

Tsunami 3D Grid Tomography

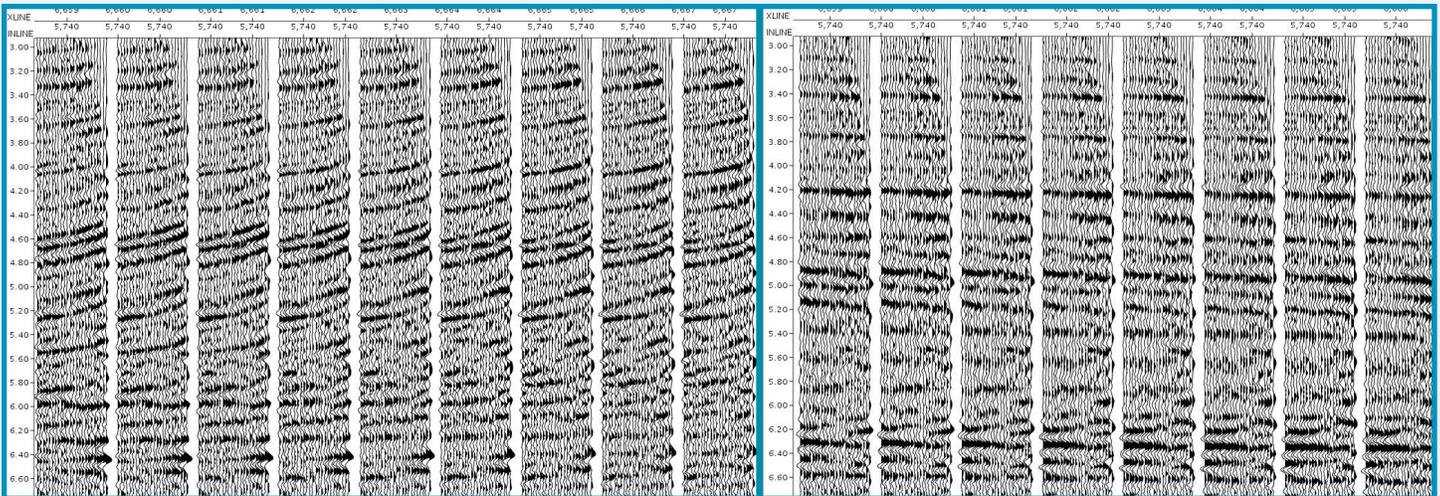
Improve depth imaging economics

Fast

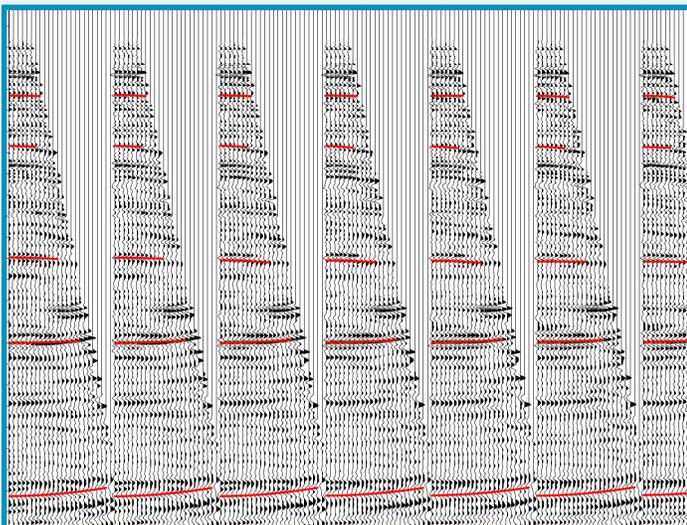
- Reduces iteration cycle time for velocity updates
- Reduces turn-around time of depth migration projects
- No internal ray tracing, uses travel time tables from migration to construct ray paths
- Runs parallel on multi-core systems

Easy to Use

- Grid-based method eliminates need for interpretation expertise
- Picks do not need to track horizons
- Flexibility to pick whatever events the user wants or sees



Above are images of PSDM migrated gathers. The set on the left are before an iteration of Tsunami Tomography, the set on right are after. The results on the right are more flat, more events are imaged, and the signal strength of the events is much stronger.

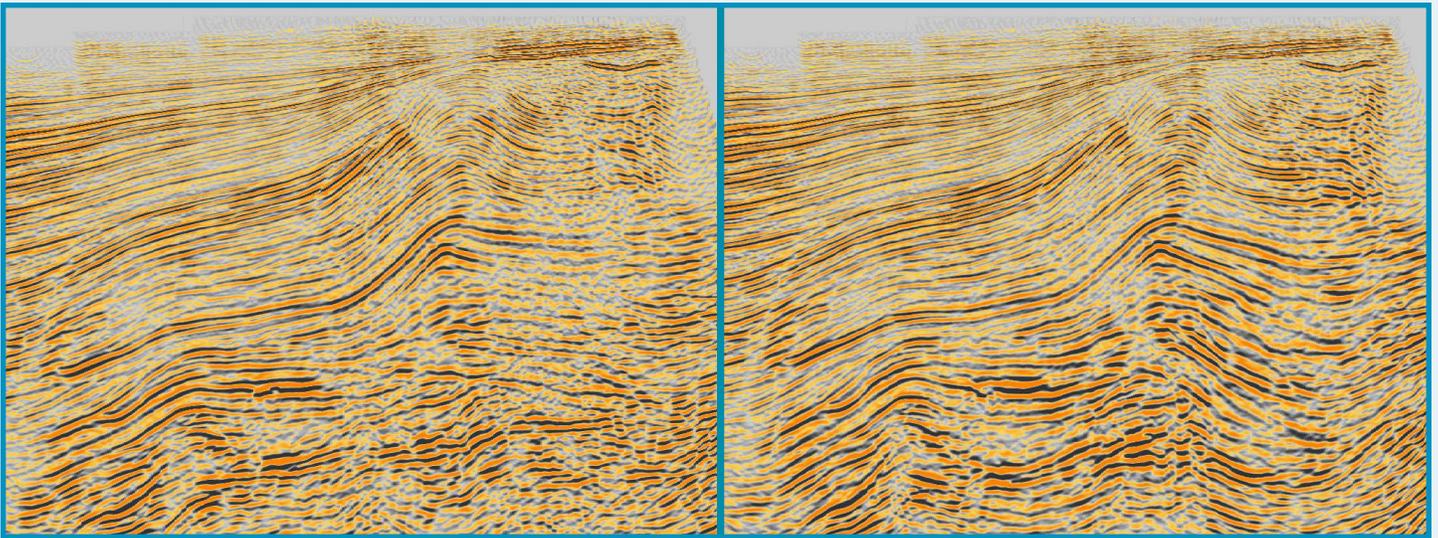


Auto pick residual moveout

- Auto-picker works directly on depth gathers.
- Picks can be displayed in INTViewer for QC
- Picks can be hyperbolic or non-hyperbolic
- Seeds for the picks can be supplied manually or from horizon data
- Multiple horizons can be picked simultaneously

Picks from Tsunami Auto-picker using hyperbolic option.

Better velocities produce a better image



Above are stack sections from the PSDM output. The section on the left is before an iteration of Tsunami Tomography, the section on the right is after. The iteration of tomography provided a much better image of the anticline on the right side of the section. The signal strength is stronger, the image extends further to the right, and the structure is positioned much better in depth. The lower structure of the anticline now conforms to its structure higher up in the section providing a more geologically consistent solution.

Accurate

- Doesn't introduce errors due to conversion of depth gathers and picks to the time domain
- Uses identical ray paths from the migration
- Stability and accuracy improve with increasing number of picks
- Multiple QC displays
- User may limit velocity changes:
 - Hold water and salt velocities constant
 - Hold shallow velocities constant
 - % maximum velocity change