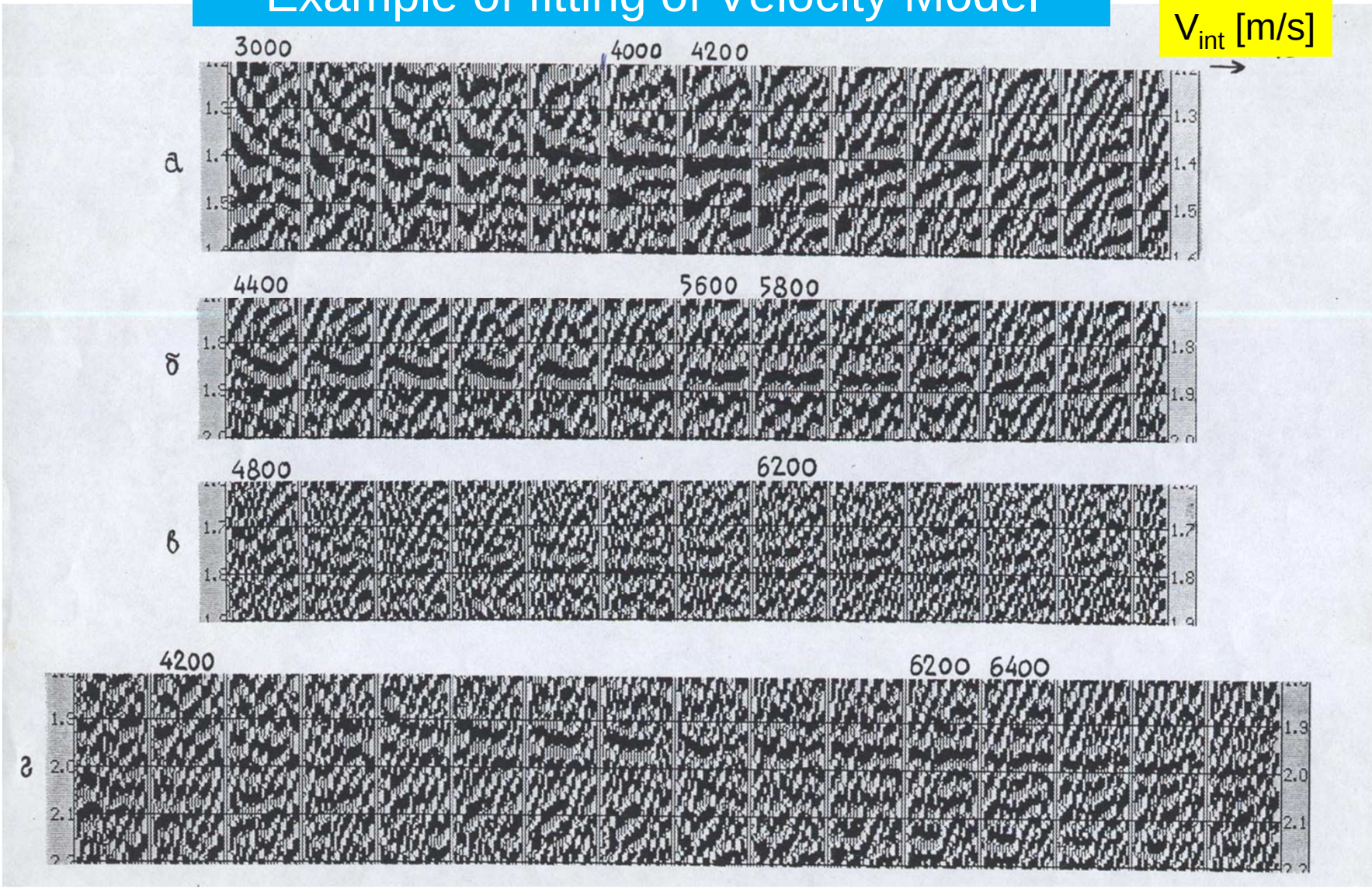
Realization of Sattlegger's method for determining of migration velocities

Recalculation of effective velocities into the interval velocities



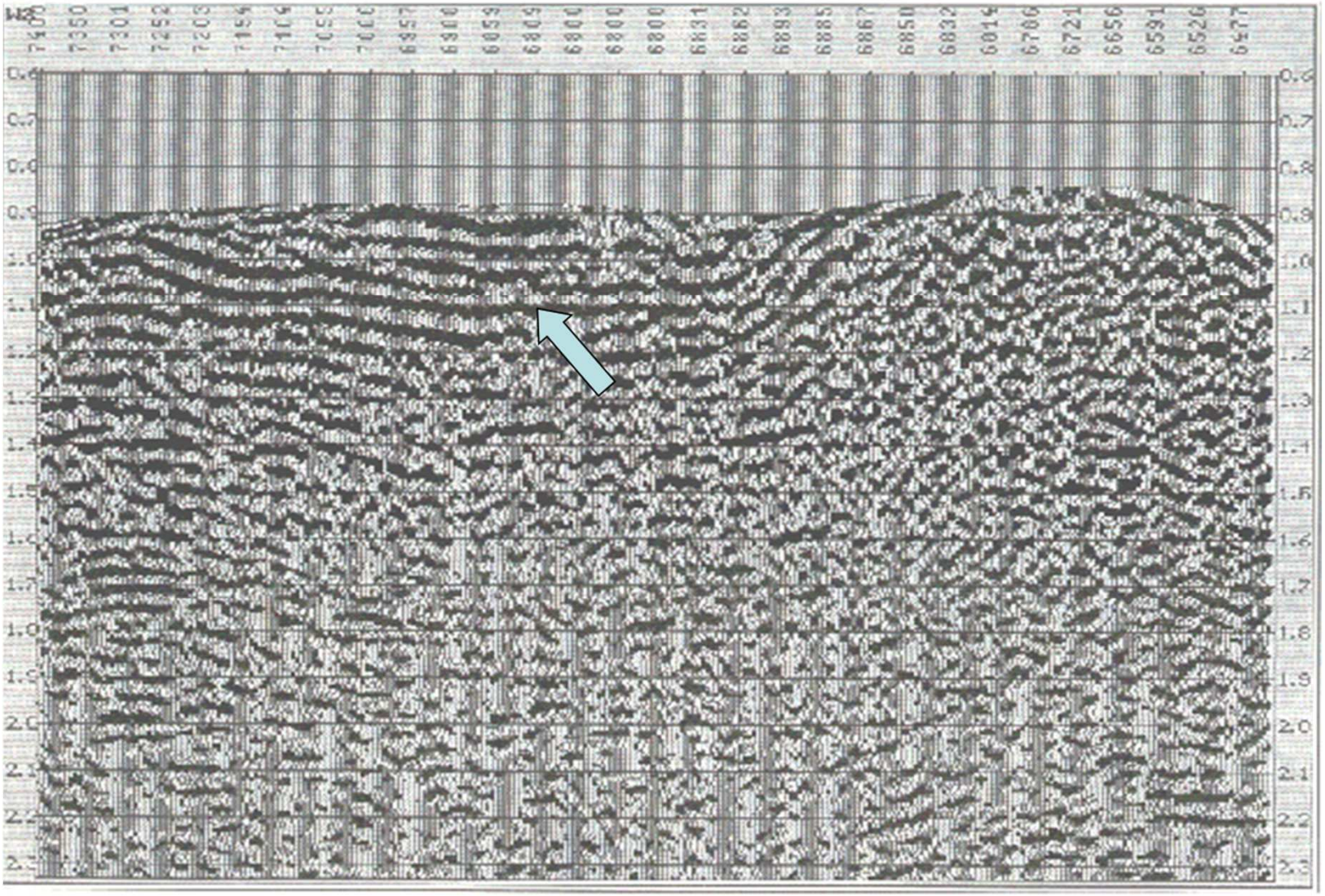
Create Model from Velocity (V2MDL) allows to convert RMS velocity columns (*.vel) into the model velocity grid (*.tgr) usually used in depth migration procedures.

Example of fitting of Velocity Model



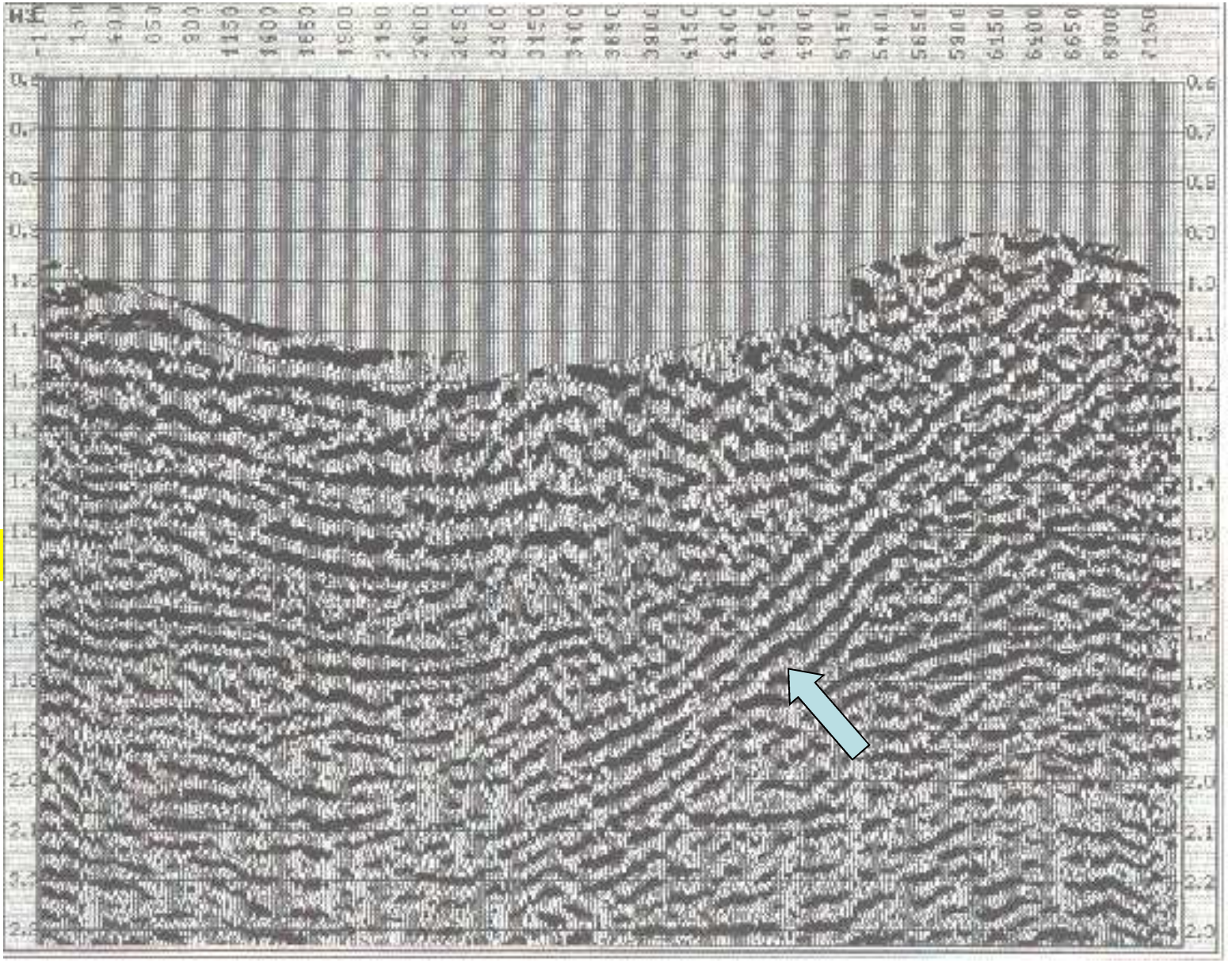
Fitting of interval migration velocities for different sites of a cross-section is shown.

VI

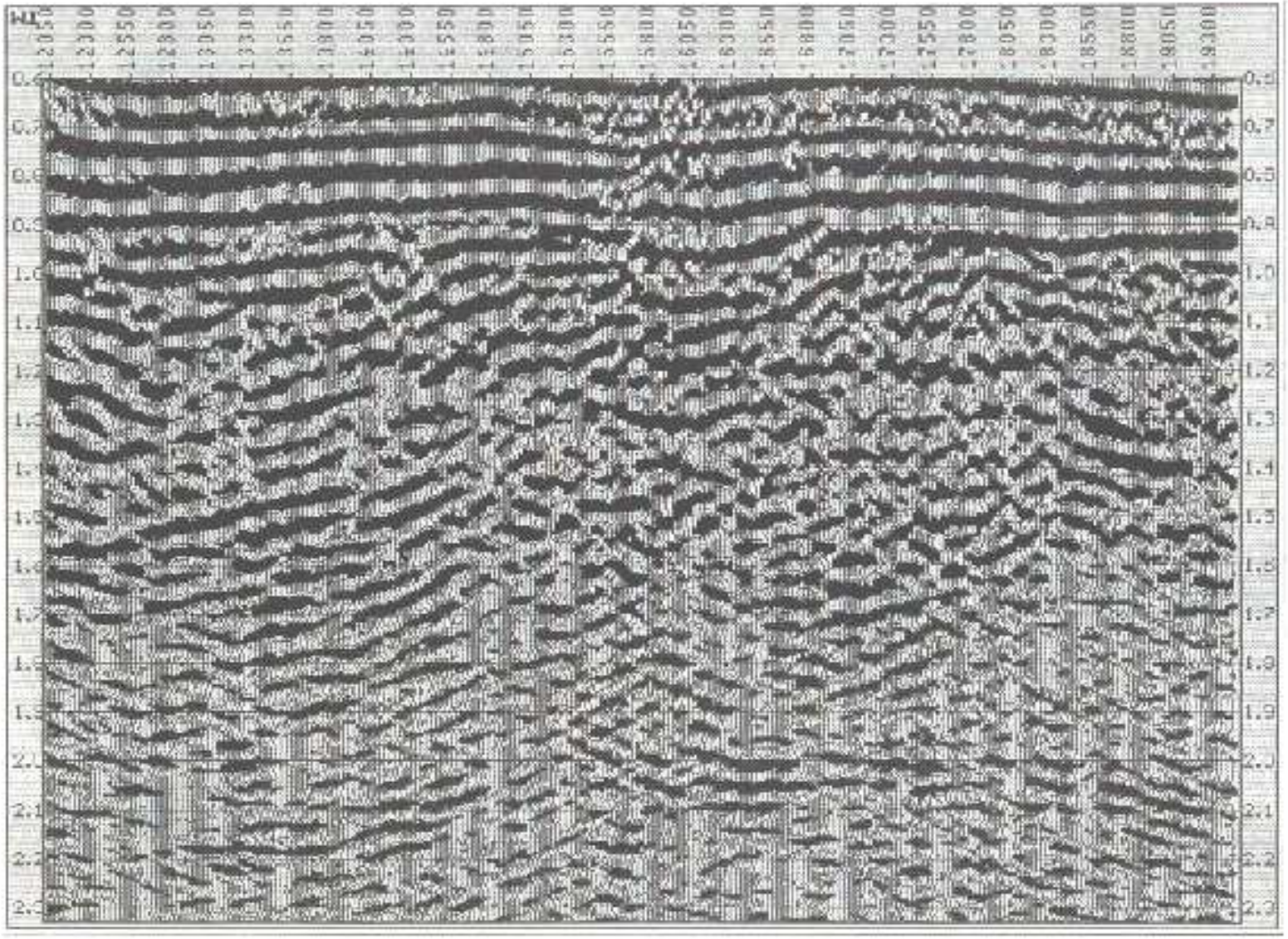


The result of depth pre-stack migration is shown after fitting of velocities for the of speeds for the upper horizon VI. Image enhancement for underlying horizon VIII is observed.

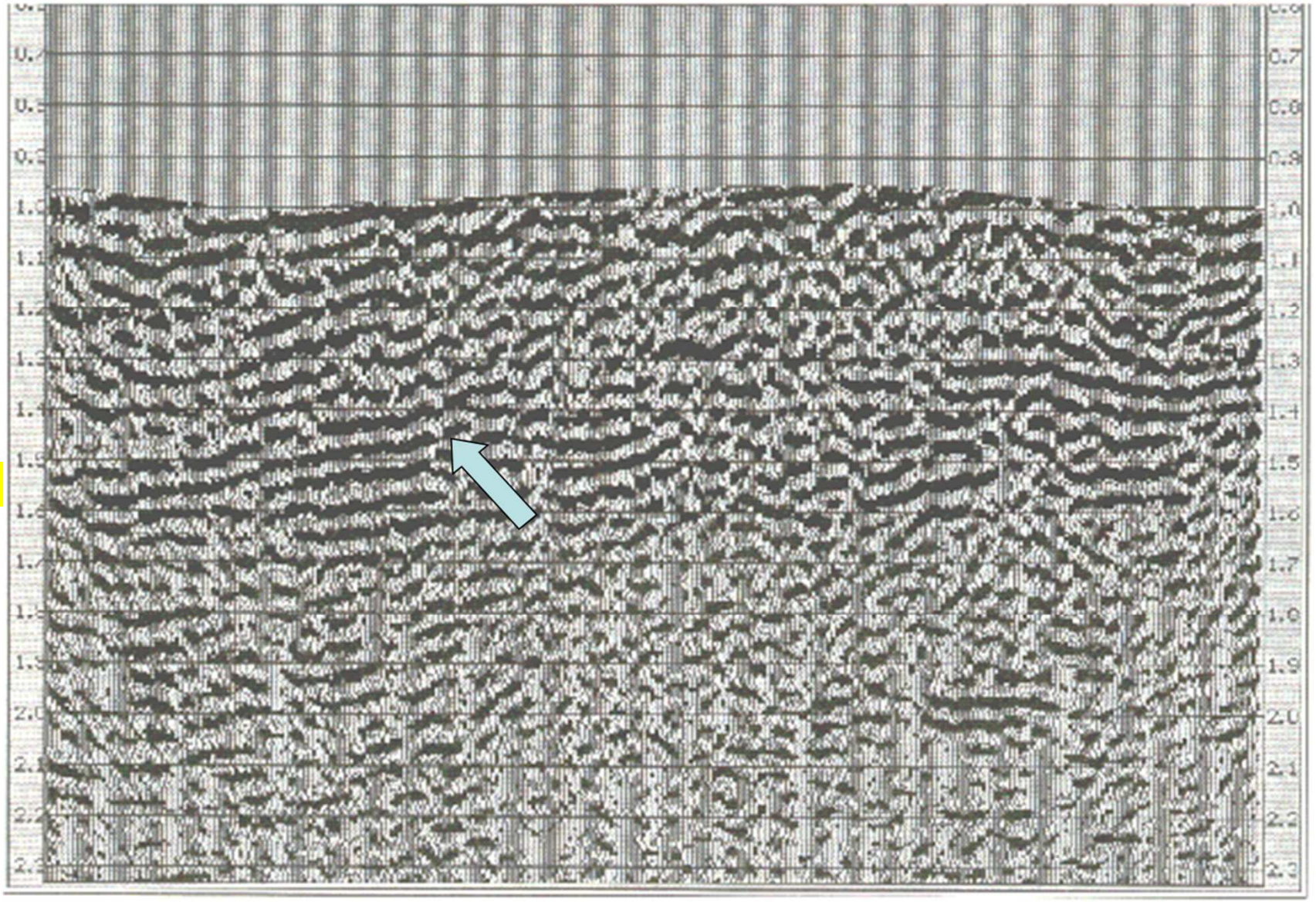
VIII



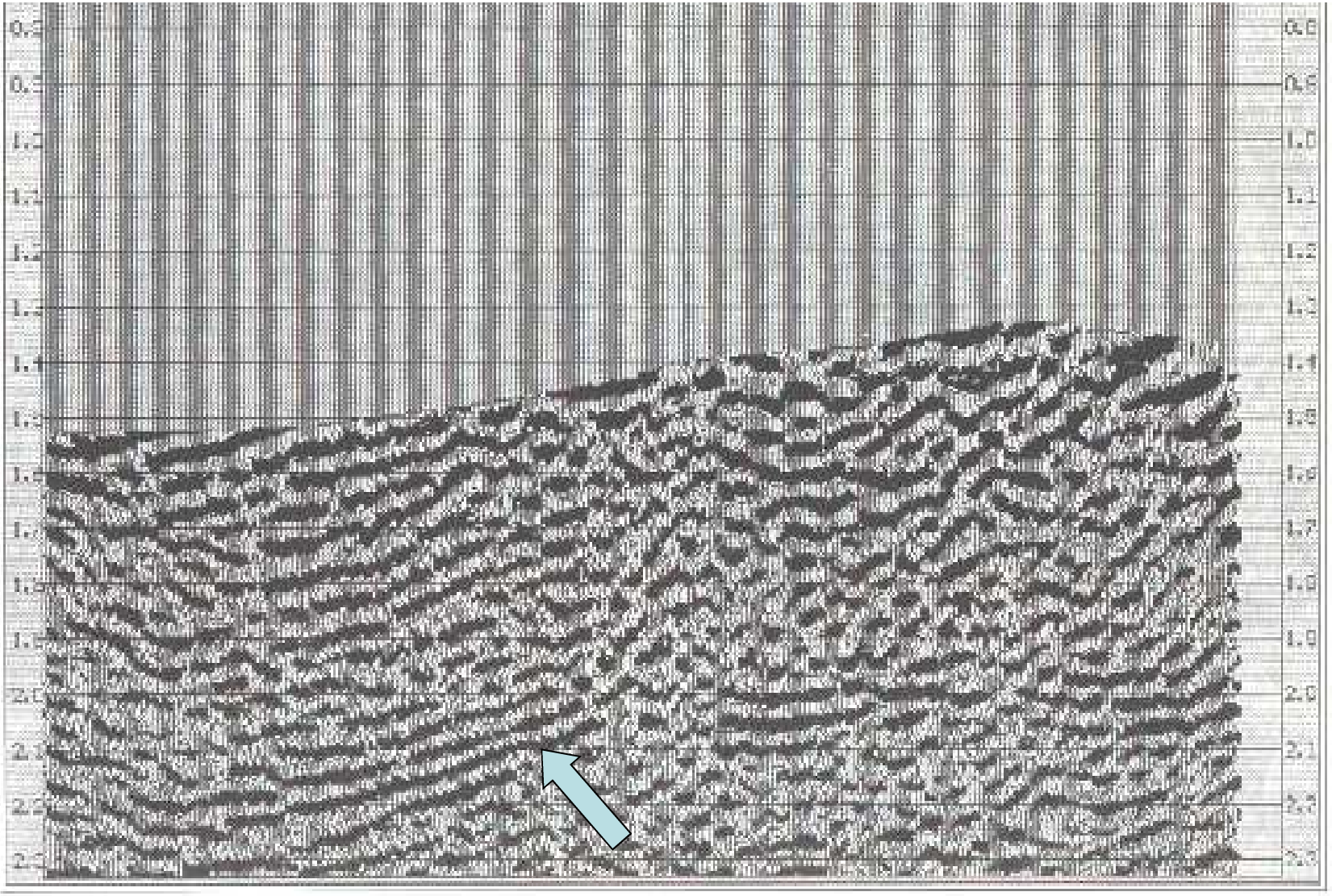
The result of depth pre-stack migration along B profile with velocities obtained by VSP data for horizon VIII is shown. Sharp image enhancement of underlying horizons especially is observed for well-known Balabanovsky thrust, shown by an arrow.



The result of time pre-stack migration along B profile with velocities obtained by VSP data is shown.



The result of depth pre-stack migration for fitting of velocities for the upper horizon VI is shown. Image enhancement of underlying horizon VIII is observed (It is shown by an arrow).



The result of depth pre-stack migration for fitting of velocities for horizon VIII is shown. Sharp image enhancement of underlaying horizons, especially is observed for horizon IXb (it is shown by an arrow).

End of Presentation