

New P-T and geochronological constraints on high-pressure garnet-bearing paragonite-epidote amphibolite in the Yuli belt, eastern Taiwan

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The Yuli belt has been recently recognized as the youngest known blueschist terrane of the world [1]. However, peak P-T conditions and timing of high-pressure metamorphism in this belt remain controversial [2,3,4]. Rare non-mafic glaucophane-bearing rocks occur in the Tamayen block and are closely associated with metabasites. We investigated a garnet-bearing paragonite-epidote amphibolite, using pseudosection modeling (THERIAK-DOMINO software) and Ar-Ar isotopic dating. The studied metabasite shows a MORB-like pattern on a chondrite-normalized REE diagram. The mineral assemblage is garnet (almandine-rich) + amphibole + quartz + epidote + paragonite + rutile. The computed pseudosection shows that both paragonite-in and garnet-in fields represent high-pressure conditions, although the rock contains no glaucophane. Peak metamorphic conditions are tentatively constrained as 13-15 kbar and 600-650 °C, compatible with those of glaucophane-bearing rocks as part of a subduction zone metamorphic complex [2]. Argon step-heating analyses of paragonite from the metabasite and related samples yield Miocene plateau and weighted mean ages (10-13 Ma), which we interpret as the timing of high-pressure metamorphism, and indicate variable Mio-Pliocene argon loss. This young Cenozoic metamorphic age questions the existence of a Mesozoic high-pressure event in the Yuli belt [4,5], and challenges a recent claim that this belt's high-pressure metamorphism initiated at 3-7 Ma [1].

- [1] Sandmann et al. (2015), *Terra Nova* 27, 285–291.
 [2] Tsai et al. (2013), *Journal of Asian Earth Sciences* 63, 218–233. [3] Keyser et al. (2016), *Tectonophysics*, in press. [4] Jahn et al. (1981), *Memoir of Geological Society of China* 4, 497–520. [5] Yui et al. (2012), *Tectonophysics* 541–543, 31–42.