Remote Sensing and Gis Based Studies of Silica-grade Sand Deposits Along Northern Tamilnadu Coast, South India

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High-grade silica-sand has long been recognised as an important component of the electronic, glassware and refractory industry, to mention a few. Depleting resources, however, have demanded the use of recent mineral exploration techniques such as remote sensing and GIS, to identify new and potential silica-sand deposits. This study attempts to model the geomorphology and provenances that may have resulted in the concentration of the reported and predicted high-grade silica-sand deposits along the northern Tamilnadu coast, south India. The geologic and geomorphic setting, palaeo channel, drainage and physiography have been mapped using satellite data. The resultant thematic maps, transferred to a Geographic Information System, are integrated, and weights and ranks are assigned to each theme to model the occurrence of the known deposits and predict the unknown deposits. Extensive ground truth verification helped in correction of the thematic maps and in the validation of the model. The results indicate that deposits of high-grade silica-sand along the coastal zone may be identified and demarcated using integrated GIS and remote sensing techniques.