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## Changes in the Shoreline Position Caused by Natural Processes for Coastline of Marsa Alam – Hamata, Red Sea, Egypt

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### ABSTRACT

The probability of storms and ice-drift events and their impact on coasts is expected to increase as result of climate change. Multi-years shoreline mapping is considered a valuable task for coastal monitoring and assessment. This paper presents shoreline maps illustrating the shoreline erosion accretion pattern in the coastal area between Marsa Alam – Hamata of Red Sea coastline by using different sources of remote sensing data. In the present study, Landsat MSS (1972), Landsat TM (1990), Landsat ETM+ (1998, 2000) and Terra Aster (2007) satellite images were used. In this study, two techniques were used to estimate rate of shoreline retreat. The first technique is corresponding to the formation of automated shoreline positions and the second one is for estimating rate of shoreline change based on data of remote sensing applying Digital Shoreline Analysis System (DSAS) software. In this study, the End Point Rate (EPR) was calculated by dividing the distance of shoreline movement by the time elapsed between the earliest and latest measurements at each transect. Alongshore rate changes shows that there are changes of erosion and accretion pattern due to coastal processes and climate changes.

### KEYWORDS

Shoreline Changes, Red Sea, Satellite Images, Climate Changes, Coastal Processes

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