Storm Deposits of Eocene Age in the Zallah Trough, Western Sirt Basin, Libya

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Sedimentary structures formed by the accumulation of sand sized skeletal material in the Eocene age Qararat al Jifah Member suggest deposition by currents, most likely from storm tide and breaking storm waves. The skeletal material is composed largely of the broken shells of pelecypods, gastropods, echinoderms, brachiopods, bryozoans and algae. The presence of large-scale crossbed sets are interpreted to be spillover lobes probably deposited by storm currents. The large channelized layers of cross strata, however, were probably deposited in tidal channels by lateral accretion. Modern day analogues are believed to be the carbonate shoals of Florida and Bahamas. The shift from Eocene storm deposits upwards into evaporites and then into continental Oligocene and Miocene facies, is interpreted mainly in terms of a tectonic influence vs. eustasty. The observed high porosity and permeability of these skeletal carbonates combined with their stratigraphic position between carbonate platform deposits of the Thmed al Qusur Member and evaporites of the uppermost Wadi Thamat Formation may make this unit an important potential reservoir rock in the subsurface.

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