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Comment

Correlations between the Eastern Block of the North China craton and the South Indian Block of the Indian Shield: an Archaean to Palaeoproterozoic link

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Zhao et al. (2003) have made an attempt to test and extend the hypothesis of Kroner et al. (1998) that the North China craton and the Southern India might have constituted part of a major active plate margin at the Archaean–Proterozoic boundary through correlation between Archaean and Proterozoic rocks of North China craton and the South Indian Block (SIB) and I welcome their effort. I am presently working on the Palaeoproterozoic volcano-sedimentary successions of the Singhbhum crustal province of the SIB as part of my ongoing research assignment and would like to make two comments:

1. Zhao et al. (2003) correlated the Palaeoproterozoic metasedimentaries and metavolcanics of Singhbhum of the SIB with that of the Liaohe Group of the Eastern Block (EB) and place the Dhanjori Group of rocks on top of the Singhbhum Group of rocks without citing any relevant reference (their Fig. 11; see also their Table 3). It must be noted that the speculation of the earlier workers (Dunn and Dey, 1942; Sarkar and Saha, 1962) that the Dhanjoris are younger than the Chaibasas (the lower formation of the two tiered Singhbhum Group) has been criticized by subsequent workers (Sarkar and Deb, 1971; Mukhopadhaya, 1976) and field studies clearly show that the Dhanjori–Chaibasa succession preserve normal stratigraphic order and the Dhanjoris lying at the bottom is indeed older (Mukhopadhaya, 1976; Bose and Chakraborty, 1981; Mazumder et al., 2000; Mazumder, 2002). Recent geochronological data indicate that the Dhanjoris are 2.1 Ga old (Sm/Nd age, Roy et al., 2002a). No direct age data is available yet from the Singhbhum Group of rocks. The age of the Dalma volcanics that conformably overlies the Dhalbhum Formation, the upper tier of the two tiered Singhbhum Group (Bhattacharya and Bhattacharyya, 1970) is 1.6 Ga (Rb/Sr age, Roy et al., 2002b). Thus, the age of the Singhbhum Group of rocks is in between 2.1 and 1.6 Ga (i.e. Late Palaeoproterozoic) as per the recent geochronological data. The Singhbhum Group of rocks have high potentialities to provide valuable information on the earth's surfacial and internal processes (Mazumder, 2002) and the lack of precise age data is a major impediment to resolve many issues having local (stratigraphic) as well as universal (Palaeoproterozoic tidal periodicities) interest.
2. Zhao et al. (2003) correlated the Palaeoproterozoic volcano-sedimentary successions of the EB and SIB solely in terms of their gross lithological aspects (their Fig. 11; see also their Tables 3 and 4) without considering their Paleogeographic settings

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and relative sea level change and their temporal variations, parameters important for correlating Precambrian volcano-sedimentary successions (Eriksson et al., 1999). The Dhanjori sediments were deposited in a terrestrial (alluvial fan-fluvial) setting whereas the overlying Chaibasas represent a Transgressive Systems Tract (Mazumder et al., 2000; Mazumder, 2002); a transgressive lag (a thin basal sheet conglomerate/pebbly sandstone) demarcates their boundary. Unlike the Chaibasas, the overlying Dhalbhum Formation is characterized by coarse grained, poorly sorted, mineralogically immature sandstones, shales along with patches of well sorted, fine grained sandstones deposited in a fluvial-aeolian setting (Mazumder et al., 2000). The Dalmas, overlying the Dhalbhum Formation, represent concordant lava outpourings without any break in sedimentation (Bhattacharya and Bhattacharyya, 1970) and are genetically related to mantle plume upwelling in an intracontinental rift setting (Mazumder et al., 2000). The Kolhans are undeformed and almost unmetamorphosed (Saha, 1994) and are represented by arkosic sandstones, shales and minor conglomerates of inferred fluvial origin that grades upward to a marine carbonate-dominated lithology as a consequence of transgression (Ghosh and Chatterjee, 1990, 1994). An effort, even though tentative within existing constraints of relevant data, has been made to evaluate the temporal change in relative sea level from the Palaeoproterozoic volcano-sedimentary successions of the Singhbhum crustal province (Fig. 2A of Mazumder et al., 2000) and I hope similar effort of Dr. Zhao and his colleagues from the Precambrian volcano-sedimentary successions of the North China craton will provide much better insights in establishing the Archaean to Palaeoproterozoic link between North China and South India.

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