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摘要:

关子镇蛇绿岩是东秦岭商丹缝合带西延的标志, 主要由蛇纹岩、变质辉长岩、斜长角闪片岩(变玄武岩)组成。变玄武岩总体均以高SiO<sub>2</sub>、MgO, 低TiO<sub>2</sub>、Al<sub>2</sub>O<sub>3</sub>, Na<sub>2</sub>O>>K<sub>2</sub>O, LREE和LILE亏损, 以及HFSE不分异为特征。在此基础上, 变玄武岩又可以划分为A类(主要分布南部区段)和B类(主要分布北部区段), B类相对于A类而言, 具有更低的TiO<sub>2</sub>、Al<sub>2</sub>O<sub>3</sub>、MgO含量和高ΣFe<sub>2</sub>O<sub>3</sub>含量特征。同时, B类岩石LREE亏损程度较A类岩石更为明显。综合主、微量元素地球化学特征分析, 认为两类岩石均源于亏损地幔源区, 形成于古大洋中脊构造环境, 但成生于不同的岩浆演化阶段, 是古洋盆扩张演化不同阶段的产物。西秦岭关子镇蛇绿岩性质的确定, 为商丹古洋盆西延与演化, 以及中国大陆古生代构造格局及其演化过程提供了重要的制约。

关键词: [蛇绿岩](#) [地球化学](#) [关子镇](#) [商丹缝合带](#) [西秦岭](#)

Geochemistry of the ophiolite from Guanzizhen area, west Qinling, and its tectonic implications [Download Fulltext](#)

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Abstract:

The ophiolite outcropped in Guanzizhen area, which marks the west part of the Shangdan suture zone in the Western Qinling, consists mainly of serpentines, meta-gabbros and meta-basalts. The meta-basalts are mostly characterized by high SiO<sub>2</sub> and MgO contents, low TiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub> contents and Na<sub>2</sub>O>>K<sub>2</sub>O, as well as depleted in LREE and LILE. Additionally, the meta-basalts show that they are unfractionated in HFS elements in the primitive-normalized trace elements distribution patterns. All above signatures show that the magma source of the basalts from Guanzizhen is similar to that of a typical MORB. In detail, the meta-basalts can be divided into two A-type and B-type, which outcrop in the southern and northern of the section, respectively. The meta-basalts of B-type show lower TiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, MgO and higher ΣFe<sub>2</sub>O<sub>3</sub> contents, and more depleted in LREE than that of the A-type meta-basalts. All above major and trace elements geochemistry suggest that both A and B types of the basalts are derived from a depleted mantle source, which are mostly like a middle ocean ridge setting, but were formed during different stages of the magma evolutionary process. In view of the regional geology and geochronology, it is preferred that these rocks were formed in a mid-ocean ridge setting during early Paleozoic. This ophiolite together with the other ophiolitic mélanges in Wushan, Tangzang and Yanwan areas mark the suture zone after the closure of the Qinling ocean in early Paleozoic.

Keywords: [ophiolite](#) [geochemistry](#) [Guanzizhen](#) [Shangdan suture zone](#) [west Qinling](#)

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