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Late Pleistocene Raised Coral Reefs in Rabigh Area, Red Sea: Microfacies and Environmental Interpretation

Authors : Ammar Manaa

Abstract : The late Pleistocene raised coral reef terraces, 1 to 5 m above present sea level, are distinguished in Rabigh area into two marine terraces at elevations 0.5 m and 3.20 m, in addition to back-reef facies. The lower and upper terraces consist mainly of corals that increased in abundance and distribution in the upper terrace, with a minor occurrence of detrital quartz and feldspar. The back-reef facies consist mainly of coralline algae with a minor occurrence of corals. The upper terrace was interpreted as a reef crest or algal ridge due to the dominance of bindstone facies. The lower terrace indicates an outer reef flat with the occurrence of grainstone and rudstone facies. The coral framework in the upper terrace indicates a low energy environment. Within the back-reef terrace, calcareous mud was dominant, which indicates low energy, lagoon environment. The XRD results for the studied terraces revealed a variable abundance of aragonite, high-Mg calcite, and low-Mg calcite, with a slight increase in calcite and high-Mg calcite in the upper terrace. The dominant diagenetic processes in the terraces are cementation by fibrous and blocky calcite and dissolution that varied slightly between the lower and upper terraces. This study provides a coral reef model relevant to a low energy system in a dry and hot environment.

Keywords : late Pleistocene, Rabigh, reef terraces, Red Sea, Saudi Arabia.
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