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Diversity of Trace Element Compositions of Volcanic in Different Slabs of Bikou Group: Implications for Tectonics

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Abstract: Bikou Group, a metamorphic terrane with a series of slabs, and formed in the mid-late Proterozoic era, has undergone multi-periods of complex metamorphisms and deformation. The composition of its major and trace elements of volcanic rocks shows there are obvious differences in source and tectonic settings between Damaoping and Faziba slabs. Damaoping slab, with alkalic and non-alkalic meta-volcanic rocks, possesses compositions similar to those of OIB-type and MORB-type source respectively. The systemic variations of the ratios between high incompatibility immobile elements and geochemical twins such as Nb/Ta indicate that derived from relative enrichment mantle for former and depleted mantle, they developed within plate tectonics and similar ridge setting respectively. Also the development of the alkalic rocks involved the participation of the crust material, so Damaoping slab volcanics may have been formed in rift or oceanic setting. Faziba slab with meta-basalt and medium-acid lava shows "double mode" composition characteristics, in which the source composition of meta-basalt is similar to that of mid-ridge basalt. This may clarify that they were derived from relative depleted mantle. The medium-acid volcanic rocks, which are obviously different from meta-basalts, show typical crust source rock characteristics, so Faziba volcanic rocks are thought to have been formed in continental rift setting. According to what is discussed above, Bikou Group volcanics may have possibly developed in continental rift or limited ocean setting.

Key words: slab; volcanic; magma source; tectonics; trace elements; Bikou Group.