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Seasonal Variation in Textural Characteristics of Beach Sediments Along Sindhudurg Coast, Western Maharashtra, India: Implications on Depositional Environments

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Abstract

Seasonal variations in the textural parameters of 140 sediment samples with different environmental setup (foreshore, backshore, raised beach and dune) along Mithmumbri and Talashi coastal areas of the Sindhudurg District of Maharashtra state, India were studied. On the basis of geomorphological characteristics the study area has been divided into two sectors *i.e.* I (erosional) and II (depositional). During pre-monsoon season, the sediments are dominantly fine to medium-grained, very well sorted to moderately sorted, finely skewed to strongly coarse skewed and very platykurtic to very leptokurtic. During post-monsoon season, medium to fine sand was observed at foreshore, backshore, and raised beach regions signifying very high energy condition. During pre and post-monsoon seasons, Achra, Vayagani, Tondavali, and Talashi beaches reveal the presence of well-sorted to moderately well-sorted sediments resulting from very high wave energy conditions. During pre and post-monsoon seasons, the foreshore zone of sector I had totally negatively skewed samples indicating consistent beach erosion at Mithmumbri, Kunkeshwar, Mithbav, Katvan, and Munge coasts. Majority of samples belong to beach environment and few samples signify riverine/aeolian environment, whereas Linear Discriminant Function (LDF) indicates dominance of shallow marine environment of deposition for both the seasons. The *CM* diagram shows that sediment samples fall predominantly in the tractive current and beach environment of deposition. The pre-monsoon Sector-I samples are bottom suspended, rolling and come in category of suspension, whereas sector-II are predominantly arrived as suspended, graded suspended and without rolling. The present study also unraveled that the post-monsoon (Sector-I) samples are characterized by high energy conditions.

Keywords: Grain Size Study, Bivariate Plots, LDF, CM plots, Sindhudurg, Maharashtra, India