时空移动成像条件及偏移速度分析

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摘要　首先比较了深度聚焦速度分析和剩余曲率速度分析中的成像条件，然后通过时空移动成像条件得到了时移偏移距域共成像点道集和时移角度域共成像点道集.基于时移角度域共成像点道集，统一了偏移速度分析中通常应用的两个偏移速度判断准则：深度聚焦准则和成像道集拉平准则.最后基于时移角度域共成像点道集，推导了速度更新公式，并设计了速度分析流程.合成数据和实际地震资料上的测试证明了方法的可行性和有效性.

Space-time-shift imaging condition and migration velocity analysis

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Abstract The imaging conditions of the depth-focusing velocity analysis and residual curvature velocity analysis are firstly compared. And then the time-shift offset domain common image gathers (TSODCIGs) and time-shift angle domain common image gathers (TSADCIGs) through the space-time-shift imaging condition are presented. According to the discussion on the TSADCIGs, the two criteria (depth-focusing criterion and flattening imaging gathers criterion) which were usually used by migration velocity analysis were unified together. Finally, based on the TSADCIGs, velocity update formulae were derived. A migration velocity analysis (MVA) workflow based on the time-shift common image gathers (TSCIG) was designed. This approach was numerically tested on synthetic and real seismic data. The numerical results demonstrated that the approach was feasible and effective for MVA.

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