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论文

大陆深俯冲带的地壳速度结构——东大别造山带深地震
宽角反射/折射研究

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摘要: 在安徽大别山(东大别)进行的深地震宽角反射/
折射探测获得6条二维地壳速度结构剖面. 结果显示, 东
大别造山带地壳为一高速穹隆构造, 在其核部中、下地
壳变质岩出露于地表, 波速高达5.0km/s; 在其翼部,
上、中地壳发育速度约6.1km/s的壳内低速层(体). 莫霍
面的起伏变化较大, 中心部位深达41km左右, 周边地
区则抬升到32~34km. 在晓天一磨子潭断裂一线下方
莫霍面垂向错断, 断距约4km. 东大别造山带具有大陆
深俯冲-碰撞造山带地壳结构的典型式样. 莫霍面错断与
扬子陆块深俯冲有关, 错断处表征扬子与华北陆块碰撞
缝合的深部位置. 高速穹隆构造可能是两陆块碰撞挤压的
产物, 穹隆翼部上、中地壳发育的低速滑脱带(面)可能
在碰撞期之后的地壳伸展、超高压变质岩从中地壳抬升
出露于地表过程中起到重要作用.

关键词: 大陆深俯冲带 东大别造山带 深地震测深
地壳速度结构

THE CRUSTAL VELOCITY STRUCTURE OF THE
CONTINENTAL DEEP SUBDUCTION BELT:
STUDY ON THE EASTERN DABIE OROGEN BY
SEISMIC WIDE ANGLE REFLECTION /
REFRACTION

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扩展功能

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Abstract: Six two-dimensional crustal structure profiles in the eastern Dabie, Anhui Province, have been obtained by the wide angle reflection/refraction. The results reveal that the crust of the eastern Dabie orogen presents a high-velocity dome, the velocity in the middle- and lower-crust's metamorphic rocks exposed on the surface in the core of the dome approaches 5.0 km/s, the low-velocity layers (body) with about 6.1 km/s has developed in upper-middle crust in its both sides wing, the Moho discontinuity relatively largely varies and ranges from ~ 41 km in the core to 32~34 km in both sides, and a 4 km Moho offset is observed beneath along Xiaotian-Muzitan Fault. We recognize that the eastern Dabie orogen shows a velocity pattern of typical continent-continent deep subduction/collision style. The Moho offset may be related with the deep subduction of the Yangtze Block, and represents the suture zone between the Yangtze/Sino-Korean Block collision. Therefore, the high-velocity dome may occur by collision/extrusion between the both continental Blocks and the low-velocity layers (body) mentioned above may play an important role in the post-collisional crust extension and exhumation of the ultra-high pressure metamorphic rocks.

Keywords: Continental deep subduction belt
Eastern Dabie orogen Deep seismic
sounding Crustal velocity structure.

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