



Geochemical and zircon U-Pb dating analysis of metamagmatic rocks from the Yuli belt in Taiwan

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The Tananao Schist Complex of the oldest rocks in Taiwan is exposed at the eastern limb of Backbone Range. Based on the lithologic and metamorphic characteristics, the complex can be divided into the Tailuko and Yuli belts. The Tailuko belt consists of marble, gneiss, and subordinate scattered metabasite; the Yuli belt is composed of greenschist, serpentinite, meta-tuff, meta-gabbro, metabasite, and glaucophane-schist blocks which enclosed by spotted schist of the host rocks. The metamorphic belts were inferred as a Mesozoic *mélange*. It's still controversial due to the difficulty of analyzing metamorphic rocks. In this study, we focus on the zircon U-Pb dating, geochemistry, and petrographic analysis of spotted schist, metabasite, meta-gabbro, and meta-tuff in order to constrain the formation and crystallization ages and interpret its tectonic setting.

Based on zircon U-Pb dating, the host rocks of spotted schist and the exotic blocks of meta-tuff, meta-gabbro (the peak age of 14.4, 15.8, and 16.7 Ma), and metabasite occurred at Miocene. Geochemical characteristics for metabasite and meta-gabbro blocks show Ta-Nd-Ti depletion and LREE depletion in spidergram occurring volcanic arc and N-MORB type affinities, respectively. Results as above mentioned, we suggest that the metamagmatic rocks in the Yuli belt occur within a *mélange* during the Eurasia continental margin subduction at the Middle–Late Miocene.