Tectonics of the Mogok Metamorphic Belt, Myanmar (Burma) and its correlations from the East Himalayan Syntaxis to the Malay Peninsula

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The Mogok Metamorphic belt (MMB) in Myanmar (Burma) is thought to be a southward continuation of the Lhasa block of south Tibet around the East Himalayan syntaxis. South of Burma the MMB may extends into the tin granite province of the Mergui coast and south to Phuket. The MMB in Burma is a sequence of high-grade metamorphic rocks including phlogopite + diopside + spinel ± olivine ± ruby corundum marbles, scapolite + garnet + biotite calc-silicates, clinopyroxene-bearing quartzites and gneisses intruded by rare nepheline syenites (occasionally sapphire-bearing) and associated ultramafic rocks and a variety of granitic rocks. Pre-collisional hornblende and biotite bearing diorites and granodiorites are related to supra-subduction zone magmatism prior to Indian plate collision. Mogok gneisses show high-temperature paragenesis with sillimanite + muscovite replacing earlier andalusite (Kyaushe gneiss) in pelites and peak metamorphic anatexis resulting in tourmaline + garnet + muscovite leucogranites (Kyanikan). An earlier metamorphic event and fabric formation is preserved at Belin quarry where a post-kinematic biotite granite dyke has been dated at ~59 Ma. Evidence of older metamorphism along the Mogok belt has largely been overprinted by a Cenozoic high-temperature metamorphism constrained by U-Th-Pb ID-TIMS and in situ LA-ICPMS dating of metamorphic monazite and zircon. Growth of metamorphic monazite at sillimanite grade (680ºC; 4.4 - 4.9 kbar) and growth of zircon rims occurred between 47-43 Ma. Syn-peak metamorphic tourmaline granites have ages ranging between 45.5 – 24.5 Ma. The tourmaline granites are *in situ* partial melts from a biotite + muscovite + K-feldspar augen gneiss protolith and their ages record Cenozoic periods of peak sillimanite grade metamorphism. Kyanite gneisses in the Katha Gangaw range record higher pressures. The MMB has little in common with the Western granite belt of peninsula Malaysia, dominated by Triassic tin-bearing biotite granites, which is regarded as a separate terrane.

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