



## **Sedimentary characteristics, dispersal patterns and pathways of sediments in the eastern Red Sea**

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Fluvial sediments from wadis (seasonal streams) located in the northern and southern sections of the eastern Red Sea coast are transported occasionally along the coast and offshore areas. However, aeolian quartz and biogenic inputs are also important components of the surficial sediments of Holocene age. In one core collected immediately northeast of Thetis Deep in 700 m of water, at approximately 50 cm sediment depth, a boundary between the Holocene and Pleistocene is marked by iron pans approximately 2-3 cm in thickness. This core and dredged samples contain carbonate crusts believed to have formed during high temperature and hyper-saline conditions prevalent during the time of formation. The presence of mica in littoral areas in the north and in the deeper waters towards the south in the vicinity of Thetis Deep suggests dispersal towards the south-southeast, which can be explained by wind-driven currents with a northwesterly dominant wind direction. The Tertiary mountains covered by the red soils near the eastern Red Sea coast are the source of kaolinite in the Red Sea. Floccules rich in kaolinite associated with fine-grained sediments and medium sand-sized mica indicate a low energy environment. They are common in some lagoons and deeper waters of the Red Sea. Some channels apparent in multibeam sonar data leading to the deeps may not necessarily have been created by sedimentary flows here as most fine particle transport appears to be occurring in suspension. Wadis are more active in the south compared to the north because of relatively higher rainfall. Since the detrital input from land is limited by the absence of rivers draining into the Red Sea the sedimentation rate of terrigenous particles is low, aeolian quartz is prominent, authigenic pyrite formation is common and biogenic material is abundant in the form of calcium carbonate.