

SEISMIC DATA INTERPRETATION IMPROVEMENT BY THE MULTISCALE ANALYSIS OF GRAVITY DATA USING THE WAVELET TRANSFORM. APPLICATION TO ALGERIAN SAHARA

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Abstract:

The main goal of this paper is to show the efficiency of the 2D wavelet transform on the improvement of the seismic data interpretation of an area located in the Algerian Sahara. Bouguer is processed with a regular grid of 500m. Maxima of the modulus of the continuous wavelet transform using the Poisson's Kernel analyzing wavelet are mapped and then faults are identified based on the position of maxima of the modulus of the continuous wavelet transform. Application to the real data of the area and comparison with the identified faults based on a 2D seismic data interpretation, shows that the multiscale analysis of gravity data using the Poisson's Kernel can greatly improve the seismic data interpretation and drilling implantation. The power of the continuous wavelet transform analysis is originate on the analogy between the modulus of the continuous wavelet transform and the upward continuation.

Keywords: 2D wavelet transform, multiscale analysis, Bouguer anomaly, maxima, mapping, seismic interpretation.