

Seismic Parameter Estimation Using Approximations to Zoeppritz Equations by Evolutionary Programming

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Abstract

Zoeppritz equations are based in acoustic foundations and are elementary tools to study the behavior of the waves that travels through stratified media. They are used to solve the tetra-partition energy on a multilayered model interfaces without difficulties to be computed. However it is difficult to make general conclusions about the model parameters without regard to the large seismic volume data since they require great time computing. Therefore here the idea to optimize the time computing process for using the Zoeppritz equations. The transmission and reflection coefficients computing depends on the incident angle, densities and P and S wave velocities. Nevertheless this computing turns out in a highly no-linear process, therefore different methodologies have been proposed even dough making assumptions to linearize the processes and can use linear regressions. In this work we applied some of the approximations for the Zoeppritz equations found in classical literature, we made comparisons among them and other classical inversion techniques.

References

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