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论文

西昆仑造山带下岩石圈地幔速度结构

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摘要 在已完成的新疆地学断面研究计划实施中曾在西昆仑山前布置了14个宽频带地震台站.利用记录到的远震P波初至和层析成像方法，研究了西昆仑造山带下的岩石圈地幔结构特征.在已有地震学证据基础上，层析成像结果显示，西昆仑造山带下的高速岩石圈地幔可能是印度岩石圈地幔的俯冲前缘.沿东经80°深度剖面图像显示，在西昆仑造山带下的150～300km处，高速异常的岩石圈地幔前锋与低速异常的塔里木块体岩石圈地幔发生了面对面碰撞.

关键词 远震P波 层析成像 西昆仑造山带 印度板块岩石圈地幔前锋 塔里木岩石圈地幔

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Teleseismic P wave tomography of lithospheric mantle beneath west Kunlun orogenic belts

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Abstract 3 D seismic velocity structure of lithospheric mantle beneath the western Kunlun orogenic belt and its foreland was obtained by a tomographic method using P wave arrival times from 86 teleseismic events recorded by 14 broad band stations, which were deployed by Xinjiang Global Geoscience Transect Project in the west Kunlun orogenic belts and the southern margin of Tarim basin during 1997～1998 Combined with the previous seismological studies in the region, our results show that the lithospheric mantle beneath the west Kunlun orogenic belts is perhaps the frontier of the subducted lithospheric mantle of the Indian Plate. The image along 80°E in the study area clearly shows that the lithospheric mantle beneath west Kunlun orogenic belts with high velocity anomaly collided with that of the Tarim blocks in the front of Eurasia Plate with low velocity anomaly, in the depth range of 150 to 300km.

Key words Teleseismic P wave; Tomography; West Kunlun orogenic belts;The frontier of lithospheric mantle of India Plate; Lithospheric mantle of Tarim

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