



Textural and Heavy Mineral Characteristics of Sediments from Chaliyar River and Adjoining Beypur Beach, Kerala: Implications to Sediment Dynamics and Provenance

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Abstract

The texture of sediment provides information about the environment of deposition, distance and mode of transportation. Heavy minerals are generally deposited by mechanical concentration as placer deposits. Heavy minerals can occur in a source rock as primary and accessory compounds. The continued action of weathering removes the detrital mineral grains and transports them along a stream channel. Detailed petrographic and mineralogic analyses of sediments will help in understanding the provenance, paleoenvironment and diagenetic processes. The river sediments from Chaliyar are polymodal to unimodal with well sorted to moderately sorted nature. The CM pattern indicates that samples were transported by rolling and bottom suspension. The beach sediments are unimodal in nature and well sorted. The linear discriminative function suggests that beach sediments are shallow marine deposits and suggestive of marine regression. The major heavy minerals found were hornblende, hypersthene, garnet, chlorite, biotite, sillimanite, kyanite, rutile and epidote. The provenance of the sediments includes hornblende-biotite gneisses, charnockites, khondalites and chlorite-biotite schists.

Keywords: Textural Analysis, Heavy Minerals, Chaliyar, Charnockites, Khondalites, Provenance.
