

## **Beachrock development as an indicator of paleogeographic evolution, case of Akrotiri Peninsula, Cyprus**

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Akrotiri Peninsula is located west of Limassol at the Southern end of the Island of Cyprus. It covers an area of approximately 100Km<sup>2</sup>. The development of the peninsula started with the deposition of calcareous marls in to the Episkopi grabben during the Miocene which resulted the Akrotiri High in the form of an isolated island. The maritime space between the Akrotiri Island and the mainland eventually closed during the Quaternary and several geomorphic features were developed. Beachrocks identified at three continuous pocket beaches at the southwest part of the Akrotiri peninsula. Detailed GNSS measurements and GIS analysis revealed that the area is uplifted. A direct relationship between the development of the beachrocks and the paleogeographic evolution of the area is apparent. Additionally, results from Petrographic, mineral and sedimentary analysis on beachrock samples are indicating a continuous supply of material from the nearby Kouris River. A gradual reduction of the sediment granulometry consists the beachrock is observed. Also the transition of the texture of the samples from non-uniform to uniform is observed. The sample mineralogy varies eg quartz, alkaline feldspars, carbonate minerals, ortho and clino pyroxenes, serpentinites, hornblende, muscovite. A reduction in the contribution of overbearing minerals (according to their hardness) was observed from North to Southern beachrock slabs and the increase of carbonates, quartz and feldspart. It should be noted that there is a strong participation of fossils fragments were a number of them was preserved in good condition. SEM-EDX analysis were conducted and showed that the micritic and sparitic crystals of cement are consisted by High Magnesium Calcite (>4 mol% CaCO<sub>3</sub> or 1.2 wt.). The cement agent forms an isopachous coating around the sediment grains and with meniscus forms connect all the sedimentary particles which leads to the formation of a high density beachrock slabs.