

## **A critique of sutured cratonic blocks in the Archean Dharwar craton of southern India**

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The Archean Dharwar craton considered earlier on the basis of structural unity as a single terrane [1] has been suggested to be a mosaic of four terranes—the Western, Central and Eastern Dharwar cratons (WDC, CDC and EDC) and the Coorg massif [2,3]. Laser ablation Pb-Pb geochronology of zircons from the EDC and WDC [4] had suggested similar antiquity for both the supracrustal enclaves and gneisses of the EDC and WDC supporting the view of one terrane. In this work, we present 18 new SHRIMP U-Pb zircon ages from the felsic volcanic rock samples belonging to the Dharwar sequence from the greenstone belts of the EDC and WDC. All zircons have magmatic crystallization morphology and have yielded concordant crystallization ages. The ages of the felsic volcanic rocks from the greenstone belts of the EDC fall in the range of 2547 to 2609 Ma, and those of the Western Dharwar greenstone belts between 2581 and 2614 Ma. New data show that there is evidence for young volcanic episode of 2566 Ma in the WDC, just as there is evidence for older volcanic episode of 2656 Ma in the EDC. Significant overlap of ages of felsic volcanism in the EDC, CDC and WDC do not support the view of successive young terranes from west to east in the Dharwar craton. We consider that the EDC and WDC developed in magmatic arc and back-arc settings of > 3Ga to 3.36 Ga continental crust overriding a far field westward subducting oceanic crust. The shear zones proposed as sutures are interpreted in this model as listric faults rising from the subducting slab.

[1]Naha et al.,(1996) Proc.Indian Acad.Sci., 105,379-412; [2]Jayananda et al.,2015 Precambrian Res, 268, 295–322. [3]Santosh et al.,(2015) Gond Res,27, 165-195; [4]Maibam et al.,(2011). Jour.Earth System Sci., 120, 643-661.