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Polyphase structural deformation and geologic relationships in Bhavani Complex, Southern Granulite Terrane, India

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Bhavani Complex encompasses the zone of amalgamation of Neoarchean and Neoproterozoic crustal blocks in northern part of Southern Granulite Terrane. Structural characteristic features deduced by detailed structural mapping delineate the occurrence of multiples stages of deformations as subsequential events in the Bhavani Complex, and they are well preserved in the lithologies of gneisses, granulitic facies rocks, amphibolites, BIF and other metapelitic rocks. Among the recognized five stages of deformational events (D_0 to D_4) in the study area the D₂, D₃ and D₄ are of later deformations. Most of the features of early-formed deformations D₀ and D₁ are obliterated due to the previously formed structural and metamorphic characters and others are preserved as overprint elements. Based on the nature of kinematics of the formations in the Bhavani Complex, the two major deformation activities are identified, namely strike-slip movements formed during Pan African regime and dip-slip movement formed probably during the subduction processes.

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