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A new method of edge detection based on the total horizontal derivative and the modulus of full tensor gravity gradient

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ABSTRACT

With the rapid development of gravity gradient measurement, the full tensor gravity gradient data has been used more and more frequently in the edge detection. This article focus on the problem that the effect of edge detection of deep geological body is not clear and false edges among positive and negative anomalies using the common edge detection method. We present a new edge detection method which is based on the total horizontal derivative and the modulus of full tensor gravity gradient. Comparing with the model experiments, it is proved that this method is more clear and accurate in detecting the edges of geological body especially for the deep model with almost no false edges interference. Finally, the method is applied to the processing of the actual data in St. Georges Bay, Canada, and the edge results are satisfying.

Keywords: Edge detection, total horizontal derivative, modulus of full tensor gravity gradient

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