Faculty of Education
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SEDIMENOLOGICAL AND GEOHAZARDS STUDIES OF THE COASTAL PLAIN, MARSA MATRUH AREA, EGYPT.

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BY

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ABSTRACT

Eight sections were measured and described in the Marsa Matruh shoreline (coast). These sections are Agiba, Romel, Alam El Rum1, 2 and 3, Cleopatra road area, beach boulder and coastal rock boulder. Agiba lithostratigraphic section belongs to Miocene- Pleistocene, Romel and Alam El Rum belong to Middle Pleistocene, whereas Cleopatra area belongs to Holocene. Alam El Rum and Romel of middle Pleistocene are characterized by medium moderately sorted sand indicating high current energy due to transgression and transportation by saltation. Cleopatra Holocene fore dune is characterized by medium moderately well sorted sand proving low current velocity and transportation by suspension. X-ray diffraction analyses of the Alam El Rum boulder samples show decrease in the percent of aragonite and relatively increase in the magnesium calcite content. While the X-ray diffraction data of the Romel boulder samples consist of less aragonite than the Romel ridge, but don't contain magnesium calcite, indicating recent environment in addition, to halite due to weathering. C14 age dating isotope for two samples are Little ice age (LIA) storms and a well –recorded 1303 AD paleo-tsunami for coastal boulders and 71.800± 5.700 for coquina **.**

Large Coastal rock boulders are found at a great distances inland or supratidal zone and upslope from the subtidal zone on Romel and Alam El Rum coastal shorelands of Marsa Matruh. It proves that large waves like tsunamis and high energy storms have detached, dislocated and triggering them from the submerged plateform of Pleistocene ridge shoreward. Most of coastal rock boulders of Romel and Alam El Rum are bladed to disc shape indicating that these coastal rock boulders are transported and deposited by sea waves. Coastal rock boulders are mainly transported through rolling or saltation rather than sliding. Petrographical characters of boulders reveal that the dominant cements precipitated are low Mg – calcite and aragonite. There are two main types of cements which are meniscus indicating fresh water vadose zone and isopachous indicates active marine phreatic zone. These cements are formed on marine beaches by fibrous aragonite. Two main types of porosity which are intergranular and vuggy porosity indicate shallow and marginal marine environments. The neomorphism , which has recognized is of aggrading type, leading to the enlargement of crystal sizes.

The most hazardeous areas in Marsa Matruh coasts are Alam El Rum and Romel, so the study recommended:

-To avoid the housing and the problems resulting for constructing tourist villages along the shoreline in these areas.

-These sites (Alam El Rum and Romel) are best sites to generate electricity from strong sea waves and storms.

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INTRODUCTION