

Deformation history of ultra-high-temperature metamorphic rocks from Tonagh Island, Napier Complex, East Antarctica

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Deformation history of ultra-high-temperature metamorphic rocks from the Tonagh Island, Napier Complex, Antarctica is divided into nine stages, from D1 to D9. The D1 structure may have been formed under non-deformational condition during the prograde metamorphic peak stage. Deformations during the D2-D6 stages occurred under retrograde granulite facies conditions.

Structural geology of the metamorphic rocks is mainly characterized by NE-SW trending D2 foliation (S2) with WNW plunging mineral lineation, WNW-ESE trending D5 fold and NE-SW trending D6 mylonite zone. The S2 is main foliation of this area. The S2 and S2-parallel D3 shear zone were formed by layer-parallel shearing. The D3 and D6 fault rocks show that seismic and brittle deformation alternated plastic during the D3 and D6 stages.