

引用本文:

鄯少英, 高锐, 龙长兴, 方盛名, 赵成彬, 寇昆朋, 谭雅丽, 何和英. 银川地堑地壳挤压应力场: 深地震反射剖面[J]. 地球物理学报, 2011, V54(3): 692-697, DOI: 10.3969/j.issn.0001-5733.2011.03.008

FENG Shao-Ying, GAO Rui, LONG Chang-Xing, FANG Sheng-Ming, ZHAO Cheng-Bin, KOU Kun-Peng, TAN Ya-Li, HE He-Ying. The compressive stress field of Yinchuan graben: Deep seismic reflection profile. Chinese J. Geophys. (in Chinese), 2011, V54(3): 692-697, DOI: 10.3969/j.issn.0001-5733.2011.03.008

银川地堑地壳挤压应力场: 深地震反射剖面

鄯少英^{1,2}, 高锐¹, 龙长兴¹, 方盛名², 赵成彬², 寇昆朋², 谭雅丽², 何和英^{3*}

1. 中国地质科学院, 北京 100037;
2. 中国地震局地球物理勘探中心, 郑州 450002;
3. 河南油田石油物探技术研究院, 河南南阳 473132

The compressive stress field of Yinchuan graben: Deep seismic reflection profile

FENG Shao-Ying^{1,2}, GAO Rui¹, LONG Chang-Xing¹, FANG Sheng-Ming², ZHAO Cheng-Bin², KOU Kun-Peng², TAN Ya-Li², HE He-Ying^{3*}

1. Chinese Academy of Geological Sciences, Beijing 100037, China;
2. Geophysical Exploration Center of China Earthquake Administration, Zhengzhou 450002, China;
3. Petroleum Geophysical Prospecting Technology Research Institute of Henan Oil Field, Nanyang Henan 473132, China

摘要

参考文献

相关文章

Download: PDF (1KB) HTML 1KB Export: BibTeX or EndNote (RIS) Supporting Info

摘要 银川地堑位于南北地震带北段,地质结构复杂,活动构造发育.为了调查银川地堑的构造特征及断裂分布情况,布设了NW向跨银川地堑的深地震反射剖面,首次获得银川地堑地壳的精细结构.结果表明,银川地堑具有典型的拉张—挤压型沉积盆地特征,上地壳反射连续性好,层位丰富,能量强,断裂发育.下地壳和莫霍面记录了挤压与拉张的发展过程.莫霍面呈密集反射层,横向不连续,深度变化较大,最深处位于剖面的中部.剖面西段的地壳反射呈现弯曲状特征,剖面中部地壳包含“扁豆状”的反射形迹.这可能记录了晚三叠世以来,银川地堑受到来自西部的挤压作用.剖面东段的下地壳和莫霍面反射都被黄河断裂带错开,断裂两侧莫霍面发生错断,显示出黄河断裂带深部的走滑拉张作用.深地震反射剖面也揭露出贺兰山东麓断裂带和黄河断裂带是控制盆地的两个最主要深部断裂.贺兰山东麓断裂带切穿了上、中地壳地层.黄河断裂带是一个规模巨大的陆内走滑断裂,浅层表现为一个典型的花状构造,延伸至下地壳,切穿莫霍面.地堑逆冲推覆带与剖面中、西部地壳形态表明该地堑从盆地到基底都受到来自西南方向的区域挤压应力场作用.探讨了银川1739年8级地震的成因以及银川地堑的良好的油气远景.

关键词: 银川地堑 深地震反射剖面 贺兰山东麓断裂带 黄河断裂带 挤压应力场

Abstract: Yinchuan graben, located in the northern section of North-South seismic zone, has complex geological structure and active tectonics. In order to investigate the structural characteristics of Yinchuan graben and fault distribution, we laid the NW-trending deep seismic reflection profiles across the Yinchuan graben which revealed the fine crust structure of Yinchuan graben for the first time. The results show the typical characteristics of tension-compression sedimentary basin of the Yinchuan graben and the reflections of the upper crust have the characteristics of good continuity, rich horizon, strong energy, and abundant normal faults. The lower crust and Moho recorded the development process of extension and compression of the basin. Moho appears as an intensive reflection layer, which is laterally discontinuous, changes significantly in depth with the deepest part in the middle of the section. The western lower crust in the sections shows bent features and contains the reflection characteristics of "hyacinth bean". This may be related to the compressional effects on Yinchuan graben since the Late Triassic. The eastern lower crust and Moho reflection in the section are staggered by Yellow River fault belt, and the Moho dislocation occurs on both sides of the fault, indicating the strike-slipping and extensional effect of the Yellow River fault. The deep seismic reflection profiles also reveal that the fault belt in eastern piedmont of Helanshan and the Yellow River fault belt are two major deep faults to control the basin. The fault belt in eastern piedmont of Helanshan cut through the interface of the upper-lower crust into the lower crust. The Yellow River fault belt is a huge intra-continental strike-slip fault, and the shallow part appears as a typical flower structure, and the deep part appears as bundle-like tilt reflection. The Yellow River fault belt extends to the lower crust, cutting through the Moho. The shape of thrust-nappe belt of the graben and the crust in the middle and western profile shows that this graben is subject to the action of the regional compressive stress field from the basin to the substrate. The direction of the regional compressive stress field is southwest. In this paper, we discuss the

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

cause of the M8.0 earthquake happened at Yinchuan in 1739 and the good hydrocarbon potential in Yinchuan graben.

Keywords: Yinchuan graben Deep seismic reflection profile Yellow River fault belt Helanshan east piedmont fault belt Compressive stress field

Received 2010-08-31;

Fund:

国家发展改革委“城市活断层试验探测”项目(20041138)资助. 中国地震局地球物理勘探中心论著编号RCEG201104.

Corresponding Authors: 高锐,男,1950年生,研究员,博士生导师.长期从事于中国大陆地壳上地幔地球物理探测与地球动力学研究. E-mail: gaorui@cags.net.cn Email: gaorui@cags.net.cn

About author: 鄯少英,男,1967年生,高级工程师,在职博士,主要从事深地震反射与浅层地震反射探测研究. E-mail: fsy.ny@163.com

链接本文:

<http://www.geophy.cn/CN/10.3969/j.issn.0001-5733.2011.03.008> 或 <http://www.geophy.cn/CN/Y2011/V54/I3/692>

Copyright 2010 by 地球物理学报