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The Utility of Sand Grain Size in Distinguishing Between Various Depositional Environments

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Abstract

Sand samples from four various depositional environments (inland dune, coastal dune, beach and river) reveal a marked variation in textural parameters. This difference was attributed to the large differences in the energy of the transporting medium between the environments. In general, the mean grain size of inland dune and river sands tend to be coarser than those from coastal dune and beach. The sands of coastal dune and beach are better sorted than those from inland dune and river. The sands of inland dune and river are positively skewed, while those from a coastal dune and beach are negatively skewed. The inland dune sands are leptokurtic distribution, whereas the other three environments show extremely leptokurtic distribution. Not very successful result has been achieved for distinguishing between such environments on the basis of their textural parameters (plotted as variables in a two-dimensional coordinate system). However, in some cases good differentiation has been obtained for distinguishing between environments. Generally speaking, the usefulness of using textural parameters of sand to differentiate sand in various depositional environments depends on how good is the contrast of grain size between different environments. It has been suggested that the use of unreliable technique such as laboratorial or statistical methods may lead to conflicting results.

Introduction

The potential usefulness of using textural parameters of sand to differentiate sand bodies developed in various depositional environments has a long history and voluminous literature (folk, 1966, p. 74). The geomorphological and sedimentological studies have used the textural parameters of sand to describe