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论文

青藏高原东北缘莫霍界面的三维空间构造特征

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摘要: 通过在青藏高原东北缘设计专门的三维地震观测系统而获得的莫霍界面反射波,利用三维反演方法反演重建了该区莫霍(M)界面的构造形态,得到了研究区M界面的三维构造图像和地壳深断裂的展布,研究区M界面总体上由东北向西南方向呈逐渐下倾趋势,而在不同的块体内部又具有不同的倾斜态势,反映了不同块体之间的差异和复杂程度的不同.鄂尔多斯块体M界面变化平缓,内部结构完整且坚硬;弧形构造区M界面的倾斜趋势发生了逆转,此现象可视为该区域在挤压、变形构造作用下M界面发生了明显的扭曲变形;秦祁块体M界面呈现出较陡的倾斜趋势,在本块东南端与弧形区结合部,M界面所显示出的局部隆起可视为地壳发生了强烈扭曲变形的迹象.综合二维、三维结果认为,特殊而复杂的构造变形环境,为海原8.6级大地震的孕育和发生提供了地质条件和深部背景.

关键词: 青藏高原东北缘 三维反演 地壳界面形态 局部起伏变形

THREE DIMENSIONAL MOHO GEOMETRY AT NORTHEAST EDGE OF QINGHAI-TIBET PLATEAU

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Abstract: Reflected seismic waves from Moho

扩展功能

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赵金仁 李松林 张先康 杨卓欣 discontinuity are recorded through a special three-dimensional observation system designed at the northeast edge of Qinghai-Tibet Plateau and the Moho geometry in the investigation region is reconstructed by three dimensional (3-D) inversion method. The 3-D structure images of Moho and the stretches of deep crustal faults are obtained. Overall, the Moho discontinuity in survey region gradually slopes down from northeast to southwest direction and in the distinct block interior, their inclined patterns are different, which reflect the differences among the different blocks and indicates that their complicated degrees are not alike. The Moho geometry at Ordos block varies gently. Its interior structures are integrity and hard. The dipping trend of Moho discontinuity at the arc tectonic zone takes a reverse, which maybe suggests that the Moho discontinuity suffered obvious torsional deformation under the action of compression and deforming tectonics. The Moho of Qinqi block presents comparatively steep dipping trend and at the contact zone where its southeast end meets with the arc zone, the Moho discontinuity shows local updoming,

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