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西藏拉萨地体榴辉岩的地球化学特征和Sm-Nd、Rb-Sr同位素组成及其地质意义 [点此下载全文](#)

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摘要:

最近在青藏高原拉萨地体新发现了一条榴辉岩带, 该榴辉岩带位于冈底斯岩浆岛弧带的北缘。对该带榴辉岩的岩石地球化学特征及Sm-Nd、Rb-Sr同位素组成研究表明: ① 该带榴辉岩的原岩主要是一套低钾的大洋拉斑系列玄武岩, 其原岩类似于典型的N MORB, 源于亏损地幔; ② 该带榴辉岩样品 ( $\frac{87}{86} \text{Sr}$ )<sub>i</sub> = 0.70335-0.70457, 变化范围较大, 且与ε Nd (t) 值及微量元素特征均没有好的对应关系, 可能是由于该套岩石形成于大洋环境, 形成后遭受了海水的蚀变作用; (3) 该带榴辉岩全岩的Sm-Nd等时线年龄为305.5 ± 50Ma (2σ), ( $\frac{143}{144} \text{Nd}$ )<sub>i</sub> = 0.5126 ± 0.00007 (2σ), 表明该带榴辉岩可能形成于早石炭-晚二叠世, 在这一时期冈底斯北缘可能存在古特提斯洋盆及古特提斯洋盆深俯冲作用。

关键词: [榴辉岩](#) [Sm Nd](#) [Rb Sr](#) [大洋俯冲](#) [拉萨地体](#)

Geochemical Characteristics, Sm Nd and Rb Sr Isotopic Compositions of Newly discovered Eclogite in the Lasha Terrane, Tibet and Their Geological Significance [Download Fulltext](#)

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Fund Project: 最近在青藏高原拉萨地体新发现了一条榴辉岩带, 该榴辉岩带位于冈底斯岩浆岛弧带的北缘。对该带榴辉岩的岩石地球化学特征及Sm-Nd、Rb-Sr同位素组成研究表明: ① 该带榴辉岩的原岩主要是一套低钾的大洋拉斑系列玄武岩, 其原岩类似于典型的N MORB, 源于亏损地幔; ② 该带榴辉岩样品 ( $\frac{87}{86} \text{Sr}$ )<sub>i</sub> = 0.70335-0.70457, 变化范围较大, 且与ε Nd (t) 值及微量元素特征均没有好的对应关系, 可能是由于该套岩石形成于大洋环境, 形成后遭受了海水的蚀变作用; (3) 该带榴辉岩全岩的Sm-Nd等时线年龄为305.5 ± 50Ma (2σ), ( $\frac{143}{144} \text{Nd}$ )<sub>i</sub> = 0.5126 ± 0.00007 (2σ), 表明该带榴辉岩可能形成于早石炭-晚二叠世, 在这一时期冈底斯北缘可能存在古特提斯洋盆及古特提斯洋盆深俯冲作用。

Abstract:

Lhasa eclogite belt was newly discovered in the Lhasa terrane, Tibet. It is located in the north of the Gangdese island arc belt. Geochemical characteristics, Sr Nd isotopic compositions and Sm Nd isotopic chronology of the eclogites were analysed in this study. The major element compositions and relatively high ε Nd (305Ma) of about +7.9 for the eclogites suggest that the protoliths of eclogites are ancient basaltic rocks developed in the ocean crust, similar to the typical N MORB, and likely derived from the depleted mantle. The ( $\frac{87}{86} \text{Sr}$ )<sub>i</sub> of the eclogites vary over a wide range, from 0.70335-0.70457, which is not closely relevant to the ε Nd (305Ma) and trace elements. We favor that this irrelevance may be due to the ocean environment of these eclogites and, later the protoliths underwent alteration by sea water after its formation. The whole rock Sm Nd age of 305.5 ± 50 Ma may indicate that the eclogite is likely formed during Early Carboniferous to Late Permian, during which there likely existed ancient Tethys ocean and its subduction at the north margin of the Gandese.

Keywords: [eclogite](#) [Sm Nd](#) [Rb Sr](#) [subduction of the oceanic slab](#) [Lasha terrane](#)

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