

Anorthositic rocks of Angul, Orissa, India

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The Eastern Ghats petro-tectonic province of the Peninsular India is a repository of massif-type anorthositic rocks which are emplaced around 1.3 Ga. Of the 7 anorthositic bodies reported in the EGMB in the Orissa sector, Angul, is the smallest of its kind but interesting from structural and mineralogical points of views. It is a NNE to NW trending cigar shaped non-domal anorthositic body concordant in trend with country rocks.

Structurally it displays crude gneissic bandings/streaks. It shows development of mesoscopic minor scale intricately superposed system of folds which faithfully duplicate the structural geometry imprinted on the country rocks. The intricate interference patterns is due to a tri-phase superposition of folds comprising isoclinal (F_1) Z-shaped closed fold (F_2) and open fold (F_3). Small scale minor structures related to interference patterns include hook, mirror image, eyed/canoe folds, deformed boudins, extended F_1 hinges, arcuation of axial traces of folds etc.

Mineralogically it is a metamorphosed massif andesine type consisting intermediate plagioclase, clinopyroxene (diopside), orthopyroxene (hypersthene) characterised by hypidiomorphic-xenoblastic textures. Apatite, zircon, ilmenite and magnetite constitute the other primary accessory minerals.

The deformational effects are represented by plicative and disjunctive microstructures on cleavage and twin lamellae and granulation of mineral grains. The anorthositic body may be described as a syn to late tectonic intrusion of basaltic magma in form of a buoyant diapir through the piercement of the deep crustal basement.