

石永红,王娟,康涛,徐旭峰. 2013. 大别地块东南缘变质 P - T 条件及锆石U-Pb年代学研究. 岩石学报, 29(5): 1540-1558

大别地块东南缘变质 P - T 条件及锆石U-Pb年代学研究

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基金项目: 本文受国家自然科学基金项目(40972051)和国家"973"项目(2009CB825008) 联合资助。

摘要:

大别山东南缘高压-超高压地块一直为研究的热点地区,人们普遍认同其是由2个具有不同变质级别的单元构成,并以此为基点探讨大别造山带的俯冲、折返机制。然而,由于工作程度所限,对于大别山腹地店前-寺前-罗溪地区一直缺乏详细的资料,对其确实的变质属性及年龄并不清晰,限制了人们对该地区客观的结构单元划分的准确理解。本次通过区域变质岩石学和年代学的研究,详实地分析了该地块的结构构成。研究显示,大别山东南缘高压-超高压地块由2个超高压单元和1高压单元构成,并呈岩石-构造岩片形式相互叠置,其变质 P - T 条件分别为:(1)单元-I: $T=723\pm 22^\circ\text{C}$ 和 $P=3.90\pm 0.43\text{GPa}$ (金刚石稳定域);(2)单元-II: $T=630\pm 45^\circ\text{C}$ 和 $P=3.10\pm 0.23\text{GPa}$ (柯石英稳定域);(3)单元-III: $T=545\pm 24^\circ\text{C}$ 和 $P=2.48\pm 0.11\text{GPa}$ (石英稳定域)。锆石U-Pb年龄表明这三个单元具有穿时性,形成于不同的时间段,自单元-I、单元-II至单元-III,年龄分别为 $226.4\pm 2.6\text{Ma}\rightarrow 230.1\pm 3.5\text{Ma}\rightarrow 235.2\pm 4.2\text{Ma}$ 年龄(徐旭峰等, 2013)。在空间分布上自北向南,总体的峰期变质 P - T 条件逐渐降低,年龄则逐渐变老。但由于风化剥蚀作用,在马龙-石马一线的单位-I以构造窗形式产出,致使 P - T 条件呈现跳跃性的变化。

英文摘要:

Many investigators emphasize that the high-pressure (HP) and ultrahigh-pressure (UHP) massif, as a key region, in the southeastern area of Dabie Shan is composed of two terranes with different metamorphic grade. And on the basis of this conclusion, the mechanism of subduction and exhumation of Dabie collision have been discussed in detail. However, up to now, the metamorphic attribution and age in the Dianqian-Siqian-Luoxi areas in the central region of Dabie Shan still are ambiguous due to lack of any researches, so that the exact architecture of Dabie collision can not be established, which disturbs the understanding of the formation of Dabie collision. In this study, the detail regional metamorphic and geochronological analysis has been carried out, and the architecture of HP-UHP terrane in the southeastern area of Dabie Shan have been surveyed and analyzed. The results indicate that the HP-UHP terrane consists of two UHP and one HP units, which pile as litho-tectonic slices each other. Their P - T conditions are: (1) Unit-I: $T=723\pm 22^\circ\text{C}$ and $P=3.90\pm 0.43\text{GPa}$ (diamond stability field); (2) Unit-II: $T=630\pm 45^\circ\text{C}$ and $P=3.10\pm 0.23\text{GPa}$ (coesite stability field); (3) Unit-III: $T=545\pm 24^\circ\text{C}$ and $P=2.48\pm 0.11\text{GPa}$ (quartz stability field), respectively. The zircon U-Pb age has revealed that these units have the diachronous characters and formed in different interval, their metamorphic age are $226.4\pm 2.6\text{Ma}\rightarrow 230.1\pm 3.5\text{Ma}\rightarrow 235.2\pm 4.2\text{Ma}$ (Xu *et al.*, 2013) from Unit-I, II to Unit-III, respectively. In spatial distribution, the general metamorphic grade decrease and metamorphic age increase from north to south respectively. Due to erosion, the Unit-I in Malong-Shima area occur as tectonic window, which result in the abruptness of P - T conditions.

关键词: [大别山东南缘](#) [榴辉岩](#) [变质年龄 \$P\$ - \$T\$ 条件](#)

投稿时间: 2013-01-15 最后修改时间: 2013-04-10

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