Neoarchean mafic arc magmatism prior to the amalgamation of western Dharwar craton: A case study

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The stratigraphically younger mafic volcanic rocks of Medur Formation (MF) of Shimoga greenstone belt (SGB), represent the Chitradurga Group of the Dharwar Supergroup in the western Dharwar craton (WDC). Trace element study favours the involvement of partial melting of the depleted mantle by slab-derived fluids with variable extents of slab components in the generation of the parental magmas for the rocks of MF. New Sm-Nd age data obtained from rocks of the MF indicate that the last phase of mafic magmatism in the WDC occurred in the SGB at 2638 ± 66 Ma (1). This age is older than 2601 ± 6 Ma age obtained for the youngest felsic volcanism (2) reported for the metarhyolites from Daginakatte Formation. The age for the MF that we are reporting here is also younger than 2768 ± 68 Ma age obtained for the Ingaldhal Formation of CGB (3), which is considered as the lithological equivalent of MF. This >100 Ma difference (excluding errors) is indicative of two distinct emplacement histories for the lithologies of CGB and SGB, prior to their amalgamation. The felsic magmatic rocks and vast deposits of younger sediments of the Ranibennur Formation were deposited in a continental margin in a developing fore-arc basin that could have received sediments by the erosion of pre-existing TTG crust of Dharwar craton and a possible Archean craton that lies underneath the Deccan volcanic province.

(1) A. Giri et al., 2019. Lithos, **330-331**, 177-193.
(2) Trendall et al., 1997a. J. Geol. Soc. India, **50**, 25-50.
(3) Kumar et al.,1996. Precambrian Res. **80**, 205-216.