

碳酸盐岩储层多角度弹性阻抗流体识别方法

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摘要 碳酸盐岩储层的AVO响应要比碎屑岩储层响应微弱, 因此, 弹性阻抗(EI)即使在确定了最佳入射角的情况下, 要判断碳酸盐岩储层中的流体性质, 依然十分困难. 本文提出了一种多角度扩展弹性阻抗(MEEI)反演进行碳酸盐岩储层流体识别方法. 利用已有钻井的测井数据, 通过计算目的层段的MEEI, 建立相应的含流体模式, 进而建立了碳酸盐岩储层流体检测中的有效气水判据. 通过不同入射角下EEI随入射角变化的不同趋势, 可以有效识别储层中含气或含水情况, 判别储层好坏. 本文方法的有效性在四川盆地某地区实际资料应用中取得了良好的流体检测效果.

关键词 [扩展弹性阻抗](#) [多角度反演](#) [流体判据](#) [气水识别](#) [碳酸盐岩储层](#)

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Discriminating gas and water using multi-angle extended elastic impedance inversion in carbonate reservoirs

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Abstract AVO response for carbonate reservoirs is fainter than the crack reservoirs. So it is very hard to discriminate gas and water in carbonate reservoirs using elastic impedance (EI), even under the optimal incident angle. In this paper, we propose a novel method for discriminating gas and water using multi-angle extended elastic impedance (MEEI) inversion in carbonate reservoirs. We establish the fluid-bearing patterns and effective criterion for discriminating gas and water by computing MEEI of target layers using the known well data. MEEI inversion of real seismic data shows that we can judge whether the reservoir is good or bad and is gas-bearing or water-bearing by observing EEI trend varying with various incident angles. The efficiency of the proposed methods is validated by the application of real data in Sichuan basin.

Key words [Extended elastic impedance](#) [Multi-angle analysis](#) [Fluid criterion](#) [Gas and water discrimination](#) [Carbonate reservoirs](#)

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