

ONE-WAY VERSIONS OF THE KIRCHHOFF INTEGRAL FOR ELASTIC DATA (2-24)

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In our paper "One-way versions of the Kirchhoff integral for acoustic data" (2-23) it was shown that the well-known two-way Kirchhoff integral can be reformulated into one-way Kirchhoff integrals, which describe extrapolation of either downgoing or upgoing primary waves through arbitrary inhomogeneous acoustic media. In this paper we will reformulate the full elastic two-way Kirchhoff integral into one-way Kirchhoff integrals, which describe extrapolation of either downgoing or upgoing primary compressional or shear waves through arbitrarily inhomogeneous, anisotropic full elastic media. It is interesting to note that these full elastic one-way Kirchhoff integrals have the same simple form as the acoustic one-way Kirchhoff integrals. Therefore, also full elastic one-way migration need not be much more complicated than acoustic one-way migration. For instance, if we want to image (angle-dependent) P-S reflectivity, we can use our standard shot record migration algorithm in which we substitute one-way Kirchhoff integrals for downgoing primary P-waves and upgoing primary S-waves. The principle will be further discussed during the presentation. Some examples are presented in the paper "Modelling and migration of elastic data" (2-11).

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50th annual EAEG meeting, The Hague