

Regional Stratigraphic Architecture of the Red Sea

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Abstract

Red Sea is a juvenile oceanic basin; it separates the African and the Arabian continents. The stratigraphic architecture and basin evolution of the Red Sea is not well known, most of the previous published work has been undertaken around the Gulf of Suez in the north and Gulf of Aden. Stratigraphic evolution of the Red Sea is not well known to the wider geological community though more than 50 years of geological studies and drilling programs have been carried out. This paper presents the results of a continuing study, in which data of more than 60 wells drilled in the Red Sea is being utilised to develop the stratigraphic architecture, and to unravel the basin evolution of the Red Sea. At the late Oligocene rifting occurred in the Red Sea area, which stalled during the Miocene due to Arabia, and Eurasia continental collision based on geological observation from drilling, allowing sedimentary succession to accumulate in the Red Sea. This study suggests that up to 5 km of sedimentary package exist and restricted to the southern Red Sea area. Most of this package is comprised of Middle-late Miocene evaporites successions. These evaporites are overlain by Plio-Pleistocene carbonate deposits (mainly limestone). In addition, the data show that volcanic rocks are restricted to the axial trough zone of the Red Sea. The result suggests that deep marine conditions prevailed in some parts of the basin in the Middle-late Miocene, whereas shallow condition dominated the whole basin during Plio-Pleistocene.