Paleoproterozoic Dismembered Ophiolites in Kandra Nappe Complex, South India

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Kandra igneous complex [1] or possible ophiolite of Kandra [2] is a key component within the Nellore schist belt (NSB), south India in the reconstruction of Paleoproterozoic sea/ocean bordering the Dharwar craton. Although there appears to be some consensus on the late Neoproterozic-early Paleozoic amalgamation of the Eastern Ghats granulite belt (EGGB) with the Bastar and Dharwar cratons, available models of Gondwana and older supercontinent reconstruction overlook the NSB with its possible Archean to Paleoproterozoic lithotectonic units [3], and its polyphase deformation history [4]. Recent mapping around Kandra shows that the major lithotectonic units are bound by imbricate thrust systems with dominant tectonic transport toward south. The thrust system is oblique to overall N-S trend of NSB or at a high angle to the EGGB. The rock sequences around Kandra and Gurramkonda comprising metabasalts and deep water metasedimentary rocks are tectonically stacked over the granites representing the eastern edge of East Dharwar craton. Imbricate slices between Kandra and Arimanupadu with thick massive basalt sheets, sheeted dykes and gabbroid component represent layer 2 A of the ancient oceanic crust. True ultramafic rocks are absent in this packet. Further east deep water turbidites and thin metacherts around Gurramkonda represent thin (<30 m) sedimentary cover over a basaltic oceanic crust. Thrust duplexes east of Kandra possibly root into a detachment separating layers 1-2 from more rigid deeper levels (cf. Layer 3) of the ancient oceanic crust as Kandra nappe complex hardly shows any exposed ultramafic components. The Kandra nappe complex thus represents dismembered ophiolite indicating tectonic convergence of Paleoproterozoic ocenic crust with deep water sedimentary cover over the East Dharwar craton margin.

References

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