The Delhi Supergroup of rocks represents the Neoproterozoic sequences of the Aravalli Mobile belt of northwestern India. The sequence is dominated by arenaceous facies in the north that has been classified as North Delhi Fold belt. The southern part called the South Delhi fold belt shows the dominance of calcareous facies and meta-volcanics. The Delhi rocks in general show multiple phases of folding and amphibolite facies of metamorphism. Around Balaram and Ambaji in the South Delhi Fold belt there occurs a podiform granulitic terrane bounded by shear zones within the surroundings of greenschist-amphibolite facies rocks. The deformational history of the granulite terrane constitutes the theme of the paper that shows thrust tectonic to be the main mechanism for exhumation of lower crustal rocks.

The pelitic granulites, calc granulites, gabbro-norite-basic granulites, and charnockites constitute the high-grade terrane while mica schist, calc-schist/gneisses, amphibolite, and quartzite constitute the low-grade terrane. Pelitic granulites are migmatised to large extent. Several phase of granites intrude the sequence. The Kui-Chitraseni shear zone and the southern boundary shear zone define the tectonic margin between the terranes. Pelitic granulites are composed of sillimanite, cordierite, garnet, spinel, zircon, biotite, corundum, hypersthene, and quartz, and calc granulites consist of wollastonite, scapolite, diopside, calcite, and plagioclase. Hypersthene, olivine, augite, laboratory, biotite and magnetite are the major minerals in the gabbro-norite-basic granulites, and the acid charnockites consist of hypersthene, plagioclase, K-feldspar, and quartz. Granulites are deformed by 5 stages of folding. The $F_1$ and $F_2$ are coaxial along NE-SW axis and produced from buckling by a sub-horizontal compression along NW-SE direction. This is followed by gravity induced $F_3$ folds. The $F_4$ folds are developed in conjugate fashion with axial planes striking ENE-WSW and NW-SE, and produced from a sub-horizontal compression along NE-SW axis. $F_5$ folds are developed in the Balaram area along NE-SW axis; these are rare in the Ambaji area and further north. Dome and basin and mirror image patterns are produced due to interference of $F_4$ folds with $F_2$ and $F_1$ respectively. The granulite facies metamorphism is synkinematic with $F_1-F_2$ folding. From the EPMA studies of the spinel, biotite, cordierite and garnet a P-T condition of 8.5 kbars and 1045°C has been estimated during such event. The granulites are dissected by number of ductile and brittle shear zones along multiple directions. The ductile shear zones show thrust slip character with development of mylonite fabrics. The shearing has altered the $F_1$ and $F_2$ fold axes to a large extent, as a result it is difficult to classify the area into cylindrical domains. However, towards north around Sagna, the effect of shearing is minimized and $F_1$ and $F_2$ fold axes show uniform orientation.

The thrusting is syn- to post-kinematic to $F_5$ folding; the $F_1$ and $F_5$ folds have curved the shear zones as the folds are developed subsequent to thrusting. Along the thrust plane, retrogression of granulite has taken place into an assemblage consisting of biotite sillimanite and garnet in pelitic rocks and tremolite-actinolite, epidote
and hornblende in calcareous rock. The $F_4$ folding has witnessed the growth of andalusite-kyanite around Surpagla near Ambaji. Foliated pink granite and coarse-grained granite intrude the high-grade rocks. A zircon U-Pb age of 836±7/−5 Ma was reported for the foliated granite form Siyawa (Deb et al., 2001) and 757.8±0.9 Ma for the charnockites.

The low-grade terrane consists of greenschist to amphibolite assemblages and shows multiple phases of folding. The $F_1$ folds are represented by NE-SW trending tight isoclinal, recumbent to incline folds having Class 1C geometry. Slaty cleavage is developed parallel to axial plane of the fold. The $F_1$ folds are developed on the bedding plane due to sub-horizontal simple shear along NE-SW direction. The $F_2$ folds are open to tight and upright inclined and isoclinal folds having round hinges and Class 1C to Class 2 geometry. The $F_2$ folds are coaxial with $F_1$ folds. Crenulation cleavages are developed parallel to axial plane of $F_2$ folds striking NNE-SSW to NE-SW. The $F_3$ folds occur as crenulations and conjugate kinks in pelitic rocks and open folds in calcareous rocks along NW-SE axial plane. It has produced dome and basin pattern with $F_2$ folds. The compression direction of the conjugate kink is in E-W direction, remaining oblique to the prevailing schistosity planes. The syn-sedimentary sulphide deposit of Deri area gives U-Pb Zircon age of 987±6 Ma (Deb et al., 2001).

It has been concluded that the high-grade and low-grade terranes are part of the Delhi Supergroup: the high-grade terrane represents the lower crustal segment. The granulite terrane has been exhumed and emplaced in the low-grade terrane by thrusting during Neoproterozoic time.

Reference