Wave Inversion Technology, Report No. 1, pages 217-218

– Review – Anisotropy

Dirk Gajewski[1]

Gajewski et al present several expressions for the moveout velocity from a horizontal reflector in arbitrary anisotropic media. The derived exact relations are particularly suitable for efficient modeling of reflection moveout.The approximate moveout relation provides the foundation for inversion of moveout velocities in arbitrary but weakly anisotropic media. The range of applicability of the weak anisotropy approximation for moveout velocities is demonstrated by numerical examples.

T. Ruedas and E. Tessmer describe a numerical algorithm for seismic forward modeling in 2D transversely isotropic media based on a spectral Chebyshev-Fourier method. In particular, the implementation of boundary conditions at the free surface with topography for a transversely isotropic medium is treated. Also boundary conditions at an interface between acoustic and transversely isotropic materials can be handled by the algorithm. The modeling results show very good agreement with analytical solutions.

M. Zillmer, D. Gajewski and B.M. Kashtan calculate an explicit formula for the reflection coefficient of plane compressional waves which are reflected at a medium with a set of parallel vertical microcracks. The model represents the reflection from the top of a reservoir. The reflection amplitudes depend on the azimuth of the receiver position with respect to the orientation of the microcracks. The approximate formula directly links the parameters of the fractured rock with the AVOA response (Amplitude Versus Offset and Azimuth).

[1]**email:** gajewski@dkrz.de