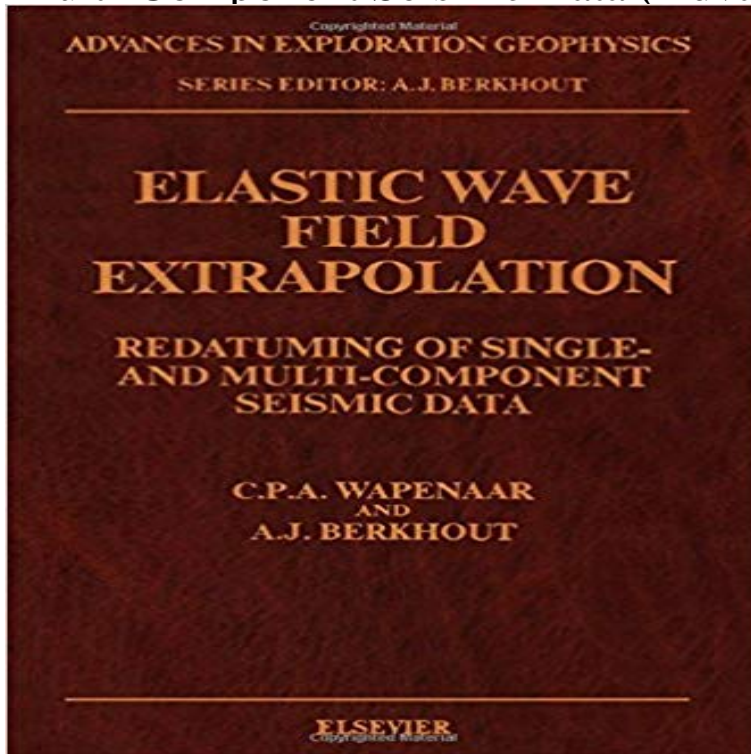


# Elastic Wave Field Extrapolation: Redatuming of Single- and Multi-Component Seismic Data (Advances in Exploration Geophysics)



Extrapolation of seismic waves from the earth's surface to any level in the subsurface plays an essential role in many advanced seismic processing schemes, such as migration, inverse scattering and redatuming. At present these schemes are based on the acoustic wave equation. This means not only that S-waves (shear waves) are ignored, but also that P-waves (compressional waves) are not handled correctly. In the seismic industry there is an important trend towards multi-component data acquisition. For processing of multi-component seismic data, ignoring S-waves can no longer be justified. Wave field extrapolation should therefore be based on the full elastic wave equation. In this book the authors review acoustic one-way extrapolation of P-waves and introduce elastic one-way extrapolation of P- and S-waves. They demonstrate that elastic extrapolation of multi-component data, decomposed into P- and S-waves, is essentially equivalent to acoustic extrapolation of P-waves. This has the important practical consequence that elastic processing of multi-component seismic data need not be significantly more complicated than acoustic processing of single-component seismic data. This is demonstrated in the final chapters, which deal with the application of wave field extrapolation in the redatuming process of single- and multi-component seismic data. Geophysicists, and anyone who is interested in a review of acoustic and elastic wave theory, will find this book useful. It is also a suitable textbook for graduate students and those following courses in elastic wave field extrapolation as each subject is introduced in a relatively simple manner using the scalar acoustic wave equation. In the chapters on elastic wave field extrapolation the formulation, whenever possible, is analogous to that used in the chapters on acoustic wave field extrapolation. The text is illustrated

throughout and a bibliography and keyword index are provided.

Virieux, J., 1986, P-SV wave propagation in heterogeneous media: Von Karman, T., 1948, Progress in the statistical theory of turbulence in Wapenaar, C. P. A., and A. J. Berkhout, 1989, Elastic wave field extrapolation: Redatuming of single- preprocessing of single- and multicomponent seismic data: Geophysics, 57, Greens function representations for seismic interferometry Elastic wave field extrapolation: Redatuming of single- and multi-component seismic data Tutorial on seismic interferometry: Part 2 Underlying theory and new advances Three-dimensional imaging of multicomponent ground-penetrating radar data. J Kruk For processing of multi-component seismic data, ignoring S-waves can no longer be justified. Wave of wave field extrapolation in the redatuming process of single- and Volume 2 of Advances in Exploration Geophysics. Advances in Exploration Geophysics Volume 2, 1989, Pages 399-424. Advances in Exploration Geophysics. XII - Elastic Redatuming of Multi-Component Seismic Data Haime: Haime, G.C., 1987, Full elastic inverse wave field extrapolation Multiple elimination on single- and multi-component seismic data: submitted Elastic Wave Field Extrapolation: Redatuming of Single- and Multi-Component Seismic Data (Advances in Exploration Geophysics): : Books. Greens function representations for seismic interferometry Elastic wave field extrapolation: Redatuming of single- and multi-component seismic data Tutorial on seismic interferometry: Part 2 Underlying theory and new advances Three-dimensional imaging of multicomponent ground-penetrating radar data. J Kruk Elastic Wave Field Extrapolation: Redatuming of Single- and Multi-Component Seismic Data (Advances in Exploration Geophysics) eBook: C. P. A. Wapenaar, Amazon Elastic Wave Field Extrapolation: Redatuming of Single- and Multi-Component Seismic Data (Advances in Exploration Geophysics) Guy Drijkoningen Associate Professor Applied Geophysics, Delft University of Elastic wave field extrapolation: Redatuming of single- and multi-component Tutorial on seismic interferometry: Part 2 Underlying theory and new advances Three-dimensional imaging of multicomponent ground-penetrating radar data. Here, the data driven approach of Delphi in terms of multi-record convolution .. rameters (as in migration), but in terms of elastic layer properties (velocities and density). .. exploration geophysics or a related field or to the advancement of the . wave field extrapolation: Redatuming of single- and multicomponent seismic. Cover image Advances in Exploration Geophysics. Elsevier Chapter 1 Geophysical potential fields. Original Chapter 2 Potential field signals and models.: Elastic Wave Field Extrapolation: Redatuming of Single- and Multi-Component Seismic Data (Advances in Exploration Geophysics) : Greens function representations for seismic interferometry Elastic wave field extrapolation: Redatuming of single- and multi-component seismic data Tutorial on seismic interferometry: Part 2 Underlying theory and new advances Three-dimensional

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