

## Two Migmatite Zones within the Himalayan Metamorphic Belt (HMB) of the Sikkim Himalaya, India

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Migmatites characterise a zone of magma mobility with melt segregation within a narrow zone of the Himalayan Metamorphic Belt (HMB) across the Himalaya. The Sikkim Himalaya expose rocks in a arcuate regional doubly-plunging fold pattern with Lesser Himalayan Sedimentary Sequences (Daling Group) in the core. These Lesser Himalayan Sequences are overthrust by the Himalayan Metamorphic Belt (MBT) comprising two packages marked by two basal thrusts; the Main Central Thrust (MCT) and the Chungthang Thrust (CT). The rocks of these thrust sheets comprise metapelites with calc-silicate bands along with migmatites. Both the thrust sheets are marked by intense migmatization, partial melting, and *in situ* emplacement of various granitoids within sillimanite–K-feldspar bearing metapelite. In the middle of the package, sillimanite-kyanite-mica schist and gneiss pass gradually into stromatic- and diatexite-type migmatites. These have a melt fraction ranging from 20% to more than 50%, with clear presence of leucosomes containing a few garnet porphyroblasts. The rocks that develop migmatite are mica schist and gneisses and contain biotite, muscovite, quartz, k-feldspar, garnet, kyanite and a small amount of sillimanite. Migmatites in the basal formations are devoid of large tourmaline-bearing leucogranite bodies, whereas the overlying formations are characterised by sheet-like intrusions of tourmaline-bearing leucogranites in their upper reaches. Muscovites appears in smaller quantity than biotite, and kyanite is present along the main foliation as well as across it. Kyanite also shows extensive retrogression and sillimanite is present in needle form along the main foliation as well as along an extensional foliation. In the basal migmatite zones the pre-decompression garnet from basal migmatites has been dated to be around 23 Ma and near peak-metamorphic melting has been constrained as 16 Ma (Harris and others, 2004). However, the overlying widespread migmatites have not thus far been explored in the published literature.

### Reference

Harris, N.B.W., and others, 2004, The pressure–temperature–time path of migmatites from the Sikkim Himalaya, *Journal of Metamorphic Geology*, 22, 249-264.