A creative tool for first-break picking

1. High productivity originating from innovation

In onshore seismic processing the first break time is commonly used for computing static. The number of acquisition channels has increased rapidly in the past three decades. As a result, the first-break picking has been one of the most burdensome tasks for the processor. For the complicated near-surface it consumes even more than a half of the project cycle time.

WiseBreak is a novel tool which decreases greatly the workload of first-break picking and alleviates the processor's distress.

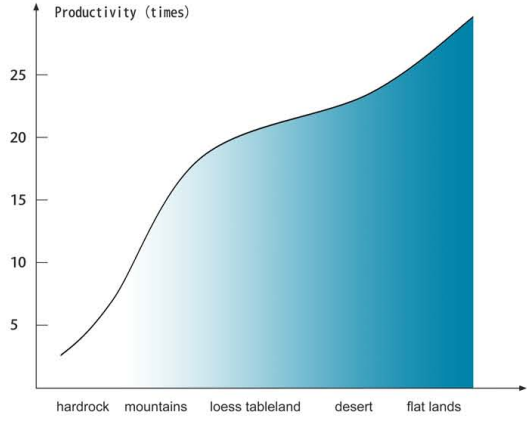

Figure 1. Productivity curve

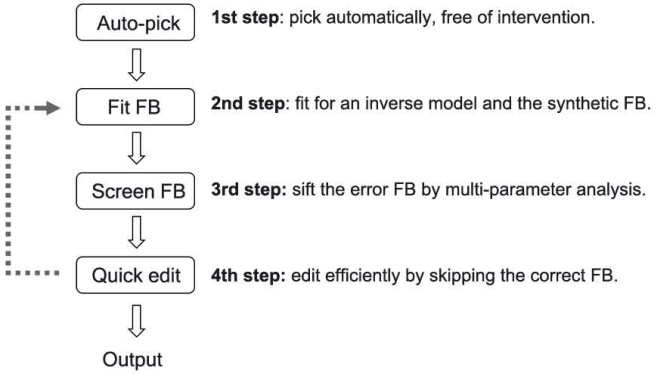

Figure 2. Proceessing flow

2. Auto-pick

With special algorithms developed by Wisedone Geophysical, the auto-picking module performs excellently: (1) free of processor intervention; (2) skipping automatically empty(all-zero) traces and low SNR traces; (3) high accuracy, even for low SNR vibroseis data.

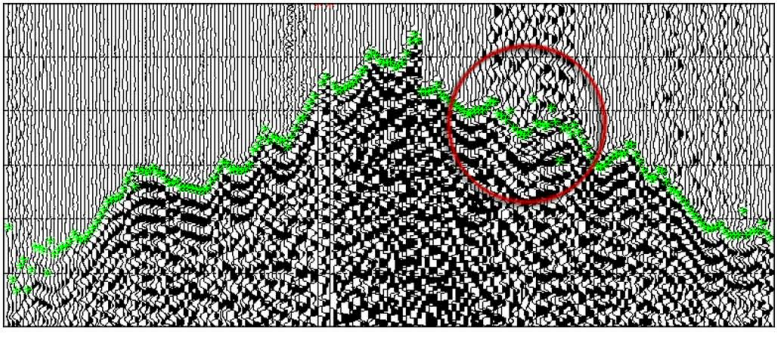

Figure 3. High accuracy of auto-picking for noisy traces

3. Fit and Screen FB

By optimizing FBs iteratively for the LVL model inversion, the synthetic FB time is calculated precisely after fitting. Screening intelligently the FB by evaluating several attributes of seismic data.

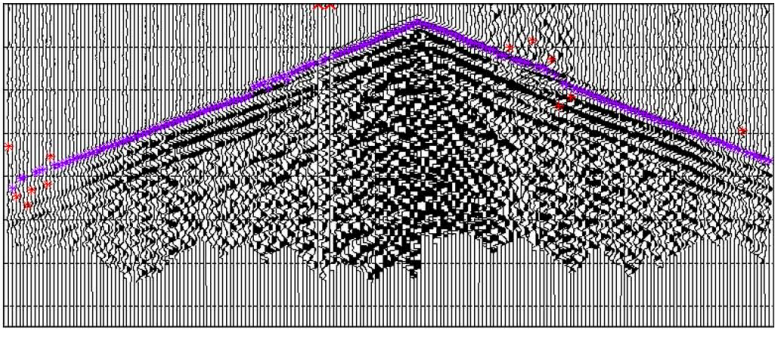

Figure 4. Display with pyramidal correction After fitting

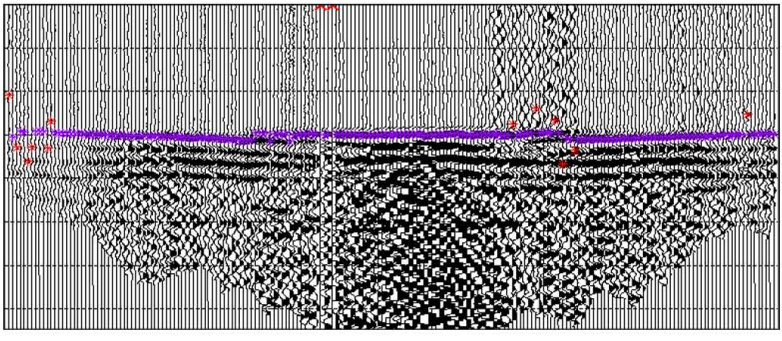

Figure 5. Display with flat correction After fitting

4. Edit manually with high efficiency

(1) The workload of editing is reduced greatly in the “error-FB-only” mode.

(2) Edit more than one shot each time, even the whole FB file.

(3) Switch among three correction patterns to tackle difficult data.

(4) Pick the FB more precisely by using the model FB time as the guidance.

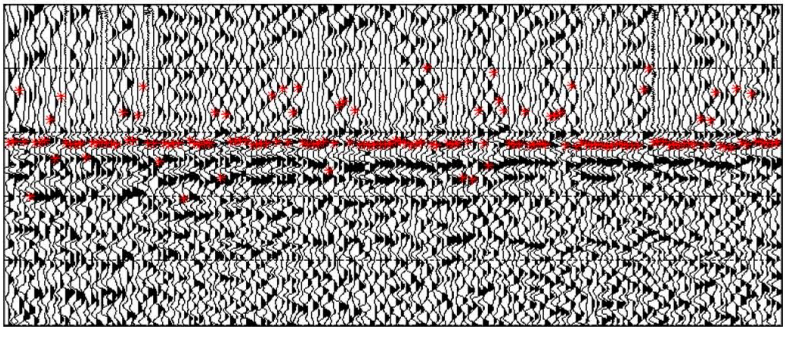

Figure 6. Edit only the error FB and hide the correct

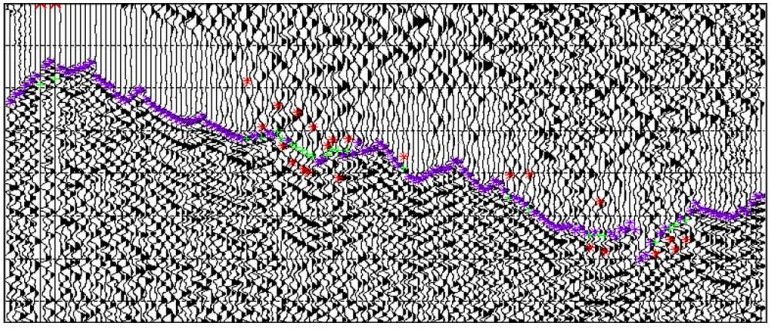

Figure 7. The synthetic FB marked by green plus guides editing

5. Suitable for various situations

（1）On-site processing：directly delete the error FB, or modify selectively after auto-picking, fitting and screening.

（2）Elaborate processing：process iteratively the loop of “fit-screen-edit” by several times.

（3）For Tomostatic: divide the picking offset range into several segments for the complicated survey.

（4）For vibroseis data: with model FBs as refrences, the edited FBs can be aligned easily to the identical events among adjacent shots.

（5）Also suitable for seismic data of coalfield, or coalbed methane.

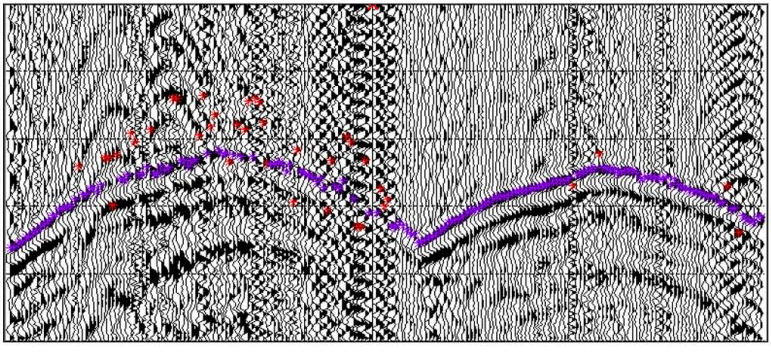

Figure 8. Vibroseis example 1 of auto-picking

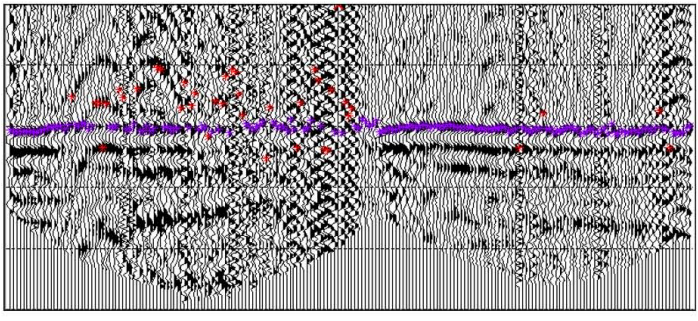

Figure 9. Vibroseis example 1 (in flat correction) after fitting and screening

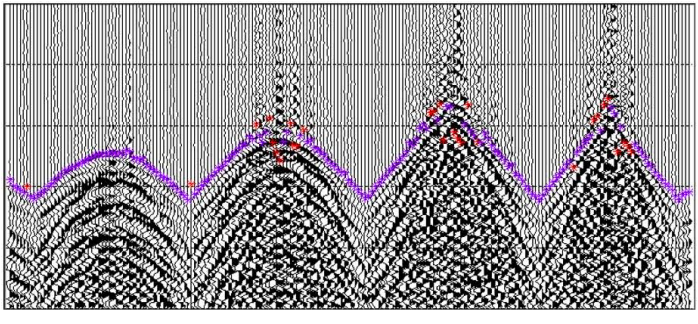

Figure 10. Vibroseis example 2 of auto-picking

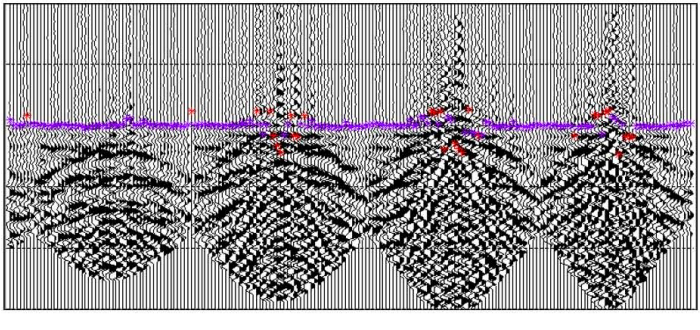

Figure 11. Vibroseis example 2 (in flat correction) after fitting and screening

6. Customized configuration

WiseBreak can run on the 64-bit Linux and Windows (or virtual machine）, which may includes any number of each licensed module. The licenses can be shared on the network.

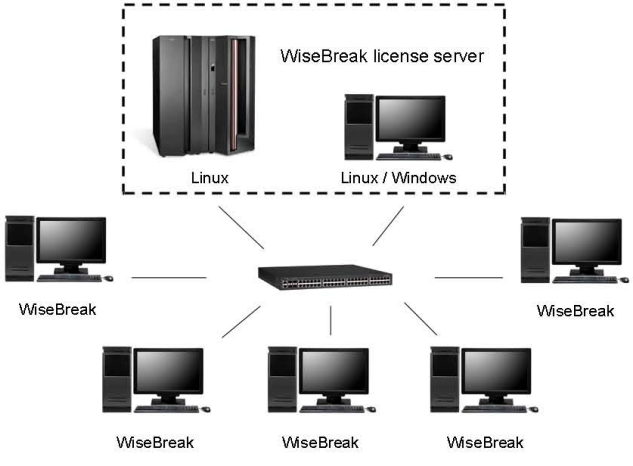

Figure 12. Configuration on demand

7. WiseBreak features

（1）High quality auto-picking FB because of advanced algorithms.

（2）Better model FB by eliminating the error FB iteratively while fitting. Good screening results by multi-parameter analysis.

（3）Precise FB time picked manually by using the model FB as guidance.

（4）Much more higher productivity of editing by skipping the “correct” FB.

（5）Cope with difficult data by switching among three correction patterns and between two editing modes.

（6）Deal widely with diverse data, including vibroseis data, high resolution data for coalfield, etc.

（7）Applicable to both on-site monitoring processing and elaborate processing.

（8）Totally the same flow for both 2D and 3D data.

（9）Better static originated from better FB provided by WiseBreak.

（10）Customized configuration for any client.

Full concentration makes competitive products

www.wisedone.cn

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