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山东沂水杂岩中变基性岩的岩石地球化学特征及锆石SHRIMP U-Pb定年 [点此下载全文](#)

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摘要:

山东沂水杂岩由新太古代岩浆杂岩和中太古代的变质杂岩组成, 其后者中的变基性岩石, 特别是基性麻粒岩, 常与紫苏花岗岩紧密伴生, 而且多呈大小不等的包体或呈层状体产出。本文主要对变基性岩进行岩石地球化学和锆石SHRIMP U-Pb定年研究。根据岩石学特征, 可将变基性岩分为三类: 含紫苏辉石斜长角闪岩、含石榴子石角闪二辉斜长麻粒岩和含尖晶石—石榴子石的角闪二辉麻粒岩。它们原岩分别为安山质玄武岩、高铁镁质玄武岩和玄武质科马提岩(?)。三类岩石稀土元素和微量元素配分有一定差别: 第一类含紫苏辉石斜长角闪岩富集轻稀土和大离子亲石元素, 亏损Nb、Ta、Zr、Hf等高场强元素; 后二类麻粒岩相变质岩的稀土配分模式为近平坦型或轻稀土略为富集, K、Rb、Ba等元素也轻微富集, 其他元素与MORB的比值接近于1。变基性岩中锆石定年结果显示有四组年龄值, 其中2719Ma和2560~2607Ma分别代表早期麻粒岩相变质作用的年龄下限和上限; 2509~2522Ma代表另一期角闪岩相—麻粒岩相变质作用的时代, 发生在沂水岩浆杂岩侵入之后; 2485Ma和2497Ma代表与流体作用有关的变质作用和新生锆石的形成年龄。

关键词: [沂水杂岩](#) [基性麻粒岩](#) [岩石地球化学](#) [锆石SHRIMP U-Pb定年](#) [山东](#)

The Petro geochemical Characters and SHRIMP U-Pb Zircon Ages of Meta mafic Rocks from the Yishui Complex, in Yishui County, Shandong Province [Download Fulltext](#)

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Abstract:

The meta mafic rocks especially the mafic granulites in the Yishui complex are accompanied with the charnockites closely, and they appear as layers or with different size in the charnockites. Petrology, geochemistry and SHRIMP zircon U-Pb dating of the meta mafic rocks are researched in this paper. They can be divided into three kinds of rocks on their petrological characters. They are high amphibolite faces metamorphosed (hypersthene bearing) plagioclase amphibolites (andesite), granulite faces metamorphosed garnet bearing hornblende two pyroxene plagioclase granulites (ultramafic basalts) and spinel and garnet bearing hornblende two pyroxene granulites (basaltic komatiite?). On REE distribution diagrams of (hypersthene bearing) plagioclase amphibolites, LREE are enriched obviously. And on diagram of trace elements, large ion lithophile elements including Sr, K, Rb, Ba and Th are enriched while high field strength elements such as Nb, Ta, Zr and Hf are depleted. Contrastively, the granulite faces metamorphosed samples have flat REE distribution models with the ratios to MORB of the most elements approximately equal to 1 except slightly enrichment of K, Rb and Ba. On lithology distinguishing figures, most of the samples are sited in the area of calc alkaline basalts and some samples are sited in the area of MORBs and island arc tholeiites with low potassium. On tectonic setting distinguishing diagrams of rocks, samples are mainly sited in area of volcanic arc basalts. Dating research of these samples indicates that the SHRIMP zircon U-Pb ages can be divided into the following four groups: 2719Ma may represent the lower limit of the first granulite faces metamorphic ages and the 2560-2607Ma may represent the upper limit of it, whereas, 2509-2522Ma indicates another high amphibolite—granulite faces regional metamorphism occurred after the intrusion of the Yishui Complex. The youngest ages are 2485Ma and 2497Ma that represent the ages of metamorphism and zircons related to fluid activities. The age of primary rock is still uncertain and need to be further studied.

Keywords: [the Yishui Complex](#) [mafic granulite](#) [petrochemistry](#) [SHRIMP](#) [Zircon U-Pb dating](#)

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