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中国显生宙造山带麻粒岩相高级变质岩石的地质特征、变质时代、P-T轨迹及其形成的大地构造背景

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摘要:

本文重点介绍我国显生宙造山带中麻粒岩的地质特征、岩石类型、P-T轨迹、变质时代及其形成的大地构造背景。我国显生宙造山带主要包括阿尔泰造山带、南天山-西南天山造山带、西昆仑造山带、东昆仑造山带、阿尔金-柴北缘造山带、北秦岭造山带、南秦岭勉略造山带、东秦岭-桐柏-大别造山带、班公湖-怒江造山带和喜马拉雅中东段造山带。这些造山带中麻粒岩的围岩有许多为蛇绿岩套或蛇绿混杂岩带, 部分为副片麻岩和花岗质片麻岩, 并一起经历了麻粒岩相变质改造, 造山带中大多出现一种高压麻粒岩, 有的与榴辉岩并存, 但少数造山带中 (例如阿尔泰造山带) 多种压力类型麻粒岩并存, 既有低-高压泥质麻粒岩、中低压基性麻粒岩、高压基性和长英质麻粒岩, 又有高温-超高温泥质麻粒岩。变质时代除个别为新元古代晚期外, 变质时间多为加里东、海西、印支、燕山、喜山期。麻粒岩的P-T轨迹除西天山木札尔特河低压麻粒岩具逆时针轨迹, 反映大陆弧构造环境外, 其它都是具有等温降压 (ITC) 特点的顺时针轨迹, 形成的大地构造环境大部分为洋陆俯冲碰撞环境, 少部分为陆-陆碰撞环境。目前显生宙造山带中麻粒岩的研究大多数尚在起步阶段, 少数研究较详细, 不少造山带中麻粒岩的类型和变质时代以及形成的构造背景还不清楚, 有待深入研究, 新的麻粒岩产地有待发现。

英文摘要:

In this paper, geological characters, rock types, P-T path, metamorphic ages and tectonic setting of the granulites in Phanerozoic orogens in China are chiefly introduced. Phanerozoic orogens in China mainly include western Kunlun Orogen, eastern Kunlun Orogen, Altun Tagh-North Qaidam orogen, Altay Orogen, northern Qinling Orogen, Mianlüe in southern Qinling Orogen, eastern Qinling-Tongbai-Dabie Orogen, southwestern Tianshan-southern Tianshan Orogen, Bangong Co-Nujiang Orogen in Tibet and mid-eastern segment of Himalaya Orogen. The country rocks of the granulites in Phanerozoic orogen are most of ophiolite suite or ophiolitic mélange belt partly of paragneiss, granitic gneisses, and they experienced granulite facies metamorphism together. There is usually one type of high pressure granulite in an orogen and some of them are coexistence of eclogite. But in one or two orogens, there are several types of high pressure granulites. Such as in Altay Orogen, there are not only low-high pressure pelitic granulites, high pressure mafic granulites and felsic granulites, mid-low pressure mafic granulites, but also high pressure-ultra high pressure pelitic granulites. A few of the metamorphic ages of the granulites are Late Neoproterozoic and others are Caledonian, Hercynian, Indo-China, Yanshan and Himalayan. As for the P-T paths, most of them are clockwise paths and have isothermal decompressional characters that indicate an oceanic-continental subduction-collision tectonic setting except Muzart low pressure granulite in southwestern Tianshan orogen who has a counterclockwise path that indicate probably a continental arc collision tectonic setting. Further more, studies on granulites in Phanerozoic orogens are on their infancy at present and some of them have been detailly researched but most of them are not clear and waiting for deep study.

关键词: [造山带](#) [高压麻粒岩](#) [变质时代](#) [P-T轨迹](#) [大地构造背景](#)

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