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航磁垂直梯度调整ΔT水平方法研究

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Leveling total field aeromagnetic data with measured vertical gradient

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摘要 使用中国自主研发、具有完全自主知识产权的航磁全轴梯度勘查系统首次试飞获得的资料,利用航磁垂直梯度数据进行ΔT水平调整研究,讨论了航磁及航磁梯度资料水平调整的原则,提出梯度资料长波水平的调平方法.对经长波水平调整后的垂直梯度数据进行位场转换,获得不受地磁场随时间变化影响的磁异常,并通过恢复磁异常的长波信息,实现了ΔT的水平调整和增强.实际资料处理表明调平过程具有物理意义、效果明显.

关键词 航磁总场, 航磁梯度, 水平调整, 长波信息

Abstract: China has successfully developed three axis airborne magnetic gradiometer with self-owned intellectual property rights, and carried out vertical and horizontal gradients measurements for the first time. Based on the measured gradient data, we realized total field aeromagnetic data leveling with vertical gradient data. We discussed the principle of aeromagnetic or gradient data leveling and proposed the leveling method for long wavelength component in gradient data. The total field anomalies which contain no diurnal variation can be transformed from leveled vertical gradient data. The long wavelength errors can be estimated from the difference between the total fields and reconstruction. We added this long wavelength component to the total fields transformed and generate a well leveled total field map. Practical data processing shows that the leveling process has geophysical implications, and the leveling effect is remarkable.

Keywords Aeromagnetic total field, Aeromagnetic gradient, Leveling, Long wavelength information

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