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Origin and prospectivity of heavy mineral enriched sand deposits along the Somaliland coastal areas

M.Y. Ali, P. Hibberd, B. Stoikovich



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2 **coastal areas**

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4 M.Y. Ali,<sup>1</sup> P. Hibberd,<sup>2</sup> and B. Stoikovich<sup>3</sup>

5 <sup>1</sup>The Petroleum Institute, P O Box 2533, Abu Dhabi, UAE, [mali@pi.ac.ae](mailto:mali@pi.ac.ae)

6 <sup>2</sup>Northcliff, Johannesburg, South Africa

7 <sup>3</sup>Windellama Capital Limited, Surrey, UK

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9 **Abstract**

10 Sixty-one heavy mineral enriched samples along the Somaliland coast from Eil Sheikh to Ras  
11 Khatib, a distance of about 130 km, were analyzed using X-ray Fluorescence, X-ray  
12 Diffraction and SEM-EDS techniques. This study reveals that a considerable amount of  
13 heavy minerals is present along the Somaliland coast and confirms the presence of high  
14 concentration titanium and iron bearing minerals. However, the backshore deposits in the  
15 mouths of Waaheen and Biyo Gure ephemeral rivers as well as raised paleo-beaches in the  
16 east of port city of Berbera demonstrate the highest level of titaniferous heavy minerals with  
17 most samples showing concentration greater than 50 weight %. The titanium detected in  
18 geochemical analysis occurs in the form of ilmenite, rutile, titanite and titaniferous magnetite.  
19 Also, present in minor or trace amounts, are garnet, zircon and monazite.

20 Heavy mineral accumulations in the east and west of Berbera have different mineralogical  
21 assemblages. The east of Berbera is dominated by quartz with moderate concentration of  
22 plagioclase, K-feldspar, magnetite, hematite and titanium bearing minerals, whereas in the  
23 west of Berbera, the dominant minerals are quartz, K-feldspar and plagioclase with variable  
24 proportions of ilmenite, rutile, mica, amphibole and pyroxene. These variations in mineral  
25 assemblages suggest different composition of the catchment areas that supply sediment to

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