

## **Recent Geochronologic Age Data from Proterozoic Platform Sequences of Peninsular India: Implications Towards Supercontinent Assembly**

**Partha Pratim Chakraborty<sup>1\*</sup> and Kaushik Das<sup>2</sup>**

<sup>1</sup>*Department of Geology, University of Delhi, New Delhi- 7*

<sup>2</sup>*Department of Geology, Bengal Engineering College, Howrah, West Bengal*

*\* parthageology@gmail.com*

The exposed Precambrian continental crust of India comprises four Archean cratonic nuclei viz. Bundelkhand, Singhbhum, Bhandara and Dharwar, stitched together by several Proterozoic mobile belts as a result of protracted multiple orogenic cycles ranging in age from Paleoproterozoic to early Paleozoic. Much of the information on the history of the continental evolution may come from their stabilization stages demonstrated by undeformed plutons and deposition of platformal sediments on newly created/accreted basement. The Purana basins of India spanning over a time range of ~1300 Ma (~1900 Ma to ~540 Ma) share >65% of the Proterozoic history and have potential to offer important clues in terms of assembly, evolution and dispersal of supercontinents. The recently available age data on igneous events from the Purana basins and adjoining basements and tectono-thermal events within the mobile belts allow us to offer certain clues on Proterozoic geodynamics from the Indian craton. Amongst the available dates from the Purana successions the most prevalent and inter-basinally traceable one is ~1600–1500 Ma. Considering the late Paleoproterozoic–early Mesoproterozoic mafic magmatic suite from the North Delhi fold belt, ~1600 Ma orogenic overprinting of the Eastern Ghats Mobile Belt, folding, syntectonic regional metamorphism, granitic activity and migmatization, ~1600 Ma felsic pyroclastic ash fall deposition (Porcellanite Formation) within the Vindhyan basin and that of ~1500 Ma from the Chattisgarh and Khariar basins, a crustal scale event on Indian continent in early Mesoproterozoic time (i.e. ~1600–1500 Ma) is suggested. The ~1600 - ~1500 Ma rhyolite, rhyodacite and andesitic tuffaceous units of volcanic arc granite (VAG) affinity from the Purana basins of India, fall within the widespread 1500–1400 Ma granite-rhyolite occurrences reported from the central and southwestern parts of United States. On a global scale, in terms of a supercontinent cycle, such a time frame pertains to a pre-Rodinian assembly, i.e., the Columbia supercontinent (between 1900 and 1400 Ma).