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阿克苏前寒武纪蓝片岩原岩产出的大地构造背景

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摘要:

阿克苏蓝片岩地体位于塔里木盆地西北缘。在其东南侧蓝片岩与上覆震旦纪地层不整合接触,因此被认为是目前世界上仅有的两个有确切证据的前寒武纪蓝片岩之一。过去人们对这个地区的工作主要围绕高压变质的同位素定年展开,若干个年龄数据均表明阿克苏蓝片岩的俯冲折返过程发生在新元古代。但是关于俯冲之前蓝片岩原岩产出的大地构造环境,目前还缺乏研究。本文通过对研究区内基性片岩的地球化学分析,得出蓝片岩原岩主要是洋壳玄武岩的结论。样品硅含量和一系列玄武岩不活动元素分类图解表明所有样品的原岩是拉斑玄武岩。由于明显的元素含量差异,样品被划分为A、B两组。稀土元素配分曲线、原始地幔标准化微量元素蛛网图以及常见的玄武岩大地构造判别图解都表明A组样品具有异常洋脊玄武岩的特征,而B组样品具有正常洋脊玄武岩的特征。阿克苏蓝片岩的原岩是新元古代邻近塔里木的某一洋壳的残片,它作为俯冲带增生楔的一部分经历深俯冲—折返过程,最终出露于地表。

英文摘要:

Aksu blueschist terrane is located in the northwest of Tarim Basin. It is presently considered to be one of the only two Precambrian blueschists with reliable evidence in the world, for the unconformity with overlying Sinian System on its southeast. Former researches have focused on the isotope ages of the high-pressure metamorphism, with some data showing the Neoproterozoic age of the subduction-exhumation process. Nevertheless, the protolith of the blueschist and its original geotectonic setting have rarely been discussed. A geochemical analysis on mafic schists has been made in this paper, indicating the ocean crust properties of the protolith. Si contents and some immobile element diagrams show that the protolith of all samples is tholeiite. All these samples are divided into two groups: Group A and Group B, due to the distinguishable geochemical differences. The REE distribution pattern curves, the primitive mantle normalized spider diagrams and some common basalt geotectonic discrimination diagrams show that samples in Group A and Group B have EMORB(enriched mid-ocean ridge basalt) and NMORB(normal mid-ocean ridge basalt) properties, respectively. The protolith of Aksu blueschist is part of the ocean crust adjacent to Tarim in Neoproterozoic, it experienced deep subduction and exhumation as part of accretionary wedge and finally became exposed to the surface.

关键词: [阿克苏](#) [蓝片岩](#) [地球化学](#) [大地构造环境](#) [正常洋脊玄武岩](#) [异常洋脊玄武岩](#)

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