

Provenance of the Sandstones Associated with Sylhet limestones in and Around Dillai Parbat, Assam: Reflections from Petrography and Heavy Minerals

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Abstract:

In the present study an attempt has been made to infer the provenance of the sandstones alternating with sylhet limestones of Eocene age using petrographic features and heavy mineral assemblages. The study area is located at the Dillai Parbat in the Karbi Anglong District of Assam and is bounded by latitudes 25°57'45" and 26°0'35" N and longitudes 93°35'25" to 93°36'25" E of the Survey of India Topographic sheet Nos. 83F/12 and 83G/9. The studied sandstones are represented by angular to subangular, fine to medium occasionally coarse grained sand fractions. They are moderately sorted to well-sorted and are composed of quartz (93.6%), feldspar (4.71%) and rock fragments (1.47%). Both monocrystalline undulatory and non-undulatory quartz along with little polycrystalline quartz has been observed. Both K- feldspar and plagioclases has been noticed. K- Feldspar is represented by microcline and orthoclase. Lithic fragments are dominated by sedimentary with meagre metamorphic and volcanic fragments. Mica though in minor quantity, has also been observed. Dominant cementing material is silica. However, some carbonate cements has also been seen. Heavy minerals observed in these sandstones include zircon, tourmaline, rutile, chondrite, clinohumite, phlogopite, biotite, garnet, kyanite, staurolite, chlorite, scapolite and iron oxides. Framework composition and heavy minerals assemblage suggests a mixed provenance where sediments were most probably supplied by Karbi-Anglong Massif and the rising Himalaya.

Keywords:

Eocene, dillai parbat, provenance, sandstones, heavy minerals.