勘探地球物理进展 2006 29 (5): 373-376 ISSN: 1671-8585 CN: 32-1664/TE 当期目录 上一期 下一期

应用实例

剖面重力高阶水平导数在地热勘查中的应用

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收稿日期 2006-1-26 修回日期 2006-4-16 网络版发布日期 2009-8-10 接受日期

摘要 目前剖面重力资料处理主要采用布格重力异常正演拟合以及求取其一阶水平导数，在应用方面尚存欠缺，为此提出重视重力剖面高阶水平导数的应用。其目的是发挥布格重力异常的高阶水平导数的优势，突出浅部地质体的重力场特征，压制区域性深部地质体的重力场，区分相邻地质体引起的叠加异常。采用最小二乘法演算了布格重力异常高阶水平导数的计算过程，对计算和使用中涉及的圆滑处理、区间选择等相关问题进行了简略探讨，并列举了在地热勘察中利用高阶水平导数提高重力资料解释效果的实例。

关键词 高阶水平导数；重力资料；地热勘察；解释

Application of higher order horizontal derivatives of profile gravity in geothermal investigation

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Abstract It should be stressed the applications of higher horizontal derivatives of gravitational profile because mostly the fitting of Bouguer gravity anomaly and its first order horizontal derivative is used in practice. Higher order horizontal derivatives of Bouguer gravity anomaly have advantages in highlighting shallower geologic bodies, suppressing regional deeper geological factors and distinguishing anomalies that are caused by adjacent geological bodies. Least-square technique is used to calculate the higher order horizontal derivatives of Bouguer gravity anomaly, and problems associated the calculation such as line smoothing and interval selecting are discussed. An example is given to demonstrate the application effect of higher order horizontal derivatives in geothermal investigation.

Key words higher horizontal derivatives; gravity; geothermal investigation; interpretation

分类号

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