

# **EMPLACEMENT OF BANKURA ANORTHOSITE WITHIN CHHOTANAGPUR GRANITE GNEISS COMPLEX, EASTERN INDIA: APPLICATION OF AMS STUDY**

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The Proterozoic Chhotanagpur Granite Gneissic Complex (CGGC) is one of the major geological components of Peninsular India. It covers approximately 80,000 sq.km area. CGGC is dominantly made up of granite gneiss, granitoids, enclaves of meta-sediments and meta-basics. Anorthosite plutons are found at several places in CGGC and most of them are intruding into the granulite facies country rock. The Bankura anorthosite is the largest anorthosite pluton situated at the easternmost part of CGGC.

In this part, the country rocks (gneiss, meta-sediments) exhibit three phases of deformation with the development of folds, foliations and lineations. At the margin with the country rock, the anorthosite body is banded. It is massive in the remaining major part. To find out whether the massive anorthosite body is at all affected by deformation, Anisotropy of Magnetic Susceptibility (AMS) study was carried out with oriented samples.

From the AMS study of four samples collected from different parts of massive anorthosite, two phases of deformations are detected. The magnetic foliations from three samples are mostly east-west striking with moderate northerly dip. This magnetic foliation is parallel to the axial plane foliation of 2<sup>nd</sup> phase of deformation within the country rock. The magnetic lineations are also parallel to the lineations of 2<sup>nd</sup> phase of deformation in country rock. The fourth sample shows that the magnetic foliations and lineations are parallel to the 3<sup>rd</sup> phase of deformation of the country rock.

The massive Bankura anorthosite body lacks any deformational feature in the field. But with the help of AMS study we can conclude that it endures the 2<sup>nd</sup> and 3<sup>rd</sup> phases of deformation and emplaced during the 1<sup>st</sup> phase of deformation of CGGC.