

90~ 693

接收点之间的初
[分别推导出透射
到二维块状介质
正公式, 避免了高
型中用逐段迭代
所述方法是一种

折射点的一阶修正公式。

方法原理

折射波逐段迭代射线追踪原理

图 1 为二维层状介质的逐段迭代射线追踪示意图, 首先给出连接炮点 S 和接收点 R 之间的初始折射射线路径 $S P_1 P$



将式(3)代入式(2), 仅保留一阶小量, 最终得到

$$S_x = \frac{v_1 h e_1 - c_1 v_2}{v_2 d_1 - v_1 (p_1 e_1 + l_1 f \ddot{\alpha}_1)} \quad (4)$$

式中

$$c_1 = a_1 + b_1 f(x_2)$$

$$d_1 = 1 + (f(x_2))^2 + b_1 f(x_2)$$

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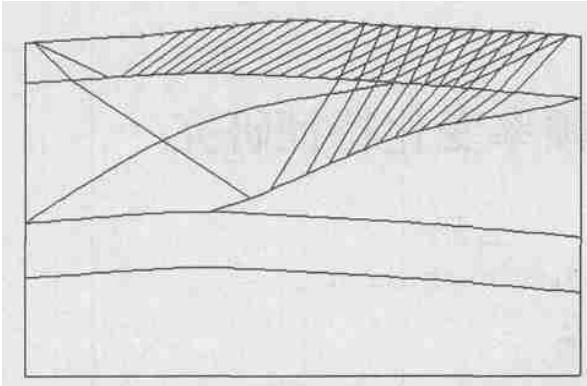


图 4b 图 4a 模型共炮点折射波射线追踪结果

24 个检波器放置在起伏地表(图中用叉号表示), 第一层底部和第二个尖灭层的底部定义为折射线, 射线追踪的精度为 0.1m

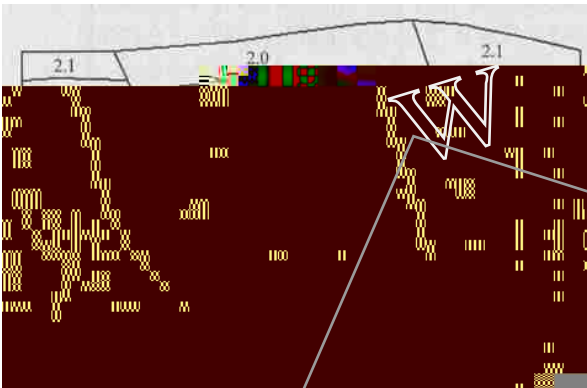


图 5a 复杂组合模型及其速度结构(数值单位: km/s)

组合模型包含正断层、逆断层、侵入体和透镜体等, 模型

in the paper and difference and link with sequence stratigraphy are also discussed. On that basis, the paper systematically discussed the applied mechanism of seismic analysis of reservoir evolution and practical applied results.

Key words: sedimentary evolution seismic exploration, lithologic seismic exploration, sequence-stratigraphy

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Wavefield characters of 2-D elastic random medium. Xi Xian and Yao Yao 2004, 39 (6): 679~685

Through the staggered-grid finite-difference forward modeling of wave equation, the paper modeled the propagation of seismic wave in 2-D elastic random medium and self-excited and self-received time-records; comparison of acoustic wave with elastic wave is made in layered random medium model, which showed that both have big difference. In order to study the wavefield characters in 2-D elastic random medium model, we divided the theoretical records into three different time segments and computed three statistical characteristic values of section separately in three different time segments: laterally central frequency, vertically central frequency and relative value of wavefield energy. Then, corresponding to each elastic random medium model, 9 different wavefield-characterized values are obtained by computation. Finally, through studying the changed characters corresponding to characteristic values of wavefield when medium models are changed; the conclusion that closely related the model characters (self-correlation length and roughness of random medium etc.) to wavefield characters (disturbed frequency and energy of recorded section etc.): the statistic characteristic values of wavefield strongly rely on statistic characters of medium, such as correlation length and roughness etc.; the seismic records corresponding to random medium models are characterized by complex wavefield such as scattered wave and seismic wave tail.

Key words: random medium model, elastic wavefield modeling, wavefield character, statistic characteristic value

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Smear-eliminated technique of image used for fault detection. Lu Wen-kai, Zhang Shan-wen and Xiao Huan-qin. OGP, 2004, 39 (6): 686~689, 696

3D post-migration seismic data volume provided

a great number of information for seismic interpretation. Because of influence of aperture of migration operator, the image of 3D seismic data volume in space is smeared after migration, which is unfavorable for detecting the faults. Therefore, the paper presented using smear-eliminated technique of image to enhance fault information of 3D seismic data volume. The nature of the method is to take observed image as convolution of true image with expansion function at a point, and the smear-eliminated technique of image is to eliminate the influence of expansion function at the point by multi-dimension deconvolution, then adding coherent analysis resulted in high-resolution image. The method is of benefit for fault detection.

Key words: fault detection, smear-eliminated technique of image, coherent analysis

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Refraction ray

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