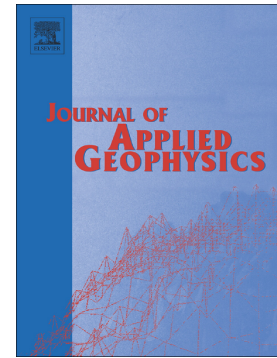


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**Efficient 3D inversion of potential field data using fast proximal objective
function optimization algorithm**

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ABSTRACT

One of the key issues in three-dimensional (3D) potential field data inversion is computational efficiency. We have developed an efficient 3D potential field data inversion method using fast proximal objective function (FPOF) optimization algorithm. A distinguishing feature of the proposed inversion method is to calculate each unknown element in the model space independently at each iteration. In addition, based on subsequent data misfits in the iterative process, we design a computationally efficient method to choose an appropriate regularization parameter. We take gravity data inversion as an example and apply the proposed inversion method to synthetic data contaminated with noise. The results demonstrate that the proposed method provides almost identical results as the conventional conjugate gradient (CG) method, however, with a significant reduction in the execution time. Lastly, an application on real field data acquired in the Western China is carried out,

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