

Petrology, geochemistry and dating of the Late Neoproterozoic metabasites of the Majerad metamorphic complex (SE Shahrood): One step to understanding of the geodynamic evolutions of Iranian Gondawan terranes

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Abstract: The Majerad metamorphic complex is located in the northern margin of the Central Iran structural zone and southeast of Shahrood, includes a wide variety of metacarbonate, metabasite (greenschist, amphibolite and garnet amphibolite), metapelite, metapsammite and metarhyolite. The protolith of metabasites has been submarine basaltic lava flows which erupted in the Late Neoproterozoic intracontinental extensional basins. Magma forming of the protoliths of metabasites had alkaline nature, enriched in LILEs and LREEs, depleted in HFSEs and HREEs and originated from OIB to EMORB source regions. With respect to the results of U-Pb age dating on extracted zircons from granitoids which cut this complex (553 ± 3.8 million years), Majerad complex has Late Neoproterozoic age. According to the carried out studies, it can be state that the mentioned basins often didn't reach the stage of the oceanic lithosphere formation, and then due to the dominance of the compressional regime, these basins rapidly closed and the contributed rocks in these processes, obducted in the form of accretion prisms on the continental plates and probably progressed up to the continental-continental collision.

Keywords: metabasite; Late Neoproterozoic; extensional basins; Central Iran; Majerad; Shahrood.

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