



## **Sedimentological and Stratigraphic Associations of Earlandia Foraminifera; in the Early Triassic Succession of Khuff Carbonates; Central Saudi Arabia**

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This work reports the first discovery Earlandia foraminifera in the Triassic succession of the Middle East, within the Upper Khartam Member of the Khuff Formation. The study area is located in central Saudi Arabia where four outcrop localities were logged in detail for sedimentology and micropaleontology. More than 300 samples were collected for detailed sedimentological and micropaleontological analysis. Of these, only six samples recovered fossil Earlandia; these are dominantly observed in the interlaminated quartz-bearing recrystallized limestone lithofacies type. The Earlandia occur in associations with quartz grains, peloids, ooids, ostracods, bivalves, bryozoans, cephalopods, and stromatolites. The defined fossils of Earlandia are restricted to the lower fourth-order sequence of the Upper Khartam member; where non-skeletal grains (mostly oolitic grainstones) prevail. The skeletal grains along with the Earlandia occur as a thin (20 cm) transgressive lag. Furthermore, the regional occurrences of the Earlandia are consistent with the previously established high-frequency sequence stratigraphic scheme, therefore, the Earlandia could be used as a biomarker for regional biostratigraphic correlation and enhance the high-resolution sequence stratigraphic correlations of the Upper Khartam Member. Essentially, the detailed sedimentological and micropaleontological analysis (Earlandia foraminifera) indicates a plate-wide extensive shallow epeiric sea. The latter is gently dipping and sporadically connected to the open marine system.