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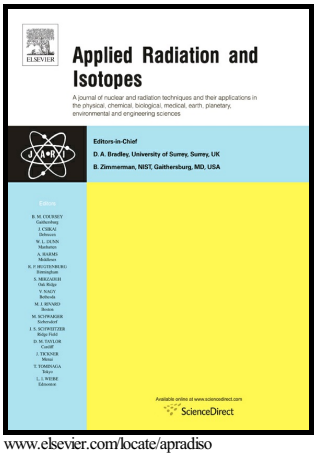

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Assessment of Anthropogenic and Geogenic Impacts on Marine Sediments along the Coastal Areas of Egyptian Red Sea

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Abstract:

The present study was conducted to assess the possible impacts of human activities and naturally occurring on the marine sediments, to test for anomalous enrichments in metals. A total of 32 marine sediments samples collected from 12 coastal areas of the Egyptian Red Sea analyzed using different analytical techniques. The analysis explored 43 elements for the marine sediments. Principal component analysis and multivariate statistics were implemented on the data. The extent of pollution was quantified for selected 6 pollutants using the geoaccumulation indices (I_{geo}), enrichment factor (EF), metal pollution index (MPI), contamination factor (C_f), and degree of contamination factor (C_d). The associated risk using potential ecological risk factor (PER), and risk index (RI) was calculated. The data was interpolated using ArcGIS technology to construct the spatial distribution maps of the selected 6 pollutants along the coastal areas of the Egyptian Red Sea. The data was normalized and the peak values were observed for Ca (13.6%) > Na (1.9%) > Mg