

Tectonic development of the East Indian cratonic margin and its status in Columbia Supercontinent

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The East Indian cratonic margin is an important geological area towards understanding the tectonic development of the Precambrian India co-evolving with its erstwhile continental neighbors, including Antarctica. It, at present spreads out several linearly arranged Mesoproterozoic sedimentary basins (Chhattisgarh Basin and its satellite basins) unconformably lying on the Archean Bastar cratonic basement rocks and also juxtaposed on its east by a Proterozoic orogenic belt (Eastern Ghats Belt, EGB). While the basement rocks reveal the origin and evolution of the Archean craton and later tectonics affecting it, the sedimentary basins preserve the history of basin tectonics and fluctuation of different geological and geochemical proxies indicating the fluctuation of paleoenvironment, and also the tectonics of surrounding areas. The adjacent orogenic belt also has a variegated history of its development and final cratonization, at least the tectonic history of the southern part was older while major part of the northern part was younger than the formation of those sedimentary basins.

Our group in recent years have carried out detailed sedimentological, geochemical, and geochronological studies of the early sediment fills of these Mesoproterozoic basins (Chakraborty et al., 2012, *Precam. Res.*, 200-203, 129-148; Das et al., 2015, *Geol. Soc. London, Memoirs*, 43, 207-221; Saha et al., 2016, *Precam. Res.*, 281, 363-383) In this presentation, the collated data on the paleo-environmental facies analysis, variation in Nd-isotope geochemistry and U-Pb detrital zircon geochronology will be presented for the sediments of Singhora Basin, Khariar Basin and Ampani Basin, and also the geochemical character with tectonic affinity of the ca. 1450 Ma felsic porcellanitic tuff layer in all these basins. This will help to have an integrated understanding of the evolution of deep- to shallow continental crust in the East Indian Craton margin, as well as the connection between its neighbors in the supercontinent, "Columbia".

Keywords: East Indian Craton margin, Mesoproterozoic Chhattisgarh Basin, Felsic volcanism, Columbia Supercontinent