

UHT metamorphism and isobaric cooling history of mafic granulites from Tonagh Island, Napier Complex, East Antarctica

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Petrological characteristics of mafic granulites from Tonagh Island in the Archean Napier Complex were examined to evaluate nature of UHT metamorphism. Evidence of UHT event was inferred from inverted pyroxenes as ~1000 C. Mafic granulites have suffered significant effects of retrograde metamorphism. Grt-Qtz corona after pyroxenes is a typical evidence of isobaric cooling. Hbl-Qtz symplectite around Opx and Cpx suggests retrograde hydration reactions. The hydrated samples occur only in Unit II of Tonagh Island, which is separated from other crustal units by shear zones. This may suggest discrete metamorphic history of each unit probably derived from their differential uplifting and cooling history.