

论文

合成孔径瞬变电磁成像数值模拟

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摘要:

借鉴合成孔径雷达中合成孔径的思想,对虚拟波场数据进行处理,即相关合成处理,就是将传统的以剖面为主的处理方式发展成为以测点为中心的多孔径合成及逐点推移多次覆盖的处理方法,达到提高信噪比、突出弱异常进而提高分辨率、加大勘探深度的目的。通过对理论模型数据的处理,验证了该方法的有效性。对不同理论模型的处理表明,相关合成达到了增强有用信号,提高信噪比,提高分辨率的效果。证明合成孔径瞬变电磁成像数值计算的可行性与有效性。

关键词: 瞬变电磁法; 合成孔径; 相关; 反滤波; 波场变换

Imaging simulation of synthetic aperture transient electromagnetic

Abstract:

Drew lesson from the synthetic aperture radar, and made the further processing to the fictitious wave field data, that was correlation and synthesizing processing. Specifically, developed the traditional mode of processing that mainly based on profiles into a new method, in which, several apertures synthesis with the measure point as the center, lapse point by point, finally, multiple coverage was adopted. In hopes to improves the signal to noise ratio, highlight the abnormal, improves the resolution and increases the exploration depth. Through the processing of theoretical model data, verified the effectiveness of this method. The different theoretical model processing suggests that related to enhanced synthesis of useful signal, to improve the signal to noise ratio, resolution enhancement effect. The feasibility and validity of synthetic aperture of transient electromagnetic imaging numerical calculation was demonstrated.

Keywords: transient electromagnetic method; synthetic aperture; correlation; inverse filtering; wave field transform

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