

THE FEATURES OF PRIMARY ROCKS OF THE ECLOGITES FROM THE ULTRA-HIGH PRESSURE METAMORPHIC BELT IN CENTRAL CHINA: EVIDENCE FROM REE GEOCHEMISTRY

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This paper presents the REE data of 94 eclogites from the ultra-high pressure metamorphic belts (UHPM-b) in central China. Based on their REE contents and REE patterns, eclogites from the UHPM-b in central China may be roughly divided into six types including LREE-rich, LREE-rich + positive Eu anomaly, LREE-rich + negative Eu anomaly, REE-plane, MREE-rich and HREE-rich. LREE-rich, LREE-rich + positive Eu anomaly and LREE-rich + negative Eu anomaly types of eclogites are dominant. REE types of eclogites in different areas can be compared and the REE features of the same REE type of eclogites in different areas are similar. The results of reconstruction of the primary rocks show that the primary rocks of eclogites possibly are dominated by continental tholeiites which are the product of a partial melting of a relatively fertile mantle and the rocks of tholeiites crystallization-differentiation. There is perfect evolution relationship among the primary rocks of the LREE-rich, LREE-rich + positive Eu anomaly and LREE-rich + negative Eu anomaly types of eclogites and among those of the REE-plane and MREE-rich types of eclogites, the former three types being derived from continental settings and the later two from nearly oceanic settings. Meanwhile, it is concluded that the mantle sources of primary rocks of the eclogites are inhomogeneous and the primary rocks of eclogites in this area appear to have undergone varying-degree crustal contamination.