

引用本文(Citation):

杨文采, 王家林, 钟慧智, 陈冰.塔里木盆地航磁场分析与磁源体结构. 地球物理学报, 2012,55(4): 1278-1287,doi: 10.6038/j.issn.0001-5733.2012.04.023

YANG Wen-Cai, WANG Jia-Lin, ZHONG Hui-Zhi, CHEN Bing. Analysis of regional magnetic field and source structure in Tarim Basin. Chinese J. Geophys. (in Chinese), 2012, 55(4): 1278-1287, doi: 10.6038/j.issn.0001-5733.2012.04.023

塔里木盆地航磁场分析与磁源体结构

杨文采¹, 王家林², 钟慧智², 陈冰^{2*}

1. 大地构造与动力学国家重点实验室 中国地质科学院地质研究所, 北京 100037;
2. 同济大学海洋与地球科学学院, 上海 200092

Analysis of regional magnetic field and source structure in Tarim Basin

YANG Wen-Cai¹, WANG Jia-Lin², ZHONG Hui-Zhi², CHEN Bing^{2*}

1. State Lab of Continental Tectonics and Dynamics, Institute of Geology, CAGS, Beijing 100037, China;
2. Key Laboratory of Marine Geology, School of Ocean and Earth Science, Tongji University, Shanghai 200092, China

摘要

参考文献

相关文章

Download: [PDF \(14895KB\)](#) [HTML 1KB](#) Export: [BibTeX](#) or [EndNote \(RIS\)](#) [Supporting Info](#)

摘要 本文研究塔里木盆地航磁异常图的反演及磁源体结构. 由于众多异常的叠加和反演固有的多解性, 区域磁异常图的准确解释是非常困难的. 三维欧拉反褶积是一种确定地质体位置和埋藏深度的自动定量反演方法, 比较适用于计算区域磁异常源的埋藏深度. 由于大型克拉通沉积盆地地层具有上新下老的规律性, 将磁异常源分解为三个深度层次, 圈定它们各自的分布区域, 便可将它们与形成的地质作用及时代联系起来, 为准确解释区域磁异常图提供可靠的依据. 本文应用三维欧拉反褶积反演方法, 计算出的塔里木盆地深度为2~5 km、5~10 km、10~20 km三个等级的磁异常源, 它们与形成的地质作用及时代分别为: 中生代构造运动, 海西期玄武岩侵位和太古代结晶基底的变质作用; 圈定了它们各自的分布区域.

关键词 塔里木盆地, 区域磁场, 反演, 欧拉反褶积, 磁异常源, 形成地质作用

Abstract: This paper deals with interpretation of regional aeromagnetic field of Tarim Basin. Interpretation of regional magnetic field becomes difficult due to stacking of many anomalies coming from different sources and the non-uniqueness in geophysical inversion. The Euler deconvolution method is applied to automatic calculation of depths of the magnetic sources. Based on the order that the newer strata are located shallower in a sedimentary basin, we calculate first the depths of the anomalies, then locate their source distribution according to the source depth, resulting in correlation between the sources and its geological formation processes. In this way, the obtained results may provide more correct evidences for interpretation of the regional magnetic field. In the studied area, we divide the source-depth into 3 groups as 2~5 km, 5~10 km and 10~20 km. According to seismic investigation and other geological measurements, the magnetic sources located in depth 2~5 km were developed by both Permian basalt emplacement and later crustal movement. The magnetic sources located in depth 5~10 km were developed by Permian basalt emplacement only. The magnetic sources located in depth 10~20 km were caused by metamorphism of the crystallized basement rocks.

Keywords Tarim Basin, Aeromagnetic field, Inversion, Euler deconvolution, Magnetic anomaly source, Formation processes

Received 2011-06-23;

Fund:

中国地质调查局地质矿产调查评价专项(1212011220895, 1212011220896)资助.

About author: 杨文采, 1984年加拿大McGill大学地球物理学博士. 现为 中国地质科学院地质研究所研究员, 大地构造与动力学国家重点实验室学术委员会主任, 中国科学院院士. E-mail: yangwencai@ccsd.cn

链接本文:

<http://118.145.16.227/geophy/CN/10.6038/j.issn.0001-5733.2012.04.023> 或 <http://118.145.16.227/geophy/CN/Y2012/V55/I4/1278>

[查看全文](#) [下载PDF阅读器](#)

Service

- [把本文推荐给朋友](#)
- [加入我的书架](#)
- [加入引用管理器](#)
- [Email Alert](#)
- [RSS](#)

作者相关文章

- [杨文采](#)
- [王家林](#)
- [钟慧智](#)
- [陈冰](#)

