Automatic Faults Tracking from Seismic Data Using the Wavelet Transform Modulus Maxima Lines (WTMM) Method

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Abstract

The aim of this work is to implant a new fault tracking technique based on the wavelet analysis of seismic data. The wavelet transform of 2D seismic data is calculated using the Gaussian filter as an analyzing wavelet; maxima of this modulus are then mapped for all scales. Mapped maxima for large scales are then only kept, this mapped maxima are able to track faults in a given seismic section. Application to synthetic and real data of Gulf of Mexico shows really the power of the WTMM method for the Automated Fault Interpretation. The implanted method can help greatly in the interpretation of faults in 3D seismic volumes, which is a tedious task, influenced by predefined bias of the interpreter.