

## **Facies Analysis and Depositional Environments of the Eocene Carbonate Sediments, NE Libya**

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### **Abstract**

The Eocene carbonate successions of the Ras Al-Hilal group in the Cyrenaica basin were deposited on a wide, gently dipping, north-northeast carbonate ramp that comprises a wide variety of facies. Structurally this carbonate is east-west trending, elongate, with high relief, formed as a result of Late Cretaceous to Late Tertiary tectonic events that controlled the facies distribution. The objectives of this paper are to determine the facies distribution along the carbonate ramp, to understand the depositional environments, and the geometry and architecture elements of the Ras Al-Hilal group. The outcrops of the Ras Al-Hilal group in the Cyrenaica Basin comprise mainly muddy and chalky limestone facies of the Apollonia formation and nummulitid facies of the Dernah formation. This formation is extremely fossiliferous, and has been subdivided into nine facies based on biofacies (fossil association), lithology, sedimentary characteristics, and field relationships. The most abundant fossils are nummulitids, orbitolitids, discoeyclinids, alveolinids (larger foraminifera), and fragments of solitary coral, echinoderms, and red algae.

**Keywords:** Facies; Eocene Carbonates; Depositional Environments; Nummulites; Libya