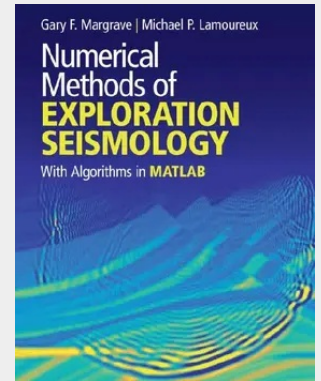


Numerical Methods of Exploration Seismology

Exploration seismology uses seismic imaging to form detailed images of the Earth's interior, enabling the location of likely petroleum targets. Due to the size of seismic datasets, sophisticated numerical algorithms are required. This book provides a technical guide to the essential algorithms and computational aspects of data processing, covering the theory and methods of seismic imaging. The first part introduces an extensive online library of MATLAB® seismic data processing codes maintained by the CREWES project at the University of Calgary. Later chapters then focus on digital signal theory and relevant aspects of wave propagation and seismic modelling, followed by deconvolution and seismic migration methods. Presenting a rigorous explanation of how to construct seismic images, it provides readers with practical tools and codes to pursue research projects and analyses. It is ideal for advanced students and researchers in applied geophysics, and for practicing exploration geoscientists in the oil and gas industry.

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