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Please fill in your abstract title.	Timing and Mechanism of Salt Movement in the Northern Red Sea

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Abstract

The dynamics of salt tectonics and minibasin development, in salt-influenced rift basins, remains a contentious issue despite their common occurrence, and direct impact to sediment fairways.

Seismic data from the Saudi Arabian margin of the Red Sea, as well as high resolution bathymetry are used to understand the timing and mechanism of salt movement.

The Red Sea evolved during the Middle Miocene from a rift into a linear sag basin that contains thick Middle Miocene salt. The salt is overlain by an overburden of Late Miocene layered evaporites and sediments, and Plio-Pleistocene marine sediments including reefs and carbonate platforms. Continued sagging of the basin, coupled with regional uplift of the shoulders and sediment input from the margins triggered salt expulsion from the margins towards the shelves. Similar to other passive margins, the salt acted as a regional detachment over which thin skinned extension occurred along the margins and salt accumulated in the basin.

Along the margins, the development of salt rollers and rollover structures indicates that salt movement occurred soon after salt deposition. The movement of salt was triggered by gravity gliding and gravity spreading induced by the regional slope which was established during the sagging phase of the basin. Salt geometries also show that initial salt withdrawal was influenced by fault geometries and basin topography.

Salt movement has been continuous since deposition. The most recent manifestation of salt withdrawal is the breakup and rafting of Pliocene carbonate platforms, and the simultaneous formation of linear bathymetric troughs along the coast.